SAMSUNG

SAMSUNG ELECTRONICS Co., Ltd.

2020 Business Report

For the year ended December 31, 2020

Certain statements in the document, other than purely historical information, including estimates, projections, statements relating to our business plans, objectives and expected operating results, and the assumptions upon which those statements are based, are "forward-looking statements." Forward-looking statements are based on current expectations and assumptions that are subject to risks and uncertainties which may cause actual results to differ materially from the forward-looking statements. A detailed discussion of risks and uncertainties that could cause actual results and events to differ materially from such forward-looking statements is included in our financial reports available on our website.

See, also, 『Note on Forward-Looking Statements』 in preamble of 『II. Business Overview』.

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Certification

Letter of Certification

We, Ki-nam Kim and Yoon-ho Choi, as a CEO and the executive in charge of reporting, respectively, certify that we have thoroughly reviewed the annual business report of Samsung Electronics Co., Ltd. for the year ended December 31, 2020.

Based on our knowledge, this report does not contain any untrue statements of material facts or omit any material facts; and it does not contain any statements that are intentionally misleading for the users of the information in the report.

We confirm that Samsung Electronics operates the Internal Controls over Financial Reporting, as defined in Article 8 of the Act on External Audit of Stock Companies.

Date: March 9, 2021

Ki-nam Kim

Vice Chairman and CEO
Samsung Electronics Co., Ltd.

Executive responsible for reporting: Yoon-ho Choi

President and CFO
Samsung Electronics Co., Ltd.

I. Corporate Overview

1. Overview

A. Legal, commercial name:

- Samsung Electronics Co., Ltd.

B. Date of establishment:

- Samsung Electronics Co., Ltd. ("SEC" or "the Company") was established as Samsung Electronics Industry Co., Ltd. on January 13, 1969, and held an initial public offering on June 11, 1975.
- SEC changed its name from Samsung Electronics Industry Co., Ltd. to Samsung Electronics Co., Ltd. following a resolution passed at the Annual General Meeting (AGM) of shareholders on February 28, 1984.

C. Address, phone number, and English language website of the corporate headquarters

- Address: 129, Samsung-ro, Yeongtong-gu, Suwon, Gyeonggi-do, Korea
- Phone Number: 82-31-200-1114
- Website: https://www.samsung.com/sec

D. The Company is not subject to Article 2 of the Framework Act on Small and Medium Enterprises.

E. Core businesses

- The Company (defined below) consists of business divisions that operate independently: CE (Consumer Electronics); IM (Information Technology & Mobile Communications); DS (Device Solutions); and Harman (Harman International Industries, Inc. and its subsidiaries), which produces automotive electronics components.

Key products in each Division are presented below:

Division	Key products
CE	TVs, monitors, refrigerators, washing machines, air conditioners, etc.
IM	HHPs, network systems, computers, etc.
DS	DRAM, NAND flash, mobile APs, OLED panels for smartphones, etc.
Harman	Digital cockpits, telematics, speakers, etc.

SEC is a global electronics firm comprising the headquarters in Korea and 241 subsidiaries (collectively, "Samsung Electronics" or the "Company") across the world, including 9 regional headquarters for the CE and IM Divisions, 5 regional headquarters for the DS Division, and Harman's subsidiaries.

[CE Division]

The CE Division satisfies customers' needs and leads the global digital era by continuously offering new products featuring innovative technology, unique designs, and enhanced value propositions.

TV is the core product of CE. The Company has maintained its position as the market leader for 15 consecutive years by leveraging competitive advantages in hardware such as LCD/LED TVs as well as software driven product features within our Smart TV product portfolio. We will continue to expand our market leadership based on our competitive edge in the premium segment through our 8K QLED and ultra-large products to name a few.

[IM Division]

The IM Division operates the Mobile Communication Business, which produces and sells smart mobile devices such as smartphones, tablets, and wearables. For smartphones, a key product of the business, we have developed a lineup ranging from low-end right through to premium models, and have achieved growth in both advanced and emerging markets with the Galaxy series.

We will lead growth of the smartphone market and deliver exceptional user experiences by: 1) offering innovative hardware features such as new form factors (based on flexible OLED technology), high-definition cameras, biometric sensors, and battery charger technologies; 2) improving software capabilities of mobile payment service Samsung Pay and AI platform Bixby; and 3) investing in future growth drivers such as Cloud, IoT, healthcare, AR, and VR. At the same time, we will lead the global 5G market based on our end-to-end solutions, which encompass handsets, chipsets, as well as our commercialization experience in initial 5G markets.

[DS Division]

The Memory Business, System LSI Business, Foundry Business, and Display Panel ("DP") Business make up the DS Division. The Memory Business manufactures and sells DRAM and NAND products; the System LSI Business designs and sells mobile application processors ("mobile APs" or "APs") and camera sensor chips; the Foundry Business is in charge of consignment production of semiconductors; and the DP Business manufactures and sells display panels.

The Company constantly works to increase its influence on end-product manufacturers and create new demand through technological breakthroughs and the development of high quality components as it has done with APs—which serve as the brains of mobile products—and with memory components like DRAM via enhanced capacity and density.

The Memory Business has maintained its position at the top of the global memory market by sustaining cost competitiveness and applying the latest advanced process technology in each technological iteration. The System LSI Business has not been complacent, expanding its focus from mobile to include automotive chips, and it will stay at the forefront of the market by offering differentiated products such as APs and CISs and strengthening competitiveness via its advanced manufacturing process technology. The Foundry Business is expanding by securing technology competitiveness via adopting enabling technologies and new structures, strengthening its manufacturing capacity in a timely manner to address demand, enhancing its IP and infrastructure for customer support, and diversifying its product portfolio using legacy processes, which include CISs, DDIs, and PMICs.

In the Display division, the mobile panel business's differentiated technology is a main factor behind the increased adoption of OLED panels, while its release of products in new applications—such as foldable devices, rollable devices, and automotives—has expanded the overall market. Meanwhile, the large panel business is focusing on premium products such as high-definition, ultra-large, QD TVs and is enhancing its competitiveness through continuous improvements in technology and productivity.

[Harman Division]

Harman designs and develops connected products and solutions for automakers, consumers, and companies worldwide and is a global leader in the market for connected car systems, audio and visual products, professional solutions, and connected services. Harman has established an internationally renowned brand and employs both internal development and strategic acquisitions to expand its lineup of quality products.

☞ See 『II. Businesses Overview』, for more details about each Division.

F. Affiliates

SEC is an affiliate of the Samsung Group as defined under Korea's Monopoly Regulation and Fair Trade Act ("Samsung Group").

As of December 31, 2020, the Samsung Group had a total of 59 domestic affiliates following the reduction of one affiliate—Natural9—since December 31, 2019. Among the Samsung Group's domestic affiliates, 16 (including Samsung Electronics) are listed and 43 are unlisted.

[As of Dec 31, 2020]

Type	Number	Affiliate
Listed	16	Samsung C&T; Samsung Electronics; Samsung SDI; Samsung Electro-Mechanics (Semco); Samsung Fire & Marine Insurance; Samsung Heavy Industries; Samsung Life Insurance; Multicampus; Samsung Securities; Samsung SDS; Samsung Card; Samsung Engineering; S1; Cheil Worldwide; Hotel Shilla; Samsung Biologics
Unlisted	43	Seoul Lakeside CC; Samwoo Architects & Engineers; CVnet Corporation; Samsung Bioepis; Samsung Display; Samsung Corning Advanced Glass; SU Materials; STECO; SEMES; Samsung Electronics Service; Samsung Electronics Sales; Samsung Electronics Logitech; Suwon Samsung Bluewings FC; Samsung Medison; Samsung Claim Adjustment Service; Samsung Fire & Marine Insurance Service; Samsung Fire & Marine Insurance Financial Service; Samsung Electronics Service CS; Samsung Futures; Samsung Asset Management; Samsung Life Service; Samsung SRA Asset Management; Samsung Life Financial Service; SD Flex; Cheil Fashion Retail Co., Ltd.; Samsung Welstory; SECUI; STM; S-Core; OpenHands; Miracom; Samsung Card Customer Service; Human TSS; S-1CRM; Shilla Stay; HDC Shilla Duty Free Ltd; Samsung Economic Research Institute (SERI); Samsung Lions; Samsung Venture Investment Corporation; Samsung Active Asset Management; Samsung Hedge Asset Management; Harman International Korea; SBTM
Total	59	

Samsung Corning Advanced Glass incorporated in October 2020 (previously an LLC).☞ See 『IX. Affiliates and Subsidiaries』 for more details about domestic and overseas affiliates.

G. Subsidiaries subject to consolidated financial statements

As of December 31, 2020, Samsung Electronics' consolidated subsidiaries numbered 241 with the addition of 6 subsidiaries and reduction of 5 subsidiaries when compared to totals as of December 31, 2019. Below is the list of consolidated subsidiaries.

[As of Dec 31, 2020] (KRW mil)

Subsidiary	Date established	Major business	Assets as of Dec 31, 2019	Ownership	Classified as major subsidiary (Y/N)
Americas: 55					
Samsung Electronics America, Inc. (SEA)	Jul 1978	Electronic goods sales	36,765,070	Over 50%	Y
Samsung International, Inc. (SII)	Oct 1983	Electronic goods production	1,224,995	Over 50%	Y
Samsung Mexicana S.A. de C.V (SAMEX)	Mar 1988	Electronic goods production	52,823	Over 50%	N
Samsung Electronics Home Appliances America, LLC (SEHA)	Aug 2017	Home appliance production	624,107	Over 50%	Y
Samsung Research America, Inc (SRA)	Oct 1988	R&D	612,015	Over 50%	Y
Samsung Next LLC (SNX)	Aug 2016	Subsidiary management (overseas)	108,806	Over 50%	Y
Samsung Next Fund LLC (SNXF)	Aug 2016	Venture firm and new technology investments	116,257	Over 50%	Y
NeuroLogica Corp.	Feb 2004	Medical device production and sales	185,235	Over 50%	Y
Samsung HVAC America, LLC	Jul 2001	Air conditioner sales	45,827	Over 50%	N
Prismview, LLC	Oct 2007	LED display panel production and sales	51,605	Over 50%	N
Joyent, Inc.	Mar 2005	Cloud services	178,187	Over 50%	Y
Viv Labs, Inc.	Sep 2012	Artificial Intelligence services	48,505	Over 50%	N
Dacor Holdings, Inc.	Dec 1998	Subsidiary management (overseas)	32,027	Over 50%	N
Dacor, Inc.	Mar 1965	Home appliance production and sales	32,006	Over 50%	N
Dacor Canada Co.	Jun 2001	Home appliance sales	7	Over 50%	N
SmartThings, Inc.	Apr 2012	Smart home platform	171,461	Over 50%	Y
TeleWorld Solutions, Inc. (TWS)	May 2002	Network equipment installation and optimization	10,003	Over 50%	N
TWS LATAM B, LLC	Jul 2019	Subsidiary management (overseas)	0	Over 50%	N
TWS LATAM S, LLC	Jul 2019	Subsidiary management (overseas)	0	Over 50%	N
SNB Technologies, Inc. Mexico, S.A. de C.V	Oct 2019	Network equipment installation and optimization	0	Over 50%	N
Zhilabs Inc.	Feb 2017	Network solution sales	34	Over 50%	N
Samsung Semiconductor, Inc. (SSI)	Jul 1983	Semiconductor and display panel sales	9,669,349	Over 50%	Y
Samsung Austin Semiconductor LLC. (SAS)	Feb 1996	Semiconductor production	6,912,610	Over 50%	Y
Samsung Oak Holdings, Inc. (SHI)	Jun 2016	Subsidiary management (overseas)	307,373	Over 50%	Y
Stellus Technologies, Inc.	Nov 2015	Semiconductor system production and sales	2,326	Over 50%	N
SEMES America, Inc.	Oct 1998	Semiconductor equipment services	1,852	Over 50%	N
Samsung Electronics Canada, Inc. (SECA)	Jul 1980	Electronic goods sales	1,539,360	Over 50%	Y
AdGear Technologies Inc.	Aug 2010	Digital advertising platform	72,955	Over 50%	N
SigMast Communications Inc.	Jul 2009	Text messaging service development	7,668	Over 50%	N

Subsidiary	Date established	Major business	Assets as of Dec 31, 2019	Ownership	Classified as major subsidiary (Y/N)
Samsung Eletronica da Amazonia Ltda. (SEDA)	Jan 1995	Electronic goods production and sales	6,280,131	Over 50%	Y
Samsung Electronics Mexico S.A. De C.V. (SEM)	Jul 1995	Electronic goods sales	1,166,317	Over 50%	Y
Samsung Electronics Digital Appliance Mexico, SA de CV (SEDAM)	Dec 2012	Home appliance production	573,111	Over 50%	Y
Samsung Electronics Latinoamerica(Zona Libre), S. A. (SELA)	Apr 1989	Electronic goods sales	451,092	Over 50%	Y
Samsung Electronics Latinoamerica Miami, Inc. (SEMI)	May 1995	Electronic goods sales	368,616	Over 50%	Y
Samsung Electronica Colombia S.A. (SAMCOL)	Mar 1997	Electronic goods sales	546,013	Over 50%	Y
Samsung Electronics Argentina S.A. (SEASA)	Jun 1996	Marketing and services	45,396	Over 50%	N
Samsung Electronics Chile Limitada (SECH)	Dec 2002	Electronic goods sales	623,743	Over 50%	Y
Samsung Electronics Peru S.A.C. (SEPR)	Apr 2010	Electronic goods sales	235,626	Over 50%	Y
Samsung Electronics Venezuela, C.A. (SEVEN)	May 2010	Marketing and services	53	Over 50%	N
Samsung Electronics Panama. S.A. (SEPA)	Jul 2012	Consulting	2,188	Over 50%	N
Harman International Industries, Inc.	Jan 1980	Subsidiary management (overseas)	15,417,811	Over 50%	Y
Harman Becker Automotive Systems, Inc.	Jun 1981	Audio product R&D, production, and sales	6,224,304	Over 50%	Y
Harman Connected Services, Inc.	Feb 2002	Connected Service Provider	1,996,984	Over 50%	Y
Harman Connected Services Engineering Corp.	Sep 2004	Connected Service Provider	422	Over 50%	N
Harman da Amazonia Industria Eletronica e Participacoes Ltda.	Jul 2005	Audio product production and sales	38,399	Over 50%	N
Harman de Mexico, S. de R.L. de C.V.	Feb 1997	Audio product production	114,442	Over 50%	Y
Harman do Brasil Industria Eletronica e Participacoes Ltda.	Nov 1958	Audio product R&D and sales	203,382	Over 50%	Y
Harman Financial Group LLC	Jun 2004	Management Company	610,931	Over 50%	Y
Harman International Industries Canada Ltd.	May 2005	Audio product sales	96	Over 50%	N
Harman International Mexico, S. de R.L. de C.V.	Dec 2014	Audio product sales	13,291	Over 50%	N
Harman KG Holding, LLC	Mar 2009	Subsidiary management (overseas)	0	Over 50%	N
Harman Professional, Inc.	Jul 2006	Audio product R&D and sales	735,105	Over 50%	Y
RT SV CO-INVEST, LP	Feb 2014	Venture firm investments	7,170	Over 50%	N
Beijing Integrated Circuit Industry International Fund, L.P	Dec 2014	Venture firm investments	24,984	Over 50%	N
China Materialia New Materials 2016 Limited Partnership	Sep 2017	Venture firm investments	6,274	Over 50%	N
Europe/CIS: 75					
Samsung Electronics (UK) Ltd. (SEUK)	Jul 1995	Electronic goods sales	2,767,563	Over 50%	Y
Samsung Electronics Ltd. (SEL)	Jan 1999	Subsidiary management (overseas)	6,512	Over 50%	N
Samsung Semiconductor Europe Limited (SSEL)	Apr 1997	Semiconductor and display panel sales	87,256	Over 50%	Y
Samsung Electronics GmbH (SEG)	Dec 1984	Electronic goods sales	2,687,535	Over 50%	Y
Samsung Electronics Holding GmbH (SEHG)	Feb 1982	Subsidiary management (overseas)	993,490	Over 50%	Y
Samsung Semiconductor Europe GmbH (SSEG)	Dec 1987	Semiconductor and display panel sales	887,060	Over 50%	Y
Samsung Electronics France S.A.S (SEF)	Jan 1988	Electronic goods sales	1,688,580	Over 50%	Y
Samsung Electronics Italia S.P.A. (SEI)	Apr 1991	Electronic goods sales	1,287,050	Over 50%	Y

Subsidiary	Date established	Major business	Assets as of Dec 31, 2019	Ownership	Classified as major subsidiary (Y/N)
Samsung Electronics Iberia, S.A. (SESA)	Jan 1989	Electronic goods sales	1,094,002	Over 50%	Y
Samsung Electronics Portuguesa S.A. (SEP)	Sep 1982	Electronic goods sales	222,273	Over 50%	Y
Samsung Electronics Hungarian Private Co. Ltd. (SEH)	Oct 1989	Electronic goods production and sales	2,230,457	Over 50%	Y
Samsung Electronics Europe Logistics B.V. (SELS)	May 1991	Logistics	1,700,033	Over 50%	Y
Samsung Electronics Benelux B.V. (SEBN)	Jul 1995	Electronic goods sales	2,145,488	Over 50%	Y
Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	Oct 2008	Subsidiary management (overseas)	11,495,430	Over 50%	Y
Samsung Electronics Nordic Aktiebolag (SENA)	Mar 1992	Electronic goods sales	1,315,256	Over 50%	Y
Samsung Electronics Slovakia s.r.o (SESK)	Jun 2002	TV and monitor production	1,428,228	Over 50%	Y
Samsung Display Slovakia s.r.o. (SDSK)	Mar 2007	Display panel processing	38,086	Over 50%	N
Samsung Electronics Polska, SP.Zo.o (SEPOL)	Apr 1996	Electronic goods sales	979,474	Over 50%	Y
Samsung Electronics Poland Manufacturing SP.Zo.o (SEPM)	Feb 2010	Home appliance production	415,727	Over 50%	Y
Samsung Electronics Romania LLC (SEROM)	Sep 2007	Electronic goods sales	302,523	Over 50%	Y
Samsung Electronics Austria GmbH (SEAG)	Jan 2002	Electronic goods sales	455,973	Over 50%	Y
Samsung Electronics Switzerland GmbH (SESG)	May 2013	Electronic goods sales	301,953	Over 50%	Y
Samsung Electronics Czech and Slovak s.r.o. (SECZ)	Jan 2010	Electronic goods sales	254,632	Over 50%	Y
Samsung Electronics Baltics SIA (SEB)	Oct 2001	Electronic goods sales	127,453	Over 50%	Y
Samsung Electronics Greece S.M.S.A (SEGR)	Apr 2010	Electronic goods sales	102,008	Over 50%	Y
Samsung Electronics Air Conditioner Europe B.V. (SEACE)	Apr 2017	Air conditioner sales	101,242	Over 50%	Y
Samsung Nanoradio Design Center (SNDC)	Feb 2004	R&D	29,495	Over 50%	N
Samsung Denmark Research Center ApS (SDRC)	Sep 2012	R&D	26,942	Over 50%	N
Samsung Cambridge Solution Centre Limited (SCSC)	Sep 2012	R&D	147,315	Over 50%	Y
Zhilabs, S.L.	Nov 2008	Network solution R&D and sales	10,010	Over 50%	N
Foodient Ltd.	Mar 2012	R&D	3,103	Over 50%	N
Samsung Electronics Rus Company LLC (SERC)	Oct 2006	Electronic goods sales	1,244,802	Over 50%	Y
Samsung Electronics Rus Kaluga LLC (SERK)	Jul 2007	TV production	1,124,492	Over 50%	Y
Samsung Electronics Ukraine Company LLC (SEUC)	Sep 2008	Electronic goods sales	274,305	Over 50%	Y
Samsung Electronics Central Eurasia LLP (SECE)	Sep 2008	Electronic goods sales	191,721	Over 50%	Y
Samsung Electronics Overseas B.V. (SEO)	Jan 1997	Electronic goods sales	93,508	Over 50%	Y
Samsung R&D Institute Rus LLC (SRR)	Nov 2011	R&D	45,548	Over 50%	N
Samsung Electronics Caucasus Co. Ltd (SECC)	Oct 2014	Marketing	1,985	Over 50%	N
AKG Acoustics GmbH	Mar 1947	Audio product production and sales	337,305	Over 50%	Y
AMX UK Limited	Mar 1993	Audio product sales	0	Over 50%	N
Arcam Limited	Jul 2004	Subsidiary management (overseas)	0	Over 50%	N
A&R Cambridge Limited	Dec 1993	Audio product sales	0	Over 50%	N
Harman Audio Iberia Espana Sociedad Limitada	Nov 2012	Audio product sales	414	Over 50%	N

Subsidiary	Date established	Major business	Assets as of Dec 31, 2019	Ownership	Classified as major subsidiary (Y/N)
Harman Automotive UK Limited	Oct 2012	Audio product production	0	Over 50%	N
Harman Becker Automotive Systems GmbH	Jul 1990	Audio product R&D, production, and sales	3,787,210	Over 50%	Y
Harman Becker Automotive Systems Italy S.R.L.	Dec 2005	Audio product sales	1,179	Over 50%	N
Harman Becker Automotive Systems Manufacturing Kft	Aug 1994	Audio product R&D and production	2,923,599	Over 50%	Y
Harman Belgium SA	Apr 1967	Audio product sales	2,440	Over 50%	N
Harman Connected Services AB.	Oct 1984	Connected Service Provider	28,428	Over 50%	N
Harman Finland Oy	Jul 1998	Connected Service Provider	506	Over 50%	N
Harman Connected Services GmbH	Dec 2005	Connected Service Provider	45,711	Over 50%	N
Harman Connected Services Limited	Dec 1992	Connected Service Provider	0	Over 50%	N
Harman Connected Services Poland Sp.zoo	Jun 2007	Connected Service Provider	8,992	Over 50%	N
Harman Connected Services UK Ltd.	Sep 2008	Connected Service Provider	60,783	Over 50%	N
Harman Consumer Nederland B.V.	Dec 1995	Audio product sales	420,982	Over 50%	Y
Harman Deutschland GmbH	Mar 1998	Audio product sales	16,097	Over 50%	N
Harman Finance International GP S.a.r.l	Apr 2015	Subsidiary management (overseas)	0	Over 50%	N
Harman France SNC	Nov 1995	Audio product sales	151,704	Over 50%	Y
Harman Holding Gmbh & Co. KG	Jun 2002	Management Company	4,833,116	Over 50%	Y
Harman Hungary Financing Ltd.	Jun 2012	Financing Company	34,400	Over 50%	N
Harman Inc. & Co. KG	Jun 2012	Subsidiary management (overseas)	3,898,359	Over 50%	Y
Harman International Estonia OU	May 2015	R&D	95	Over 50%	N
Harman International Industries Limited	Mar 1980	Audio product R&D and sales	90,302	Over 50%	Y
Harman International Romania SRL	Feb 2015	R&D	22,223	Over 50%	N
Harman Finance International, SCA	Apr 2015	Financing Company	485,628	Over 50%	Y
Harman International s.r.o	Feb 2015	Audio product production	19	Over 50%	N
Harman Management GmbH	Apr 2002	Subsidiary management (overseas)	0	Over 50%	N
Harman Professional Kft	Dec 2014	Audio product R&D and production	58,925	Over 50%	N
Martin Manufacturing (UK) Ltd	May 1985	Audio product production	0	Over 50%	N
Harman Professional Denmark ApS	Jul 1987	Audio product R&D and sales	46,116	Over 50%	N
Red Bend Software Ltd.	Aug 2004	Software design	0	Over 50%	N
Red Bend Software SAS	Oct 2002	Software design	7,190	Over 50%	N
Studer Professional Audio GmbH	Nov 2003	Audio product R&D and sales	8,988	Over 50%	N
Harman Connected Services OOO	Nov 1998	Connected Service Provider	12,683	Over 50%	N
Harman RUS CIS LLC	Aug 2011	Audio product sales	124,474	Over 50%	Y
MEA • Africa: 19					
Samsung Gulf Electronics Co., Ltd. (SGE)	May 1995	Electronic goods sales	1,092,268	Over 50%	Y
Samsung Electronics Turkey (SETK)	Dec 1984	Electronic goods sales	610,865	Over 50%	Y

Subsidiary	Date established	Major business	Assets as of Dec 31, 2019	Ownership	Classified as major subsidiary (Y/N)
Samsung Electronics Levant Co.,Ltd. (SELV)	Jul 2009	Electronic goods sales	336,819	Over 50%	Y
Samsung Electronics Maghreb Arab (SEMAG)	Nov 2009	Electronic goods sales	237,299	Over 50%	Y
Samsung Electronics Egypt S.A.E (SEEG)	Jul 2012	Electronic goods production and sales	751,563	Over 50%	Y
Samsung Electronics Israel Ltd. (SEIL)	Sep 2012	Marketing	18,594	Over 50%	N
Samsung Electronics Tunisia S.A.R.L (SETN)	Sep 2012	Marketing	4,744	Over 50%	N
Samsung Electronics Pakistan(Private) Ltd. (SEPAK)	Nov 2012	Marketing	2,665	Over 50%	N
Samsung Electronics Saudi Arabia Ltd. (SESAR)	Nov 2019	Electronic goods sales	251,516	Over 50%	Y
Samsung Semiconductor Israel R&D Center, Ltd. (SIRC)	Oct 2007	R&D	90,163	Over 50%	Y
Corephotonics Ltd.	Jan 2012	R&D	10,963	Over 50%	N
Samsung Electronics South Africa(Pty) Ltd. (SSA)	Jun 1994	Electronic goods sales	434,304	Over 50%	Y
Samsung Electronics South Africa Production (pty) Ltd. (SSAP)	Jul 2014	TV and monitor production	85,433	Over 50%	Y
Samsung Electronics West Africa Ltd. (SEWA)	Mar 2010	Marketing	22,737	Over 50%	N
Samsung Electronics East Africa Ltd. (SEEA)	Dec 2011	Marketing	15,275	Over 50%	N
Global Symphony Technology Group Private Ltd.	Jan 2002	Subsidiary management (overseas)	41,320	Over 50%	N
Harman Connected Services Morocco	Apr 2012	Connected Service Provider	2,879	Over 50%	N
Harman Industries Holdings Mauritius Ltd.	Oct 2009	Subsidiary management (overseas)	80,469	Over 50%	Y
Red Bend Ltd.	Feb 1998	Audio product production	93,757	Over 50%	Y
Asia (ex China): 30					
Samsung Asia Pte. Ltd. (SAPL)	Jul 2006	Electronic goods sales	9,552,755	Over 50%	Y
Samsung Electronics Singapore Pte. Ltd. (SESP)	Oct 2020	Electronic goods sales	0	Over 50%	N
Samsung Malaysia Electronics Sdn. Bhd. (SME)	May 2003	Electronic goods sales	397,704	Over 50%	Y
Samsung Electronics Display (M) Sdn. Bhd. (SDMA)	Mar 1995	Electronic goods production	23,975	Over 50%	N
Samsung Electronics (M) Sdn. Bhd. (SEMA)	Sep 1989	Home appliance production	213,160	Over 50%	Y
Samsung Vina Electronics Co., Ltd. (SAVINA)	Jan 1995	Electronic goods sales	299,818	Over 50%	Y
Samsung Electronics Vietnam Co., Ltd. (SEV)	Mar 2008	Electronic goods production	12,623,956	Over 50%	Y
Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	Mar 2013	Telecom product production	15,500,024	Over 50%	Y
Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	Feb 2015	Electronic goods production and sales	2,609,150	Over 50%	Y
Samsung Display Vietnam Co., Ltd. (SDV)	Jul 2014	Display panel production	7,400,563	Over 50%	Y
PT Samsung Electronics Indonesia (SEIN)	Aug 1991	Electronic goods production and sales	966,723	Over 50%	Y
PT Samsung Telecommunications Indonesia (STIN)	Mar 2003	Electronic goods sales and service	49,717	Over 50%	N
Thai Samsung Electronics Co., Ltd. (TSE)	Oct 1988	Electronic goods production and sales	2,920,299	Over 50%	Y
Laos Samsung Electronics Sole Co., Ltd (LSE)	Sep 2016	Marketing	666	Over 50%	N
Samsung Electronics Philippines Corporation (SEPCO)	Mar 1996	Electronic goods sales	289,076	Over 50%	Y
Samsung Electronics Australia Pty. Ltd. (SEAU)	Nov 1987	Electronic goods sales	596,587	Over 50%	Y
Samsung Electronics New Zealand Limited (SENZ)	Sep 2013	Electronic goods sales	122,711	Over 50%	Y

Subsidiary	Date established	Major business	Assets as of Dec 31, 2019	Ownership	Classified as major subsidiary (Y/N)
Samsung India Electronics Private Ltd. (SIEL)	Aug 1995	Electronic goods production and sales	6,250,492	Over 50%	Y
Samsung Display Noida Private Limited (SDN)	Jul 2019	Display panel production	346,865	Over 50%	Y
Samsung R&D Institute India-Bangalore Private Limited (SRI-Bangalore)	May 2005	R&D	399,137	Over 50%	Y
Samsung R&D Institute BanglaDesh Limited (SRBD)	Aug 2010	R&D	18,640	Over 50%	N
Samsung Nepal Services Pvt, Ltd (SNSL)	Nov 2017	Services	305	Over 50%	N
Samsung Japan Corporation (SJC)	Dec 1975	Semiconductor and display panel sales	1,668,902	Over 50%	Y
Samsung R&D Institute Japan Co. Ltd. (SRJ)	Aug 1992	R&D	162,609	Over 50%	Y
Samsung Electronics Japan Co., Ltd. (SEJ)	Sep 2008	Electronic goods sales	1,222,552	Over 50%	Y
Harman Connected Services Corp. India Pvt. Ltd.	Apr 2002	Connected Service Provider	314,232	Over 50%	Y
Harman International (India) Private Limited	Jan 2009	Audio product R&D and sales	237,749	Over 50%	Y
Harman International Industries PTY Ltd.	Dec 2014	Subsidiary management (overseas)	0	Over 50%	N
Harman International Japan Co., Ltd.	Jun 1991	Audio product R&D and sales	67,816	Over 50%	N
Harman Singapore Pte. Ltd.	Aug 2007	Audio product sales	9,514	Over 50%	N
China: 33					
Samsung (CHINA) Investment Co., Ltd. (SCIC)	Mar 1996	Electronic goods sales	15,438,819	Over 50%	Y
Samsung Electronics Hong Kong Co., Ltd. (SEHK)	Sep 1988	Electronic goods sales	1,377,388	Over 50%	Y
Samsung Electronics Taiwan Co., Ltd. (SET)	Nov 1994	Electronic goods sales	1,580,003	Over 50%	Y
Samsung Electronics Huizhou Co., Ltd. (SEHZ)	Dec 1992	Electronic goods production	1,428,868	Over 50%	Y
Tianjin Samsung Electronics Co., Ltd. (TSEC)	Apr 1993	TV and monitor production	417,423	Over 50%	Y
Suzhou Samsung Electronics Co., Ltd. (SSEC)	Apr 1995	Home appliance production	570,871	Over 50%	Y
Samsung Suzhou Electronics Export Co., Ltd. (SSEC-E)	Apr 1995	Home appliance production	499,221	Over 50%	Y
Samsung Electronics Suzhou Computer Co., Ltd. (SESC)	Sep 2002	Electronic goods production	830,015	Over 50%	Y
Tianjin Samsung Telecom Technology Co., Ltd. (TSTC)	Mar 2001	Telecom product production	581,611	Over 50%	Y
Shenzhen Samsung Electronics Telecommunication Co., Ltd. (SSET)	Feb 2002	Telecom product production	42,469	Over 50%	N
Beijing Samsung Telecom R&D Center (SRC-Beijing)	Sep 2000	R&D	125,807	Over 50%	Y
Samsung Electronics China R&D Center (SRC-Nanjing)	May 2004	R&D	68,937	Over 50%	N
Samsung Mobile R&D Center China- Guangzhou (SRC-Guangzhou)	Jan 2010	R&D	90,436	Over 50%	Y
Samsung R&D Institute China-Shenzhen (SRC-Shenzhen)	Mar 2013	R&D	36,475	Over 50%	N
Shanghai Samsung Semiconductor Co., Ltd. (SSS)	Oct 2001	Semiconductor and display panel sales	7,678,989	Over 50%	Y
Samsung (China) Semiconductor Co., Ltd. (SCS)	Sep 2012	Semiconductor production	14,348,735	Over 50%	Y
Samsung SemiConductor Xian Co., Ltd. (SSCX)	Apr 2016	Semiconductor and display panel sales	779,561	Over 50%	Y
Samsung Electronics Suzhou Semiconductor Co., Ltd. (SESS)	Dec 1994	Semiconductor processing	1,197,268	Over 50%	Y
Tianjin Samsung LED Co., Ltd. (TSLED)	May 2009	LED production	536,956	Over 50%	Y
Samsung Semiconductor (China) R&D Co., Ltd. (SSCR)	Apr 2003	R&D	56,016	Over 50%	N
Samsung Display Dongguan Co., Ltd. (SDD)	Nov 2001	Display panel production	1,767,663	Over 50%	Y

Subsidiary	Date established	Major business	Assets as of Dec 31, 2019	Ownership	Classified as major subsidiary (Y/N)
Samsung Display Tianjin Co., Ltd. (SDT)	Jun 2004	Display panel production	1,262,887	Over 50%	Y
Samsung Suzhou Module Co., Ltd. (SSM)	Sep 2002	Display panel production	634,239	Over 50%	Y
Samsung Suzhou LCD Co., Ltd. (SSL)	Jul 2011	Display panel production	1,288,820	Over 50%	Y
SEMES (XIAN) Co., Ltd.	Jul 2013	Semiconductor equipment services	2,358	Over 50%	N
Harman (China) Technologies Co., Ltd.	Mar 2011	Audio product production	114,676	Over 50%	Y
Harman (Suzhou) Audio and Infotainment Systems Co., Ltd.	Mar 2013	Audio product sales	11,901	Over 50%	N
Harman Automotive Electronic Systems (Suzhou) Co., Ltd.	Sep 2006	Audio product R&D and production	273,657	Over 50%	Y
Harman Commercial (Shanghai) Co., Ltd.	Oct 2010	Audio product sales	417	Over 50%	N
Harman Connected Services Solutions (Chengdu) Co., Ltd.	Aug 2007	Connected Service Provider	21,854	Over 50%	N
Harman Holding Limited	May 2007	Audio product sales	467,068	Over 50%	Y
Harman International (China) Holdings Co., Ltd.	Jun 2009	Audio product R&D and sales	575,708	Over 50%	Y
Harman Technology (Shenzhen) Co., Ltd.	Sep 2004	Audio product R&D and sales	48,692	Over 50%	N
Domestic: 29					
Samsung Display	Apr 2012	Display panel production and sales	50,039,755	Over 50%	Y
SU Materials	Aug 2011	Display panel component production	34,845	Over 50%	N
STECO	Jun 1995	Semiconductor component production	164,027	Over 50%	Y
SEMES	Jan 1993	Semiconductor/FPD manufacturing equipment production and sales	1,596,649	Over 50%	Y
Samsung Electronics Service	Oct 1998	Electronics goods repair services	514,221	Over 50%	Y
Samsung Electronics Service CS	Oct 2018	Customer management services	21,200	Over 50%	N
Samsung Electronics Sales	Jul 1996	Electronic goods sales	1,135,295	Over 50%	Y
Samsung Electronics Logitech	Apr 1998	Total logistics services	349,516	Over 50%	Y
Samsung Medison	Jul 1985	Medical device production and sales	370,529	Over 50%	Y
Mirero System	Jan 1994	Semiconductor software development and supply	26,030	Over 50%	N
Dowoo Insys	Mar 2010	Display panel component production	50,518	Over 50%	N
GF Co., Ltd.	Oct 2015	Display panel component production	3,173	Over 50%	N
Harman Korea	Jan 2005	Semiconductor software development and supply	18,843	Over 50%	N
SVIC #21 Venture Capital Union	Nov 2011	Venture firm and new technology investments	100,891	Over 50%	Y
SVIC #22 Venture Capital Union	Nov 2011	Venture firm and new technology investments	81,530	Over 50%	Y
SVIC #26 Venture Capital Union	Nov 2014	Venture firm and new technology investments	83,941	Over 50%	Y
SVIC #27 Venture Capital Union	Sep 2014	Venture firm and new technology investments	42,249	Over 50%	N
SVIC #28 Venture Capital Union	Feb 2015	Venture firm and new technology investments	366,921	Over 50%	Y
SVIC #29 Venture Capital Union	Apr 2015	Venture firm and new technology investments	56,642	Over 50%	N
SVIC #32 Venture Capital Union	Aug 2016	Venture firm and new technology investments	291,176	Over 50%	Y
SVIC #33 Venture Capital Union	Nov 2016	Venture firm and new technology investments	342,053	Over 50%	Y
SVIC #37 Venture Capital Union	Nov 2017	Venture firm and new technology investments	40,056	Over 50%	N

Subsidiary	Date established	Major business	Assets as of Dec 31, 2019	Ownership	Classified as major subsidiary (Y/N)
SVIC #40 Venture Capital Union	Jun 2018	Venture firm and new technology investments	37,697	Over 50%	N
SVIC #42 Venture Capital Union	Nov 2018	Venture firm and new technology investments	8,558	Over 50%	N
SVIC #43 Venture Capital Union	Dec 2018	Venture firm and new technology investments	2,106	Over 50%	N
SVIC #45 Venture Capital Union	May 2019	Venture firm and new technology investments	101,781	Over 50%	Y
SVIC #48 Venture Capital Union	Dec 2019	Venture firm and new technology investments	55,235	Over 50%	N
Private Equity Fund for Semiconductor Growth	Mar 2017	Semiconductor investments	75,082	Over 50%	Y
Private Equity Fund for Co-existence of System Semiconductor Firms	Apr 2020	Semiconductor investments	40,036	Over 50%	N

See『II. Businesses Overview』for additional information about major business segments.
Companies with over KRW 75 billion in total assets as of December 31, 2020 are classified as major subsidiaries.

(Changes in subsidiaries)

	Americas	Europe/ CIS	MEA/ Africa	Asia ex China	China	Domestic	Total	Increase	Decrease
As of Dec 31, 2017	63	88	21	38	38	22	270	-	-
Changes in 2018	(7)	(9)	-	(3)	(2)	3	(18)	**[Americas: 1]** Zhilabs Inc. **[Europe/CIS: 1]** Zhilabs, S.L. **[Domestic: 4]** SVIC #40 Venture Capital Union SVIC #42 Venture Capital Union SVIC #43 Venture Capital Union Samsung Electronics Service CS	**[Americas: 8]** NexusDX, Inc. S1NN USA, Inc. Samsung Pay, Inc. Harman Connected Services Holding Corp. AMX LLC AMX Holding Corporation Southern Vision Systems, Inc Triple Play Integration LLC **[Europe/CIS: 10]** Joyent Ltd. Aditi Technologies Europe GmbH AMX GmbH Harman Professional Germany GmbH Endeleo Limited Harman Consumer Finland OY Harman Consumer Division Nordic ApS Inspiration Matters Limited Knight Image Limited R&D International BVBA **[Asia ex China: 3]** Harman Malaysia Sdn. Bhd. Harman Connected Services Technologies Pvt. Ltd. INSP India Software Development Pvt. Ltd. **[China: 2]** Harman Connected Services Taiwan Inc. Harman Automotive InfoTech (Dalian) Co., Ltd. **[Domestic: 1]** SVIC #23 Venture Capital Union
As of Dec 31, 2018	56	79	21	35	36	25	252	-	-
Changes in 2019	(2)	(4)	(2)	(5)	(2)	3	(12)	**[Europe/CIS: 1]** Foodient Ltd. **[MEA/Africa: 2]** Corephotonics Ltd. Samsung Electronics Saudi Arabia Ltd. (SESAR) **[Asia ex China: 1]** Samsung Display Noida Private Limited(SDN) **[Domestic: 4]** SVIC #45 Venture Capital Union SVIC #48 Venture Capital Union Dowoo Insys GF Co., Ltd.	**[Americas: 2]** Harman Investment Group, LLC Red Bend Software Inc. **[Europe/CIS: 5]** Samsung France Research Center SARL(SFRC) Innoetics E.P.E. Duran Audio B.V. Harman International SNC Harman Professional France SAS **[MEA/Africa: 4]** Broadsense Ltd. iOnRoad Ltd iOnRoad Technologies Ltd Towersec Ltd. **[Asia ex China: 6]** Harman Connected Services Japan Co., Ltd. Red Bend Software Japan Co., Ltd. Studer Japan Ltd. Harman International Singapore Pte. Ltd. AMX Products And Solutions Private Limited Samsung Medison India Private Ltd.(SMIN) **[China: 2]** Samsung Electronics (Beijing) Service Company Limited (SBSC) Harman Connected Services Solutions (Beijing) Co., Ltd. **[Domestic: 1]** Red Bend Software Inc.

	Americas	Europe/ CIS	MEA/ Africa	Asia ex China	China	Domestic	Total	Increase	Decrease
As of Dec 31 2019	54	75	19	30	34	28	240	-	-
Changes in 2020	1	-	-	-	(1)	1	1	**[Americas: 4]** TeleWorld Solutions, Inc. (TWS) TWS LATAM B, LLC TWS LATAM S, LLC SNB Technologies, Inc. Mexico, S.A. de C.V **[Asia ex China: 1]** Samsung Electronics Singapore Pte. Ltd. (SESP) **[Domestic: 1]** Private Equity Fund for Co-existence of System Semiconductor Firms	**[Americas: 3]** Harman Connected Services South America S.R.L. EverythingDacor.com, Inc. Distinctive Appliances of California, Inc. **[Asia ex China: 1]** Martin Professional Pte. Ltd. **[China: 1]** Samsung Tianjin Mobile Development Center (SRC-Tianjin)
As of Dec 31 2020	55	75	19	30	33	29	241	-	-

(4Q20: Changes in subsidiaries)

Type	Region	Name	Changes	Notes
Newly consolidated	Americas	TeleWorld Solutions, Inc. (TWS)	Acquired shares	-
		TWS LATAM B, LLC		Subsidiary of TWS
		TWS LATAM S, LLC		Subsidiary of TWS
		SNB Technologies, Inc. Mexico, S.A. de C.V		Subsidiary of TWS
	Asia ex China	Samsung Electronics Singapore Pte. Ltd. (SESP)	Established	-
	Domestic	Private Equity Fund for Co-existence of System Semiconductor Firms	Established	-
No longer consolidated	Americas	Harman Connected Services South America S.R.L.	Liquidated	-
		EverythingDacor.com, Inc.		-
		Distinctive Appliances of California, Inc.		-
	Asia ex China	Martin Professional Pte. Ltd.		-
	China	Samsung Tianjin Mobile Development Center (SRC-Tianjin)		-

H. Credit rating

SEC's credit rating is assessed by two external credit ratings agencies. As of December 31, 2020, SEC's credit ratings were Aa3 with a stable investment outlook as rated by Moody's (US); and AA- with a stable investment outlook as rated by S&P (US).

Securities	Date	Ratings	Credit rating agency	Note
Corporate bond (USD denominated; issued in 1997 and expire in 2027)	Feb 2018	A1	Moody's	Annual review
	Jun 2018	Aa3	Moody's	
	Jul 2018	AA-	S&P	
	Nov 2018	Aa3	Moody's	
	May 2019	Aa3	Moody's	
	Jul 2019	AA-	S&P	
	Aug 2019	Aa3	Moody's	
	Jul 2020	AA-	S&P	
	Sep 2020	Aa3	Moody's	

Credit rating range: Moody's (Aaa-C), S&P (AAA-D)

[Credit ratings definitions]

	Moody's	Definition	S&P	Definition
Investment grade	Aaa	Superior ability to repay debt obligations; lowest level of credit risk	AAA	Extremely strong ability to meet financial commitments; highest rating
	Aa1/Aa2/Aa3	High ability to repay debt obligations; very low credit risk	AA+/AA/AA-	Very strong capacity to meet financial commitments
	A1/A2/A3	Upper-medium ability to repay debt obligations; low credit risk	A+/A/A-	Strong capacity to meet financial commitments; susceptible to adverse effects of changes in economic conditions
	Baa1/Baa2/Baa3	Medium ability to repay debt obligations; moderate credit risk, speculative factors	BBB+/BBB/BBB-	Adequate capacity to meet financial commitments; relatively more susceptible to adverse economic conditions
Speculative grade	Ba1/Ba2/Ba3	Speculative; substantial credit risk	BB+/BB/BB-	Major ongoing uncertainties; exposure to adverse business, financial, or economic conditions can impair ability to meet financial commitments
	B1/B2/B3	Speculative; high credit risk	B+/B/B-	More vulnerable to nonpayment than those rated BB; has capacity to meet financial commitments but adverse financial or economic conditions are likely to impair ability to continue doing so
	Caa	Speculative; very high credit risk	CCC	Vulnerable to nonpayment; dependent upon favorable business, financial, and economic conditions
	Ca	Highly speculative; likelihood of being in or near default; some prospect for recovery of principal and interest	CC	Highly vulnerable to nonpayment; default has not yet occurred but expected to be a virtual certainty
	C	Typically in default; little prospect for recovery of principal or interest	C	Highly vulnerable to nonpayment; obligation is expected to have lower ultimate recovery vis-à-vis higher rated obligations
			D	In default or in breach of imputed promises, upon the filing of a bankruptcy petition or the taking of a similar action

I. Whether the Company is listed (or registered or designated) and matters related to special listed companies

Listed (or registered or designated)	Date listed (or registered or designated)	Special listed company	Subject to regulations for special exception companies
Stock market (KOSPI)	June 11, 1975	No	No

2. Company history

(Company history)

Jan 13, 1969	Samsung Electronics Manufacturing Incorporated
Jun 11, 1975	Listed on the Korea Stock Exchange
Feb 28, 1984	Renamed as Samsung Electronics
Nov 1, 1988	Merged with Samsung Semiconductor and Communications
Aug 1, 1992	Developed 64M DRAM, a world's first
Mar 23, 2010	Unveiled Galaxy S
Sep 2, 2010	Unveiled Galaxy Tab
Feb 11, 2011	Launched Exynos, the first mobile AP brand
Sep 1, 2011	Unveiled Galaxy Note
Apr 1, 2012	Spun off the LCD division (established Samsung Display)
Jun 26, 2013	Launch of S4 LTE-A, the world's first LTE-A smartphone
Aug 6, 2013	Mass production of the world's first 3D V-NAND flash memory chips
Sep 24, 2013	Development of ISOCELL, an industry-first next generation CMOS image sensor technology
Mar 5, 2017	Released advanced Quantum dot-based QLED TV
Mar 10, 2017	SEA acquired shares of Harman International Industries, Inc. (100%)
Jul 4, 2017	Started operations at semiconductor production fab in Pyeongtaek, the largest such facility in the world
Nov 1, 2017	Sold Printing Solution business
Aug 30, 2018	Launched QLED 8K TVs with Quantum Dot technology
Nov 7, 2018	Unveiled foldable display at the Samsung Developer Conference
Apr 3, 2019	Launched 5G smartphone, Galaxy S10 5G
Apr 24, 2019	Announced "Semiconductor Vision 2030"—a vision to invest KRW 133 trillion through 2030 in system semiconductor and employ 15,000 persons
Sep 4, 2019	Unveiled Exynos 980, 5G mobile processor
Jan 29, 2020	Launched AI-technology-based Grande AI washer/dryer
Feb 4, 2020	Launched world's first ultra-high speed DRAM for AI and next-generation super computers
Feb 11, 2020	Unveiled Galaxy Z Flip, a foldable model with a new form factor
Aug 30, 2020	Started operation of Pyeongtaek Line 2, the world's largest semiconductor line

(Company location changes)

The Company's head office is located at 129, Samsung-ro, Yeongtong-gu, Suwon, Gyeonggi-do. There were no changes in the Company's head office location over the past five consecutive years.

(Important changes in management executives)

On March 11, 2016, Executive Directors Boo-keun Yoon, Jong-kyun Shin and Sang-hoon Lee were reappointed at the AGM. Of the three Independent Executive Directors with expiring terms (In-ho Lee, Kwang-soo Song and Eun-mee Kim), Eun-mee Kim retired, and In-ho Lee, Kwang-soo Song were reappointed. Jae-wan Bahk was newly appointed as an Independent Director.

On October 27, 2016, Jae-yong Lee was newly appointed as Executive Director at the Extraordinary General Meeting of Shareholders and Sang-hoon Lee resigned from his position as Executive Director.

Following the annual meeting on March 23, 2018, Sang-hoon Lee, Ki-nam Kim, Hyun-suk Kim, and Dong-jin Koh were newly appointed as Executive Directors and Jeong Kim, Sun-uk Kim, Byung-gook Park were newly appointed as Independent Directors. In addition, Executive Director Oh-hyun Kwon and Independent Directors Han-joong Kim and Byeong-gi Lee retired as terms expired. Executive Directors Boo-keun Yoon and Jong-kyun Shin resigned.

On March 23, 2018, Executive Directors Ki-nam Kim, Hyun-suk Kim, and Dong-jin Koh were newly appointed as CEOs.

On March 20, 2019, Independent Director Jae-wan Bahk was reappointed and Independent Directors Han-jo Kim and Curie Ahn were newly appointed. Independent Directors In-ho Lee and Kwang-soo Song retired.

On October 26, 2019, Jae-yong Lee retired from his position of Executive Director.

On February 14, 2020, Sang-hoon Lee resigned from his position of Executive Director; and on March 18, 2020 at the AGM, Jong-hee Han and Yoon-ho Choi were appointed as Executive Directors.

As of December 31, 2020, SEC's Board consisted of five Executive Directors (Ki-nam Kim, Hyun-suk Kim, Dong-jin Koh, Jong-hee Han, and Yoon-ho Choi) and six Independent Directors (Jae-wan Bahk, Sun-uk Kim, Byung-gook Park, Jeong Kim, Curie Ahn, and Han-jo Kim).

(Changes in the major shareholder)

There were no changes over the past five consecutive years.

* Changes related to the passing of the major shareholder on October 25, 2020 will be disclosed when finalized.

(Company name changes)

In 2016, YESCO Electronics LLC changed its name to Prismview, LLC.

In 2017, Quietside LLC, NewNet Communication Technologies (Canada), Inc., and Martin Professional ApS changed their names to Samsung HVAC America, LLC, SigMast Communications Inc., and Harman Professional Denmark ApS, respectively.

In 2018, Harman Connected Services Finland OY, and Harman Professional Singapore Pte. Ltd changed their names to Harman Finland Oy, and Harman Singapore Pte. Ltd., respectively.

In 2019, Samsung Electronics Greece S.A. changed its name to Samsung Electronics Greece S.M.S.A.

☞ Details are for SEC and major subsidiaries of SEC. See G. Subsidiaries subject to consolidated financial statements in 『I. Corporate Overview』 for details.

(Mergers and acquisitions)

In 2016, SEA acquired shares in Joyent, Inc. (100%), Dacor Holdings, Inc. (100%), and Viv Labs, Inc. (100%). In the same year, SEC spun off its printing solution business and established S-Printing Solution Co., Ltd., and then completed the sale of the printing solutions business in 2017.

In 2017, SEA acquired full ownership of Harman International Industries, Inc.

In 2018, SEA merged with Samsung Pay, Inc.; and Harman Connected Services, Inc. merged with Harman Connected Services Holding Corp. In the same year, SEA sold its full stake in NexusDX, Inc.

In 2019, Samsung Electronics Benelux B.V. (SEBN) acquired shares of Corephotonics Ltd. In the same year, SEC acquired a PLP business from affiliate Samsung Electro-Mechanics. In addition, Harman Becker Automotive Systems Manufacturing Kft merged with Duran Audio B.V.; and Samsung (China) Investment Co., Ltd. (SCIC) merged with Samsung Electronics (Beijing) Service Company Limited (SBSC).

☞ Details are for SEC and major subsidiaries of SEC. See G. Subsidiaries subject to consolidated financial statements in 『I. Corporate Overview』 for details.

(Important changes in the Company's business)

There were no changes over the past five consecutive years.

(Changes in organizational structure)

In November 2016, the Company spun off its printing solutions business and established S-Printing Solution Co., Ltd., and then completed the sale of the printing solutions business in November 2017; in June 2017, the System LSI business was divided into Foundry and System LSI businesses.

[As of December 2016]

	Before	After
Business organization	CE Division (Visual Display, Digital Appliances, Printing Solutions, Medical Devices)	CE Division (Visual Display, Digital Appliances, Medical Devices)
	IM Division (Mobile, Network)	IM Division (Mobile, Network)
	DS Division (Memory, System LSI, DP)	DS Division (Memory, System LSI, DP)
Regional headquarters	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa
	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)

[As of June 2017]

	Before	After
Business organization	CE Division (Visual Display, Digital Appliances, Medical Devices)	CE Division (Visual Display, Digital Appliances, Medical Devices)
	IM Division (Mobile, Network)	IM Division (Mobile, Network)
	DS Division (Memory, System LSI, DP)	DS Division (Memory, System LSI, Foundry, DP)
	-	Harman Division
Regional headquarters	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa
	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)

Harman Division was added on the acquisition of Harman International Industries, Inc. in March 2017.
Health & Medical Equipment Business was excluded from the CE Division in 1Q18 and included again from 1Q20.

3. Changes in paid-in capital

No changes were reported during the past five consecutive years.

4. Stock information

A. Total number of shares

As of December 31, 2020, SEC's issued shares on a cumulative basis totaled 7,780,466,850 registered common shares and 1,194,671,350 registered, non-voting preferred shares; and the Company had canceled 1,810,684,300 common shares and 371,784,650 preferred shares in accordance with resolutions of the Board of Directors ("the Board"). As of the same date, issued shares and shares outstanding totaled 5,969,782,550 for common shares and 822,886,700 for preferred shares.

[As of Dec 31, 2020] (Shares)

Classification	Type of stocks			Note
	Common	Preferred	Total	
I. Authorized shares	20,000,000,000	5,000,000,000	25,000,000,000	-
II. Issued shares (cumulative)	7,780,466,850	1,194,671,350	8,975,138,200	-
III. Decrease in number of shares (cumulative)	1,810,684,300	371,784,650	2,182,468,950	-
1. Capital reduction	-	-	-	-
2. Cancellation	1,810,684,300	371,784,650	2,182,468,950	Treasury shares
3. Redemption	-	-	-	-
4. Other	-	-	-	-
IV. Issued shares as of Dec 31, 2020 (II-III)	5,969,782,550	822,886,700	6,792,669,250	-
V. Treasury shares as of Dec 31, 2020	-	-	-	-
VI. Outstanding shares as of Dec 31, 2020 (IV-V)	5,969,782,550	822,886,700	6,792,669,250	-

Post-split basis; SEC conducted a 50:1 stock split effective from May 3, 2018, lowering par value of every common and preferred share from KRW 5,000 to KRW 100.

B. Treasury shares

In 2018, SEC completed the cancellation of all shares held in treasury as a part of its shareholder return policy.

[As of Dec 31, 2020] (Shares)

Acquisition method	Share type	Period-start	Change			Period-end
			Acquisition (+)	Disposal (-)	Cancellation (-)	
Intra-market direct acquisition (within dividend related capital gains limit)	Common	-	-	-	-	-
	Preferred	-	-	-	-	-
Total	Common	-	-	-	-	-
	Preferred	-	-	-	-	-

C. Types of registered stock

SEC has two types of registered equity securities: 1) common stock; 2) non-voting and non-cumulative preferred stock.

The shareholders of preferred stock are entitled to dividend payments of an additional 1% of par value compared to shareholders of common stock.

As of December 31, 2020, the number of issued non-cumulative and non-voting preferred stock totaled 822,886,700.

5. Voting shares

As of December 31, 2020, SEC has 5,969,782,550 issued shares of common stock, and 822,886,700 issued shares of preferred stock with no voting rights. There are 597,587,929 shares of common stock with limited voting rights under relevant laws. Thus, the total number of shares with full voting rights is 5,372,194,621.

[As of Dec 31, 2020]

Classification	Share type	Number of shares	Note
Number of issued shares (A)	Common	5,969,782,550	-
	Preferred	822,886,700	-
Shares with no voting rights (B)	Common	-	-
Shares with no voting rights according to Articles of Incorporation (C)	Preferred	822,886,700	-
Shares with limited voting rights under relevant laws (D)	Common	596,959,200[1)]	508,157,148 shares held by Samsung Life Insurance & 88,802,052 shares held by Samsung Fire & Marine Insurance
	Common	628,729	Restricted by the Insurance Business Act: Shares held by Samsung Life Insurance in certain special accounts
Shares with voting rights (F = A - B - C - D)	Common	5,372,194,621	-
	Preferred	-	-

1) Pursuant to Korea's Monopoly Regulation and Fair Trade Act, owners can exercise certain rights on some shares in accordance with related laws, including the right to vote on agendas such as the appointment or dismissal of directors and revisions to the Articles of Incorporation.

6. Dividends

We continue to work to enhance shareholder value alongside our efforts to strengthen competitiveness of our products and businesses. We utilized 50% of the free cash flow as the shareholder return pool for 2018 to 2020 as part of our shareholder return policy for 2018 to 2020 and will pay annual, regular dividends of KRW 9.6 trillion and a special cash dividend of KRW 10.7 trillion will be paid out at the same time as the 2020 end-year, regular dividend. The shareholder return policy for 2021 to 2023 was announced in January 2021. For this term, we kept the shareholder return pool at 50% of the free cash flow, but increased the annual, regular dividend to KRW 9.8 trillion. Any remaining portion of the 50% of the free cash flow will be paid out to shareholders.

Dividends paid in the three most recent fiscal years are as follows:

Classification		2020	2019	2018
Par value per share[1] (KRW)		100	100	100
Net profit[2] (KRW mil)		26,090,846	21,505,054	43,890,877
EPS[3] (KRW)		3,841	3,166	6,461
Total cash dividend (KRW mil)		20,338,075	9,619,243	9,619,243
Total stock dividend (KRW mil)		-	-	-
Dividend payout ratio (%)		78.0	44.7	21.9
Cash dividend yield (%)	Common	4.0	2.6	3.7
	Preferred	4.2	3.1	4.5
Stock dividend yield (%)	Common	-	-	-
	Preferred	-	-	-
Cash dividend per share (KRW)	Common	2,994	1,416	1,416
	Preferred	2,995	1,417	1,417
Stock dividend per share (share)	Common	-	-	-
	Preferred	-	-	-

The total cash dividend for 2020 will be approved at the AGM. In case of rejection or revision, the amended figure and reasons will be announced via a corrective disclosure.

Dividends in each of the first three quarters of 2018, 2019, and 2020 were KRW 2,404,605 million or KRW 354 per share. For further information relating to total cash dividend, see retained earnings in 『3. Note to Consolidated Financial Statements』 in 『Ⅲ. Financial Affairs』.

1) SEC conducted a 50:1 stock split effective from May 3, 2018, lowering par value of every common and preferred share from KRW 5,000 to KRW 100.

2) Equity attributable to owners of the parent on a consolidated basis.

3) Basic earnings per common share on a consolidated basis. For further information relating to the calculation of basic EPS, see Earnings Per Share in 『3. Note to Consolidated Financial Statements』 in 『Ⅲ. Financial Affairs』.

History of dividend payouts is as follows:

Number of continuous dividend payments		Average dividend yield	
Quarterly/biannual dividends	End-year dividends	Past 3 years	Past 5 years
30	40	3.4%	2.7%

Includes 2020 quarterly dividends and end-year dividends. The end-year dividend for 2020 will be approved at the AGM. In case of rejection or revision, the amended figure and reasons will be announced via a corrective disclosure.
Dividend payments have been continuous since 1981—*n.b.*, dividends were paid at end-year from 1981, biannually from 1999, and quarterly from 2017.
Average dividend yield is dividend yield for common stock. Dividend yield for preferred stock averaged 4.0% over the past three years and 3.2% over the past five years.

7. Changes to Articles of Incorporation

Date	Occasion	Key changes	Reason
Mar 23, 2018	2017 AGM	Par value and the number of stocks to be issued changed due to stock split	Stock split

II. Businesses Overview

1. Overview

Note on forward-looking statements

This report includes forward-looking statements that relate to future events and can be generally identified by phrases containing words such as "believes," "expects," "anticipates," "foresees," "forecasts," "estimates" or other words or phrases of similar meaning. These forward-looking statements are not guarantees of future performance and may involve known and unknown risks, uncertainties and other factors that may affect the Company's actual results, performance, achievements or financial position, making them materially different from the actual future results, performance, achievements or financial position expressed or implied by these forward-looking statements.

Uncertain events that could positively or negatively affect the Company's management condition and financial performance include:

- *Trends of financial markets domestically and abroad, including changes in exchange rates and interest rates*
- *The Company's strategic decision making, including disposals and purchases of businesses*
- *Unexpected sudden changes in core businesses such as CE, IM, Semiconductor, DP, and Harman*
- *Other changes domestically and abroad that can affect management condition and financial performance*

The Company assumes no obligation to revise or update this report to reflect risks or uncertainties that arise after the reporting period.

A. Business overview, by division

In addition to our headquarters in Korea, Samsung Electronics comprises 241 subsidiaries across the world responsible for sales and production. There are 9 regional headquarters for CE and IM Divisions, 5 regional headquarters for the DS Division, and Harman's subsidiaries.

The Company's business divisions are organized in a two-pronged framework consisting of set (brand products) and component businesses. The set business is comprised of the CE and IM Divisions, and the component business consists of the Semiconductor and DP Business Units. The CE Division is responsible for the production and sales of TVs, monitors, refrigerators, washing machines, and air conditioners; and the IM Division focuses on the production and sales of HHPs, which includes smartphones, as well as network systems, and computers. The DS Division comprises the Semiconductor business which manufactures and sells DRAMs, Nand Flash, mobile APs, and other semiconductor-related products, and the DP Business, which manufactures and sells OLED and TFT-LCD display panels for mobile devices, TVs, monitors, and laptops. The Harman Division (acquired in 2017) manufactures and sells products such as Digital cockpit, telematics, and speakers.

<Major products, by business division>

Business division		Major products
CE Division		TVs, monitors, refrigerators, washing machines, air conditioners, etc.
IM Division		HHPs, network systems, computers, etc.
DS Division	Semiconductor	DRAM, NAND Flash, Mobile AP, etc.
	DP	OLED panels for smartphones, LCD panels for TVs and monitors, LCD monitor panels, etc.
Harman Division		Digital cockpit, telematics, speakers, etc.

The Company maintains its corporate headquarters and 29 consolidated subsidiaries in Korea.

The Company's corporate headquarters is divided along Divisions and/or Businesses, which are situated in Suwon, Gumi, Gwangju, Giheung, Hwaseong, Pyeongtaek, etc. The Company's 29 unlisted domestic subsidiaries include Samsung Display for display panel production, Samsung Electronics Sales for domestic retail sales, Samsung Electronics Service for after-sales services, and Samsung Electronics Logitech for logistics.

We have 212 unlisted overseas subsidiaries for product manufacturing, sales, and R&D, with locations in the US, Europe/CIS, Middle East/Africa and Asia.

We have 55 subsidiaries in North America, including SEA (New Jersey; responsible for the sales of set products including TV and HHPs), SII (California; manufacturing TVs), SAS (Texas; manufacturing semiconductor products), and Harman (Connecticut, Automotive component) in the US.

In Europe and CIS, we operate 75 subsidiaries. These include SEUK (UK), SEG (Germany), SEF (France), SEI (Italy) for sales of set products; SEH (Hungary) and SESK (Slovakia) for manufacturing TVs, and SEPM (Poland) for manufacturing home appliances such as refrigerators.

We have 19 subsidiaries in Middle East and Africa for product manufacturing and sales.

We have 30 subsidiaries in Asia (ex China), including SAPL (Singapore), SEAU (Australia), SEPCO (Philippines), and SME (Malaysia), which are responsible for regional sales. In addition, we operate numerous production sites including SIEL (India) for HHPs among other products, SEV and SEVT (Vietnam) for HHPs, SEHC (Vietnam) for TVs, and SDV (Vietnam) for DPs.

We operate 33 subsidiaries in China, including SCIC (Beijing) and SEHK (Hong Kong) for the sales of set products in those regions; and SSS (Shanghai) and SSCX (Xian) for semiconductors and DPs sales. Production sites for set products include SSEC (Suzhou) and semiconductor production facilities are located in SCS (Xian) among others.

☞ See G. Subsidiaries subject to consolidated financial statements in 『I. Corporate Overview』 for names of subsidiaries.

[CE Division]

☐ Industry overview

Since the first public demonstration of a true television system in 1926 and later mass production of color TVs, technological developments have led to the creation of products such as the Trinitron CRT (1967) and flat CRT (1996). As the penetration rate in major countries reached over 90%, the CRT TV business stagnated. The industry regained strong growth momentum following the launch of flat panel TVs ("FPTVs") like LCDs and PDPs, especially with the expansion of digital broadcasting (UK/US 1998~). FPTVs replaced CRT sets on the back of their enhanced design, picture quality, etc., combined with a sharp decline in prices.

The year 2010 saw the launch of 3D TVs, and the rise of internet video services along with increased consumer interest in smart devices from 2011 to 2012 led to the birth of the smart TV market. The evolution continued with the launches of UHD TVs and Quantum Dot QLED TVs boasting significantly enhanced resolution and picture quality, and with commercialization of 8K and MicroLED TVs.

☐ Market condition

The market trend toward large, high-resolution screens is accelerating due to intensified competition between devices and manufacturers. Accordingly, market shares of major players with high-quality products and brand power are rising. In addition, as consumer demand for high-resolution screens and slim designs increase, LED TVs, with eco-friendly LED back light units—which increase brightness, contrast, and energy efficiency—have become the mainstream in the market.

In 2017, overall TV demand was 215.1 million units, with LCD-TVs accounting for 99% of the sales. In 2018, overall TV demand increased 2.9% compared to the previous year, hovering around 221 million units. In 2019, overall TV demand was 222.91 million units. Amid growing needs for large, high-definition screens, UHD TV demand increased by 20% year-on-year, and the market for ultra-large TVs (75-inch and larger) grew approximately 88% year-on-year backed by our efforts to create demand. In 2019, QLED TV demand increased about 105% year-on-year based on our dedication to improving product quality and on rising demand for premium products.

In 2020, market players continued to strive for innovations in picture quality, sound, and form factor to create demand for premium TVs. In addition, TV demand in 2020 increased slightly to 225.35 million, despite the global spread of COVID-19, due to the stay-at-home trend and 2H release of pent-up demand. In 2021, TV demand is projected at approximately 224 million units (Source: *Omdia*; 4Q20 data).

< Market share of the CE Division's key product >

Product	2020	2019	2018
TV	31.9%	30.9%	29.0%

Global market share in revenue; data from research firm *Omdia*.

☐ Business condition

We have maintained the top position in the overall TV market for fifteen straight years since claiming the number one spot in 2006.

In 2017, the Company created a new category by releasing QLED TVs, offering accurate color expression regardless of brightness and allowing viewers to enjoy unsurpassed image quality. Furthermore, collaborating with renowned artists and galleries, we introduced The Frame TV, a product that exhibits famous art or pictures as well as personal images, transforming any living space into an aesthetically pleasing gallery. Moreover, our concept of 'Screen Everywhere' unlocks replacement opportunities for displays.

In 2018, our strategic focus to strengthen premium leadership consisted of two pillars: QLED and ultra-large screens. We aimed to elevate the viewer experience to another level by improving image quality even further by increasing contrast ratio through our local dimming technology, allowing users to conveniently enjoy a wide variety of content on TV, and

improving connectivity via AI or IoT technologies.

In 2019, we released world's first 8K TV in the global market, once again leading the premium segment in the TV industry. Our QLED lineup includes sizes ranging from mid-sized to ultra-large screens, giving customers a variety of choices. In addition, the significantly improved picture quality was well received by consumers and experts alike. We achieved solid results by introducing ultra-large screens in the UHD lineup as well as in the QLED lineup.

In 2020, we enhanced our leadership and dominance in the market with 4K and 8K QLED TVs and new Lifestyle TVs such as The Premier and The Sero despite a global economic crisis due to COVID-19.

In 2021, we will enhance our premium product lineup by launching 80"–110" Neo QLED TVs featuring significantly enhanced contrast and picture quality as well MicroLED TVs for homes. Moreover, we will increase the portion of Lifestyle products and sound bars, diversify smart functions including TV plus, home training, games, and expand partnership with various companies. We will also strengthen our efforts toward becoming an eco-friendly business, from raw materials to packaging, and we will enhance accessibility to support the use of our products by the visually impaired and hearing impaired.

[IM Division]

☐ Industry overview

Mobile phones are the key product of the IM Division, and the mobile phone industry started with first generation analogue devices in the early 1980s and evolved to second generation digital ones, using technology such as CDMA and GSM, where users could send voice and text messages. Third generation mobile communication standards such as WCDMA allowed users to send photos and videos. Today, fourth generation LTE mobile communication technology with ultra-high-speed data transmission is becoming commonplace and was used in 59% of phones sold in 2020 (*Strategy Analytics*, February 2021). Fifth generation mobile communication services, which will lead innovation alongside the fourth industrial revolution, were successfully commercialized in Korea and the US and are expanding to Europe and Australia. As a result, sales of 5G smart phones are projected to increase sharply to 610 million units in 2021 from 270 million units in 2020 (*Strategy Analytics*, December 2020).

The smartphone industry has grown significantly since 2007. In 2020, the smartphone portion of total HHPs was 76%, and the feature phone portion of the total was 24%, with the latter related to demand in developing nations (*Strategy Analytics*, February 2021). In 2021, the penetration rate of smartphones will reach 52%, slightly increasing from 50% in 2020 (*Strategy Analytics*, December 2020).

Also, as the smartphone market shows high saturation, the importance of competitive software and services—such as applications, UX, mobile payments, AI, and AR—is rising alongside that of competitive hardware, which includes high-performance APs, AMOLED displays, foldable form factors, multiple cameras, sensors, waterproof & dustproof features, biometric recognition, and more.

☐ Market Condition

The smartphone market is projected to grow from 1.30 billion units in 2020 to 1.47 billion units in 2021 amid an expansion of 5G. Meanwhile, the tablet market that increased from 160 million units in 2019 to 190 million in 2020 due to an increasing trend of working and learning from home, is expected to be 170 million units in 2021. (*Strategy Analytics*; December 2020, January 2021).

< Market share of the IM Division's key product >

Product	2020	2019	2018
HHP	16.2%	17.5%	17.4%

Global market share in sales volume; data from research firm *Strategy Analytics.*

☐ Business condition

SEC has always been at forefront of the HHP market, and for smartphones in particular, we have maintained leadership in the global market for ten consecutive years since 2011. To solidify our status in the overall mobile market, we are striving to improve our current products—including tablets, wearables, and accessories—while growing businesses in areas with high potential, such as the service, online, and B2B sectors.

For smartphones, we are establishing optimal portfolios for each region, accounting for varying market conditions and the competitive environment, offering a wide smartphone lineup ranging from mass-market to premium devices. We have been providing premium smartphones—namely the S and Note series—and delivering differentiated user experiences that can meet customer needs via our cutting-edge technology that includes large-screen AMOLED displays, Edge displays, Infinity Displays, Bluetooth S-pen, water- and dust-proofing, high-speed and wireless charging, wireless power sharing, and ultrasonic fingerprint-on-display (FoD), 100x zoom for pictures and 8k video recording, among others. In 2019, we secured early leadership in the 5G market with the release of the world's first 5G smartphone while also creating a new market with Galaxy Fold, enabled by foldable displays. In 2020, we continued to lead mobile technology trends with the launch of Galaxy Z Flip, a new form factor that folds from top down, and a further evolved edition Galaxy Z Fold 2.
To respond to an ever-changing market as well as customer needs, we are strengthening product competitiveness by introducing innovative features such as 5G, quad cameras, large infinity displays, and high-capacity batteries even to mid-range-and-below products.

We provide our smartphone users with a wider and more convenient experience via our other products, which include premium tablets (Galaxy Tab S), wearable devices (smart watch, Bluetooth earphone), and accessories (wireless quick charging stand).

Not content to dwell on our achievements in hardware, we have been focusing on delivering new and helpful services like Samsung Pay, Samsung Health, and SmartThings. To deliver a consistent and high-quality Multi-Device Experience, we are adding Bixby features to a suite of products in addition to smartphones, including TVs, refrigerators, air conditioners, etc.

Moreover, we are strengthening strategic partnerships to expand our ecosystem. As always, we will continue to invest in any field that has growth potential, with current targets including but not limited to 5G, AI, IoT, cloud, AR, blockchain, and mobile B2B, while leveraging our superior R&D capabilities to keep delivering new value to customers.

[DS Division]

- *Semiconductor*

☐ Industry overview

In general, our Semiconductor business is divided into Memory (storage) and System LSI (logical processing). Memory semiconductor is divided into RAM products (random access memory, ones that can be both written on and read) and ROM products (read only memory).

RAM is called volatile memory as the information is deleted when the power is turned off. It is used for temporary loading and storage of application programs. ROM is nonvolatile and holds memory even when power is removed; it is used in input/output system, IC cards, and more. For System LSI products, there are many categories for various applications, with CPUs (central processing units) for PCs, mobile devices, and servers forming the largest market. System LSI products are used in myriad areas, such as household electronics, networks, and games. The Company manufactures image sensors as well as mobile APs for smartphones and tablets.

The Foundry Business makes customized semiconductors for other companies based on customer designs. The business resembles OEMs in the traditional manufacturing industry in the sense that companies consign the manufacturing of their products to fabrication plants, also called foundries or fabs. Due to increasing difficulty in semiconductor process and growing investment cost, the number of fabless semiconductor companies is growing.

☐ Market condition

The memory market in 2020 was volatile, affected by growing server demand due to increasing cloud service in 1H and stronger demand for mobile and PCs from a sharp increase in demand related to the contactless trend and expectations for an economic recovery in 2H, all amid uncertainties due to COVID-19 and trade conflicts between the US and China.

In 2020, DRAM demand grew approximately 22% year-on-year, led by server application products. In 2021, the market is expected to expand by about 15% with the acceleration of a digital transformation mainly from contactless businesses. Smartphone and datacenter server demand is also expected to increase as the economy recovers (*IDC*; December 2020). We will preemptively respond to post-COVID-19 changes through high-capacity, differentiated products that capitalize on our advantages in product competitiveness.

< Market share of the Semiconductor Business's key product >

Product	2020	2019	2018
DRAM	43.1%	43.7%	43.9%

Global market share in revenue; data from research firm *DRAMeXchange* (data for 2020 is Company estimate).

☐ Business condition

In 2020, the Company performed solidly by sensibly navigating the crisis and addressing demand from contactless industry in a timely manner amid the prolonged pandemic and exacerbating uncertainties due to the US-China trade dispute.

We are the only Company in the memory semiconductor industry using the EUV (extreme ultraviolet) lithography process in the mass production of memory semiconductor, having been the first to secure the core technology for developing next-generation DRAM and once again achieving a breakthrough in advanced processes in semiconductor. Capitalizing on the breakthrough, we will lead the market by enhancing cost competitiveness and perfecting the performance, features, and quality of our products. In addition, we are strengthening new growth engines for post-COVID-19, which include AI and edge computing. In V-NAND, where we have technological advantages, we will continue migrating to 6th-generation V-NAND, which uses stacking technology, to solidify the technology leadership and cost competitiveness that we developed with our advanced technology. The product will feature in high-performance SSDs for the premium market. We are expanding our market share in all applications by securing our leadership in high-capacity mobile products and competitive features. To grow in a rapidly changing business environment, we will increase our portion of differentiated products based on advanced technology and will lead the market by offering product lineups best suited for each application area.
System LSI grew stronger year-on-year by increasing sales of our mobile products—including 5G modem-embedded SoCs (system on chip), high-resolution image sensors, high-scan-rate display driver ICs, among others—as our major customers increased sales thanks to aggressive work to gain footholds in market to benefit from US sanctions against Huawei; and on sales of products with new technology amid the increasing trend of COVID-19-induced remote working and learning. We are preparing for 2021 by expanding our presence in emerging business areas—including automotives, wearables, and custom SoCs—where strong growth is expected and by expanding our foundry customer base.

In the Foundry business, demand continues to be strong as smartphone manufacturers look to benefit from US sanctions against Huawei and compete for market share; and as companies look to secure inventory due to the pandemic and compete in the finished product business for strong demand for PCs and laptops (used for remote working and learning induced by COVID-19 precautions), which translates to competition for early dominance in production capacity of fabless customers. We will maintain solid growth by enhancing our manufacturing capacity and addressing demand via ramping-up our EUV line, and starting operations early at our new Pyeongtaek line. Competing with TSMC as the top two players in advanced node process technology, we began to supply 1st-generation 5-nano products in 4Q20 and are focusing on increasing production yield. With "Innovating development, manufacturing, infrastructure" in mind, we will start mass production of 2nd- and 3rd-generation 5-nano products concurrently in 2H21. Also, we will solidify a foundation for growth in the mid to long term, by leading future technology with the development of next-generation transistor GAA (gate all around) and by securing orders of the product from large-scale customers. In terms of legacy processes, we are expanding our customer base and areas of application from our mobile-focused business model to include HPC, consumer,

networks, and automotives; diversifying our production portfolio, which already includes CISs, DDIs, PMICs, and more; and focusing on simplifying nodes and maximizing operational efficiency of our manufacturing line. For our 8-inch products, we are committed to improving profitability by adjusting to market conditions and focusing on highly-profitable products amid a shortfall in supply.

- DP

☐ Industry overview

Display refers to screens in electronic devices. Active matrix technology is most commonly used in displays, including OLED (organic light emitting diode) panels and TFT-LCD (thin film transistor liquid crystal display).

OLED panels use organic materials, which offer sharp contrast and color, high color gamut, and fast response rates. Such differentiating features provide advantages for use in smartphones where display features (multimedia contents, online experience, etc.) are important, and as a result, OLED adoption in the smartphone market is growing rapidly.

The market had raised concerns over the production of high-resolution, durable panels, but we overcame various technological challenges and advanced the business. OLED panels make up for the shortcomings of LCD panels, and they can be adopted in other applications such as foldable, rollable, and automotive. Growth of the OLED market is widely expected to keep accelerating.

A TFT-LCD panel is a liquid crystal based display that features a thinner and lighter profile while offering high resolution. It has a wide range of potential applications in devices of all sizes and functionality, from portable mobile devices to large-size TVs featuring bright, high-resolution images. The market for large-panel TFT-LCD grew rapidly as their use moved from laptops initially to monitors and then to TVs. Recently however, high saturation has caused growth to slow.

☐ Market condition

As market uncertainties escalate due to intensifying competition and soft consumer sentiment caused by COVID-19, the market for mobile display—our core product—was 1.55 billion units (1.10 billion TFT-LCD and 0.45 billion OLED) for 2020. The market for smartphone OLED panels in 2021 is expected to be around 600 million units and is forecast to continue expanding with the growth of 5G smartphone demand (*Omdia*, January 2021).

In the large display market, overall demand for TVs and monitors weakened due to COVID-19, but demand for ultra-large, ultra-high resolution TVs increased. Demand for IT devices grew more than expected due to the increasing trend of working and learning from home.

< Market share of the DP Business's key product >

Product	2020	2019	2018
Smartphone panels	43.8%	43.6%	47.6%

Global market share in revenue; data from research firm *Omdia* (data for 2020 is an estimate).

☐ Business condition

The Company has continued to stay atop the mobile OLED market in terms of market share since it successfully commercialized OLED products in 2007, marking a world's first. We diversified our product group to include displays for foldable products, tablets, watches, laptops, and automotive applications, solidifying our position as the top player in the OLED display market.

With both flexible and rigid OLED, our optimal smartphone product portfolio ranges from mass-market to premium devices as we proactively address customers' specific needs; and we are recognized as having best-in-class technology through our introduction of foldable and OLED IT products with differentiated technologies and designs.

In 2021, smartphone demand, which had been weakened by the pandemic, is expected to recover gradually due to an acceleration of 5G services. However, we expect uncertainties to linger due to shifting dynamics among players in the finished smartphone market and changes in competition between panel manufacturers. We will apply new technologies that enhance power-efficiency and running speed and enhance cost competitiveness to increase adoption of OLED panels. In addition, we will fortify our leadership by diversifying the mobile panel business, which is currently concentrated on smartphones, and expand our product portfolio to include foldable and IT devices.

In the large panel business, we will ensure a timely transition to QD display with differentiated technology and secure a strong foothold in the premium product group.

[Harman Division]

☐ Industry overview

The automotive component and lifestyle audio business are highly competitive and growing rapidly.

For the connected car business in the automotive industry (digital cockpit, telematics, car audio, etc.), competition is expected to remain fierce between dominant players (eg, Alpine, Aptiv, Continental, Mitsubishi, Panasonic and Visteon) and new entrants as consumers expect car makers to deliver the latest technologies, including autonomous driving.

Car audio systems is another segment where several major players (eg, Bose, Pioneer, and Panasonic) are competing fiercely, which is expected to drive technological advances as each player introduces unique sound-management solutions. As such, competition is expected to remain intense.

Lifestyle audio business has two segments: consumer audio and professional audio. Consumer audio (smart audio, headphones, connected audio solutions, etc.) is fragmented and a handful of companies (Amazon, Apple, Beats, Bose, Ultimate Ears, etc.) are showing early signs of dominance. We expect competition to remain intense as new players try to make inroads, given the saturated market for connected homes and smart speakers. In particular, for Bluetooth headsets, for which smartphone manufacturers dominate market share, is expected to grow explosively.

The professional audio industry (commercial audio, audio for large venues, lighting, video & control solutions, etc), led by QSC and Yamaha, is segmented by product and has seen the entrance of numerous companies offering a wide range of products and applications. We expect competition to keep intensifying as connected homes and smart speakers gain popularity and on the entrance of new players from other industries.

☐ Market condition

In 2020, global automobile production, which directly influences the automotive component business, decreased by 16% year-on-year. Although production volume in 1H20 declined due to the pandemic, it rebounded slightly in 2H20 and is expected to normalize in 2021 and result in 17% year-on-year growth. (*LMC Global Production Forecast,* December 2020). However, semiconductor shortages for automobiles may pose an additional risk factor to car production in 1H21.

< Market share of Harman Business's key product >

Product	2020	2019	2018
Digital cockpits	27.5%	24.8%	18.8%

Digital cockpits refer to the digital automotive component which enables safe driving environment via infotainment system, etc.
Product group named changed from headunit to digital cockpit from 2020.
Company estimates based on *Omdia* and LMC data (by unit).

☐ Business condition

Harman is positioned to stay atop the automotive market and plans to continue to leverage its wide variety of brands to outfit vehicles ranging from mass-market thorough to luxury models, while also maintaining the quality that is synonymous with Harman brands. Additionally, Harman's relentless pursuit of innovation in the audio and connectivity spaces will help ensure the development of thriving relationships with automakers.
Additionally, Harman has continued to develop its Connected Services business with industry leading OTA (Over the Air) and software servicing products.

The same factors that Harman relies on within the automotive market will also be used in the consumer/professional audio market. Having won three Grammy Awards and two Academy Awards, Harman's brands have earned a strong reputation amongst everyday consumers and audiophiles alike. New offerings in up-and-coming segments such as connected wireless and smart audio continue to help bring in new consumers and further enhance brand reputation.

In 2020, the COVID-19 pandemic created a challenging business environment, marked by halt in automobile production, a decline in daily travel and thus potential consumers, the closing of retailers, etc. The professional audio solution business of the Harman Division, in particular, is expected to feel the impact of a reduction in the number of large-scale gatherings and events. We are enhancing cost efficiency by reducing marketing activities. Although we are decreasing capex, we will strengthen our position as a market leader in automotive components and other businesses by continuing to implement innovative projects.

B. Financial Summary, by Division

(KRW 100 mil)

Division		Classification	2020		2019		2018	
			Amount	Portion of corresponding total	Amount	Portion of corresponding total	Amount	Portion of corresponding total
CE		Sales	481,733	20.3%	453,228	19.7%	426,498	17.5%
		Operating profit	35,615	9.9%	25,090	9.0%	19,073	3.2%
		Total asset	602,487	11.4%	680,244	13.5%	492,302	10.1%
IM		Sales	995,875	42.1%	1,072,662	46.6%	1,006,777	41.3%
		Operating profit	114,727	31.9%	92,725	33.4%	101,720	17.3%
		Total asset	1,682,692	31.8%	1,432,804	28.5%	1,243,340	26.2%
DS	Semi-conductor	Sales	728,578	30.8%	649,391	28.2%	862,910	35.4%
		Operating profit	188,050	52.2%	140,163	50.5%	445,739	75.7%
		Total asset	1,863,977	35.3%	1,791,177	35.6%	1,515,782	31.9%
	DP	Sales	305,857	12.9%	310,539	13.5%	324,650	13.3%
		Operating profit	22,369	6.2%	15,813	5.7%	26,198	4.4%
		Total asset	661,929	12.5%	642,264	12.8%	641,543	13.5%
	Total	Sales	1,030,361	43.5%	955,180	41.5%	1,185,656	48.6%
		Operating profit	211,202	58.7%	155,817	56.1%	465,164	79.0%
		Total asset	2,741,270	51.9%	2,451,438	48.8%	2,425,593	51.1%
Harman		Sales	91,837	3.9%	100,771	4.4%	88,437	3.6%
		Operating profit	555	0.2%	3,223	1.2%	1,617	0.3%
		Total asset	147,020	2.8%	156,091	3.1%	150,599	3.2%

Sales for each business unit includes intersegment sales.
CE data for 2019 and 2018 are restated to include the Health & Medical Equipment Business.
2018 data shown in conformity with K-IFRS 1017 (Lease), etc.

In 2020 by Division, CE reported net sales of KRW 48,173.3 billion (20.3% of total net sales) and IM reported net sales of KRW 99,587.5 billion (42.1%). DS contributed approximately 43.5% of net sales: KRW 72,857.8 billion (30.8%) by the semiconductor sub-division and KRW 30,585.7 billion (12.9%) by the DP Business Unit. The Harman Division reported net sales of KRW 9,183.7 billion (3.9%).

In 2020, the CE Division accounted for 9.9% of total operating profit with an operating profit of KRW 3,561.5 billion; the IM Division accounted for 31.9% with KRW 11,472.7 billion; and the DS Division accounted for 58.7% with KRW 21,120.2 billion. The Harman Division posted an operating loss of KRW 55.5 billion.

☐ Reasonable allocation of common SG&A (selling general & administrative) expenses and assets

(1) For common SG&A expenses, specific expenses that are allocable to a specific product/model are allocated to such product/model. However, common expenses that cannot be attributed to a specific product/model category are reasonably allocated throughout the Company based on an allocation standard (expense-to-sales ratio, number of personnel, etc.).

(2) For common assets, assets that can be directly allocated (inventory assets, fixed assets, investment assets, etc.) are allocated to the corresponding organizational unit. Assets that are commonly managed and cannot be directly allocated are allocated to each Division based on an allocation standard (expense-to-sales ratio, pre-tax profit, etc.).

2. Key products and service

A. Revenue

SEC is involved in production and sales of set products, including TVs, refrigerators, washers, air conditioners, HHPs and components such as semiconductors (DRAM, NAND Flash, mobile APs) and display panels. Through Harman, the Company also produces and sells products such as digital cockpits and telematics.

In 2020, CE reported revenue of KRW 48,173.3 billion (20.3% of total net sales) and IM reported revenue of KRW 99,587.5 billion (42.1%). DS contributed approximately 43.5% of revenue, reporting KRW 103,036.1 billion. The Harman Division reported net sales of KRW 9,183.7 billion (3.9%).

(KRW 100 mil)

Division		Major products	Revenue	Portion
CE		TVs, monitors, refrigerators, washing machines, air conditioners, etc.	481,733	20.3%
IM		HHPs, network systems, computers, etc.	995,875	42.1%
DS	Semiconductor	DRAM, NAND flash, mobile APs, etc.	728,578	30.8%
	DP	OLED smartphone panels, LCD TV panels, LCD monitor panels, etc.	305,857	12.9%
	Others	-	(4,074)	(0.2%)
	DS total		1,030,361	43.5%
Harman		Digital cockpit, telematics, speakers, etc.	91,837	3.9%
Others		-	(231,736)	(9.8%)
Total			2,368,070	100.0%

Revenue includes sales between Divisions.

☞ See 『5. Sales and distribution』 for sales by each product.

B. Average selling price changes

In 2020, the ASP of TVs decreased approximately 7% and that of HHPs increased approximately 2% year-on-year. The ASP of memory products fell by approximately 11% year-on-year, whereas display panel ASP increased approximately 8%. The ASP of digital cockpits declined approximately 8% year-on-year.

3. Key production materials

A. Key production materials

For the CE Division, key materials include display panels, which are supplied by AUO and other companies. For the IM Division, key materials include camera modules and mobile AP, which are supplied by Semco, Qualcomm and others. For the DS Division, key materials include Wafer, chemicals, FPCAs, windows, POL with suppliers including SK Siltron, Soulbrain, BH, Apple, DongWoo Fine-Chem. Etc. For the Harman division, key materials include SoC products and memory products for in-vehicle solutions, which are supplied by Nvidia, Avnet, etc.

(KRW 100 mil)

Division		Item	Specific usage	Purchase price	Portion[1)]	Main supplier(s)
CE		Display panel	Color picture signaler for TV, Monitor	54,483	23.7%	AUO, CSOT, etc.
		Others	-	175,127	76.3%	
		Division total		229,610	100.0%	
IM		Camera module	Camera for Mobile	59,091	17.2%	Semco, MCNEX, etc.
		Mobile AP	CPU	56,356	16.4%	Qualcomm, MediaTek, etc.
		Display panel	Color picture signaler for Mobile	18,785	5.5%	BOE, CSOT, etc.
		Others	-	208,497	60.9%	
		Division total		342,729	100.0%	
DS	Semiconductor	Wafer	Semiconductor disk	20,314	8.1%	SK Siltron, SUMCO etc.
		Chemical	Disk processing	15,306	6.1%	Soulbrain, DongWoo Fine-Chem, etc.
		Others	-	83,032	33.3%	
		Business Total		118,652	47.5%	
	DP	FPCA	Circuit	21,900	8.8%	BH, Union, etc.
		Window	Tempered glass	20,265	8.1%	Apple, Biel, etc.
		POL	Polarizer plate	13,702	5.5%	Dongwoo Fine-Chem, Samsung SDI, etc.
		Others	-	72,514	29.0%	
		Business Total		128,381	51.4%	
	Others	-	-	2,580	1.1%	
	Division Total			249,613	100.0%	
Harman		SoC	Chips for vehicles	4,043	8.1%	Nvidia, Renesas, etc.
		Automotive memory chip	Chips for vehicles	3,152	6.3%	Avnet, Microchip, etc.
		Others	-	42,842	85.6%	
		Division total		50,037	100.0%	
Others		-	-	581	-	
Total				872,570	-	

Purchase price does not include sales between Divisions.
Semco and Samsung SDI are subsidiaries.
Portion of purchase price of each item compared to total purchase price for the Division's raw materials.

B. Production material price trends

The price of TV and monitor display panels, which are the major production materials for the CE Division, increased approximately 2% year-on-year. For the IM Division, compared to last year, the price of camera modules and display panels for mobile increased approximately 2% and 14% respectively. The price of mobile AP also increased approximately 7%. For the DS Division, the price of wafers for semiconductor disks declined approximately 2%, while the price of FPCAs increased approximately 17% year-on-year. Prices of tempered glass windows increased approximately 1% year-on-year. The price of POL for polarizing plates decreased approximately 1% compared to the previous year. For the Harman division, the prices of memory for vehicles and SoC products decreased by about 6% and 2% respectively, compared to levels in the previous year.

4. Production and facilities

A. Production capacity, output, utilization rate

(Capacity)

(1,000 units)

Division	Item	Capacity		
		2020	2019	2018
CE	Image devices	51,538	51,418	60,699
IM	HHP	321,600	346,960	397,497
DS	Memory	1,230,287,000	988,104,000	711,023,000
	Display panel	7,274	8,236	9,167
Harman	Digital cockpit	9,362	7,921	5,238

Production capacity for major product categories on a consolidated basis.
CE data for 2019 and 2018 are restated to expand the range of products from TVs to image devices, including monitors.

The CE and IM Divisions' production capacity, by major product, is calculated as follows:

- the average number of lines (x) the average output per hour (x) the average operation hours per day (x) standard days of operation

Memory production capacity for the DS Division is calculated as follows:

- converted output (after packaging, 1Gb equivalent) ÷ the utilization rate

Display panel production capacity is calculated as follows:

- the total producible panel surface area ÷ the dimensions of eighth generation glass (2200x2500mm)

Harman's production capacity for Digital cockpit is calculated as follows:

- the number of production (assembly and test) cells for each customer/product (x) the average production capacity per hour by production cell (x) the average operation hours per day (x) standard days of operation

(Output)

In 2020, the CE Division's output of image devices was 48,244 thousand units (major production sites: Mexico, Vietnam, Brazil, and Hungary). The IM Division's output of HHPs was 249,218 thousand units major production sites: Korea [Gumi], Vietnam, India, and Brazil. The DS Division's memory output (1Gb equivalent) was 1,230,287 million (major production sites: Korea [Hwaseong, Pyeongtaek] and China). The DP Division's output of display panels was 5,977 thousand units (major production sites: Korea [Cheonan, Asan], China). The Harman Division's Digital cockpit output was 6,116 thousand units.

(1,000 units)

Division	Item	Output		
		2020	2019	2018
CE	Image devices	48,244	43,964	42,758
IM	HHP	249,218	318,635	346,605
DS	Memory	1,230,287,000	988,104,000	711,023,000
	Display panel	5,977	6,567	7,599
Harman	Digital cockpit	6,116	6,459	3,906

Output for major product categories on a consolidated basis.
CE data for 2019 and 2018 are restated to expand the range of products from TVs to image devices, including monitors.

(Utilization rate)

In 2020, CE and IM utilization rates were calculated as actual output relative to production capacity. The utilization rates were 93.6% for Image devices and 77.5% for HHPs.

(1,000 units)

Division	Item	2020		Utilization rate
		Production capacity	Output	
CE	Image devices	51,538	48,244	93.6%
IM	HHP	321,600	249,218	77.5%

The DS Division operates memory and display panel production in three shifts (24 hours a day). Cumulative operating days including holidays were 366 days in 2020. The utilization rate was calculated as actual hours [operating days (x) number of production lines (x) 24 hours] relative to production capacity.

(Hours)

Division	Item	2020		Utilization rate
		Potential production time	Actual production time	
DS	Memory	73,248	73,248	100.0%
	Display Panel	70,272	70,272	100.0%

In 2020, Harman's utilization rate was 65.3% and was calculated as actual output relative to production capacity.

(1,000 units)

Division	Item	2020		Utilization rate
		Production capacity	Output	
Harman	Digital cockpit	9,362	6,116	65.3%

B. Production facilities and investment

(Key facilities for production and operation)

The Company's operational activities include manufacturing, development, marketing, and sales. In Korea, operations are located in Suwon, Gumi, Gwangju, Hwaseong, Pyeongtaek, and Asan. Overseas operations in North America, Europe, and China include a total of include nine regional headquarters under the CE and IM Divisions, five regional headquarters under the DS Division, and Harman and its subsidiaries.

[Operations]

Region	Operations	Location
Korea (12)	Suwon	Suwon
	Seocho	Seoul
	Woomyeon	Seoul
	Giheung	Yongin
	Hwaseong	Hwaseong
	Pyeongtaek	Pyeongtaek
	Cheonan	Cheonan
	Onyang	Onyang
	Asan	Asan
	Gumi1	Gumi
	Gumi2	Gumi
	Gwangju	Gwangju
Overseas (CE and IM Divisions - nine regional headquarters)	North America	New Jersey, US
	Europe	Surrey, UK
	China	Beijing, China
	Southeast Asia	Singapore, Singapore
	Southwest Asia	Haryana, India
	CIS	Moscow, Russia
	Middle East	Dubai, UAE
	Africa	Johannesburg, South Africa
	Latin America	Sao Paolo, Brazil
Overseas (DS Division - five regional headquarters)	Americas	San Jose, US
	Europe	Eschborn, Germany
	China	Shanghai, China
	Southeast Asia	Singapore, Singapore
	Japan	Tokyo, Japan
Harman	North America HQ	Connecticut, US

Harman's automotive business is mainly based in the US (Novi, MI) and in Germany (Garching), and its Lifestyle business is located in the US (Northridge, CA)

The Company's property, plant and equipment include land, buildings and structures, machinery and equipment, and construction in progress. As of December 31, 2020, their total book value was KRW 128,952.9 billion, which is an increase of KRW 9,127.4 billion from year-end 2020.

(KRW mil)

Classification		Land	Buildings and structures	Machinery and equipment	Under construction	Other tangible assets	Total
Dec 31, 2019	Book value	97,746	304,696	521,499	239,300	35,014	1,198,255
	- Acquisition cost	98,283	488,394	2,114,160	239,300	100,621	3,040,758
	- Accumulated depreciation (including impairment loss)	(537)	(183,698)	(1,592,661)	-	(65,607)	(1,842,503)
Change	General acquisition and capital expenditure	1,412	85,248	329,077	(34,439)	12,818	394,116
	Depreciation[1)]	(457)	(29,787)	(227,801)	-	(13,112)	(271,157)
	Disposal/discard/impairment	(203)	(2,799)	(4,257)	(6)	(1,096)	(8,361)
	Held for sale	(293)	(5,403)	(1,817)	(89)	(64)	(7,666)
	Others[2)]	(483)	(6,435)	(6,760)	(3,007)	1,027	(15,658)
Dec 31, 2020	Book value	97,722	345,520	609,941	201,759	34,587	1,289,529
	- Acquisition cost	98,509	550,264	2,330,565	201,759	104,966	3,286,063
	- Accumulated depreciation (including impairment loss)	(787)	(204,744)	(1,720,624)	-	(70,379)	(1,996,534)

Market value of major tangible assets is omitted as objective assessment is difficult.
1) Land-depreciation is depreciation expense of right-of-use asset as per K-IFRS 1116 (Lease).
2) Includes effects of FX rates and government subsidies.

(Capex)

The Company's capex in 2020 was KRW 38.5 trillion, which included establishing, adding, and upgrading production lines of the semiconductor and DP businesses. In 2021, we will enhance competitiveness of our major businesses by investing in areas such as infrastructure and memory node migration; as well as in capacity expansions in memory and system semiconductor and also in display.

[Capex, by division]

(KRW 100 mil)

Business	Purpose	Period	Assets	Investment
Semiconductor	Establishment, addition, upgrade	January–December 2020	Buildings, facilities, etc.	328,915
DP	Establishment, addition, upgrade	January–December 2020	Buildings, facilities, etc.	38,895
Other	Establishment, addition, upgrade	January–December 2020	Buildings, facilities, etc.	17,159
Total				384,969

5. Sales and distribution

A. Sales

In 2020, the Company recorded total revenue of KRW 236,807.0 billion, an increase of 2.8% year-on-year. By Division, when compared to the previous year, revenue of the CE Division and DS increased by 6.3% and 7.9%, respectively, while that of IM Division and Harman division decreased by 7.2% and 8.9%.

(KRW 100 mil)

Division		Sales types	Product categories	2020	2019	2018
CE		Goods, products, services, other	TVs, monitors, refrigerators, washing machines, air conditioners, etc.	481,733	453,228	426,498
IM		Goods, products, services, other	HHPs, Network systems, computers, etc.	995,875	1,072,662	1,006,777
DS	Semiconductor	Goods, products, services, other	DRAM, NAND flash, mobile APs, etc.	728,578	649,391	862,910
	DP	Goods, products, services, other	OLED panels for smartphones, LCD panels for TVs and monitors	305,857	310,539	324,650
	Others	-	-	(4,074)	(4,750)	(1,904)
	DS total			1,030,361	955,180	1,185,656
Harman		Goods, products, services, other	Digital cockpit, telematics, speakers, etc.	91,837	100,771	88,437
Others		-	-	(231,736)	(277,832)	(269,654)
Total				2,368,070	2,304,009	2,437,714

Includes sales between Divisions.
CE data for 2019 and 2018 are restated to include the Health & Medical Equipment Business.

(1) Sales, by major product (on a consolidated basis)

(KRW 100 mil)

Classification	2020	2019	2018
Image devices	277,118	261,775	252,939
Mobile devices	960,217	1,023,318	965,194
Memory	555,442	502,163	723,753
Display panels	305,857	310,539	324,650

Includes sales between Divisions

(2) Sales, by type

(KRW 100 mil)

Classification	2020	2019	2018
Products	2,235,963	2,188,604	2,380,547
Services and other sales	132,107	115,405	57,167
Total	2,368,070	2,304,009	2,437,714

Other sales consists of royalty income, etc.

(3) Sales, by region (on a separate basis)

(KRW 100 mil)

Classification		2020	2019	2018
Domestic		198,331	203,009	168,213
Export	Americas	476,768	437,434	464,124
	Europe	235,012	191,970	192,783
	Asia and Africa	315,598	329,705	330,903
	China	437,403	385,611	547,796
Total		1,663,112	1,547,729	1,703,819

Domestic consumption and exports on a separate basis.

B. Sales channels

(1) Domestic

Seller	Sales channel	Consumer
Manufacturer and buyer	Exclusive agencies	Consumer
	Distributor (general merchandise stores, discount stores, department stores, home-shopping, internet, etc.)	
	Telecommunication service provider (SKT Co., Ltd., KT Corp., LG Uplus Corp.)	
	B2B and online channels	

(2) Overseas

Seller	Sales channel					Consumer
Production subsidiaries	Regional sales office	Retailer				Consumer
		Dealer		Retailer		
		Distributor	Dealer	Retailer		
		Telecommunication service provider, automotive OEM				
		Direct sales (B2B and online channels)				
	Regional distribution office	Regional sales office	Retailer			
			Dealer	Retailer		
			Distributor	Dealer	Retailer	

(3) Sales ratio (global), by Channel

Channel	Wholesale	Retail	Special/direct sales	Others
Ratio	18%	30%	47%	5%

C. Sales methods and conditions

(1) Domestic

Classification	Channel	Collection	Incidental expense sharing
Exclusive	Retailer	Credit agreement (cash, 30 day credit) (credit applied within 100% of collateral)	Case specific cost sharing as determined by mutual agreement
Distributor	General merchandise store, discount store, department store, home shopping, internet, etc.	Case specific and contract specific	Case specific cost sharing as determined by mutual agreement
Telecommunication service provider	SKT Co., Ltd., KT Corp. LG Uplus Corp.	Case specific and contract specific	N/A
B2B and online channels	Corporate clients, etc.	Case specific and contract specific	N/A

(2) Overseas

Classification	Channel	Collection	Incidental expense sharing
Retailer	Retail store	Case specific and contract specific	Case specific cost sharing as determined by mutual agreement
Dealer	General merchandise store, discount store, department store	Case specific and contract specific	Case specific cost sharing as determined by mutual agreement
Distributor	Direct sales to local distributors	Case specific and contract specific	Case specific cost sharing as determined by mutual agreement
B2B and online channels	Corporate clients, etc.	Case specific and contract specific	N/A

D. Sales strategy

- Expand market leadership based on premium products such as smart devices
- Provide differentiated value to customers through brand, products, and services
- Strengthen marketing activities to boost demand from customer/market

E. Major customers

In 2020, major customers included Apple, Best Buy, Deutsche Telekom, Hong Kong Techtronics, and Verizon (listed alphabetically). Sales to the five major customers accounted for approximately 14% of total sales.

6. Long-term contracts

As of December 31, 2020, there were no long-term contracts that have a significant impact on the Company's financial statement.

7. Financial risk management

A. Financial risk management policy

The Company's financial risk management focuses on minimizing market risk, credit risk, and liquidity risk arising from operating activities. To mitigate these risks, the Company closely monitors each risk factor and operates corresponding financial risk management policies and program. The Company's use of derivative instruments for hedging risks are included in this program.

The finance team mainly carries out the Company's financial risk management. After implementing the global financial risk management policies, the finance team periodically measures, evaluates, and hedges financial risks.

Meanwhile, the Company manages exchange rate risk via monitoring exchange rates and conducting transactions through local finance centers in each major region (United States, United Kingdom, Singapore, China, Brazil, and Russia). Liquidity risk is managed by managing capital as a whole by each region.

The Company's assets that are under financial risk management consist of cash and cash equivalents, short-term financial instruments, financial assets at amortized cost, trade receivables and others. The Company's liabilities under financial risk management consist of trade payables, borrowings, and others.

B. Major financial risks

(1) Market risk

(Foreign exchange risk)

The Company operates internationally and is exposed to foreign exchange risks as it conducts transactions in currencies other than the functional currency of each entity. Major currencies that are exposed to foreign exchange risk include USD, EUR, INR, and others.

The Company focuses on minimizing the impact of foreign exchange fluctuation by maintaining the equal amount of assets and liabilities denominated in each foreign currency, irrespective of foreign exchange fluctuation considerations. To prevent exchange position, the Company's foreign exchange management policy requires normal business transactions, including import and export, as well as financing transactions such as depositing and borrowing, to be in local currency or for the cash-in currency to be matched up with the cash-out currency.

In order to effectively manage foreign exchange risk, the Company periodically monitors and evaluates exchange rate risk and strictly prohibits speculative foreign exchange transactions.

When currency rates change by 5%, the impact on profit or loss (before income tax effects) arising from financial assets and liabilities denominated in foreign currencies other than functional currency are as follows:

(KRW mil)

	December 31, 2020		December 31, 2019	
	Increase	Decrease	Increase	Decrease
USD	174,400	(174,400)	163,062	(163,062)
EUR	112,244	(112,244)	127,507	(127,507)
INR	21,959	(21,959)	64,153	(64,153)
JPY	(22,143)	22,143	(23,062)	23,062

(Interest rate risk)

Risk of changes in interest rates for floating interest rate financial instruments is defined as the risk that the fair value of components of the consolidated statement of financial position, and future cash flows of interest income (expenses) of a financial instrument, will fluctuate because of changes in market interest rates. The Company's position with regard to interest rate risk exposure is mainly driven by its floating interest rate debt obligations and interest-bearing deposits. The Company implemented policies and operates to minimize uncertainty arising from changes in interest rates and financial expenses.

Changes in profit or loss (before income tax effects) as a result of a 1%pt change in interest rates on floating interest rate financial assets and liabilities are presented below:

(KRW mil)

	December 31, 2020		December 31, 2019	
	Increase	Decrease	Increase	Decrease
Financial assets	81,013	(81,013)	70,183	(70,183)
Financial liabilities	(2,195)	2,195	(2,118)	2,118
Net effect	78,818	(78,818)	68,065	(68,065)

(Price risk)

The Company's investment portfolio consists of direct and indirect investments in equity securities classified as financial assets at fair value through other comprehensive income and financial assets at fair value through profit or loss, which is in line with the Company's strategy.

As of December 31, 2020, a price fluctuation in relation to marketable equity instruments (listed shares) by 1% would result in changes in other comprehensive income (before income tax effects) of KRW 69,101 million (2019: KRW 41,055 million), and in profit or loss (before income tax effects) of KRW 4,316 million (2019: KRW 1,630 million).

(2) Credit risk

Credit risk arises during the normal course of transactions and investing activities where clients or other parties fail to discharge an obligation. The Company sets and manages the client's and counterparty's credit limit, and evaluates their financial credit rating on a periodic basis based on the client's and counterparty's financial conditions, default history and other important factors. Adequate insurance coverage is maintained for trade receivables related to trading partners situated in higher risk countries.

Credit risk can arise from transactions with financial institutions which include financial instrument transactions such as cash and cash equivalents, savings, and derivative instruments. To minimize such risk, the Company transacts only with banks which have strong international credit rating (S&P A and above), and all new transactions with financial institutions with no prior transaction history are approved, managed and monitored by the Company's finance team and the local finance center. The Company generally enters into a financial agreement with no restrictions, such as debt ratio covenants, provision of collateral, and loans or borrowings repayment. The Company requires separate approval for contracts with restrictions.

The Company estimates that its maximum exposure to credit risk is the carrying amount of its financial assets, net of impairment losses.

(3) Liquidity risk

Due to the nature of the Company's business that requires making large investments, maintaining adequate level of liquidity risk is crucial. The Company maintains and manages adequate level of liquidity by periodically forecasting its capital balances, estimating required cash, managing income and expenses, and others.

The Company efficiently manages its liquidity risk by periodically forecasting projected cash flows and by utilizing regional cash pooling, which allows for the use of internal funds when there is a shortage of cash in a region. The cash pooling program allows sharing of surplus funds among entities and contributes to minimizing liquidity risk and strengthening the Company's competitive position by reducing capital operation expenses and financial expenses.

In addition, the Company's headquarters provides payment guarantees to overseas subsidiaries to secure credit limit to brace for a potential large-scale liquidity need.

The following table is an undiscounted cash flow analysis for financial liabilities according to their remaining contractual maturity.

a) December 31, 2020

(KRW mil)

	Less than 3 months	~6 months	~12 months	1–5 years	More than 5 years
Financial liabilities	44,988,792	733,776	1,651,951	3,945,429	578,346

b) December 31, 2019

(KRW mil)

	Less than 3 months	~6 months	~12 months	1–5 years	More than 5 years
Financial liabilities	41,041,672	655,089	1,603,676	4,241,964	1,381,109

The table above shows the Company's financial liabilities based on the remaining period at the consolidated statement of financial position date until the contractual maturity date. The amounts disclosed in the table are the contractual undiscounted cash flows.

The Company's derivative financial liabilities of KRW 47,704 million (December 31, 2019: KRW 63,496 million) has been included within the less than 3 months bucket. These are the Company's trading portfolio of derivative instruments, on a net settlement term, of which the contractual maturities are not essential for understanding its cash flows. These contracts are managed on a net fair value basis rather than by maturity date. Net settled derivatives consist of forwards on currency rates used by the Company to manage the exchange rate profile.

Derivatives that are settled on a gross basis by delivery of the underlying item, including derivatives for hedging, will be settled within the next 41 months from the end of the reporting period. These derivative are not included in the table above.

There is no maximum liquidity risk exposure from those other than the above financial liabilities.

(4) Capital risk

The purpose of capital management is to protect our capability of continuously providing profit to our shareholders and stakeholders and to maintain a sound capital structure. To this end, the Company monitors capital on the basis of credit rating and the ratio of total liabilities to total equity.

As of December 31, 2020, the Company has an AA- and Aa3 credit rating from S&P and Moody's, respectively, and the figures for total liabilities and total equity are as follows:

(KRW mil, %)

	Dec 31, 2020	Dec 31, 2019
Total liabilities	102,287,702	89,684,076
Total equity	275,948,016	262,880,421
Total liabilities to equity ratio	37.1%	34.1%

8. Derivative instruments and put options

The company holds convertible preferred shares of Corning Incorporated and its value as of December 31, 2020 is as follows.

(KRW mil)

	Purchasing price	Fair value	Valuation gain	Valuation loss
Convertible preferred shares	2,434,320	4,775,362	2,341,042	-

Fair value is determined using Trinomial Tree model; valuation gains reflected in equity (other components of equity).
Valuation conducted by Earnest & Young Global Limited

To manage foreign exchange risk, SEC's subsidiaries hedge their foreign currency positions by trading currency forward contracts of currencies other than won. Overseas subsidiaries buy or sell currency forwards through a bank in the purpose of trade and hedging.

As of December 31, 2020, the Company had 2,531 currency forward contracts involving 34 foreign currencies including USD/EUR/JPY. Currency forwards as of December 31, 2020 were as follows:

(KRW mil)

	Asset	Liabilities	Valuation gain	Valuation loss
Currency forwards	71,069	96,674	1,036,818	848,475

The Company applies cash flow hedge accounting to hedge the foreign currency risk of forecast transactions, including hedging the price risk associated with forecast inventory purchases. Details of derivative financial instruments that qualify as cash flow hedges as of December 31, 20120 are as follows:

(KRW mil)

	2020		2019	
	Asset	Liabilities	Asset	Liabilities
Currency forwards				
Current items	11,311	22,236	20,946	5,396
Non-current items	11,999	19,694	5,498	5,144
Total	23,310	41,930	26,444	10,540

During the year ending December 31, 2020, the Company recognizes the losses relating to the effective portion of changes in fair value of derivatives that are designated and qualify as cash flow hedges in other comprehensive income, which amounted to KRW 33,406 million (after tax), and it recognizes the losses relating to the ineffective portion in profit or loss, which amounted to KRW 27 million (before tax). Gains reclassified directly from other comprehensive income to profit or loss amounted to KRW 4,664 million (after tax), and gains reclassified from other comprehensive income to the carrying amount of inventory amounted to KRW 3,792 million (after tax).

9. Major contracts

Account	Contract information	Contents
Ericsson	Type	Patent cross-license agreement
	Date	Jan 25, 2014 (~2020)
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing
Google	Type	Patent cross-license agreement
	Date	Jan 25, 2014 / indefinite term
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing
	Others	Permanent license contract (including patent applications in the next 10 years)
Cisco	Type	Patent cross-license agreement
	Date	Jan 23, 2014
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing
Global Foundries Inc.	Type	Process technology license agreement
	Date	Feb 28, 2014
	Purpose and contents	Expand customer base of 14nm process
InterDigital	Type	Patent license agreement
	Date	Jun 3, 2014
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through patent licensing
HP	Type	Printing solutions business sales agreement
	Date	Sep 12, 2016
	Purpose and contents	Concentrate on our core competencies and advance business structure
	Others	Transaction value: USD 1.05 billion
Qualcomm	Type	Patent cross-license agreement (amendment to the existing agreement)
	Date	Jan 1, 2018–Dec 31, 2023
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing and signing of covenant not to sue
	Others	-
Apple	Type	Withdrawal of lawsuit agreement
	Date	Jun 26, 2018
	Purpose and contents	Withdraw from all lawsuits in the United States
	Others	-

Account	Contract information	Contents
Nokia	Type	Patent license agreement
	Date	Oct 19, 2018
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through patent licensing
	Others	-
Huawei	Type	Patent cross-license agreement
	Date	Feb 28, 2019
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing
	Others	-
Microsoft	Type	Patent cross-license agreement
	Date	Feb 11, 2019
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing
	Others	-
Google	Type	EMADA
	Date	Feb 27, 2019–Dec 31, 2021 (extended)
	Purpose and contents	Licensing agreement for using Google apps (Play Store, YouTube, etc.) in 31 European countries (EEA)
	Others	-
AMD	Type	Technology licensing agreement
	Date	May 30, 2019
	Purpose and contents	Secure mobile graphics design for mobile products and other applications
	Others	-
Sharp	Type	Patent cross-license agreement
	Date	July 30, 2019
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing
	Others	-

Information that may be referenced or used in other IP disputes, including contract amount, is excluded.

10. Research and development activities

A. Summary of activities and R&D expenditures

The Company is leading the global market by continuously developing creative and innovative products and the future technology through shifting its way of thinking and understanding customer demand. The Company is doing its utmost to cement its position in the global IT industry and become a worldwide leader in industrial technology by creating and securing next-generation technology.

As of December 31, 2020, the Company's R&D expenses were KRW 21,229.2 billion. Among this, KRW 21,111.5 billion was recognized as expenditures, excluding KRW 8.2 billion of government subsidies and KRW 109.5 billion of capitalized expenses.

[R&D expenses]

(KRW mil, %)

		2020	2019	2018
Total R&D expenditure		21,229,200	20,207,612	18,662,029
(Government subsidies)		(8,228)	(14,677)	(11,645)
R&D expenditure		21,220,972	20,192,935	18,650,384
Accounting	Capitalization of development expenses (intangible asset)	(109,482)	(285,699)	(296,304)
	R&D costs (expenses)	21,111,490	19,907,236	18,354,080
R&D expenses/sales ratio[1)]		9.0%	8.8%	7.7%

On a consolidated basis.
1) Calculated using total R&D expenditure, which includes government subsidies.

B. R&D organization and operations

(Domestic)

The Company operates three levels of R&D organizations; a business unit development team under each Division that develops market ready technologies with a 1–2 year outlook, a research institute under each business unit that develops mid- to long-term technology with a 3–5 year outlook, and the Samsung Advanced Institute of Technology that develops core technology as seeds for future growth engines.

Samsung Advanced Institute of Technology is the central research institute of Samsung Electronics that has been established to lead the Company into the future and serve as an incubator of cutting-edge technology. It has a creative R&D system and provides R&D direction for promising growth sectors at the Company level, exploring future growth engines and strengthening technological competitiveness of core businesses.

(Overseas)

The Company operates R&D organizations in the US (SRA), China (SRC-Beijing, SRC-Nanjing, SRC-Guangzhou, SRC-Shenzhen, and SSCR), India (SRI-Bangalore and SRI-Delhi), Bangladesh (SRBD), Israel (SRIL and SIRC), Russia (SRR), Japan (SRJ), to carry out research activities for product development and basic technological research.

The Company has established AI centers in Cambridge (United Kingdom), Moscow (Russia), Toronto (Canada), Montreal (Canada), and New York (United States), so our global team of researchers can collaborate with international experts to strengthen capabilities in AI technology.

As of December 31, 2020.
Refer to『G. Subsidiaries subject to consolidated financial statements』in『I. Corporate Overview』for more details about overseas R&D organizations.

C. R&D results

CE Division	
Research project	**Details**
Visual Display	
QLED 8K TV February 2019–June 2020	□ Flat QLED 8K TV (65/75/85”) □ Specs and features - Blends well with walls: flat design and Infinity screen; no border between screen and bezel—a world’s first. - Innovative form factor: metal stand which gives a floating impression - QLED 8K enables picture quality close to real life, high resolution via AI upscaling, True Reality picture quality in any given environment - Multi-sound channel and Object Tracking Sound+ synchronize video and sound, maximizing surround sound experience - Wide range of content, multimedia experiences, and entertainment-specific functions provide convenient and colorful experiences
QLED 4K TV April 2017–June 2020	□ Flat QLED 4K TV (55/65/75/82/85") □ Specs and features - Flagship QLED maximizes viewing experience with the highest picture quality within 4K (AI/brightness/viewing angle) and sound quality (OTS) - Maximizes immersive experience with the highest level of brightness contrast, free viewing angle, life-like color, and optimal brightness - Optimal viewing experience by identifying user context based on voice recognition and AI technologies
UHD TV February 2017–June 2020	□ Flat UHD TV (43/50/55/58/65/70/75/82/85") □ Specs and features - UHD Smart TV with slim, bezel-less design provides colors close to real-life - UHD picture quality expresses picture quality of original content through Dynamic Crystal Color and Dual LED - Provides a multi-media screen experience, rich content, and complete smart experience via smart home experience
Lifestyle TV May 2017–September 2020	□ The SERO (43") - Simple, modern vertical screen that rotates 360 degrees with flat-type speaker - Easily installed in any living space, mobile floor stand included □ The Frame (32/43/50/55/65/75") - Design resembles a real picture frame; completes a picture frame experience - Exhibit various famous paintings and pictures; adopted lifestyle design which blends in with the interior □ The Serif (43/49/55") - I-shaped serif font design; distinct from other products; works as beautiful interior design object □ Outdoor TV (55/65/75") - Differentiated product tailored to a lifestyle of relaxing and enjoying entertainment outdoors □ The Premiere (100–130") - Ultra-short-throw laser projector with high-resolution, providing the best Smart UX/OTT experience in the industry - Complements any environment with blended design, can be placed directly in front of a wall and has an easily adjustable screen size. - Complete experience of our TV models including the differentiated picture quality and sound
AV (HAV) April 2018–March 2020	□ Soundbar - Bar-shaped audio product well suited to TVs - Adopted AI solution enabling voice recognition - Adopted 3D surround system, creating enriching sounds close to first-hand experiences
LCD monitor January 2019–Dec 2020	□ Space monitor - Requires minimal space to allow extra space for the user - Integrated arm stand minimizes space need for monitor and frame design that blends into the surroundings □ Gaming monitor - Gaming graphics that are comfortable to the eye and, at the same time, highly immersive - High scan ratio provides smooth images without burn-in - Smooth graphics without screen tearing via refresh rate sync supported by Free-Sync □ UHD monitor - 3-sided bezel-less design enhances immersive experience - Wide viewing angle and high color gamut allows clear screen without color distortion □ LCD Smart monitor - Enjoy VOD service without a PC using Smart TV services (Netflix, YouTube, etc.) - Remote Access enables PC experience anywhere a user desires
Signage October 2019	□ LCD-based B2B Smart Signage (LFD, Video Wall, etc.) (49/55/65/75/85/98") □ Indoor / outdoor signage using LED
Home appliances	
Bespoke refrigerator May 2019	□ T-Type ・ SBS ・ Kimchi ・ BMF ・ Ladder 1Door (24" R/F/Kimchi) ・ 18" New 1Door - Customers can configure designs in many ways, Easy design changes - Can set up combinations of fridge/freezer/kimchi refrigerators between similar models, Kitchen Fit models available

CE Division	
Research project	**Details**
Chef Collection refrigerator June 2020	□ High-end, premium refrigerator - Premium Bespoke design and new CMF - Features water & ice solution: Auto fill pitcher, auto ice maker (dual mode: cocktail Ice, standard Ice) - FDSR energy efficiency grade 1
Cube refrigerator October 2020	□ Multi Cube refrigerator: customized design and storage (different temperatures for storing wine, beer, and cosmetic products) - Peltier System identifies and creates optimal temperature (between 5–18℃) - Double Glass System blocks UV and maintains the right temperature - Wi-Fi Control enables real-time monitoring and control - RM(Remote Management) Function: remote assessment and repair, provides information on expiration date of beverages in the fridge
Grande AI washer January 2020	□ Grande AI 23kg drum washer and Grande AI dryer - Automatic detergent dispenser senses weight and dispenses the right amount of detergent, senses cleaning requirement of laundry and automatically controls washing, rinsing time - Interactive alert box with written letters, heavy spin-dry reducing time and energy for laundry
Grande AI dryer February 2018	□ Large capacity (14kg) - Rich air flows from 360 “air holes” ensures large amount of laundry is dried up evenly - Quickly heats up to the “magic 60 degrees”, an optimal temperature for garments - “Hole-in-one filter” gets rid of dust and lint, Smart Control - Emits cleaner air with self-cleaning heat-exchanger
Wind-Free™ Gallery floor-standing air conditioner January 2019	□ Floor-standing (56.9/62.6/75.5/81.8/92.5㎡) - Developed next-gen wind-free platform with the highest level of energy efficiency (56.9 m^2 single duct model achieved energy efficiency grade 2) - Equipped with wind-free panel 1.5 times larger than previous model and strong booster wind - Booster purification: Filter with 99.95% dust collection efficiency, Design resembling that of furniture, fits comfortably into the surroundings
Wind-Free™ wall-mount wide air conditioner October 2019	□ Wide air conditioner (24.4/29.3/39.6/49.5 m^2) - Secured cost competitiveness by developing new integrated QMD-based platform, strengthened product competitiveness - 12% larger fans cools the air faster - Wind-free ultra-energy-efficient technology saves up to 77% on electricity - PM1.0 wind-free filtration system removing particles as small as ultra-fine dust
Jet cordless vacuum January 2019	□ Cordless vacuum (up to 200W suction) - Washable multi-cyclone dust collector, Prevents 99.999% of the fine dust from leaking out - Equipped with a brush that removes dust and works as a mop, LED display for monitoring - Floor-standing for convenient storage
Cube air purifier February 2018, December 2020	□ Cube air purifier - Flexible Air Purifier: single module for smaller spaces, stackable to expand coverage - Differentiated filter removes 99.999% of ultrafine dust - Differentiated air flow: strong high-pass purifying system, quiet and healthy wind-free purifying system - Easy-to-control tailored purification with SmartThings App, d- Displays purification index in colors and numbers □ Bespoke Cube air purifier - Premium air purifier in Bespoke lineup - Use one of the three specialized filters as needed: sterilization, deodorization, pet - Customizable to the space, interior, and lifestyle - Mountable on walls to fit the interior without compromising dust-removing function with cubic filtration feature
Air Dresser clothing care September 2018–February 2019	□ 18” Air Dresser - Cares for inner/outer garment at the same time with exclusive hangers and air shower - Ultra-fine dust filter collects dust from garments - Odor decomposing filter: eliminates odors from garments and odors remaining in the machine □ 24” large-capacity model (can hold long dresses) - Long clothing care zone, holds 5 hangers, compared to 3 for 18” model - Real-care (inner-garment care, low noise level), real purification with ultra-fine dust filter, real odor elimination with odor decomposing filter, real-sanitization with jet steam, wrinkle care, real dehumidification dehumidifies the room even with the door closed
Air-purification ventilation system September 2020	□ Specs and features - Ventilation capacity 33 m^2, Airflow 40–50CMH - Ventilates and purifies air indoors by linking ventilation system with air-purification module - Individual air-purification for each separate space, circulation & wind-free purification - Sensors detecting CO_2, etc. enables automatic ventilation depending on air quality change

IM Division	
Research project	**Details**
Mobile	
Galaxy Fold September 2019	□ Creating a new market and securing market share by developing world's first in-foldable smart phone - 7.3" QXGA+(1,536×2,152) 1.5R in-foldable display - Secured standard technology by developing hinge for in-foldable phones, a world's first (released Feb 2019) □ Offers new user experience tailored to foldable smart phones - Can use up to three apps with multi-active window function, offering unrivaled multitasking environment - When folding or unfolding the phone, provides app using experience with smooth changes between screens with minimal interruption
Galaxy Z flip February 2020	□ Specs and features - Design: New style with innovative foldable display - Screen: Main 6.7" flexible ultra-thin glass (2,636 x 1080) - cover 1.1"super AMOLED (300 x 112) - Size (W x H x D): (unfolded) 73.6 x 167.3 x 6.9–7.2mm (folded) 73.6 x 87.4 x 15.4–17.3mm - Platform (H/W, S/W): SDM855+, Android 10.0 - Ultra-thin glass technology allows foldable glass display—a first among Galaxy models—and enhances durability - Easy to carry with a new form factor allowing compact size by flip fold - Free-stop feature enables users to freely control the angle of the flip, allowing Flex Mode experience - Screen ratio 21.9:9 enhances suitability of multi active window
Galaxy Z Fold 2 September 2020	□ Specs and features - Screen: Main display 7.6", cover display 6.2" - Size (W x H x D): (folded) 68 x 159.2 x 13.8 (~16.8) mm - Platform (H/W, S/W): SDM 865 Plus, Android 10, One UI 2.5 - Supports ultra-high speed 5G and 12MP camera - Infinity Flex Display supports flex mode - Dynamic AMOLED 2X display with 120Hz flexible scan rate - Samsung Ultra Thin Glass - Supports wireless Samsung DeX and UWB - Evolved multi-active window enabling simultaneous use of three apps maximum - Provides app continuity from cover display to main display
Galaxy S10 March 2019 (5G: April 2019)	□ Galaxy S10e・S10・S10+・S10 5G (5.8/6.1/6.4/6.7") □ Specs and features - Design: Full Front Punch Hole Infinity Display - Platform (H/W, S/W): Makalu (Europe), SM8150 (North America), Android 9 - World's first model using commercialized 5G technology - Combination of triple cameras delivers zoom, tele, ultra wide function: wide (12M)+tele (12M)+ultra wide (16M) - Supports HDR10+ video shooting on mobile for the first time in the world - Dynamic AMOLED display delivers near-original colors, supports HDR - On-screen fingerprint recognition sensor using ultrasound
Galaxy S20 March 2020	□ Galaxy S20・S20+・S20 Ultra 5G □ Specs and features - Design: Best Fit in hand compact, yet large screen design - Screen: S20 6.2", S20+ 6.7", S20 U 6.9" - Size (W x H x D): S20 69.1 x 151.7 x 7.9mm; S20+ 73.7 x 161.9 x 7.8mm; S20 U 76.0 x 166.9 x 8.8mm - Platform (H/W, S/W): Exynos990 ・ SDM865, Android 10.0, One UI 2.1 - Smartphone that will change the future of mobile and pictures: significantly higher resolution and 8K video recording allows taking pictures and videos in unprecedented quality and easy and swift sharing with 5G - Pictures and videos with significantly higher resolution: S20 ・ S20+ 64MP, S20 U 108MP - 100x zoom, the highest space zoom yet in smartphones: S20 U 108MP - Take higher quality, clearer and brighter pictures and videos even at night with three times bigger sensor (using AI technology) - Take videos in 8K, the highest quality yet in smartphones - Super steady feature reduces blur from shaking but captures dynamic movements - Single take allows the best pictures and videos with a single shot
Galaxy S20 FE October 2020	□ Galaxy S20 FE: Make S series experience available to more customers □ Specs and features - Screen: 6.5" FHD+ sAMOLED Infinity-O (2,400 x 1,080) - Size (W x H x D): 74.5mm x 159.8mm x 8.4mm - Platform (H/W, S/W): SDM 865(5G) / Exynos 990 (LTE), Android 10.0, One UI 2.5 - New entry-level flagship product equipped with premium features enhances market influence and provides experiences for various functions optimal to customers - Provides major S20 features: 120Hz display, same specs for camera and battery, same AP with flagship models, One UI 2.5 UX

IM Division	
Research project	**Details**
Galaxy S21 January 2021	□ Galaxy S21 5G・S21+ 5G・S21 Ultra 5G □ Specs and features - Design: Iconic and premium full metal camera housing, bezel-less design - Screen: S21 5G 6.2", S21+ 5G 6.7", S21 Ultra 5G 6.8" - Size (W x H x D): S21 5G 71.2 x 151.7 x 7.9 mm, S21+ 5G 75.6 x 161.5 x 7.8 mm, S21 Ultra 5G 75.6 x 165.1 x 8.9 mm - Platform (H/W, S/W): Exynos2100 | SDM888, Android 11.0, One UI 3.1 - Supports ultra-high speed 5G, Wi-Fi 6, high-resolution camera ・Camera: S21 Ultra 108MP, S21 ・ S21+ 64MP, Multi Camera Recording function ・Dynamic AMOLED 2X Infinity-O display with maximum adaptive frequency of 120Hz ・Connects to SmartTag for easy registration and finding of objects ・Supports Digital Car Key service (S21+ 5G ・ S21 Ultra 5G only) ・Supports S Pen (S21 Ultra 5G only)
Galaxy Note10 July 2019	□ Galaxy Note10・10+ (6.3/6.8") □ Specs and features - Design: Full Front Punch Hole Infinity Display - Platform (H/W, S/W): Makalu (7nm), Android 9.0 - Upgraded S Pen ・Enhanced usability with higher battery capacity and improved BT latency ・Offers new feature using 6-axis sensor - Quad camera supports high-resolution and maximum viewing angle shooting under wide range of illuminance ・Wide (12M) + tele (12M) + superwide (16M) + ToF
Galaxy Note 20 August 2020	□ Galaxy Note20・20 Ultra (6.7・6.9") □ Specs and features - Size (W x H x D): Note20 75.2 x 161.6 x 8.3 mm, Note20 Ultra 77.2 x 164.8 x 8.1 mm - Platform (H/W, S/W): Exynos 990 ・ SDM 865 Plus, Android 10, One UI 2.5 - Supports high-speed 5G and Wi-Fi 6 - First in the Galaxy lineup to support Ultra Wide Band (Note 20 Ultra) - 108MP camera (Note 20 Ultra), 64MP camera (Note 20) - Maximum 120Hz scan rate display (Note 20 Ultra) - First to support wireless Samsung DeX - Supports S pen and Samsung Note; easy-to-use and perfectly resembling pen-writing experience; supports MS Xbox Game
Galaxy Tab S7 ・ S7+ August 2020	□ Galaxy Tab S7・S7+ □ Specs and features - Design: Premium Tablet (display, pen, performance) - Screen: 12.4" WQXGA AMOLED (16:10, 2800x1752/120Hz), 11" WQXGA LTPS TFT (16:10, 2,560x1,600/120Hz) - Size (W x H x D): 285.0 x 185.0 x 5.7mm (12.4"), 253.8 x 165.3 x 6.3mm (11") - Platform (H/W, S/W): SDM865+, Android 10, One UI 2.5 - Secured premium competitiveness by developing a thin large-display metal design - The first tablet that supports 5G (mmWave, Sub6) for global carriers and the four major carriers in the US - Enhanced usability of Samsung Notes with 120Hz display and optimal pen latency (9ms) - N-generation AP maximizes performance (seamless multi-tasking & gaming experience)
Galaxy Book Flex 2 December 2020	□ Galaxy Book Flex 2 □ Specs and features - Design: 2-in-1 PC with S Pen, QLED display - Screen: 15.6" FHD QLED (16:9, 1920 x 1080), 13.3" FHD QLED (16:9, 1920 x 1080) - Size (W x H x D): (15.6") 355.0mm x 227.2mm x 14.9mm (13.3") 302.6mm x 202.9mm x 12.9mm - Platform (H/W, S/W): Intel 11th generation CPU, Windows 10 - QLED: Color Volume 100%, Super Bright Outdoor Mode Max 600nit ・ S Pen: Samsung Notes, Clip Studio, Gesture ・ SSD: Powerful performance & Latest Gen4 SSD

IM Division	
Research project	**Details**
Galaxy buds January 2020, July 2020, January 2021	□ Galaxy Buds+ - Design: Canal-type TWS (True Wireless Stereo) - Platform (HW, SW): MCU (BCM43015), OS (RTOS), BT 5.0 - Battery: Earbuds (85mAh x 2), cradle (270mAh) - Powerful mid to low keys and highest sound quality with application of 2-way speaker (woofer & tweeter) - 2 outer beamforming mic and 1 inner mic optimizes phone call sound - Improved errors in proximity sensor by adding grip sensor - Longest play time compared to products in the same class, with upgraded battery: 22 hours for streaming (earbuds 11H & cradle 11H) □ Galaxy Buds Live - Design: Open-type TWS with innovative design and high-quality sound - Size (W x H x D): 16.5 x 27.3 x 14.9mm (earbuds), 50.0 x 50.2 x 27.8mm (cradle) - Platform (H/W, S/W): BCM43015, RTOS - Ergonomic design that fits ears perfectly, provides all-day comfort sitting softly inside the ear. - Open type Active Noise Cancellation reduces background noises but let you hear what you want to hear. - Large-size 12mm speakers and Bass Duct deliver rich, spacious live sound - Three built-in mics and a Voice Pickup Unit enables the best call quality □ Galaxy Buds Pro - Design: Premium TWS, in-ear type with Intelligent ANC feature - Size (W x H x D): (earbuds) 20.5mm x 19.5mm x 20.8mm, (cradle) 50.2mm x 50mm x 27.8mm - Platform (H/W, S/W): BCM43015, RTOS - 2Way (woofer + tweeter) 11mm speaker offers enhanced sound quality ・High-quality phone call sound with 3 mics and accelerometer (voice pickup sensor) ・In-ear type, Intelligent ANC and voice detect function instantly switches from ANC to Ambient sound when it hears your voice ・3D Audio provides a truly immersive experience resembling that of a movie theater - IPx7-level water resistant
Galaxy Watch3 BT June 2020	□ Specs and features - Design: Premium smart watch resembling the design of a real watch - Display: 1.36" (45mm), 1.2" (41mm) OLED (360 x 360) - Size (W x H x D): 45.0 x 46.2 x 11.1 (45mm) 41.0 x 42.5 x 11.3 (41mm) - Platform (H/W, S/W): Exynos9110, Tizen 5.5 - Expanding portfolio to titanium models (high-end segment, derivative project in process) - Identifying and have included differentiated health-related services ・Blood pressure, ECG, fall detection features commercialized globally
Network	
RAN S/W PKG April 2019	□ SVR18.3 5G S/W pkg - S/W PKG to commercialize domestic 5G NR for the first time in the world ・Commercialized 5G NSA by using LTE network links in the Seoul and the capital area ・Supports 5G base station (3.5GHz, 28GHz, 39GHz 5G Massive MIMO)
Core S/W PKG March 2020	□ SVR19B 5G core S/W pkg - Developed containerized-based 5G Core Network Function ・Efficient and quick service distribution and maintenance cost reduction possible by flexibly containerizing host OS resource ・Provision possible to global operators aiming to run services based on public cloud (eg, Amazon Web Services, Azure: Microsoft Azure, GCP: Google Cloud Platform)

IM Division	
Research project	**Details**
Base stations September 2019–August 2020	□ Developed 5G NR DU (September 2019) - New dual CPU based main card and first 5G SoC modem using channel card - Single HW can accommodate a combination of LTE, NR above and NR below products, offering different channels at the same time - Supports high capacity, low power consumption (including power saving) and virtualization/non virtualization S/W structure □ Developed 26GHz 5G NR RFIC Chip (February 2020) - 2nd generation RFIC Chip, following SEC's 1st generation products (28GHz/39GHz) ・2nd generation has improved evm function, power efficiency, and mass production - Components for global 5G NR commercialization can be used for all carriers using 26GHz □ Developed FSU10 (May 2020) - FSU (fronthaul switch unit) to support vRAN business - Makes spectrum sharing between LTE and NR (below 6GHz) possible ・One RU fits both LTE DU and NR vRAN via spectrum sharing ・Efficient network operation between LTE-NR and 5G application possible before migration to O-RAN base in the future □ Developed NR Indoor AU (August 2020) - Our first 5G In-building Solution AU product - Optimized to be installed and run in-building with small form-factor ・Low power consumption and silent (complies with indoor-noise standard), can be installed on walls, poles and ceiling indoors □ Developed NR C-Band MMU (3.7G 64T64R 200W MMU) (Dec 2020) - First ever TDD-based MMU(Massive MIMO Unit) that operates in C-BAND in North America - Supports broadband IBW 280M, thus any carrier with C-Band across the country may use the product

DS Division	
Research project	**Details**
Memory	
DRAM for mobile July 2018–February 2020	□ Mass production of 16Gb LPDDR4X DRAM, with highest speed and capacity in the world - Mass production of 2nd generation 10-nano class (1y) 16Gb lineup—a world's first - Speed and productivity 2 times higher compared to 20-nano DRAM □ Mass production of 2nd generation 10-nano class (1y) 12Gb LPDDR5 DRAM for mobile, with highest speed and capacity in the world - Next-generation mobile solution with better speed, capacity, and power efficiency - Contributed to introducing 5G smartphones with 1.3 times the speed (5,500Mbps), and 30% lower power consumption - 12Gb LPDDR5-based line up (6GB, 12GB) provided for the first time □ World's first mass production of 16GB LPDDR5 mobile DRAM: highest speed and capacity in the world - Performance improved by 30%, capacity by 2 times, and 20% less power consumption vs 8GB LPDDR4X - Gaming performance (picture quality, haptic feedback) same or better than PCs possible with smartphones
DRAM for server October 2018–March 2019	□ Mass Production of 1st generation 10-nano class (1x) 256GB 3DS DDR4 DRAM for servers, highest capacity in the world - World's first mass production of 256GB DRAM with ultra-high performance and capacity - 2 times the capacity and 30% increase in power efficiency compared to 128GB □ Development of 3rd generation 10-nano class (1z) 8Gb DDR4 DRAM—world's best - Secured ultra-fast, ultra-power-efficient solutions for mass production of DDR5 ・ LPDDR5 - Efficiency up by more than 20% compared to 2nd generation (1y-nano) DRAM - Expand portion of 1z-nano DRAM lineup in the next-generation products by mass production beginning in September in Pyeongtaek
HBM January 2019–February 2019	□ Development of 12-stack 3DS TSV PKG, with world's highest HBM DRAM capacity - Development of highest performance and capacity 12GB HBM DRAM for supercomputers—industry's first - 1.5 times the capacity and convenience of system design improved with 8GB package - Strengthened leadership in next-generation HPC DRAM by breakthrough in package technology - Plan to mass produce 24GB HBM, the industry's highest, to meet customer needs □ Rollout of ultra-fast DRAM for AI and next-generation super computer for the first time in the world (16GB HBM2E 'Flashbolt') - Stacked 8 10-nano (1y) 16Gb DRAM, enabling 16GB, the highest capacity - Able to send 82 Full HD movies (410GB) at 3.2Gb/sec - Continue to lead market expansion by supplying 2nd generation HBM2 and 3rd generation HBM2E at the same time

DS Division	
Research project	**Details**
eStorage February 2019–March 2020	□ Mass production of next-generation smartphone memory, eUFS 3.0—world's first - Embedded 5th generation (9x-layers) cell stacked 512Gb 3 bit V-NAND for the first time in the industry - Reading and writing 2 times faster compared to eUFS 2.0 - Securing early foothold and high growth in next-generation ultra-high-resolution mobile market □ Industry's only mass production of 512GB eUFS 3.1, with a writing speed of 1200MB/s - 3 times the performance compared to 512GB eUFS 3.0 (continued writing speed of 410MB/s) - Smartphone memory storage (1200MB/s) is 2 times faster than PC (SSD 540MB/s)
SSD for PC June 2018–July 2019	□ Mass production of 5th generation (9x-layers) 256Gb V-NAND-based PC SSD—fastest in the world - World's first mass production of SSD with 9x and higher cell stacked V-NAND - 1.4 times the speed and 30% higher productivity than before - Secure capabilities for development of 1Tb and QLC V-NAND-based next-generation products □ Mass production of 1Tb 4bit V-NAND-based PC SSD—world's first - Industry's first mass production of 4th generation (64-layers) cell stacked 1 Tb 4bit V-NAND - Same reading and writing speed compared to 3bit SSD - Lead market growth by securing an edge in ultra-high-capacity and cost competitiveness □ Mass production of 6th-generation (1xx) 256Gb V-NAND-based PC SSD—fastest in the world - Exclusive mass production of higher than 100 layers cell single process stacked V-NAND - 1.2 times the speed and productivity higher by more than 20% - Lead the storage market with competitive edge in ultra-fast, ultra-power-efficient products
SSD for server January 2018–September 2019	□ Mass production of 30.72TB SAS SSD for next-generation servers—world's first - Exclusively support 2.5-inch 30.72TB by applying 512Gb V-NAND - 2 times the capacity and 2 times the random reading speed - Leading the growth of SAS market by continuously expanding ultra-high-capacity lineup □ Mass production of 8TB NF1 NVMe SSD next-generation servers—world's first - Support 8TB in NF1 size by applying 512Gb V-NAND - Expanding system memory capacity by 3 times by applying 8TB lineup - Successful in creating NF1 market by exclusively introducing 8TB lineup □ Mass production of 5th generation (9x-layer) V-NAND-based 30.72TB NVMe SSD for servers— highest speed and capacity in the world - Secured next-generation SSD solution with improved speed, capacity, and efficiency - Introduced 8GB/s PCIe Gen4 SSD with 2.2 times the speed - Exclusively offers top 3 SW (Never Die SSD, FIP, ML) solution
Brand SSD January 2020-September 2020	□ Launched 'T7 Touch', premium portable SSD—highest performance in the industry - 5th generation 512Gb V-NAND with world's highest performance and NVMe controller with ultra-fast embedded interface - Supports reading and writing speed of 1,050MB/s and 1,000MB/s, respectively, up to 9.5 times faster than external HDD (110MB/s) and about 2 times faster than the previous model (SEC's portable SSD T5) □ Global launch of high-capacity 4-bit SSD '870 QVO' - Introduced 4 SATA SSD models including 1/2/4TB and 8TB model, the highest in the industry - Provides optimal solution to customers with need for high-performance/high-capacity computing environment, with quick data-process speed close to the maximum speed of SATA interface - Boasts high speed/capacity, reasonable price, launched in 40 countries in several phases □ Global launch of PCIe-Gen4-applied SSD '980 PRO', boasting highest performance in the industry - Provides ultra-high resolution via consumer SSD with the highest-speed in the industry - Continue to lead market for professional PC and workstation used for editing of 8K, 4K videos and games requiring high-specs - 5-year warranty (longest in the industry)
Z-SSD January 2018	□ Mass production of 800GB NVMe Z-SSD for supercomputers, world's first - 5 times the response time and 35 times longer life compared to NVMe SSD - Achieved the most reliable, durable, and highest capacity in system - Expanded market by introducing 2nd generation Dual Port Z-SSD lineup
EUV March 2020	□ Supplied 1 million 1st generation 10-nano class (D1x) DRAM modules - Mass production of EUV DRAM—the only company in the industry with EUV DRAM mass production system - Secured 10-nano class advanced process and mass production, enabling next-generation DRAM in a timely manner. - EUV process applied to all 4th generation 10-nano class DRAM, and is now expanding to 5th generation and 6th generation products

DS Division	
Research project	**Details**
System LSI	
Image Sensor January 2018–September 2020	□ DRAM embedded, 3-layer stacked ISOCELL Fast sensor (2L3, 1.4um/12.2Mp) - Dual pixel-based phase detecting auto focus technology □ Total solution providing image sensor and S/W algorithm together - Save S/W purchasing cost and time needed to optimize sensor and AP - Dual camera supports features including refocusing, shooting under low light □ Small-pixel based ISOCELL Slim sensor with high sensitivity (3P9, 1.0um/16.2Mp) - Enhanced auto-focus and anti-shake function - Turnkey solution offers plug-and-play □ ISOCELL Plus, technology improving image sensors (some products) - Minimizes loss of light from reflection or absorption by using different material and higher walls between color filters - Sensitivity under low light improved compared to previous generation □ ISOCELL Bright sensor with ultra-small pixel size (GM1, 0.8um/48Mp) - Tetracell technology allows high sensitivity under low light □ ISOCELL Bright sensor with ultra-small pixel size (GD1, 0.8um/32Mp) - Tetracell technology allows high sensitivity under low light - Supports real-time HDR, creating video with appropriate brightness and rich colors under lighting with both brightness and darkness □ ISOCELL Slim sensor with ultra-small pixel size (3T2, 0.8um/20Mp) - Highest resolution (20Mp) among 1/3.4” sensors, offers high-resolution optimized for bezel-less displays - Tetracell technology for front camera, allowing high performance under low lighting, high magnification for back camera reduces module size, improving picture quality □ Ultra-high resolution ISOCELL Bright sensor (GW1, 0.8um/64Mp) - DCG structure enhances dynamic range - Super PD technology maximizes auto-focus function and enables 480-frames-per-second, full-HD slow motion function - Rich colors by supporting real-time HDR □ High resolution ISOCELL Bright sensor (GM2, 0.8um/48Mp) - Super PD technology maximizes auto-focus function and enables 240-frames-per-second, full-HD slow motion function □ World’s first 108Mp ISOCELL Bright sensor (HMX, 0.8um/108Mp) - AI-ISO-applied S/W controls the amount of light, enhancing color reproduction - Can shoot 30 frames per second in 6k - Improved sensitivity with ISOCELL plus and Tetracell technology □ ISOCELL Slim sensor with world’s smallest pixel size (GH1, 0.7um/43.7Mp) - Enables easier application of full-screen display set thanks to smaller and thinner module - Supports high-resolution videos and minimizes loss of viewing angle - Improved sensitivity with ISOCELL plus and Tetracell technology □ Industry’s first next-generation 108Mp ISOCELL Bright sensor with 2-times the sensitivity enabled by Nonacell technology - Enables preview function without compromising picture quality in 3x magnification, thanks to enhanced zoom feature - Features state-of-the-art technologies: smart ISO, real-time HDR, digital correction of shaking images □ Dual-pixel and Tetracell-technogy-based sensors (GN1, 1.2um/50Mp) - Offers images in 100Mp with dual-pixel technology (2 photodiodes in a pixel) - Takes bright, sophisticated images with Tetracell technology (enables 4 times the sensitivity in the dark) □ Established industry’s first lineup of 0.7um-pixel-based image sensors (HM2, GW3, GM5, JD1) - Leadership in ultra-small, high-resolution image sensor technology with state-of-the-art ‘ISOCELL 2.0’ technology and more - (HM2) first to offer 108Mp with 0.7um pixel - (GW3) takes 60-frames-per-second 4K 64Mp images - (GM5) takes 48 Mp images supporting ultra-wide angle and folded zoom - (JD1) ultra-small 32Mp product, optimal for bezel-less design

DS Division	
Research project	**Details**
Exynos Mobile January 2018–September 2020	□ Independently-developed SoC with 3rd-generation CPU (Exynos 9810) - Ultra-high speed modem supporting Cat. 18 6CA - Achieved deep-learning algorithm, supporting intelligent image processing □ Supports the latest NB-IoT standard (Exynos iS111) - Integrated modem, CPU, RF, PMIC, GNSS in one chip - Lower power consumption, enhanced security □ Industry's first SoC with 8CA modem technology (Exynos 9820) - NPU: AI-processing speed 7 times faster compared to previous model - AP: Big-Little (4+4)→Big-Middle-Little (2+2+4), flexible structure, enhanced power efficiency - Modem: DL maximum 2Gbps □ World's first modem solution for 5G smartphones (Exynos modem 5100, Exynos RF 5500, Exynos SM 5800) - Data transmission 1.7 times faster compared to LTE - New RF · SM, improved power efficiency for transmission □ Best-in-class 7-nano 5G modem (Exynos 5123) - Maximum 2 times faster compared to previous model in sub-6GHz 5G network - Achieved maximum speed of 3.0Gbps in 4G network - Supports global Sub-6GHz/mmWave □ SoC for automobile infotainment (Exynos auto V9) - Octa-core CPU simultaneously controls 6 displays and 12 cameras - 3 GPU respectively supports dashboard · CID · HUD - NPU enables digital recognition of voice · face · movement - Enhanced stability by securely supporting ASIL-B function □ SoC exclusively for short-distance IoT with low power consumption and enhanced security (Exynos i T100) - Processor · memory · communications function in a package □ One-chip integrating 5G modem supporting sub-6GHz and AP (Exynos 980) - Supports latest communications feature including EN-DC, Wi-Fi 6 - Enhanced NPU function compared to previous generation and premium products □ Enhanced functions with 5th-generation CPU and premium GPU (Exynos 990) - AI processing higher than 10 TOPS enhanced image analyzing and face recognition function - Supports latest LPDDR5 DRAM and high-resolution camera of 50MP↑
Exynos i August 2018–May 2019	□ Chip (S5JS100) supports the latest NB-IoT standard, lower power consumption, enhanced security - Exceeded transmission range of 10km, defined by the standard, with low power consumption - Encryption, decryption, copy protection feature applied to enhance data protection - Integrated modem, CPU, RF, PMIC, GNSS in one chip □ SoC (S5JT100) exclusively for short-distance IoT, with low power consumption and stronger security - Supports the latest short-range communication, including Bluetooth 5.0, Zigbee 3.0 - Encryption, decryption, copy protection feature applied to enhance data protection - Wider operating temperature range (operates under the temperature as high as 125℃) - Enhanced power efficiency with 28-nano process - Processor, memory, communication feature in one package
LSI January 2019-September 2020	□ PDIC for TA supporting USB-PD 3.0 standard and high-speed charge protocol (MM101) - Moisture detection, voltage protection function □ World's first one-chip integrating PDIC and SE (SE8A) - Blocks unauthorized products by supporting type-C authorization - Supports advanced security features such as saving security key · authorization certificate, supporting encryption · decryption □ Industry's first integrated power-managing chip for wireless earphones (MUA01, MUB01) - Integrates multiple chips, optimized for small-size batteries - Provides optimal solution for rapidly-growing wireless earphone market □ DDI enables optimized ultra-high resolution for 8K TVs and enhanced transmission efficiency (S6CT93P) - Enhanced signal quality and development efficiency by utilizing equalizer S/W □ Best integrated security solution for mobile (S3K250AF) - Independently developed S/W in H/W security chip, which received EAL 5+ in Common Criteria - Mobile security solution lays the foundation for new mobile services □ Received EAL 6+, the highest rank for mobile device, solution with independently-developed S/W (S3FV9RR) - Can be used for various smart devices, as the solution operates independently for various processors - Various functions including H/W secure boot, device authentication offer stronger security
Foundry	
8-inch process RF/ fingerprint recognition March 2018	□ Development of 8-inch process that best suits RF and fingerprint recognition products - Diversify 8-inch foundry products by including RF or fingerprint sensor solutions on top of embedded flash memory chips, power semiconductors, display drivers, CMOS image sensors - Boost product quality and customer convenience

DS Division	
Research project	**Details**
7nm EUV process September 2018	□ 7LPP (Low Power Plus) process applied with EUV technology - EUV lithography technology ・1/14 of ArF, enables advanced circuit pattern realization ・High performance and productivity enabled by reduction of multi-patterning process - Delivers up to a 40% increase in area efficiency with 20% higher performance or up to 50% lower power consumption compared to 10nm process
Ship eMRAM solution products (based on 28nm FD-SOI process) March 2019	□ Combined low-power process and next-generation embedded memory technology - Maximized power efficiency as the product uses low motion power and eliminates standby power and an erase cycle - Supports record speed about 1000 times faster than the previous eFlash □ Embedded to system semiconductor by using minimum layers - Reduced production costs thanks to a simpler design structure □ Optimal for MCU/IoT/AI thanks to low-power and small size
5nm EUV process April 2019	□ Developed 5nm EUV process with EUV lithography - 25% increase in logic area efficiency with 20% lower power consumption or 10% higher performance compared to 7nm by optimizing cell architecture - Previous 7nm customers can utilize the same IP in the 5nm EUV process
3D IC packaging technology 'X-Cube' August 2020	□ Developed 3D IC packaging technology 'X-Cube' and the infrastructure for the design - Uses TSV technology to stack different chips individually made from different wafers to make them into one chip ・Allows greater flexibility in design by reducing the chip size and using high-capacity memory solution ・Significant leaps in data-processing speed and power efficiency of system semiconductors - Design method and tools to apply 'X-Cube' on 5-nano and 7-nano processes have been verified. ・Produced industry's first test chip that stacks SRAM on top of EUV 7-nano logic die
Display panel	
Hole in Display OLED for Galaxy S10 March 2019	□ Maximized screen size via world's first commercialization of Flexible Hole in Display - One S10 6.1" 3K QHD+(3,040×1,440) Hole, Two S10+ 6.4" Holes □ Offers a comfortable display by significantly decreasing blue light - Decreased blue light emission 42% from S9 (TUV Rheinland Eye Comfort Certification)
15.6" UHD OLED for NPC May 2019	□ Developed world's first 4K OLED display for NPC - 15.6" UHD (3,840 x 2,160), 16:9 - Blue light reduction, shorter response time, wide field of view allow vivid images
4K high-resolution OLED for smartphones June 2019	□ Developed world's first 4K mobile OLED display - 6.5" UHD (1,644×3,840), 643ppi,16M Color - Can enjoy original cinematic movie ratio of 21:9
Curved LCD for gaming monitors June2019	□ Developed world's first 240Hz Curved LCD display - 27" FHD (1920×1080), 16:9 - High refresh rate of 240Hz, supports G-sync, allowing uninterrupted gaming environment - Curvature of 1500R, wide viewing angle allow highly-immersive gaming experience
Foldable OLED for Galaxy Fold September 2019	□ Display innovation by developing the world's first foldable display - In-foldable AMOLED (radius: 1.5R) - 7.3" QXGA+ (1,536×2,152), 4:3 - Decreased display thickness by approximately 50% (vs existing panels) by developing polymer composite material
Foldable OLED for Galaxy Z Flip February 2020	□ Mass production of world's first glass type window foldable display - 6.7" Full HD+(1,080x 2,640) - Improved durability and applied camera hole (first in foldable phones) by using UTG (ultra-thin glass)
WQ+ high-speed OLED for Galaxy S20 March 2020	□ Maximize touch feature with WQ+ resolution, 120Hz, high speed - S20 6.23"/6.67"/6.87" QHD+(3,200×1,440) - Harmful blue light less than 6.5%, Eye Care Display certified (SGS, international certification institution)
Foldable OLED for Galaxy Z Fold 2 September 2020	□ World's first mass production of foldable display with a 1.4R curvature - 7.6" (2,208 ×1,768) in – foldable - Achieved 1.4R curvature radius via structural design that minimizes folding stress - Improved power efficiency with adaptive frequency (adjusts scan rate from 10-120Hz to screen)
Power-efficient OLED for Galaxy S21 January 2021	□ Mass production of innovative power-efficient, high-luminance OLED displays - S21: 6.24"/6.67"/6.81" QHD+(3,200×1,440) - New organic material improves luminance efficiency: improved power efficiency by 16% compared to previous model - Enhanced luminance and contrast offers good visibility outdoors (Max/HBM 420/800 →500/1100nit, Peak 1,785nit) → Sunlight Visibility certification by UL (global safety solutions company)

11. Other information

A. Intellectual property

Intellectual property activities are an integral part of our R&D strategies—SEC registered its first US patent in 1984 and currently holds 197,749 patents around the world. The Company holds the highest number of its patents (cumulative number) in the US and aims to address conflicts in the US more effectively.

<Number of patents registered in each country (cumulative as of December 31, 2020)>

	Korea	US	Europe	China	Japan	Others	Total
Number	41,649	77,986	37,561	17,996	9,822	12,735	197,749

In 2020, the Company invested KRW 21.2 trillion in R&D and registered 6,648 domestic and 8,520 US patents.

<Number of patent registrations per year>

(Unit: No. of patents)

	2020	2019	2018
Korea	6,648	5,075	3,068
US	8,520	8,729	8,073

These patents are mostly related to smartphones, smart TVs, memory, and system LSI products for the Company's strategic business products or for future use. These patents not only protect the Company's business but also play a role in keeping similar technology and patents, as well as competitors, in check. Additionally, the Company is focusing on securing early patents in new technologies ahead of others, in order to protect opportunities and have the freedom to operate when entering new businesses.

The Company has signed cross-licensing agreements with Google (signed in January 2014), Nokia (October 2018), Western Digital (December 2016), Qualcomm (January 2018), and Huawei (February 2019), and Sharp (July 2019) through which the Company has secured an extensive patent protection in mainstay businesses as well as in the fields of new business.

The Company has also been focusing on securing design patents to protect its original design applied to smartphones and TVs. In 2020, the Company acquired 517 US patents, in part for the aforementioned purposes.

B. Environmental regulations

The Company strictly abides by environmental regulations on products and in the workplace, as prescribed by law. In addition, in accordance with "the low carbon green growth policy" of the Korean government, the Company reports "the amount of greenhouse gas emission and energy use" to the government and provides related information to stakeholders by providing various reports, including the Samsung Sustainability Report.

☞ See 『11. Green Management』 of 『XI. Other Information』 for more details about Green Technology Certification.

(Environmental regulation of products)

Environmental regulation of products are becoming stricter, reflecting the concerns of governments and regulators about potential direct and indirect impact of products to consumers' health and safety as consumers. Accordingly, the Company is working to minimize the environmental impact throughout the entire life cycle of products from the development stage of components and products to manufacturing, distribution, use, and disposal. The Company offers "Eco-Partner Certification" to suppliers for components free of harmful substances, and runs an "eco-design evaluation" system to reflect eco-friendly elements on products (reduced use of resources, energy and harmful substances, and the use of eco-friendly materials) at the development stage, and operates a "waste electronics collection recycle system" in Europe, North America, Korea, and India for collecting and recycling waste electronics. These activities are in line with domestic and foreign environmental laws on electronics and are a differentiation factor for the Company and its products.

Relevant laws are as follows:

1. law on collection and· recycle of waste electronics (eg, EU WEEE Directive)
2. limit on the use of harmful substances (eg, EU RoHS Directive, REACH Regulation)
3. regulation on energy efficiency (eg, EU ErP Directive)

(Environmental Regulations in the Workplace)

The Company operates environmental pollution prevention facilities to reduce air pollution, water pollution, and waste disposal, and to minimize the discharge of pollutants, thereby minimizing impact on the surrounding environment.

Environmental management of workplace is supervised by the relevant government authorities. All production facilities, domestic and overseas, have acquired the International Occupational Health and Safety Management System Certification (ISO 14001, OHSAS18001) to strengthen compliance.

Major Relevant Domestic and International Laws are as follows:

1. Regulations related to emission of pollutants: Water Quality and Ecosystem Conservation Act, Clean Air Conservation Act, Wastes Control Act, Noise and Vibration Control Act, Environmental Impact Assessment Act
2. Management of greenhouse gas emission: Act on Allocation and Trading of Greenhouse Gas Emission, Framework Act on Low Carbon, Green Growth
3. Others: Toxic Chemicals Control Act, Act on the Registration and Evaluation, etc. of Chemical Substances, Odor Control Law, Soil Environment Conservation Act

(Greenhouse gas emission and energy consumption management)

The Company is a "controlled entity" according to Article 42 (Coping with Climate Change and Management of Targets for Energy) Paragraph 6 of Korea's "Framework Act on Low Carbon, Green Growth." Thus, the Company has been reporting the amount of greenhouse gas emission and energy consumption, verified by a third-party, to the authorities and disclosing it to stakeholders according to Article 44 (Reporting on Quantity of Greenhouse Gases Emitted and Quantity of Energy Consumed) of the same Act since May 2011.

The reported amount of greenhouse gas emission and energy use are provided below:

(Unit: tCO_2-eq, TJ)

	2020	2019	2018
Greenhouse gas (tCO_2-eq)	18,322,674	15,998,397	15,890,234
Energy (TJ)	275,861	242,345	237,762

On a consolidated basis. See『11. Green Management』of『XI. Other Information』for parent-based data.
Domestic manufacturing facilities, office buildings, buildings owned by the Company, leased buildings, etc.
Reported Greenhouse gas emission excludes ozone depletion substances (ODS).
Amounts may differ by third-party organization verification results.
Data for 2018 are restated as per revision of『Guideline for Emission Reporting and Certification in Greenhouse Gas Emission Trading Scheme』.

From 2015, in accordance with the Article 8 (Designation of Business Entities Eligible for Allocation) of the Act on the Allocation and Trading of Greenhouse-Gas Emission Permits, the Company is an eligible business entity under the Act.

III. Financial Affairs

1. Consolidated financial statements

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

(In millions of Korean won, in thousands of US dollars (Note 2.29))

	Notes	December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
		KRW	KRW	USD	USD
Assets					
Current assets					
Cash and cash equivalents	4, 28	29,382,578	26,885,999	24,890,848	22,775,922
Short-term financial instruments	4, 28	92,441,703	76,252,052	78,310,091	64,595,361
Short-term financial assets at amortized cost	4, 28	2,757,111	3,914,216	2,335,630	3,315,848
Short-term financial assets at fair value through profit or loss	4, 6, 28	71,451	1,727,436	60,528	1,463,362
Trade receivables	4, 5, 7, 28	30,965,058	35,131,343	26,231,413	29,760,796
Non-trade receivables	4, 7, 28	3,604,539	4,179,120	3,053,511	3,540,256
Prepaid expenses		2,266,100	2,406,220	1,919,680	2,038,380
Inventories	8	32,043,145	26,766,464	27,144,693	22,674,661
Other current assets	4, 28	3,754,462	4,122,410	3,180,515	3,492,215
Assets held-for-sale	32	929,432	-	787,350	-
		198,215,579	**181,385,260**	**167,914,259**	**153,656,801**
Non-current assets					
Financial assets at fair value through other comprehensive income	4, 6, 28	12,575,216	8,920,712	10,652,836	7,556,998
Financial assets at fair value through profit or loss	4, 6, 28	1,202,969	1,049,004	1,019,070	888,642
Investment in associates and joint ventures	9	8,076,779	7,591,612	6,842,078	6,431,078
Property, plant and equipment	10	128,952,892	119,825,474	109,239,795	101,507,691
Intangible assets	11	18,468,502	20,703,504	15,645,212	17,538,548
Net defined benefit assets	14	1,355,502	589,832	1,148,286	499,664
Deferred income tax assets	25	4,275,000	4,505,049	3,621,478	3,816,360
Other non-current assets	4, 7, 28	5,113,279	7,994,050	4,331,610	6,771,995
		180,020,139	**171,179,237**	**152,500,365**	**145,010,976**
Total assets		**378,235,718**	**352,564,497**	**320,414,624**	**298,667,777**

The above consolidated statements of financial position should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

(In millions of Korean won, in thousands of US dollars (Note 2.29))

	Notes	December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
		KRW	KRW	USD	USD
Liabilities and Equity					
Current liabilities					
Trade payables	4, 28	9,739,222	8,718,222	8,250,382	7,385,463
Short-term borrowings	4, 5, 12, 28	16,553,429	14,393,468	14,022,898	12,193,131
Other payables	4, 28	11,899,022	12,002,513	10,080,012	10,167,683
Advances received	17	1,145,423	1,072,062	970,322	908,175
Withholdings	4, 28	974,521	897,355	825,545	760,176
Accrued expenses	4, 17, 28	24,330,339	19,359,624	20,610,947	16,400,108
Current income tax liabilities		4,430,272	1,387,773	3,753,014	1,175,623
Current portion of long-term liabilities	4, 12, 13, 28	716,099	846,090	606,629	716,748
Provisions	15	4,349,563	4,068,627	3,684,643	3,446,654
Other current liabilities	4, 17, 28	1,127,719	1,037,030	955,324	878,499
Liabilities held-for-sale	32	338,742	-	286,958	-
		75,604,351	**63,782,764**	**64,046,674**	**54,032,260**
Non-current liabilities					
Debentures	4, 13, 28	948,137	975,298	803,195	826,204
Long-term borrowings	4, 12, 28	1,999,716	2,197,181	1,694,018	1,861,297
Long-term other payables	4, 28	1,682,910	2,184,249	1,425,643	1,850,342
Net defined benefit liabilities	14	464,458	470,780	393,456	398,812
Deferred income tax liabilities	25	18,810,845	17,053,808	15,935,221	14,446,783
Long-term provisions	15	1,051,428	611,100	890,696	517,681
Other non-current liabilities	4, 17, 28	1,725,857	2,408,896	1,462,023	2,040,645
		26,683,351	**25,901,312**	**22,604,252**	**21,941,764**
Total liabilities		**102,287,702**	**89,684,076**	**86,650,926**	**75,974,024**

The above consolidated statements of financial position should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

(In millions of Korean won, in thousands of US dollars (Note 2.29))

	Notes	December 31, 2020	December 31, 2019	December 31, 2020	December 31, 2019
		KRW	KRW	USD	USD
Equity attributable to owners of the Company					
Preference shares	18	119,467	119,467	101,204	101,204
Ordinary shares	18	778,047	778,047	659,107	659,107
Share premium		4,403,893	4,403,893	3,730,668	3,730,668
Retained earnings	19	271,068,211	254,582,894	229,629,870	215,664,672
Other components of equity	20	(8,687,155)	(4,968,829)	(7,359,145)	(4,209,241)
Accumulated other comprehensive income attributable to assets held-for-sale	32	(12,132)	-	(10,277)	-
		267,670,331	**254,915,472**	**226,751,427**	**215,946,410**
Non-controlling interests	31	8,277,685	7,964,949	7,012,271	6,747,343
Total equity		**275,948,016**	**262,880,421**	**233,763,698**	**222,693,753**
Total liabilities and equity		**378,235,718**	**352,564,497**	**320,414,624**	**298,667,777**

The above consolidated statements of financial position should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF PROFIT OR LOSS

In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	**2020**	**2019**	**2020**	**2019**
		KRW	KRW	USD	USD
Revenue	29	236,806,988	230,400,881	200,606,179	195,179,376
Cost of sales	21	144,488,296	147,239,549	122,400,294	124,730,961
Gross profit		**92,318,692**	**83,161,332**	**78,205,885**	**70,448,415**
Selling and administrative expenses	21, 22	56,324,816	55,392,823	47,714,412	46,924,893
Operating profit	29	**35,993,876**	**27,768,509**	**30,491,473**	**23,523,522**
Other non-operating income	23	1,384,068	1,778,666	1,172,485	1,506,760
Other non-operating expense	23	2,488,902	1,414,707	2,108,422	1,198,440
Share of net profit of associates and joint ventures	9	506,530	412,960	429,096	349,831
Financial income	24	12,267,600	10,161,632	10,392,246	8,608,218
Financial expense	24	11,318,055	8,274,871	9,587,858	7,009,887
Profit before income tax		**36,345,117**	**30,432,189**	**30,789,020**	**25,780,004**
Income tax expense	25	9,937,285	8,693,324	8,418,167	7,364,371
Profit for the year		**26,407,832**	**21,738,865**	**22,370,853**	**18,415,633**
Profit attributable to					
Owners of the Company		26,090,846	21,505,054	22,102,325	18,217,565
Non-controlling interests		316,986	233,811	268,528	198,068
Earnings per share (in Korean won, in US dollars)	26				
- Basic		3,841	3,166	3.25	2.68
- Diluted		3,841	3,166	3.25	2.68

The above consolidated statements of profit or loss should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	**2020**	**2019**	**2020**	**2019**
		KRW	KRW	USD	USD
Profit for the year		**26,407,832**	**21,738,865**	**22,370,853**	**18,415,633**
Other comprehensive income (loss)					
Items that will not be reclassified subsequently to profit or loss:					
Gain on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	2,502,733	1,146,599	2,120,139	971,318
Share of other comprehensive income (loss) of associates and joint ventures, net of tax	9, 20	5,591	(16,896)	4,736	(14,313)
Remeasurement of net defined benefit assets, net of tax	14, 20	(719,560)	(1,180,468)	(609,560)	(1,000,009)
Items that may be reclassified subsequently to profit or loss:					
Share of other comprehensive income (loss) of associates and joint ventures, net of tax	9, 20	(48,888)	48,649	(41,414)	41,212
Gain (loss) on overseas business translation, net of tax	20	(5,380,375)	3,016,499	(4,557,874)	2,555,365
Gain (loss) on valuation of cash flow hedge derivatives	20	(33,406)	1,811	(28,300)	1,534
Other comprehensive income (loss) for the year, net of tax		**(3,673,905)**	**3,016,194**	**(3,112,273)**	**2,555,107**
Total comprehensive income for the year		**22,733,927**	**24,755,059**	**19,258,580**	**20,970,740**
Comprehensive income attributable to:					
Owners of the Company		22,374,398	24,466,985	18,954,012	20,726,704
Non-controlling interests		359,529	288,074	304,568	244,036

The above consolidated statements of comprehensive income should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

In millions of Korean won)

2019 KRW	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Equity attributable to owners of the parent company	Non-controlling interests	Total
Balance as of January 1, 2019		**119,467**	**778,047**	**4,403,893**	**242,698,956**	**(7,931,370)**	**240,068,993**	**7,684,184**	**247,753,177**
Profit for the year		-	-	-	21,505,054	-	21,505,054	233,811	21,738,865
Gain (loss) on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	(1,265)	1,111,264	1,109,999	36,600	1,146,599
Share of other comprehensive income (loss) of associates and joint ventures, net of tax	9, 20	-	-	-	(608)	31,477	30,869	884	31,753
Gain on overseas business translation, net of tax	20	-	-	-	-	2,966,973	2,966,973	49,526	3,016,499
Remeasurement of net defined benefit assets, net of tax	14, 20	-	-	-	-	(1,147,721)	(1,147,721)	(32,747)	(1,180,468)
Gain on valuation of cash flow hedge derivatives	20	-	-	-	-	1,811	1,811	-	1,811
Total comprehensive income for the year		**-**	**-**	**-**	**21,503,181**	**2,963,804**	**24,466,985**	**288,074**	**24,755,059**
Dividends	19	-	-	-	(9,619,243)	-	(9,619,243)	(21,359)	(9,640,602)
Capital transactions under common control		-	-	-	-	(85)	(85)	7,356	7,271
Changes in consolidated entities		-	-	-	-	-	-	5,730	5,730
Others		-	-	-	-	(1,178)	(1,178)	964	(214)
Total transactions with owners		**-**	**-**	**-**	**(9,619,243)**	**(1,263)**	**(9,620,506)**	**(7,309)**	**(9,627,815)**
Balance as of December 31, 2019		**119,467**	**778,047**	**4,403,893**	**254,582,894**	**(4,968,829)**	**254,915,472**	**7,964,949**	**262,880,421**

The above consolidated statements of changes in equity should be read in conjunction with the accompanying notes.

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

(In thousands of US dollars (Note 2.29))

2019 USD	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Equity attributable to owners of the parent company	Non-controlling interests	Total
Balance as of January 1, 2019		**101,204**	**659,107**	**3,730,668**	**205,597,438**	**(6,718,897)**	**203,369,520**	**6,509,499**	**209,879,019**
Profit for the year		-	-	-	18,217,565	-	18,217,565	198,068	18,415,633
Gain (loss) on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	(1,072)	941,385	940,313	31,005	971,318
Share of other comprehensive income of associates and joint ventures, net of tax	9, 20	-	-	-	(515)	26,665	26,150	749	26,899
Gain on overseas business translation, net of tax	20	-	-	-	-	2,513,410	2,513,410	41,955	2,555,365
Remeasurement of net defined benefit assets, net of tax	14, 20	-	-	-	-	(972,268)	(972,268)	(27,741)	(1,000,009)
Gain on valuation of cash flow hedge derivatives	20	-	-	-	-	1,534	1,534	-	1,534
Total comprehensive income for the year		**-**	**-**	**-**	**18,215,978**	**2,510,726**	**20,726,704**	**244,036**	**20,970,740**
Dividends	19	-	-	-	(8,148,744)	-	(8,148,744)	(18,094)	(8,166,838)
Capital transactions under common control		-	-	-	-	(72)	(72)	6,231	6,159
Changes in consolidated entities		-	-	-	-	-	-	4,854	4,854
Others		-	-	-	-	(998)	(998)	817	(181)
Total transactions with owners		**-**	**-**	**-**	**(8,148,744)**	**(1,070)**	**(8,149,814)**	**(6,192)**	**(8,156,006)**
Balance as of December 31, 2019		**101,204**	**659,107**	**3,730,668**	**215,664,672**	**(4,209,241)**	**215,946,410**	**6,747,343**	**222,693,753**

The above consolidated statements of changes in equity should be read in conjunction with the accompanying notes.

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

(In millions of Korean won)

2020 KRW	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Accumulated other comprehensive income attributable to assets held-for-sale	Equity attributable to owners of the parent company	Non-controlling interests	Total
Balance as of January 1, 2020		**119,467**	**778,047**	**4,403,893**	**254,582,894**	**(4,968,829)**	**-**	**254,915,472**	**7,964,949**	**262,880,421**
Profit for the year		-	-	-	26,090,846	-	-	26,090,846	316,986	26,407,832
Gain on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	13,713	2,402,226	-	2,415,939	86,794	2,502,733
Share of other comprehensive income (loss) of associates and joint ventures, net of tax	9, 20	-	-	-	-	(45,894)	-	(45,894)	2,597	(43,297)
Loss on overseas business translation, net of tax	20	-	-	-	-	(5,343,946)	-	(5,343,946)	(36,429)	(5,380,375)
Remeasurement of net defined benefit assets, net of tax	14, 20	-	-	-	-	(709,141)	-	(709,141)	(10,419)	(719,560)
Loss on valuation of cash flow hedge derivatives	20	-	-	-	-	(33,406)	-	(33,406)	-	(33,406)
Reclassification to assets held-for-sale	32	-	-	-	-	12,132	(12,132)	-	-	-
Total comprehensive income for the year		**-**	**-**	**-**	**26,104,559**	**(3,718,029)**	**(12,132)**	**22,374,398**	**359,529**	**22,733,927**
Dividends	19	-	-	-	(9,619,242)	-	-	(9,619,242)	(59,028)	(9,678,270)
Capital transactions under common control		-	-	-	-	(830)	-	(830)	(701)	(1,531)
Changes in consolidated entities		-	-	-	-	-	-	-	17,838	17,838
Others		-	-	-	-	533	-	533	(4,902)	(4,369)
Total transactions with owners		**-**	**-**	**-**	**(9,619,242)**	**(297)**	**-**	**(9,619,539)**	**(46,793)**	**(9,666,332)**
Balance as of December 31, 2020		**119,467**	**778,047**	**4,403,893**	**271,068,211**	**(8,687,155)**	**(12,132)**	**267,670,331**	**8,277,685**	**275,948,016**

The above consolidated statements of changes in equity should be read in conjunction with the accompanying notes.

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

(In thousands of US dollars (Note 2.29))

2020 USD	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Accumulated other comprehensive income attributable to assets held-for-sale	Equity attributable to owners of the parent company	Non-controlling interests	Total
Balance as of January 1, 2020		**101,204**	**659,107**	**3,730,668**	**215,664,672**	**(4,209,241)**	**-**	**215,946,410**	**6,747,343**	**222,693,753**
Profit for the year		-	-	-	22,102,325	-	-	22,102,325	268,528	22,370,853
Gain on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	11,617	2,034,996	-	2,046,613	73,526	2,120,139
Share of other comprehensive income (loss) of associates and joint ventures, net of tax	9, 20	-	-	-	-	(38,878)	-	(38,878)	2,200	(36,678)
Loss on overseas business translation, net of tax	20	-	-	-	-	(4,527,014)	-	(4,527,014)	(30,860)	(4,557,874)
Remeasurement of net defined benefit assets, net of tax	14, 20	-	-	-	-	(600,734)	-	(600,734)	(8,826)	(609,560)
Loss on valuation of cash flow hedge derivatives	20	-	-	-	-	(28,300)	-	(28,300)	-	(28,300)
Reclassification to assets held-for-sale	32	-	-	-	-	10,277	(10,277)	-	-	-
Total comprehensive income for the year		**-**	**-**	**-**	**22,113,942**	**(3,149,653)**	**(10,277)**	**18,954,012**	**304,568**	**19,258,580**
Dividends	19	-	-	-	(8,148,744)	-	-	(8,148,744)	(50,004)	(8,198,748)
Capital transactions under common control		-	-	-	-	(703)	-	(703)	(594)	(1,297)
Changes in consolidated entities		-	-	-	-	-	-	-	15,111	15,111
Others		-	-	-	-	452	-	452	(4,153)	(3,701)
Total transactions with owners		**-**	**-**	**-**	**(8,148,744)**	**(251)**	**-**	**(8,148,995)**	**(39,640)**	**(8,188,635)**
Balance as of December 31, 2020		**101,204**	**659,107**	**3,730,668**	**229,629,870**	**(7,359,145)**	**(10,277)**	**226,751,427**	**7,012,271**	**233,763,698**

The above consolidated statements of changes in equity should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF CASH FLOWS

(In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	2020	2019	2020	2019
		KRW	KRW	USD	USD
Operating activities					
Profit for the year		26,407,832	21,738,865	22,370,853	18,415,633
Adjustments	27	41,618,554	37,442,682	35,256,304	31,718,800
Changes in assets and liabilities arising from operating activities	27	122,424	(2,545,756)	103,708	(2,156,585)
Cash generated from operations		**68,148,810**	**56,635,791**	**57,730,865**	**47,977,848**
Interest received		2,220,209	2,306,401	1,880,804	1,953,820
Interest paid		(555,321)	(579,979)	(470,429)	(491,317)
Dividends received		243,666	241,801	206,417	204,837
Income tax paid		(4,770,355)	(13,221,099)	(4,041,108)	(11,199,983)
Net cash from operating activities		**65,287,009**	**45,382,915**	**55,306,549**	**38,445,205**
Investing activities					
Net increase in short-term financial instruments		(20,369,616)	(2,030,913)	(17,255,702)	(1,720,446)
Net decrease (increase) in short-term financial assets at amortized cost		184,104	(818,089)	155,960	(693,027)
Net decrease in short-term financial assets at fair value through profit or loss		1,704,512	374,982	1,443,942	317,658
Disposal of long-term financial instruments		12,184,301	4,586,610	10,321,680	3,885,453
Acquisition of long-term financial instruments		(8,019,263)	(12,725,465)	(6,793,354)	(10,780,116)
Disposal of financial assets at amortized cost		1,023,117	694,584	866,713	588,403
Acquisition of financial assets at amortized cost		-	(825,027)	-	(698,905)
Disposal of financial assets at fair value through other comprehensive income		32,128	1,575	27,217	1,334
Acquisition of financial assets at fair value through other comprehensive income		(245,497)	(63,773)	(207,968)	(54,024)
Disposal of financial assets at fair value through profit or loss		39,746	64,321	33,670	54,488
Acquisition of financial assets at fair value through profit or loss		(84,184)	(135,826)	(71,315)	(115,062)
Disposal of investment in associates and joint ventures		-	12,149	-	10,292
Acquisition of investment in associates and joint ventures		(83,280)	(12,778)	(70,549)	(10,825)
Disposal of property, plant and equipment		376,744	513,265	319,151	434,802
Acquisition of property, plant and equipment		(37,592,034)	(25,367,756)	(31,845,320)	(21,489,774)
Disposal of intangible assets		7,027	7,241	5,953	6,134
Acquisition of intangible assets		(2,679,779)	(3,249,914)	(2,270,120)	(2,753,098)
Cash outflow from business combinations		(49,420)	(1,019,405)	(41,865)	(863,568)
Cash inflow (outflow) from other investing activities		(57,197)	46,048	(48,453)	39,008
Net cash used in investing activities		**(53,628,591)**	**(39,948,171)**	**(45,430,360)**	**(33,841,273)**

The above consolidated statements of cash flows should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF CASH FLOWS

(In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	**2020**	**2019**	**2020**	**2019**
		KRW	KRW	USD	USD
Financing activities					
Net increase in short-term borrowings	27	2,191,186	865,792	1,856,218	733,438
Increase in long-term borrowings	27	14,495	-	12,279	-
Repayment of debentures and long-term borrowings	27	(864,947)	(709,400)	(732,722)	(600,954)
Dividends paid		(9,676,760)	(9,639,202)	(8,197,469)	(8,165,652)
Net decrease (increase) in non-controlling interests		8,187	(1,700)	6,935	(1,440)
Net cash used in financing activities		**(8,327,839)**	**(9,484,510)**	**(7,054,759)**	**(8,034,608)**
Reclassification to assets held-for-sale	32	(139)	-	(118)	-
Effect of foreign exchange rate changes		(833,861)	595,260	(706,386)	504,262
Net increase (decrease) in cash and cash equivalents		**2,496,579**	**(3,454,506)**	**2,114,926**	**(2,926,414)**
Cash and cash equivalents					
Beginning of the year		26,885,999	30,340,505	22,775,922	25,702,336
End of the year		**29,382,578**	**26,885,999**	**24,890,848**	**22,775,922**

The above consolidated statements of cash flows should be read in conjunction with the accompanying notes.

2. Notes to Consolidated Financial Statements

1. General Information

1.1 Company Overview

Samsung Electronics Co., Ltd. ("SEC") was incorporated under the laws of the Republic of Korea in 1969 and listed its shares on the Korea Stock Exchange in 1975. SEC and its subsidiaries (collectively referred to as the "Company") operate four business divisions: Consumer Electronics ("CE"), Information technology & Mobile communications ("IM"), Device Solutions ("DS") and Harman. CE division includes digital TVs, monitors, air conditioners and refrigerators and IM division includes mobile phones, communication systems, and computers. DS division includes semiconductor products such as memory, foundry, and system LSI ("Semiconductor"), and display products such as LCD and OLED panels ("DP"). Harman division includes connected car systems, audio and visual products, enterprise automation solutions and connected services. The Company is domiciled in the Republic of Korea and is located in Suwon, the Republic of Korea.

These consolidated financial statements have been prepared in accordance with Korean International Financial Reporting Standards ("*Korean IFRS*") 1110, *Consolidated Financial Statements*. SEC, as the controlling Company, consolidates its 241 subsidiaries, including Samsung Display and Samsung Electronics America. The Company also applies the equity method of accounting for its 43 associates and joint ventures, including Samsung Electro-Mechanics Co., Ltd.

1.2 Consolidated Subsidiaries

The consolidated subsidiaries as of December 31, 2020 are as follows:

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
America	Samsung Electronics America, Inc. (SEA)	Sale of electronic devices	100.0
	Samsung International, Inc. (SII)	Manufacture of electronic devices	100.0
	Samsung Mexicana S.A. de C.V (SAMEX)	Manufacture of electronic devices	100.0
	Samsung Electronics Home Appliances America, LLC (SEHA)	Manufacture of home appliances	100.0
	Samsung Research America, Inc. (SRA)	R&D	100.0
	Samsung Next LLC (SNX)	Management of overseas subsidiaries	100.0
	Samsung Next Fund LLC (SNXF)	Technology business, venture capital investments	100.0
	NeuroLogica Corp.	Manufacture and sale of medical equipment	100.0
	Samsung HVAC America, LLC	Sale of air conditioning products	100.0
	Prismview, LLC	Manufacture and sale of LED displays	100.0
	Joyent, Inc.	Cloud services	100.0
	Viv Labs, Inc.	AI technology services	100.0
	Dacor Holdings, Inc.	Management of overseas subsidiaries	100.0
	Dacor, Inc.	Manufacture and sale of home appliances	100.0
	Dacor Canada Co.	Sale of home appliances	100.0
	SmartThings, Inc.	Sale of smart home electronics	100.0
	TeleWorld Solutions, Inc. (TWS)	Installation of network devices	100.0
	TWS LATAM B, LLC	Management of overseas subsidiaries	100.0
	TWS LATAM S, LLC	Management of overseas subsidiaries	100.0
	SNB Technologies, Inc. Mexico, S.A. de C.V.	Installation of network devices	100.0
	Zhilabs Inc.	Sale of network solutions	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
America	Samsung Semiconductor, Inc. (SSI)	Sale of semiconductor and display panels	100.0
	Samsung Austin Semiconductor LLC. (SAS)	Manufacture of semiconductors	100.0
	Samsung Oak Holdings, Inc. (SHI)	Management of overseas subsidiaries	100.0
	Stellus Technologies, Inc.	Manufacture and sale of semiconductor system	100.0
	SEMES America, Inc.	Semiconductor equipment	100.0
	Samsung Electronics Canada, Inc. (SECA)	Sale of electronic devices	100.0
	AdGear Technologies Inc.	Digital advertising platforms	100.0
	SigMast Communications Inc.	Development of mobile communications software	100.0
	Samsung Eletronica da Amazonia Ltda. (SEDA)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Mexico S.A. De C.V. (SEM)	Sale of electronic devices	100.0
	Samsung Electronics Digital Appliance Mexico, S.A. de C.V. (SEDAM)	Manufacture of home appliances	100.0
	Samsung Electronics Latinoamerica (Zona Libre), S. A. (SELA)	Sale of electronic devices	100.0
	Samsung Electronics Latinoamerica Miami, Inc. (SEMI)	Sale of electronic devices	100.0
	Samsung Electronica Colombia S.A. (SAMCOL)	Sale of electronic devices	100.0
	Samsung Electronics Argentina S.A. (SEASA)	Marketing and services	100.0
	Samsung Electronics Chile Limitada (SECH)	Sale of electronic devices	100.0
	Samsung Electronics Peru S.A.C. (SEPR)	Sale of electronic devices	100.0
	Samsung Electronics Venezuela, C.A. (SEVEN)	Marketing and services	100.0
	Samsung Electronics Panama. S.A. (SEPA)	Consulting	100.0
	Harman International Industries, Inc.	Management of overseas subsidiaries	100.0
	Harman Becker Automotive Systems, Inc.	Manufacture and sale of audio products, R&D	100.0
	Harman Connected Services, Inc.	Connected service provider	100.0
	Harman Connected Services Engineering Corp.	Connected service provider	100.0
	Harman da Amazonia Industria Eletronica e Participacoes Ltda.	Manufacture and sale of audio products	100.0
	Harman de Mexico, S. de R.L. de C.V.	Manufacture of audio products	100.0
	Harman do Brasil Industria Eletronica e Participacoes Ltda.	Sale of audio products, R&D	100.0
	Harman Financial Group LLC	Management company	100.0
	Harman International Industries Canada Ltd.	Sale of audio products	100.0
	Harman International Mexico, S. de R.L. de C.V.	Sale of audio products	100.0
	Harman KG Holding, LLC	Management of overseas subsidiaries	100.0
	Harman Professional, Inc.	Sale of audio products, R&D	100.0
	RT SV CO-INVEST, LP	Venture capital investments	99.9
	Beijing Integrated Circuit Industry International Fund, L.P	Venture capital investments	61.4
	China Materialia New Materials 2016 Limited Partnership	Venture capital investments	99.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Europe/CIS	Samsung Electronics (UK) Ltd. (SEUK)	Sale of electronic devices	100.0
	Samsung Electronics Ltd. (SEL)	Management of overseas subsidiaries	100.0
	Samsung Semiconductor Europe Limited (SSEL)	Sale of semiconductor and display panels	100.0
	Samsung Electronics GmbH (SEG)	Sale of electronic devices	100.0
	Samsung Electronics Holding GmbH (SEHG)	Management of overseas subsidiaries	100.0
	Samsung Semiconductor Europe GmbH (SSEG)	Sale of semiconductor and display panels	100.0
	Samsung Electronics France S.A.S. (SEF)	Sale of electronic devices	100.0
	Samsung Electronics Italia S.P.A. (SEI)	Sale of electronic devices	100.0
	Samsung Electronics Iberia, S.A. (SESA)	Sale of electronic devices	100.0
	Samsung Electronics Portuguesa S.A. (SEP)	Sale of electronic devices	100.0
	Samsung Electronics Hungarian Private Co., Ltd. (SEH)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Europe Logistics B.V. (SELS)	Logistics	100.0
	Samsung Electronics Benelux B.V. (SEBN)	Sale of electronic devices	100.0
	Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	Management of overseas subsidiaries	100.0
	Samsung Electronics Nordic Aktiebolag (SENA)	Sale of electronic devices	100.0
	Samsung Electronics Slovakia s.r.o (SESK)	Manufacture of TV and monitors	100.0
	Samsung Display Slovakia s.r.o. (SDSK)	Toll processing of display panels	100.0
	Samsung Electronics Polska, SP.Zo.o (SEPOL)	Sale of electronic devices	100.0
	Samsung Electronics Poland Manufacturing SP.Zo.o (SEPM)	Manufacture of home appliances	100.0
	Samsung Electronics Romania LLC (SEROM)	Sale of electronic devices	100.0
	Samsung Electronics Austria GmbH (SEAG)	Sale of electronic devices	100.0
	Samsung Electronics Switzerland GmbH (SESG)	Sale of electronic devices	100.0
	Samsung Electronics Czech and Slovak s.r.o. (SECZ)	Sale of electronic devices	100.0
	Samsung Electronics Baltics SIA (SEB)	Sale of electronic devices	100.0
	Samsung Electronics Greece S.M.S.A (SEGR)	Sale of electronic devices	100.0
	Samsung Electronics Air Conditioner Europe B.V. (SEACE)	Sale of air conditioning products	100.0
	Samsung Nanoradio Design Center (SNDC)	R&D	100.0
	Samsung Denmark Research Center ApS (SDRC)	R&D	100.0
	Samsung Cambridge Solution Centre Limited (SCSC)	R&D	100.0
	Zhilabs, S.L.	Development and sale of network solutions	100.0
	Foodient Ltd.	R&D	100.0
	Samsung Electronics Rus Company LLC (SERC)	Sale of electronic devices	100.0
	Samsung Electronics Rus Kaluga LLC (SERK)	Manufacture of TV	100.0
	Samsung Electronics Ukraine Company LLC (SEUC)	Sale of electronic devices	100.0
	Samsung Electronics Central Eurasia LLP (SECE)	Sale of electronic devices	100.0
	Samsung Electronics Overseas B.V. (SEO)	Sale of electronic devices	100.0
	Samsung R&D Institute Rus LLC (SRR)	R&D	100.0
	Samsung Electronics Caucasus Co., Ltd. (SECC)	Marketing	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
	AKG Acoustics GmbH	Manufacture and sale of audio products	100.0
	AMX UK Limited	Sale of audio products	100.0
	Arcam Limited	Management of overseas subsidiaries	100.0
	A&R Cambridge Limited	Sale of audio products	100.0
	Harman Audio Iberia Espana Sociedad Limitada	Sale of audio products	100.0
	Harman Automotive UK Limited	Manufacture of audio products	100.0
	Harman Becker Automotive Systems GmbH	Manufacture and sale of audio products, R&D	100.0
	Harman Becker Automotive Systems Italy S.R.L.	Sale of audio products	100.0
	Harman Becker Automotive Systems Manufacturing Kft	Manufacture of audio products, R&D	100.0
	Harman Belgium SA	Sale of audio products	100.0
	Harman Connected Services AB.	Connected service provider	100.0
	Harman Finland Oy	Connected service provider	100.0
	Harman Connected Services GmbH	Connected service provider	100.0
	Harman Connected Services Limited	Connected service provider	100.0
	Harman Connected Services Poland Sp.zoo	Connected service provider	100.0
	Harman Connected Services UK Ltd.	Connected service provider	100.0
	Harman Consumer Nederland B.V.	Sale of audio products	100.0
	Harman Deutschland GmbH	Sale of audio products	100.0
Europe/CIS	Harman Finance International GP S.a.r.l	Management of overseas subsidiaries	100.0
	Harman France SNC	Sale of audio products	100.0
	Harman Holding GmbH & Co. KG	Management company	100.0
	Harman Hungary Financing Ltd.	Financing company	100.0
	Harman Inc. & Co. KG	Management of overseas subsidiaries	100.0
	Harman International Estonia OU	R&D	100.0
	Harman International Industries Limited	Sale of audio products, R&D	100.0
	Harman International Romania SRL	R&D	100.0
	Harman Finance International, SCA	Financing company	100.0
	Harman International s.r.o	Manufacture of audio products	100.0
	Harman Management GmbH	Management of overseas subsidiaries	100.0
	Harman Professional Kft	Manufacture of audio products, R&D	100.0
	Martin Manufacturing (UK) Ltd.	Manufacture of audio products	100.0
	Harman Professional Denmark ApS	Sale of audio products, R&D	100.0
	Red Bend Software Ltd.	Software design	100.0
	Red Bend Software SAS	Software design	100.0
	Studer Professional Audio GmbH	Sale of audio products, R&D	100.0
	Harman Connected Services OOO	Connected service provider	100.0
	Harman RUS CIS LLC	Sale of audio products	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Middle East & Africa	Samsung Gulf Electronics Co., Ltd. (SGE)	Sale of electronic devices	100.0
	Samsung Electronics Turkey (SETK)	Sale of electronic devices	100.0
	Samsung Electronics Levant Co.,Ltd. (SELV)	Sale of electronic devices	100.0
	Samsung Electronics Maghreb Arab (SEMAG)	Sale of electronic devices	100.0
	Samsung Electronics Egypt S.A.E (SEEG)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Israel Ltd. (SEIL)	Marketing	100.0
	Samsung Electronics Tunisia S.A.R.L (SETN)	Marketing	100.0
	Samsung Electronics Pakistan (Private) Ltd. (SEPAK)	Marketing	100.0
	Samsung Electronics Saudi Arabia Ltd. (SESAR)	Sale of electronic devices	100.0
	Samsung Semiconductor Israel R&D Center, Ltd. (SIRC)	R&D	100.0
	Corephotonics Ltd.	R&D	100.0
	Samsung Electronics South Africa (Pty) Ltd. (SSA)	Sale of electronic devices	100.0
	Samsung Electronics South Africa Production (pty) Ltd. (SSAP)	Manufacture of TV and monitors	100.0
	Samsung Electronics West Africa Ltd. (SEWA)	Marketing	100.0
	Samsung Electronics East Africa Ltd. (SEEA)	Marketing	100.0
	Global Symphony Technology Group Private Ltd.	Management of overseas subsidiaries	100.0
	Harman Connected Services Morocco	Connected service provider	100.0
	Harman Industries Holdings Mauritius Ltd.	Management of overseas subsidiaries	100.0
	Red Bend Ltd.	Manufacture of audio products	100.0
Asia (Excluding China)	Samsung Asia Pte. Ltd. (SAPL)	Sale of electronic devices	100.0
	Samsung Electronics Singapore Pte. Ltd.(SESP)	Sale of electronic devices	100.0
	Samsung Malaysia Electronics (SME) Sdn. Bhd. (SME)	Sale of electronic devices	100.0
	Samsung Electronics Display (M) Sdn. Bhd. (SDMA)	Manufacture of electronic devices	100.0
	Samsung Electronics (M) Sdn. Bhd. (SEMA)	Manufacture of home appliances	100.0
	Samsung Vina Electronics Co., Ltd. (SAVINA)	Sale of electronic devices	100.0
	Samsung Electronics Vietnam Co., Ltd. (SEV)	Manufacture of electronic devices	100.0
	Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	Manufacture of communication equipment	100.0
	Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	Manufacture and sale of electronic devices	100.0
	Samsung Display Vietnam Co., Ltd. (SDV)	Manufacture of display panels	100.0
	PT Samsung Electronics Indonesia (SEIN)	Manufacture and sale of electronic devices	100.0
	PT Samsung Telecommunications Indonesia (STIN)	Sale of electronic devices and services	100.0
	Thai Samsung Electronics Co., Ltd. (TSE)	Manufacture and sale of electronic devices	91.8
	Laos Samsung Electronics Sole Co., Ltd. (LSE)	Marketing	100.0
	Samsung Electronics Philippines Corporation (SEPCO)	Sale of electronic devices	100.0
	Samsung Electronics Australia Pty. Ltd. (SEAU)	Sale of electronic devices	100.0
	Samsung Electronics New Zealand Limited (SENZ)	Sale of electronic devices	100.0
	Samsung India Electronics Private Ltd. (SIEL)	Manufacture and sale of electronic devices	100.0
	Samsung Display Noida Private Limited (SDN)	Manufacture of display panels	100.0
	Samsung R&D Institute India-Bangalore Private Limited (SRI-B)	R&D	100.0
	Samsung R&D Institute BanglaDesh Limited (SRBD)	R&D	100.0
	Samsung Nepal Services Pvt, Ltd. (SNSL)	Service	100.0
	Samsung Japan Corporation (SJC)	Sale of semiconductor and display panels	100.0
	Samsung R&D Institute Japan Co., Ltd. (SRJ)	R&D	100.0
	Samsung Electronics Japan Co., Ltd. (SEJ)	Sale of electronic devices	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Asia (Excluding China)	Harman Connected Services Corp. India Pvt. Ltd.	Connected service provider	100.0
	Harman International (India) Private Limited	Sale of audio products, R&D	100.0
	Harman International Industries PTY Ltd.	Management of overseas subsidiaries	100.0
	Harman International Japan Co., Ltd.	Sale of audio products, R&D	100.0
	Harman Singapore Pte. Ltd.	Sale of audio products	100.0
China	Samsung (CHINA) Investment Co., Ltd. (SCIC)	Sale of electronic devices	100.0
	Samsung Electronics Hong Kong Co., Ltd. (SEHK)	Sale of electronic devices	100.0
	Samsung Electronics Taiwan Co., Ltd. (SET)	Sale of electronic devices	100.0
	Samsung Electronics Huizhou Co., Ltd. (SEHZ)	Manufacture of electronic devices	100.0
	Tianjin Samsung Electronics Co., Ltd. (TSEC)	Manufacture of TV and monitors	91.2
	Suzhou Samsung Electronics Co., Ltd. (SSEC)	Manufacture of home appliances	88.3
	Samsung Suzhou Electronics Export Co., Ltd. (SSEC-E)	Manufacture of home appliances	100.0
	Samsung Electronics Suzhou Computer Co., Ltd. (SESC)	Manufacture of electronic devices, R&D	100.0
	Tianjin Samsung Telecom Technology Co., Ltd. (TSTC)	Manufacture of communication equipment	90.0
	Shenzhen Samsung Electronics Telecommunication Co., Ltd. (SSET)	Manufacture of communication equipment	100.0
	Beijing Samsung Telecom R&D Center (SRC-Beijing)	R&D	100.0
	Samsung Electronics China R&D Center (SRC-Nanjing)	R&D	100.0
	Samsung Mobile R&D Center China-Guangzhou (SRC-Guangzhou)	R&D	100.0
	Samsung R&D Institute China-Shenzhen (SRC-Shenzhen)	R&D	100.0
	Shanghai Samsung Semiconductor Co., Ltd. (SSS)	Sale of semiconductor and display panels	100.0
	Samsung (China) Semiconductor Co., Ltd. (SCS)	Manufacture of semiconductors	100.0
	Samsung SemiConductor Xian Co., Ltd. (SSCX)	Sale of semiconductor and display panels	100.0
	Samsung Electronics Suzhou Semiconductor Co., Ltd. (SESS)	Toll processing of semiconductors	100.0
	Tianjin Samsung LED Co., Ltd. (TSLED)	Manufacture of LED	100.0
	Samsung Semiconductor (China) R&D Co., Ltd. (SSCR)	R&D	100.0
	Samsung Display Dongguan Co., Ltd. (SDD)	Manufacture of display panels	100.0
	Samsung Display Tianjin Co., Ltd. (SDT)	Manufacture of display panels	95.0
	Samsung Suzhou Module Co., Ltd. (SSM)	Manufacture of display panels	100.0
	Samsung Suzhou LCD Co., Ltd. (SSL)	Manufacture of display panels	60.0
	SEMES (XIAN) Co., Ltd.	Semiconductor equipment services	100.0
	Harman (China) Technologies Co., Ltd.	Manufacture of audio products	100.0
	Harman (Suzhou) Audio and Infotainment Systems Co., Ltd.	Sale of audio products	100.0
	Harman Automotive Electronic Systems (Suzhou) Co., Ltd.	Manufacture of audio products, R&D	100.0
	Harman Commercial (Shanghai) Co., Ltd.	Sale of audio products	100.0
	Harman Connected Services Solutions (Chengdu) Co., Ltd.	Connected service provider	100.0
	Harman Holding Limited	Sale of audio products	100.0
	Harman International (China) Holdings Co., Ltd.	Sale of audio products, R&D	100.0
	Harman Technology (Shenzhen) Co., Ltd.	Sale of audio products, R&D	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Domestic	Samsung Display Co., Ltd.	Manufacture and sale of display panels	84.8
	SU Materials	Manufacture of display components	50.0
	STECO Co., Ltd.	Manufacture of semiconductor components	70.0
	SEMES Co., Ltd.	Manufacture and sale of semiconductor/FPD	91.5
	Samsung Electronics Service Co., Ltd.	Repair services for electronic devices	99.3
	Samsung Electronics Service Customer Satisfaction	Call center for repair services for electronic devices	100.0
	Samsung Electronics Sales Co., Ltd.	Sale of electronic devices	100.0
	Samsung Electronics Logitech Co., Ltd.	General logistics agency	100.0
	Samsung Medison Co., Ltd.	Manufacture and sale of medical equipment	68.5
	Mirero System Co., Ltd.	Development and supply of semiconductor process defect and quality control software	99.9
	Dowooinssys Co., Ltd.	Manufacture of display components	52.5
	Gf-System Co., Ltd.	Manufacture of display components	100.0
	Harman International Korea	Software development and supply, etc.	100.0
	Samsung Venture Capital Union #21	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #22	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #26	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #27	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #28	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #29	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #32	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #33	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #37	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #40	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #42	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #43	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #45	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #48	Technology business, Venture capital investments	99.0
	Growth type private equity trust specialized in semiconductors	Investment on semiconductor industry	66.7
	System LSI Mutual benefit private equity trust	Investment on semiconductor industry	62.5

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

1.3 Summary of Financial Data of Major Consolidated Subsidiaries

Summary of financial data of major consolidated subsidiaries is as follows:

(1) 2020

(In millions of Korean won)	As of December 31, 2020		For the year ended December 31, 2020	
Major subsidiaries[1]	**Assets**	**Liabilities**	**Sales**	**Profit (loss) for the year**
Samsung Display	50,039,755	7,612,332	27,149,102	1,798,100
Samsung Electronics America, Inc. (SEA)	36,765,070	15,828,083	35,237,365	1,623,555
Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	15,500,024	2,574,442	28,284,397	2,066,842
Samsung (CHINA) Investment Co., Ltd. (SCIC)	15,438,819	12,358,881	2,475,454	127,051
Harman and its subsidiaries[2]	14,702,005	5,776,884	9,161,142	(735,426)
Samsung (China) Semiconductor Co., Ltd. (SCS)	14,348,735	3,511,003	5,321,312	1,100,619
Samsung Electronics Vietnam Co., Ltd. (SEV)	12,623,956	1,805,326	19,952,957	1,408,088
Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	11,495,430	7,641,709	-	16,150
Samsung Semiconductor, Inc. (SSI)	9,669,349	4,427,701	23,562,962	182,290
Samsung Asia Pte. Ltd. (SAPL)	9,552,755	523,402	1,634,692	968,504
Shanghai Samsung Semiconductor Co., Ltd. (SSS)	7,678,989	5,010,041	25,829,119	271,691
Samsung Display Vietnam Co., Ltd. (SDV)	7,400,563	4,354,887	19,209,100	559,006
Samsung Austin Semiconductor LLC. (SAS)	6,912,610	538,288	3,913,100	922,007
Samsung Eletronica da Amazonia Ltda. (SEDA)	6,280,131	1,556,057	6,390,696	819,561
Samsung India Electronics Private Ltd. (SIEL)	6,250,492	2,523,027	10,943,343	611,571
Thai Samsung Electronics Co., Ltd. (TSE)	2,920,299	451,055	3,744,080	160,264
Samsung Electronics (UK) Ltd. (SEUK)	2,767,563	1,886,447	4,987,522	133,016
Samsung Electronics GmbH (SEG)	2,687,535	2,626,979	6,306,675	605
Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	2,609,150	1,026,901	6,273,162	419,313
Samsung Electronics Hungarian Private Co. Ltd. (SEH)	2,230,457	504,952	3,665,360	148,056
Samsung Electronics Benelux B.V. (SEBN)	2,145,488	736,480	2,324,308	58,579
Samsung Display Dongguan Co., Ltd. (SDD)	1,767,663	300,080	2,947,506	110,194
Samsung Electronics Europe Logistics B.V. (SELS)	1,700,033	1,550,350	13,444,960	20,623
Samsung Electronics France S.A.S (SEF)	1,688,580	1,207,359	3,464,937	61,596
Samsung Japan Corporation (SJC)	1,668,902	1,381,443	3,317,644	7,684

[1] Summary of condensed financial information is based on separate financial statements of each subsidiary.
[2] Consolidated financial data of an intermediate company that includes Harman International Industries, Inc. and its subsidiaries.

(2) 2019

(In millions of Korean won)	As of December 31, 2019		For the year ended December 31, 2019	
Major subsidiaries[1]	**Assets**	**Liabilities**	**Sales**	**Profit (loss) for the year**
Samsung Display	46,543,974	6,421,516	27,088,475	407,791
Samsung Electronics America, Inc. (SEA)	34,704,039	13,992,397	33,859,423	1,127,719
Harman and its subsidiaries[2]	15,609,084	5,791,272	10,075,626	104,459
Samsung (CHINA) Investment Co., Ltd. (SCIC)	14,637,222	11,701,871	3,098,948	581,115
Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	13,847,934	2,075,180	32,831,993	2,305,089
Samsung (China) Semiconductor Co., Ltd. (SCS)	12,370,070	2,678,742	5,445,396	537,037
Samsung Electronics Vietnam Co., Ltd. (SEV)	12,367,857	1,418,876	22,350,791	1,757,684
Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	10,682,847	7,662,042	-	21,915
Samsung Semiconductor, Inc. (SSI)	9,194,190	3,795,273	16,473,214	211,312
Samsung Asia Pte. Ltd. (SAPL)	9,137,262	579,618	1,572,146	1,265,359
Samsung Display Vietnam Co., Ltd. (SDV)	7,267,124	4,587,477	16,613,123	601,469
Samsung Eletronica da Amazonia Ltda. (SEDA)	7,058,719	1,594,907	7,252,673	887,298
Samsung India Electronics Private Ltd. (SIEL)	7,042,872	3,588,241	12,902,906	448,678
Samsung Austin Semiconductor LLC. (SAS)	6,437,865	556,765	3,897,162	571,391
Shanghai Samsung Semiconductor Co., Ltd. (SSS)	5,880,616	4,446,885	26,067,175	265,801
Thai Samsung Electronics Co., Ltd. (TSE)	2,912,731	450,833	3,921,248	144,087
Samsung Electronics (UK) Ltd. (SEUK)	2,644,358	1,877,903	4,730,414	104,741
Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	2,305,587	1,035,533	4,934,278	373,325
Samsung Electronics GmbH (SEG)	2,258,269	2,199,561	5,597,323	4,729
Samsung Electronics Hungarian Private Co. Ltd. (SEH)	2,109,654	416,160	2,915,812	106,704
Samsung SemiConductor Xian Co., Ltd. (SSCX)	2,091,092	1,954,875	4,283,163	53,160
Samsung Electronics Europe Logistics B.V. (SELS)	2,027,213	1,891,221	12,540,817	6,531
Samsung Electronics Benelux B.V. (SEBN)	1,914,864	673,887	2,246,357	39,175
Samsung Suzhou LCD Co., Ltd. (SSL)	1,808,262	625,541	1,415,505	(4,414)
Samsung Display Dongguan Co., Ltd. (SDD)	1,795,077	444,552	3,995,696	158,122

[1] Summary of condensed financial information is based on separate financial statements of each subsidiary.
[2] Consolidated financial data of an intermediate company that includes Harman International Industries, Inc. and its subsidiaries.

1.4 Changes in Consolidation Scope

Changes in consolidation scope during the year ended December 31, 2020 are as follows:

Change	Area	Subsidiary	Description
Included	America	TeleWorld Solutions. Inc. (TWS)	Acquisition
		TWS LATAM B, LLC	
		TWS LATAM S, LLC	
		SNB Technologies, Inc. Mexico, S.A. de C.V	
	Asia (Excluding China)	Samsung Electronics Singapore Pte. Ltd.(SESP)	Establishment
	Domestic	System LSI mutual benefit private equity trust	
Excluded	America	Harman Connected Services South America S.R.L.	Liquidation
		EverythingDacor.com, Inc.	
		Distinctive Appliances of California, Inc.	
	Asia (Excluding China)	Martin Professional Pte. Ltd.	
	China	Samsung Tianjin Mobile Development Center (SRC-Tianjin)	

2. Significant Accounting Policies

2.1 Basis of Presentation

The principal accounting policies used to prepare the consolidated financial statements are set out below. Except for the effect of the amendments to the Korean IFRS and new interpretations set out below, the principal accounting policies used to prepare the consolidated financial statements as of and for the year ended December 31, 2020 are consistent with those used to prepare the consolidated financial statements as of and for the year ended December 31, 2019.

The Company maintains its accounting records in Korean won and prepares statutory financial statements in the Korean language (Hangul) in accordance with International Financial Reporting Standards as adopted by the Republic of Korea ("Korean IFRS"). The accompanying consolidated financial statements have been condensed, restructured, and translated into English from the Korean language financial statements.

Certain information attached to the Korean language financial statements, but not required for a fair presentation of the Company's financial position, financial performance or cash flows, is not presented in the accompanying consolidated financial statements.

The consolidated financial statements of the Company presented have been prepared in accordance with Korean IFRS. These are the standards, subsequent amendments and related interpretations issued by the International Accounting Standards Board (IASB) that have been adopted by the Republic of Korea.

Korean IFRS permits the use of critical accounting estimates in the preparation of the consolidated financial statements and requires management judgments in applying accounting policies. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements, are disclosed in Note 3.

2.2 Changes in Accounting Policies and Disclosures

(A) New and amended standards adopted by the Company

The Company applied the following amended and enacted standards for the first time for their annual reporting period commencing January 1, 2020:

Amendments to Korean IFRS 1103, Business Combination

To consider the integration of the required activities and assets as a business, the amended definition of a business requires an acquisition to include an input and a substantive process that together significantly contribute to the ability to create outputs and excludes economic benefits from the lower costs. An entity can apply an optional concentration test, where substantially all of the fair value of gross assets acquired is concentrated in a single asset (or group of similar assets), the assets acquired would not represent a business. This amendment does not have a significant impact on the consolidated financial statements.

(B) New and amended standards not yet adopted by the Company

The amended accounting standard issued that is not mandatory for the annual reporting period commencing January 1, 2020 and has not been early adopted by the Company is as follows:

Amendments to Korean IFRS 1116, Lease

The amendments introduce a practical expedient that simplifies how a lessee accounts for COVID-19 related rent concessions, and a lessee may elect not to assess whether rent concessions occurring as a direct consequence of the COVID-19 pandemic are lease modifications. A lease that makes this election shall account for any change in lease payments resulting from the rent concession the same way it would account for the change applying this standard if the change were not a lease modification. The amendment is effective for annual reporting periods beginning on or after June 1, 2020, with early adoption permitted.

Amendments to Korean IFRS 1016 Property, Plant and Equipment

The amendments prohibit deducting from the cost of an item of property, plant and equipment any proceeds from selling items produced while bringing that asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Instead, an entity recognizes the proceeds from selling such items, and the cost of producing those items, in profit or loss. The amendments are effective for annual reporting periods beginning on or after January 1, 2022, with early adoption permitted.

2.3 Consolidation

The Company prepares the consolidated financial statements in accordance with Korean IFRS 1110 *Consolidated Financial Statements.*

(A) Subsidiaries

Subsidiaries are all entities (including special purpose entities) over which the Company has control. The Company controls the corresponding investee when it is exposed, or has rights, to variable returns from its involvement with the investee and has the ability to affect those returns through its power over the investee. Consolidation of a subsidiary begins from the date the Company obtains control of a subsidiary and ceases when the Company loses control of the subsidiary.

The Company applies the acquisition method to account for business combinations. The consideration transferred is measured at the fair values of the assets transferred, and identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are initially measured at their fair values at the acquisition date. The Company recognizes any non-controlling interest in the acquiree on an acquisition-by-acquisition basis in the event of liquidation at the non-controlling interest's proportionate share of the recognized amounts of acquiree's identifiable net assets. Acquisition-related costs are expensed as incurred.

The excess of consideration transferred, amount of any non-controlling interest in the acquired entity and acquisition-date fair value of any previous equity interest in the acquired entity over the fair value of the net identifiable assets acquired is recorded as goodwill. If those amounts are less than the fair value of the net identifiable assets of the business acquired, the difference is recognized directly in the profit or loss as a bargain purchase.

Balances of receivables and payables, income and expenses and unrealized gains or losses on transactions between the entities within the Company are eliminated. Accounting policies of subsidiaries are changed where necessary to ensure consistency with the policies adopted by the Company.

(B) Changes in ownership interests in subsidiaries without change of control

Transactions with non-controlling interests that do not result in loss of control are accounted for as equity transactions – that is, as transactions with the owners in their capacity as owners. The difference between fair value of any consideration paid and the relevant share acquired of the carrying value of net assets of the subsidiary is recorded in equity. Gains or losses on disposals of non-controlling interests are also recorded in equity.

(C) Disposal of subsidiaries

If the Company loses control of a subsidiary, any investment continuously retained in the subsidiary is re-measured at its fair value at the date when control is lost and any resulting differences are recognized in profit or loss. Such fair value becomes the initial carrying amount for the subsequent measurement of the retained interest accounted for as an associate, joint venture, or financial asset. In addition, any amounts previously recognized in other comprehensive income in respect of such entity are accounted for as if the Company had directly disposed of the related assets or liabilities. As a result, the previously recognized other comprehensive income are reclassified into profit or loss or equity.

(D) Non-controlling interests

Each component of profit or loss and other comprehensive income is attributed to owners of the parent and to non-controlling interests. Total comprehensive income is attributed to owners of the parent and to non-controlling interests even if this results in a negative balance of non-controlling interests.

(E) Associates

Associates are all entities over which the Company has significant influence but does not have control, generally investees of which from 20% to 50% voting shares are owned by the Company. Investments in associates are accounted for using the equity method of accounting, after initially being recognized at cost. Unrealized gains on transactions between the Company and its associates are eliminated to the extent of the Company's interest in the associates. If the Company's share of losses of an associate equals or exceeds its interest in the associate (including long-term interests that, in substance, form part of the Company's net investment in the associate), the Company discontinues recognizing its share of further losses. After the Company's interest is reduced to zero, additional losses are provided for, and a liability is recognized, only to the extent that the Company has incurred legal or constructive obligations or made payments on behalf of the associate. If there is objective evidence of impairment for the investment in the associate, the Company recognizes the difference between the recoverable amount of the associate and its carrying amount as an impairment loss. If an associate uses accounting policies other than those of the Company for like transactions and events in similar circumstances, if necessary, adjustments shall be made to make the associate's accounting policies conform to those of the Company when the associate's financial statements are used by the entity in applying the equity method.

(F) Joint arrangements

A joint arrangement of which two or more parties have joint control is classified as either a joint operation or a joint venture. A joint operator has rights to the assets, and obligations for the liabilities, relating to the joint operation and recognizes the assets, liabilities, revenues and expenses relating to its interest in a joint operation. A joint venturer has rights to the net assets relating to the joint venture and accounts for that investment using the equity method.

2.4 Foreign Currency Translation

(A) Functional and presentation currency

Items included in the consolidated financial statements of each of the Company's entities are measured using the currency of the primary economic environment in which each entity operates (the "functional currency"). The consolidated financial statements are presented in Korean won, which is the parent company's functional and presentation currency.

(B) Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions or valuation where items are re-measured. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognized in profit or loss. Exchange differences arising on non-monetary financial assets and liabilities such as equity instruments at fair value through profit or loss and equity instruments at fair value through other comprehensive income are recognized in profit or loss and other comprehensive income, respectively, as part of the fair value gain or loss.

(C) Translation into the presentation currency

The results and financial position of all the foreign entities that have a functional currency different from the presentation currency of the Company are translated into the presentation currency as follows:

- Assets and liabilities for each consolidated statement of financial position presented are translated at the closing rate at the end of the reporting date.
- Income and expenses for each consolidated statement of profit or loss are translated at average exchange rates, unless this average is not a reasonable approximation of the cumulative effect of the rates prevailing on the transaction dates, in which case income and expenses are translated at the rate on the dates of the transactions.
- All resulting exchange differences are recognized in other comprehensive income.

2.5 Cash and Cash Equivalents

Cash and cash equivalents include cash on hand, deposits held at call with banks, and other short-term investment assets with high liquidity that are readily convertible to a known amount of cash and are subject to an insignificant risk of change in value.

2.6 Financial Assets

(A) Classification

From January 1, 2018, the initial application date for Korean IFRS 1109 *Financial Instruments,* the Company classifies its financial assets in the following measurement categories:

- Financial assets measured at fair value (changes in fair value recognized in either other comprehensive income, or profit or loss)
- Financial assets measured at amortized cost.

The classification depends on the Company's business model for managing the financial assets and the contractual terms of the cash flows.

For financial assets measured at fair value, gains and losses will either be recorded in profit or loss or other comprehensive income. For investments in debt instruments, this will depend on the business model in which the investment is held. The Company reclassifies debt investments only when its business model for managing those assets changes.

For investments in equity instruments that are not held for trading, classification will depend on whether the Company has made an irrevocable election at the time of initial recognition to account for the equity investment at fair value through other comprehensive income. Changes in fair value of the investments in equity instruments that are not elected to be accounted for as other comprehensive income are recognized in profit or loss.

(B) Measurement

At initial recognition, the Company measures a financial asset at its fair value. In the case of financial asset not measured at fair value through profit or loss, transaction costs that are directly attributable to the acquisition of the financial asset or the issuance of the financial liabilities are added to its fair value. Transaction costs of financial assets carried at fair value through profit or loss are expensed in profit or loss.

Hybrid (combined) contracts with embedded derivatives are considered in their entirety when determining whether their cash flows are solely payment of principal and interest.

a) Debt instruments

Subsequent measurement of debt instruments depends on the Company's business model for managing the asset and the cash flow characteristics of the asset. The Company classifies its debt instruments into one of the following three measurement categories:

① Financial assets measured at amortized cost

Assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortized cost. A gain or loss on a debt investment that is subsequently measured at amortized cost and is not part of a hedging relationship is recognized in profit or loss when the asset is derecognized or impaired. Interest income from these financial assets is included in 'financial income' using the effective interest rate method.

② Financial assets measured at fair value through other comprehensive income

Assets that are held for collection of contractual cash flows and for selling the financial assets, where the assets' cash flows represent solely payments of principal and interest, are measured at fair value through other comprehensive income. Movements in the carrying amount are taken through other comprehensive income, except for the recognition of impairment loss (reversal of impairment loss), interest income and foreign exchange gains and losses which are recognized in profit or loss. When the financial assets are derecognized, the cumulative gain or loss previously recognized in other comprehensive income is reclassified from equity to profit or loss. Interest income from these financial assets is included in 'financial income' using the effective interest rate method. Foreign exchange gains and losses are presented in 'financial income' or 'financial expenses' and impairment losses are presented in 'other non-operating expenses'.

③ Financial assets measured at fair value through profit or loss

Assets that do not meet the criteria for amortized cost or fair value through other comprehensive income are measured at fair value through profit or loss. A gain or loss on a debt investment that is subsequently measured at fair value through profit or loss and is not part of a hedging relationship is recognized in profit or loss and presented in the consolidated statement of profit or loss within 'other non-operating income' or 'other non-operating expenses' in the year in which it arises.

b) Equity instruments

The Company subsequently measures all equity investments at fair value. Where the Company's management has elected to present fair value gains and losses on equity investments in other comprehensive income, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. When the financial asset is derecognized, the cumulative gain or loss on valuation of financial assets at fair value through other comprehensive income recognized in equity is reclassified to retained earnings. Dividend income from such investments continue to be recognized in profit or loss as 'other non-operating income' when the right to receive payments is established.

Changes in the fair value of financial assets at fair value through profit or loss are recognized in 'other non-operating income' or 'other non-operating expenses' in the consolidated statements of profit or loss as applicable.

(C) Impairment

The Company assesses on a forward-looking basis the expected credit losses associated with its debt instruments carried at amortized cost and fair value through other comprehensive income. The impairment methodology applied depends on whether there has been a significant increase in credit risk. For trade receivables, the Company applies the simplified approach, which requires expected lifetime losses to be recognized from initial recognition of the receivables.

(D) Recognition and derecognition

Regular way purchases and sales of financial assets are recognized or derecognized on a trade date basis. Financial assets are derecognized when the rights to receive cash flows from the financial assets have expired or have been transferred and the Company has transferred substantially all the risks and rewards of ownership. If a transfer does not result in derecognition because the Company has retained substantially all the risks and rewards of ownership of the transferred asset, the Company continues to recognize the transferred asset in its entirety and recognizes a financial liability for the consideration received. The Company classified the financial liability as 'borrowings' in the consolidated statement of financial position.

(E) Offsetting of financial instruments

Financial assets and liabilities are offset and the net amount reported in the statements of financial position where there is a legally enforceable right to offset the recognized amounts and there is an intention to settle on a net basis or realize the assets and settle the liability simultaneously. The legally enforceable right must not be contingent on future events and must be enforceable in the normal course of business and in the event of default, insolvency or bankruptcy of the Company or the counterparty.

2.7 Trade Receivables

Trade receivables are amounts due from customers for inventories sold or services performed in the ordinary course of business. If collection is expected in one year or less, they are classified as current assets. If collection is expected beyond one year, they are presented as non-current assets. Trade receivables are recognized initially at fair value and subsequently measured at amortized cost using the effective interest method, less loss allowance, unless trade receivables bear significant financial component.

2.8 Inventories

Inventories are stated at the lower of cost and net realizable value. Cost is determined using the average cost method, except for materials in transit. The cost of finished goods and work in progress comprises raw materials, direct labor, other direct costs and related production overheads (based on normal operating capacity). It excludes costs of idle plant and abnormal waste. Net realizable value is the estimated selling price in the ordinary course of business, less applicable variable selling expenses.

The Company regularly estimates the future customer demand in the products that may cause a significant change in the valuation allowance and recognizes the valuation allowance if there is any case such as excess, obsolescence and decline in market value. Loss on valuation of inventories is recorded as cost of sales.

2.9 Property, Plant and Equipment

Property, plant and equipment are stated at cost less accumulated depreciation and accumulated impairment losses. Historical cost includes expenditures that are directly attributable to the acquisition of the items. Subsequent costs are included in the asset's carrying amount or recognized as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to the Company and the cost of the item can be measured reliably. The carrying amount of those parts that are replaced is derecognized and repairs and maintenance expenses are recognized in profit or loss in the period they are incurred.

Depreciation on tangible assets is calculated using the straight-line method to allocate the difference between their cost and their residual values over their estimated useful lives. Land is not depreciated. Costs that are directly attributable to the acquisition, construction or production of a qualifying asset, including capitalized interest costs, form part of the cost of that asset and are amortized over the estimated useful lives.

The Company's policy is that property, plant and equipment should be depreciated over the following estimated useful lives:

	Estimated useful lives
Buildings and structures	15, 30 years
Machinery and equipment	5 years
Other	5 years

The depreciation method, residual values and useful lives of property, plant and equipment are reviewed, and adjusted if appropriate, at the end of each reporting period. An asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount. Gains and losses on disposals are determined by comparing the proceeds with the carrying amount and are recognized within the consolidated statement of profit or loss as 'other non-operating income' or 'other non-operating expenses'.

2.10 Borrowing Costs

General and specific borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset are capitalized during the period of time that is required to complete and prepare the asset for its intended use. Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalization. Other borrowing costs are expensed in the period in which they are incurred.

2.11 Intangible Assets

Goodwill represents the excess of the cost of an acquisition over the fair value of the Company's share of the net identifiable assets of the acquired subsidiaries, associates, joint ventures and businesses at the date of acquisition. Goodwill on an acquisition of subsidiaries' businesses is included in intangible assets and goodwill on an acquisition of associates and joint ventures' shares is included in the investments in associates and joint ventures.

Intangible assets, except for goodwill, are initially recognized at their historical cost and carried at cost less accumulated amortization and accumulated impairment losses.

Internally generated development costs are the aggregate costs recognized after meeting the asset recognition criteria, including technical feasibility, and determined to have future economic benefits. Membership rights and certain trademarks are regarded as intangible assets with an indefinite useful life and not amortized because there is no foreseeable limit to the period over which the assets are expected to be utilized. However, the Company records impairment based on its reasonable estimation of the benefits associated with the membership rights and assessment of impairment indicators, such as a decline in the market value. Intangible assets with definite useful lives such as trademarks, licenses, and other intangible assets, are amortized using the straight-line method over their estimated useful lives.

The Company's policy is that intangible assets should be amortized over the following estimated useful lives:

	Estimated useful lives
Development costs	2 years
Trademarks, licenses and other intangible assets	3 - 25 years

2.12 Impairment of Non-Financial Assets

Goodwill or intangible assets with indefinite useful lives are not subject to amortization and are tested annually for impairment. Assets that are subject to amortization are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and value in use. For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash flows (cash-generating units). Non-financial assets other than goodwill that suffered an impairment are reviewed for possible reversal of the impairment at the end of each reporting period.

2.13 Assets Held-for-Sale (Disposal Group)

Non-current assets (or disposal groups) are classified as assets held-for-sale when their carrying amount is to be recovered principally through a sale transaction and the sale is considered highly probable. The assets are measured at the lower of their carrying amount and the fair value less costs to sell. Gain or loss on disposal is determined by comparing the proceeds with the carrying amount of relevant assets, and is recognized in the statements of profit or loss as 'other non-operating income' or 'other non-operating expenses'.

2.14 Financial Liabilities

(A) Classification and measurement

The Company shall classify all financial liabilities as financial liabilities measured subsequently at amortized cost, except for the following:

- Financial liabilities at fair value through profit or loss. Such liabilities, including derivatives that are liabilities, shall be subsequently measured at fair value.
- Financial liabilities that arise when a transfer of a financial asset does not qualify for derecognition or when the continuing involvement approach applies. Such financial liabilities are measured based on the methodology described in Note 2.6 Financial Assets.
- Financial guarantee contracts. After initial recognition, an issuer of such a contract shall subsequently measure it at the higher of:
  (a) The amount of the loss allowance determined based on expected credit losses.
  (b) The amount initially recognized less, when appropriate, the cumulative amount of income recognized in accordance with the principles of Korean IFRS 1115 *Revenue from Contracts with Customers.*
- Commitments to provide a loan at a below-market interest rate. An issuer of such a commitment shall subsequently measure it at the higher of:
  (a) The amount of the loss allowance determined based on expected credit losses.
  (b) The amount initially recognized less, when appropriate, the cumulative amount of income recognized in accordance with the principles of Korean IFRS 1115 *Revenue from Contracts with Customers.*
- Contingent consideration recognized by an acquirer in a business combination to which Korean IFRS 1103 *Business Combinations* applies. Such contingent consideration shall subsequently be measured at fair value with changes recognized in profit or loss.

(B) Derecognition

Financial liabilities are removed from the consolidated statements of financial position when it is extinguished; for example, when the obligation specified in the contract is discharged or cancelled or expired or when the terms of an existing financial liability are substantially modified. The difference between the carrying amount of a financial liability extinguished or transferred to another party and the consideration paid (including any non-cash assets transferred or liabilities assumed) is recognized in profit or loss.

2.15 Trade Payables

Trade payables are amounts due to suppliers for inventories purchased or services received in the ordinary course of business. If payment is expected to be made within 12 months, they are classified as current liabilities. If not, they are presented as non-current liabilities. Non-current trade payables are recognized initially at fair value and subsequently measured at amortized cost using the effective interest method.

2.16 Borrowings

Borrowings are recognized initially at fair value, net of transaction costs, and are subsequently measured at amortized cost. Any difference between cost and the redemption value is recognized in the consolidated statement of profit or loss over the period of the borrowings using the effective interest method. If the Company has an indefinite right to defer payment for a period longer than 12 months after the end of the reporting date, such liabilities are recorded as non-current liabilities, otherwise, they are recorded as current liabilities.

2.17 Provisions and Contingent Liabilities

A provision is recognized when the Company has a present legal or constructive obligation as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation. Provisions are not recognized for future operating losses.

Provisions are measured at the present value of the expenditures expected to be required to settle the obligation using a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the obligation. The increase in the provision due to passage of time is recognized as interest expense.

The Company discloses a contingent liability if there is a possible obligation from past events whose existence may only be identified by the occurrence of uncertain future events; or there is a present obligations that possibility on outflow of economic resources is uncertain; or amount of economic resources required to settle the present obligation cannot be reasonably estimated.

2.18 Employee Benefits

The Company has a variety of retirement pension plans including defined benefit and defined contribution plans.

A defined contribution plan is a pension plan under which the Company pays fixed contributions into a separate fund. The Company has no legal or constructive obligations to pay further contributions if the fund does not hold sufficient assets to pay all employees the benefits relating to employee service in the current and prior periods. For defined contribution plans, the Company pays contributions to annuity plans that are managed either publicly or privately on a mandatory, contractual or voluntary basis. The Company has no further future payment obligations once the contributions have been paid. The contributions are recognized as employee benefit expense when they are due. Prepaid contributions are recognized as an asset to the extent that a cash refund or a reduction in the future payments is available.

A defined benefit plan is a pension plan that is not a defined contribution plan. Typically defined benefit plans define an amount of pension benefit that an employee will receive on retirement, usually dependent on one or more factors such as age, years of service and compensation. The liability (asset) recognized in the consolidated statement of financial position in respect to defined benefit pension plans is the present value of the defined benefit obligation at the end of the reporting period less the fair value of plan assets. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid and that have terms to maturity approximating to the terms of the related pension obligation.

Actuarial gains and losses resulting from the changes in actuarial assumptions, and the differences between the previous actuarial assumptions and what has actually occurred, are recognized in other comprehensive income in the period in which they were incurred. When plan amendments, curtailments and settlements occur, past service costs or gain or loss from settlements are immediately recognized in profit or loss.

2.19 Financial Guarantee Contract

Financial guarantee contracts are contracts that require the issuer to make specified payments to reimburse the holder for a loss it incurs because a specified debtor fails to make payments when due.

The liability is initially measured at fair value and then subsequently at the higher of the following, and is recognized in the consolidated statements of financial position within 'other financial liabilities':

- the amount determined in accordance with the expected credit loss model under Korean IFRS 1109 *Financial Instruments* and
- the amount initially recognized less, where appropriate, the cumulative amount of income recognized in accordance with Korean IFRS 1115 *Revenue from Contracts with Customers.*

2.20 Current and Deferred Tax

The tax expense for the year comprises current and deferred tax. Current and deferred tax is recognized in profit or loss, except to the extent that it relates to items recognized in other comprehensive income or directly in equity. The tax expense is calculated on the basis of the tax laws enacted or substantively enacted at the end of the reporting period.

Deferred tax is recognized for temporary differences arising between the tax bases of assets and liabilities and their carrying amounts as expected tax consequences at the recovery or settlement of the carrying amounts of the assets and liabilities. However, deferred tax assets and liabilities are not recognized if they arise from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss. Deferred tax assets are recognized only to the extent that it is probable that future taxable profit will be available against which the temporary differences can be utilized.

A deferred tax liability is recognized for taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint ventures, except to the extent that the Company is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. In addition, a deferred tax asset is recognized for deductible temporary differences arising from such investments to the extent that it is probable the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets against current tax liabilities and when the deferred income taxes assets and liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities where there is an intention to settle the balances on a net basis.

2.21 Derivative Instruments

The Company initially recognizes rights and obligations from derivative contracts as assets and liabilities at fair value. Gain or loss arising from these contracts are recognized in profit or loss. Qualified hedged amount from cash flow hedge and hedge of a net investment in a foreign operation is deferred in equity.

The Company applies cash flow hedge accounting to hedge the price risk associated with inventory purchase and other. The effective portion of changes in fair value of derivatives that are designated and qualify as cash flow hedges is recognized in other comprehensive income, and the ineffective portion is recognized in financial income or expenses.

2.22 Dividend

Dividend is recognized as a liability when approved by the Company's shareholders.

2.23 Share Capital

Ordinary shares and preference shares with no repayment obligations are classified as equity. When the Company or a subsidiary acquires the Company's ordinary shares, the acquisition costs, including direct transaction costs, are deducted from equity until the redemption or reissuance as treasury shares. Consideration received on the reissuance of treasury shares is credited to equity attributable to owners of the parent company.

2.24 Revenue Recognition

Revenue mainly comprises the fair value of the consideration received or receivable for the sale of goods in the ordinary course of the Company's activities. Revenue is shown net of value-added tax, returns, sales incentives and discounts and after eliminating intercompany transactions.

The Company applied Korean IFRS 1115 *Revenue from Contracts with Customers* to the annual period beginning January 1, 2018. The Company shall recognize revenue in accordance with Korean IFRS 1115 *Revenue from Contracts with Customers* by applying the following 5 steps: ① Identify the contracts with the customers, ② Identify the separate performance obligations, ③ Determine the transaction price of the contract, ④ Allocate the transaction price to each of the separate performance obligations, and ⑤ Recognize the revenue as each performance obligation is satisfied.

(A) Identification of performance obligations

The Company exports various products and merchandise in accordance with Incoterms Group C trading conditions (Incoterms CIF and other). According to Korean IFRS 1115 *Revenue from Contracts with Customers* since the seller provides the shipping service after control of the product or merchandise has been transferred to the customer, the shipping service (including insurance) is recognized as a separate performance obligation.

(B) Performance obligations satisfied over time

The Company delivers products to customers and installs them in accordance with the system air conditioner contracts awarded by the Public Procurement Service. According to Korean IFRS 1115 *Revenue from Contracts with Customers* the Company should recognize revenue over time if the Company creates or enhances an asset (for example, work in progress) that the customer controls as the asset is created or enhanced. The Company recognizes the revenue from system air conditioner installation over time as the customer controls the outcome of the service.

(C) Variable consideration

The Company estimates an amount of variable consideration by using the expected value which the Company expects to better predict the amount of consideration. The Company recognizes variable consideration only to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognized will not occur when the refund period has lapsed. The refund liability is measured at the amount of consideration received for which the Company does not expect to be entitled. The Company has a right to recover the product from the customer where the customer exercises his right of return and recognizes an asset and a corresponding adjustment to cost of sales. The asset is measured by reference to the former carrying amount of the product less the costs to recover the products.

(D) Allocation of the transaction price

The transaction price in an arrangement must be allocated to each separate performance obligation based on the relative standalone selling prices of the goods or services being provided to a customer. The Company determines the standalone selling price for each separate performance obligation by using methods such as the 'adjusted market assessment approach'.

2.25 Leases

A lease is a contract, whereby the lessor conveys to the lessee, the right to control the use of an identified asset for a period of time in exchange for consideration.

At inception of a contract, the Company assesses whether the contract is, or contains, a lease. However, the Company did not reassess all contracts at initial application of Korean IFRS 1116 *Leases* because the Company applied the practical expedient to contracts entered into before January 1, 2019.

For a contract that is, or contains, a lease, both lessee and lessor account for each lease component within the contract as a lease separately from non-lease components of the contract. In lessee accounting, however, the Company does not account for them separately but instead applies the practical expedient to account for each lease component and any associated non-lease components as a single lease component.

(A) Lessee accounting

The Company recognizes a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments at the commencement date of the lease.

The right-of-use asset is initially measured at cost and subsequently measured at cost less accumulated depreciation and accumulated impairment losses, adjusted for remeasurement of the lease liability. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term from the commencement date of the lease and is classified as 'property, plant and equipment' in the consolidated financial statements.

At the commencement date, the lease liability is measured at present value of the lease payments that are not paid at that date. When measuring the present value, the lease payments are discounted using the interest rate implicit in the lease. If such implicit rate cannot be readily determined, the Company uses the Company's incremental borrowing rate. The lease liability is subsequently increased by the amount of interest expenses recognized on the lease liability and reduced by the lease payments made. Lease liabilities are remeasured when the future lease payments are changed due to the following:

- Changes in an index or a rate
- Changes in amounts expected to be payable by the lessee under residual value guarantees
- Changes in the assessment of whether a purchase option or an option to renew is reasonably certain to be exercised, or
- Changes in the assessment of whether it is reasonably certain that an option to terminate the lease will not be exercised.

Lease liabilities are classified as 'current portion of long-term liabilities' or 'long-term borrowings' in the consolidated financial statements.

The Company elected the practical expedient for short-term leases (leases that have a lease term of 12 months or less at the commencement date) and leases of low-value assets (leases for which the underlying asset is valued at USD 5,000 or less), and the lease payments are recognized as an expense on a straight-line basis over the lease term.

(B) Lessor accounting

The accounting treatment as a lessor did not change significantly from the Korean IFRS 1116 *Leases* initially applied on January 1, 2019.

The Company classifies a lease as a finance lease if it transfers substantially all the risks and rewards incidental to ownership at the inception of the lease. A lease other than a finance lease is classified as an operating lease. Lease income from operating leases is recognized in income on a straight-line basis over the lease term. Initial direct costs incurred by the lessor in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognized as an expense over the lease term on the same basis as the lease income.

2.26 Government Grants

Government grants are recognized at their fair values when there is reasonable assurance that the grant will be received and the Company will comply with the conditions attached to it. Government grants relating to costs are deferred and recognized in the consolidated statements of profit or loss over the period necessary to match them with the costs that they are intended to compensate. Government grants relating to assets are recognized in liabilities as deferred income government grants, depreciated over the expected lives of the related assets, and are credited to the consolidated statements of profit or loss.

2.27 Earnings per Share

Basic earnings per share is calculated by dividing net profit for the period available to ordinary shareholders by the weighted-average number of ordinary shares outstanding during the year.

Diluted earnings per share is calculated by dividing the profit for the year attributable to owners of the parent company from the consolidated statements of profit or loss by the weighted-average number of ordinary shares outstanding and potential dilutive shares. Potential dilutive shares are used in the calculation of dilutive earnings per share only when they have dilutive effects.

2.28 Reportable Segments

Reportable segments are disclosed in a manner consistent with the reporting provided to the chief operating decision-maker. The chief operating decision-maker is responsible for making strategic decisions on resource allocation and assessing performance of the reportable segments. The Management Committee, which makes strategic decisions, is regarded as the chief operating decision-maker.

2.29 Convenience Translation into United States Dollar Amounts

The Company operates primarily in Korean won and its official accounting records are maintained in Korean won. The US dollar amounts provided in the consolidated financial statements represent supplementary information solely for the convenience of the reader. All Korean won amounts are expressed in US dollar at the rate of ₩ 1,180.46 to USD 1, the average exchange rate for the year ended December 31, 2020. Such presentation is not in accordance with generally accepted accounting principles, and should not be construed as a representation that the Korean won amounts shown could be readily converted, realized or settled in US dollar at this or at any other rate.

2.30 Approval of the Consolidated Financial Statements

These consolidated financial statements were approved by the Board of Directors on January 28, 2021, may be modified and approved at the Annual General Shareholders' Meetings.

3. Critical Accounting Estimates and Assumptions

The Company makes estimates and assumptions concerning the future. The estimates and assumptions are continuously assessed, considering historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. The resulting accounting estimates will, by definition, seldom equal the related actual results. In particular, the recent spread of COVID-19 during the year ended December 31, 2020 may result in changes to the Company's assumptions and estimates but its potential financial impact cannot be reasonably estimated as of the reporting date.

The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are addressed below.

(A) Revenue recognition

A refund liability and a right to the returned goods are recognized for the products expected to be returned at the time of sale. Accumulated experience is used to estimate such returns at the time of sale at a portfolio level (expected value method), and the Company's revenue is affected by changes in expected return rate.

Sales of goods are recognized based on considerations specified in the contract, net of sales incentives, when control of the products has transferred. The sales deduction, which affects the Company's revenue, is reasonably estimated based on historical experience and past contracts.

(B) Provision for warranty

The Company recognizes provision for warranty on products sold. The Company accrues provision for warranty based on the best estimate of amounts necessary to settle future and existing claims at the end of each reporting period. The amounts are estimated based on past experience.

(C) Fair value of financial instruments

The fair value of financial instruments that are not traded in an active market is determined by using a variety of methods and assumptions that are mainly based on market conditions existing at the end of each reporting period.

(D) Impairment of financial assets

The loss allowance for financial assets are based on assumptions about risk of default and expected loss rates. The Company uses judgement in making these assumptions and selecting the inputs to the impairment calculation based on the Company's past history, existing market conditions as well as forward looking estimates at the end of each reporting period.

(E) Lease

In determining the lease term, the Company considers all facts and circumstances that create an economic incentive to exercise an extension option, or not exercise a termination option. Extension options (or periods after termination options) are only included in the lease term if the lease is reasonably certain to be extended (or not terminated).

The lease term is reassessed if an option is actually exercised (or not exercised) or the Company becomes obliged to exercise (or not exercise) it. The Company reassesses whether it is reasonably certain to exercise an extension option (or not to exercise such option), upon the occurrence of either a significant event or a significant change in circumstances that is within the control of the lessee.

(F) Net defined benefit liabilities (assets)

The net defined benefit liabilities (assets) depend on a number of factors that are determined on an actuarial basis using a number of assumptions including the discount rate. Any changes in these assumptions will impact the carrying amount of the net defined benefit liability. The Company, in consideration of the interest rates of high-quality corporate bonds, determines the appropriate discount rate at the end of each year. This is the interest rate that is used to determine the present value of estimated future cash outflows expected to be required to settle the net defined benefit liabilities (assets). The principal actuarial assumptions associated with the net defined benefit liabilities (assets) are based on the current market expectations.

(G) Impairment of goodwill and intangible assets that have an indefinite useful life

At the end of each reporting period, the Company tests whether goodwill and intangible assets that have an indefinite useful life have become impaired by comparing the carrying amounts of assets or cash-generating units to the recoverable amounts. The recoverable amounts of assets or cash-generating units have been determined based on value-in-use calculations, and these calculations are based on estimates.

(H) Income taxes

Income taxes on the Company's taxable income from operating activities are subject to various tax laws and determinations of each tax authority across various countries throughout the world. There is uncertainty in determining the eventual tax effects on the taxable income from operating activities. The Company has recognized current tax and deferred tax at the end of the fiscal year based on the best estimation of future taxes payable as a result of operating activities. However, the resulting deferred income tax assets and liabilities may not equal the actual future taxes payable and such difference may impact the current tax and deferred income tax assets and liabilities upon the determination of eventual tax effects.

Regarding taxes payable in Korea, if a certain portion of taxable income is not used for investments or for increases in wages or dividends, in accordance with the *Tax System For Recirculation of Corporate Income*, the Company is liable to pay additional income tax calculated based on Korean tax law. The current and deferred tax at the end of the fiscal year are based on the best estimation of future taxes payable, which can differ from actual future taxes payable as a result of changes in investments, wages and dividends, and thus results in additional uncertainty in measuring the final tax effects.

The Company assesses uncertainty over a tax treatment. When the Company concludes it is not probable that the taxation authority will accept an uncertain tax treatment, the Company will reflect the effect of uncertainty for each uncertain tax treatment by using either of the following methods, depending on which method the Company expects to better predict the resolution of the uncertainty:

- The most likely amount: the single most likely amount in a range of possible outcomes.
- The expected value: the sum of the probability-weighted amounts in a range of possible outcomes.

4. Financial Instruments by Category

(A) Categorizations of financial assets and liabilities as of December 31, 2020 and 2019 are as follows:

(1) As of December 31, 2020

(In millions of Korean won)	Financial assets measured at amortized cost	Financial assets measured at fair value through other comprehensive income	Financial assets measured at fair value through profit or loss	Other financial assets[1]	Total
Financial assets					
Cash and cash equivalents	29,382,578	-	-	-	29,382,578
Short-term financial instruments	92,441,703	-	-	-	92,441,703
Trade receivables	30,965,058	-	-	-	30,965,058
Financial assets at amortized cost	2,757,111	-	-	-	2,757,111
Financial assets at fair value through other comprehensive income	-	12,575,216	-	-	12,575,216
Financial assets at fair value through profit or loss	-	-	1,274,420	-	1,274,420
Other	6,395,766	-	215,797	23,310	6,634,873
Total	161,942,216	12,575,216	1,490,217	23,310	176,030,959

[1] Other financial assets include derivatives designated as hedging instruments which are not subject to categorizations.

(In millions of Korean won)	Financial liabilities measured at amortized cost	Financial liabilities measured at fair value through profit or loss	Other financial liabilities[1]	Total
Financial liabilities				
Trade payables	9,739,222	-	-	9,739,222
Short-term borrowings	2,278,386	-	14,275,043	16,553,429
Other payables	10,645,637	-	-	10,645,637
Current portion of long-term liabilities	5,318	-	710,781	716,099
Debentures	948,137	-	-	948,137
Long-term borrowings	-	-	1,999,716	1,999,716
Long-term other payables	1,272,128	2,176	-	1,274,304
Other	9,354,624	242,698	41,930	9,639,252
Total	34,243,452	244,874	17,027,470	51,515,796

[1] Other financial liabilities include collateralized borrowings, lease liabilities and derivatives designated as hedging instruments which are not subject to categorizations.

(2) As of December 31, 2019

(In millions of Korean won)	**Financial assets measured at amortized cost**	**Financial assets measured at fair value through other comprehensive income**	**Financial assets measured at fair value through profit or loss**	**Other financial assets[1]**	**Total**
Financial assets					
Cash and cash equivalents	26,885,999	-	-	-	26,885,999
Short-term financial instruments	76,252,052	-	-	-	76,252,052
Trade receivables	35,131,343	-	-	-	35,131,343
Financial assets at amortized cost	3,914,216	-	-	-	3,914,216
Financial assets at fair value through other comprehensive income	-	8,920,712	-	-	8,920,712
Financial assets at fair value through profit or loss	-	-	2,776,440	-	2,776,440
Other	9,656,415	-	181,682	26,444	9,864,541
Total	151,840,025	8,920,712	2,958,122	26,444	163,745,303

[1] Other financial assets include derivatives designated as hedging instruments which are not subject to categorizations.

(In millions of Korean won)	**Financial liabilities measured at amortized cost**	**Financial liabilities measured at fair value through profit or loss**	**Other financial liabilities[1]**	**Total**
Financial liabilities				
Trade payables	8,718,222	-	-	8,718,222
Short-term borrowings	2,659,107	-	11,734,361	14,393,468
Other payables	11,034,253	-	-	11,034,253
Current portion of long-term liabilities	41,022	-	805,068	846,090
Debentures	975,298	-	-	975,298
Long-term borrowings	-	-	2,197,181	2,197,181
Long-term other payables	1,820,611	2,316	-	1,822,927
Other	8,158,935	204,671	10,540	8,374,146
Total	33,407,448	206,987	14,747,150	48,361,585

[1] Other financial liabilities include collateralized borrowings, lease liabilities, and derivatives designated as hedging instruments which are not subject to categorizations.

(B) Net gains or losses on each category of financial assets and liabilities for the years ended December 31, 2020 and 2019 are as follows:

(1) 2020

(In millions of Korean won)	**Financial assets measured at amortized cost**	**Financial assets measured at fair value through other comprehensive income**	**Financial assets measured at fair value through profit or loss**	**Other financial assets**	**Total**
Financial assets					
Gain (loss) on valuation (other comprehensive income)	-	2,502,733	-	(1,823)	2,500,910
Gain (loss) on valuation/disposal (profit or loss)	(6,725)	-	206,850	126	200,251
Reclassification from other comprehensive income to profit or loss	-	-	-	981	981
Interest income	1,974,141	-	317	-	1,974,458
Foreign exchange differences (profit or loss)	(886,631)	-	-	-	(886,631)
Dividend income	-	149,617	2,823	-	152,440
Impairment/reversal (profit or loss)	(42,824)	-	-	-	(42,824)

(In millions of Korean won)	**Financial liabilities measured at amortized cost**	**Financial liabilities measured at fair value through profit or loss**	**Other financial liabilities[1]**	**Total**
Financial liabilities				
Gain (loss) on valuation (other comprehensive income)	-	-	(22,995)	(22,995)
Gain (loss) on valuation/disposal (profit or loss)	-	86,371	(154)	86,217
Reclassification from other comprehensive income to profit or loss	-	-	12,368	12,368
Interest expense	(302,782)	-	(280,231)	(583,013)
Foreign exchange differences (profit or loss)	180,110	-	9,730	189,840

[1] Other financial liabilities include collateralized borrowings, lease liabilities, and derivatives designated as hedging instruments, which are not subject to categorizations.

(2) 2019

(In millions of Korean won)	**Financial assets measured at amortized cost**	**Financial assets measured at fair value through other comprehensive income**	**Financial assets measured at fair value through profit or loss**	**Other financial assets**	**Total**
Financial assets					
Gain on valuation (other comprehensive income)	-	1,146,599	-	4,735	1,151,334
Gain (loss) on valuation/disposal (profit or loss)	(14,874)	-	225,273	(59)	210,340
Reclassification from other comprehensive income to profit or loss	-	-	-	3,830	3,830
Interest income	2,659,740	-	284	-	2,660,024
Foreign exchange differences (profit or loss)	(328,213)	-	-	-	(328,213)
Dividend income	-	152,091	2,588	-	154,679
Impairment/reversal (profit or loss)	188,530	-	(5,398)	-	183,132

(In millions of Korean won)	**Financial liabilities measured at amortized cost**	**Financial liabilities measured at fair value through profit or loss**	**Other financial liabilities[1]**	**Total**
Financial liabilities				
Gain on valuation (other comprehensive loss)	-	-	20,277	20,277
Gain (loss) on valuation/disposal (profit or loss)	-	(3,237)	1,033	(2,204)
Reclassification from other comprehensive income to profit or loss	-	-	16,399	16,399
Interest expense	(248,659)	-	(437,697)	(686,356)
Foreign exchange differences (profit or loss)	167,164	-	90,145	257,309

[1] Other financial liabilities include collateralized borrowings, lease liabilities, and derivatives designated as hedging instruments, which are not subject to categorizations.

5. Transfer of Financial Assets

Trade receivables of the Company have been discounted through factoring agreements with banks during the years ended December 31, 2020 and 2019. Trade receivables provided as collaterals in such factoring transactions do not meet the requirements for asset derecognition as risks and rewards are not substantially transferred in the event the debtor defaults due to a recourse obligation, etc. Financial liabilities recognized in relation to these transactions are included as 'short-term borrowings' on the consolidated statements of financial position (refer to Note 12).

The following table presents a breakdown of discounted trade receivables as of December 31, 2020 and 2019:

(In millions of Korean won)	**December 31, 2020**	**December 31, 2019**
Carrying amount of the discounted trade receivables[1]	14,275,043	11,734,361
Carrying amount of the related borrowings	14,275,043	11,734,361

[1] The discounted trade receivables include intercompany balances.

6. Financial Assets at Fair Value

(A) Details of financial assets at fair value as of December 31, 2020 and 2019 are as follows:

(1) Financial assets at fair value through other comprehensive income

(In millions of Korean won)	**December 31, 2020**	**December 31, 2019**
Non-current portion		
Equity instruments	12,575,216	8,920,712

(2) Financial assets at fair value through profit or loss

(In millions of Korean won)	**December 31, 2020**	**December 31, 2019**
Current portion		
Debt instruments	71,451	1,727,436
Non-current portion		
Equity instruments	819,144	704,155
Debt instruments	383,825	344,849
Subtotal	1,202,969	1,049,004
Total	1,274,420	2,776,440

(B) Changes in financial assets at fair value for the years ended December 31, 2020 and 2019 are as follows:

(1) Financial assets at fair value through other comprehensive income

(In millions of Korean won)	**2020**	**2019**
Balance as of January 1	8,920,712	7,301,351
Acquisition	245,497	63,447
Disposal	(23,872)	(950)
Fair value valuation gain	3,423,908	1,497,600
Other	8,971	59,264
Balance as of December 31	12,575,216	8,920,712

(2) Financial assets at fair value through profit or loss

(In millions of Korean won)	**2020**	**2019**
Balance as of January 1	1,049,004	775,427
Acquisition	84,184	138,125
Disposal	(37,554)	(55,509)
Fair value valuation gain	122,042	200,533
Other	(14,707)	(9,572)
Balance as of December 31	1,202,969	1,049,004

(C) Changes in gain on valuation of financial assets at fair value through other comprehensive income for the years ended December 31, 2020 and 2019 are as follows:

(In millions of Korean won)	**2020**	**2019**
Balance as of January 1	3,663,998	2,165,131
Fair value valuation gain	3,423,908	1,497,600
Reclassification to retained earnings due to disposals	(16,491)	1,267
Balance as of December 31	7,071,415	3,663,998
Income tax effects on equity and non-controlling interests	(2,095,659)	(1,090,468)
Total	4,975,756	2,573,530

(D) Details of listed equity securities of financial assets at fair value as of December 31, 2020 and 2019 are as follows:

	December 31, 2020				December 31, 2019
(In millions of Korean won, number of shares and percentage)	**Number of shares owned**	**Percentage of ownership[1] (%)**	**Acquisition cost**	**Carrying amount (Market value)**	**Carrying amount (Market value)**
Samsung Heavy Industries	100,693,398	16.0	735,488	708,882	732,041
Hotel Shilla	2,004,717	5.1	13,957	164,988	182,028
iMarket Korea	647,320	1.8	324	5,658	6,732
Wonik Holdings	3,518,342	4.6	30,821	22,306	19,210
Wonik IPS	3,701,872	7.5	32,428	163,808	132,712
SFA	3,644,000	10.2	38,262	140,658	168,535
ASML Holding N.V	6,297,787	1.5	363,012	3,350,532	2,154,676
Wacom Co., Ltd	8,398,400	5.0	62,013	76,589	39,765
BYD Company Limited	52,264,808	1.9	528,665	1,695,488	412,935
Other			491,958	1,012,825	419,868
Total			2,296,928	7,341,734	4,268,502

[1] Ownership represents the Company's ownership of the total ordinary shares issued by each entity.

7. Trade and Non-Trade Receivables

(A) Trade and non-trade receivables as of December 31, 2020 and 2019 are as follows:

	December 31, 2020		December 31, 2019	
(In millions of Korean won)	**Trade**	**Non-trade**	**Trade**	**Non-trade**
Receivables	31,369,364	4,065,404	35,882,903	4,584,259
Less: Loss allowance	(318,731)	(59,487)	(340,410)	(58,666)
Subtotal	31,050,633	4,005,917	35,542,493	4,525,593
Less: Non-current portion	(85,575)	(401,378)	(411,150)	(346,473)
Current portion	30,965,058	3,604,539	35,131,343	4,179,120

(B) Movements in the loss allowance for receivables for the years ended December 31, 2020 and 2019 are as follows:

	2020		2019	
(In millions of Korean won)	**Trade**	**Non-trade**	**Trade**	**Non-trade**
Balance as of January 1	340,410	58,666	571,564	31,045
Bad debt expense (reversal)	40,006	2,869	(183,380)	(5,115)
Write-off	(40,384)	(103)	(14,571)	(539)
Other	(21,301)	(1,945)	(33,203)	33,275
Balance as of December 31	318,731	59,487	340,410	58,666

(C) The details of trade and non-trade receivables classified by past due date to measure expected credit losses as of December 31, 2020 and 2019 are as follows:

	December 31, 2020		December 31, 2019	
(In millions of Korean won)	**Trade**	**Non-trade**	**Trade**	**Non-trade**
Receivables not past due	29,395,528	3,585,376	33,215,136	4,365,708
Past due[1]:				
Less than 31 days overdue	1,269,398	129,054	1,830,749	106,313
31 days to 90 days overdue	137,568	42,603	323,640	20,343
Over 90 days overdue	566,870	308,371	513,378	91,895
Subtotal	1,973,836	480,028	2,667,767	218,551
Total	31,369,364	4,065,404	35,882,903	4,584,259

[1] The Company does not consider trade and non-trade receivables that are overdue for less than or equal to 31 days as impaired.

(D) The maximum exposure to current credit risk is equivalent to the carrying amount of receivables as of December 31, 2020. The Company has in place insurance contracts covering the Company's major receivables.

8. Inventories

Inventories as of December 31, 2020 and 2019 are as follows:

	December 31, 2020			December 31, 2019		
(In millions of Korean won)	**Gross amount**	**Valuation allowance**	**Carrying amount**	**Gross amount**	**Valuation allowance**	**Carrying amount**
Finished goods	9,711,668	(323,782)	9,387,886	8,460,621	(345,505)	8,115,116
Work in process	12,144,887	(326,797)	11,818,090	10,424,880	(538,246)	9,886,634
Raw materials and supplies	10,464,679	(673,913)	9,790,766	8,288,265	(541,155)	7,747,110
Materials in transit	1,046,403	-	1,046,403	1,017,604	-	1,017,604
Total	33,367,637	(1,324,492)	32,043,145	28,191,370	(1,424,906)	26,766,464

The inventories recognized as expense for the year ended December 31, 2020, amount to ₩ 143,172,743 million (2019: ₩ 145,793,517 million). The amount includes loss on valuation of inventories.

9. Investments in Associates and Joint Ventures

(A) Changes in investments in associates and joint ventures for the years ended December 31, 2020 and 2019 are as follows:

(In millions of Korean won)	**2020**	**2019**
Balance as of January 1	7,591,612	7,313,206
Acquisition	83,280	12,822
Disposal	-	(1,437)
Share of profit	506,530	412,960
Other[1]	(104,643)	(145,939)
Balance as of December 31	8,076,779	7,591,612

[1] Other consists of dividends, impairment, and reclassification.

(B) Major investments in associates and joint ventures as of December 31, 2020 are as follows:

(1) Investments in associates

Investee	Nature of relationship with associate	Percentage of ownership (%)[1]	Principal business location	Fiscal period-end
Samsung Electro-Mechanics Co., Ltd.	Manufacture and supply electronic components including passive components, circuit boards, and modules	23.7	Korea	December
Samsung SDS Co., Ltd.	Provide IT services including computer programming, system integration and management and logistical services	22.6	Korea	December
Samsung Biologics Co., Ltd.	New business investment	31.5	Korea	December
Samsung SDI Co., Ltd.[2]	Manufacture and supply electronic components including secondary cell batteries	19.6	Korea	December
Cheil Worldwide, Inc.	Advertising agency	25.2	Korea	December

[1] Ownership represents the Company's ownership of the total ordinary shares issued by each entity.
[2] The Company's ownership of ordinary shares outstanding is 20.6%.

(2) Investments in joint ventures

Investee	Nature of relationship with joint venture	Percentage of ownership (%)[1]	Principal business location	Fiscal period-end
Samsung Corning Advanced Glass Co., Ltd.	Manufacture and supply industrial glass devices	50.0	Korea	December

[1] Ownership represents the Company's ownership of the total ordinary shares issued by each entity.

(C) Details of investments in associates and joint ventures as of December 31, 2020 and 2019 are as follows:

(1) Investments in associates

(In millions of Korean won)	December 31, 2020		
Investee	**Acquisition cost**	**Net asset value of equity shares[1]**	**Carrying amount**
Samsung Electro-Mechanics	359,237	1,351,864	1,333,819
Samsung SDS	147,963	1,506,421	1,525,857
Samsung Biologics	443,193	1,448,259	1,453,012
Samsung SDI	1,242,605	2,612,629	2,326,037
Cheil Worldwide	506,162	288,877	586,057
Other	620,233	458,182	666,506
Total	3,319,393	7,666,232	7,891,288

[1] The Company's portion of net asset value of associates is based on the Company's percentage of ownership.

(In millions of Korean won)	December 31, 2019		
Investee	**Acquisition cost**	**Net asset value of equity shares [1]**	**Carrying amount**
Samsung Electro-Mechanics	359,237	1,237,753	1,152,734
Samsung SDS	147,963	1,478,586	1,499,571
Samsung Biologics	443,193	1,371,315	1,377,043
Samsung SDI	1,242,605	2,481,233	2,233,516
Cheil Worldwide	506,162	271,409	570,215
Other	550,404	373,606	523,794
Total	3,249,564	7,213,902	7,356,873

[1] The Company's portion of net asset value of associates is based on the Company's percentage of ownership.

(2) Investments in joint ventures

(In millions of Korean won)	December 31, 2020		
Investee	**Acquisition cost**	**Net asset value of equity shares [1]**	**Carrying amount**
Samsung Corning Advanced Glass	215,000	123,360	123,356
Other	259,994	68,875	62,135
Total	474,994	192,235	185,491

[1] The Company's portion of net asset value of joint ventures is based on the Company's percentage of ownership.

(In millions of Korean won)	December 31, 2019		
Investee	**Acquisition cost**	**Net asset value of equity shares [1]**	**Carrying amount**
Samsung Corning Advanced Glass	215,000	173,746	173,742
Other	259,994	66,848	60,997
Total	474,994	240,594	234,739

[1] The Company's portion of net asset value of joint ventures is based on the Company's percentage of ownership.

(D) Details of the valuation of investments in associates and joint ventures using the equity method are as follows:

(1) For the year ended December 31, 2020

(In millions of Korean won)	**Balance as of January 1**	**Share of profit (loss)**	**Share of other comprehensive income**	**Other[1]**	**Balance as of December 31**
Samsung Electro-Mechanics	1,152,734	199,249	1,298	(19,462)	1,333,819
Samsung SDS	1,499,571	100,231	(36,057)	(37,888)	1,525,857
Samsung Biologics	1,377,043	73,135	2,834	-	1,453,012
Samsung SDI	2,233,516	62,106	43,878	(13,463)	2,326,037
Cheil Worldwide	570,215	44,433	(4,780)	(23,811)	586,057
Samsung Corning Advanced Glass	173,742	(51,175)	789	-	123,356
Other	584,791	78,551	(51,259)	116,558	728,641
Total	7,591,612	506,530	(43,297)	21,934	8,076,779

[1] Other consists of acquisitions, disposals, dividends, impairment and reclassification.

(2) For the year ended December 31, 2019

(In millions of Korean won)	**Balance as of January 1**	**Share of profit**	**Share of other comprehensive income**	**Other[1]**	**Balance as of December 31**
Samsung Electro-Mechanics	1,126,043	38,458	5,926	(17,693)	1,152,734
Samsung SDS	1,376,321	166,385	(8,191)	(34,944)	1,499,571
Samsung Biologics	1,308,546	64,571	3,926	-	1,377,043
Samsung SDI	2,197,335	34,279	15,365	(13,463)	2,233,516
Cheil Worldwide	549,165	42,049	1,360	(22,359)	570,215
Samsung Corning Advanced Glass	173,499	34	209	-	173,742
Other	582,297	67,184	13,802	(78,492)	584,791
Total	7,313,206	412,960	32,397	(166,951)	7,591,612

[1] Other consists of acquisitions, disposals, dividends, impairment, and reclassification.

(E) Summary of the condensed financial information of major associates and joint ventures

(1) Summary of condensed financial information of major associates and dividends received from associates as of December 31, 2020 and 2019, and for the years ended December 31, 2020 and 2019 are as follows:

	2020				
(In millions of Korean won)	**Samsung Electro-Mechanics**	**Samsung SDS**	**Samsung Biologics**	**Samsung SDI**	**Cheil Worldwide**
1. Condensed financial information					
Condensed statements of financial position :					
Current assets	4,150,303	6,581,153	1,751,347	5,657,405	1,742,270
Non-current assets	5,075,196	2,573,766	4,672,854	15,876,827	500,194
Current liabilities	1,914,880	1,720,757	589,301	4,983,633	1,046,224
Non-current liabilities	1,400,223	575,054	1,236,117	3,191,672	180,710
Non-controlling interests	138,107	190,081	-	381,311	7,988
Condensed statements of comprehensive income:					
Revenue	8,208,738	11,017,432	1,164,777	11,294,770	2,747,922
Profit from continuing operations, net of tax [1]	595,938	443,455	240,975	574,723	157,400
Profit from discontinued operation, net of tax[1]	8,024	-	-	-	-
Other comprehensive income (loss)[1]	(33,475)	(134,669)	3,354	144,901	(14,795)
Total comprehensive income[1]	570,487	308,786	244,329	719,624	142,605
Details of adjustments from the carrying amount of investments in associates					
Net assets (a)	5,772,289	6,669,027	4,598,783	12,977,616	1,007,541
Ownership percentage (b)[2]	23.4%	22.6%	31.5%	20.1%	28.7%
Net assets of equity shares (a x b)	1,351,864	1,506,421	1,448,259	2,612,629	288,877
Goodwill	7,081	26,801	3,645	-	298,779
Intercompany transactions and other[3]	(25,126)	(7,365)	1,108	(286,592)	(1,599)
Carrying amount of associates	1,333,819	1,525,857	1,453,012	2,326,037	586,057
2. Dividends from associates					
Dividends	19,462	41,933	-	13,463	23,811

[1] Profit (loss) attributable to owners of the investee

[2] Ownership percentage includes ordinary and preference shares.

[3] Consists of unrealized gains and losses and other differences.

(In millions of Korean won)	2019				
	Samsung Electro-Mechanics	**Samsung SDS**	**Samsung Biologics**	**Samsung SDI**	**Cheil Worldwide**
1. Condensed financial information					
Condensed statements of financial position:					
Current assets	3,507,525	6,383,847	1,356,262	5,181,415	1,787,299
Non-current assets	5,166,724	2,637,389	4,555,365	14,670,682	504,347
Current liabilities	1,850,405	1,698,187	690,505	3,741,523	1,115,652
Non-current liabilities	1,393,746	597,891	866,668	3,450,229	219,178
Non-controlling interests	145,050	179,362	-	335,408	10,197
Condensed statements of comprehensive income:					
Revenue	8,040,818	10,719,632	701,592	10,097,426	3,421,673
Profit from continuing operations, net of tax [1]	605,725	736,458	202,904	356,549	138,055
Profit from discontinued operation, net of tax[1]	(91,428)	-	-	-	-
Other comprehensive income (loss)[1]	26,270	(17,665)	(3,919)	137,272	2,172
Total comprehensive income[1]	540,567	718,793	198,985	493,821	140,227
Details of adjustments from the carrying amount of investments in associates					
Net assets (a)	5,285,048	6,545,796	4,354,454	12,324,937	946,619
Ownership percentage (b)[2]	23.4%	22.6%	31.5%	20.1%	28.7%
Net assets of equity shares (a x b)	1,237,753	1,478,586	1,371,315	2,481,233	271,409
Goodwill	7,081	26,801	3,645	-	298,779
Intercompany transactions and other[3]	(92,100)	(5,816)	2,083	(247,717)	27
Carrying amount of associates	1,152,734	1,499,571	1,377,043	2,233,516	570,215
2. Dividends from associates					
Dividends	17,693	34,944	-	13,463	22,359

[1] Profit (loss) attributable to owners of the investee.
[2] Ownership percentage includes ordinary and preference shares.
[3] Consists of unrealized gains and losses and other differences.

(2) Summary of condensed financial information of major joint ventures and dividends received from joint ventures as of December 31, 2020 and 2019, and for the years ended December 31, 2020 and 2019 are as follows:

	Samsung Corning Advanced Glass	
(In millions of Korean won)	**2020**	**2019**
Condensed financial information		
Condensed statements of financial position:		
Current assets	133,896	164,870
Non-current assets	153,792	225,335
Current liabilities	39,151	40,567
Non-current liabilities	1,817	2,146
Condensed statements of comprehensive income:		
Revenue	144,016	156,448
Profit (loss) from continuing operations, net of tax[1]	(12,668)	6,127
Profit (loss) from discontinued operations, net of tax[1]	(89,681)	(6,059)
Other comprehensive income[1]	1,578	418
Total comprehensive income[1]	(100,771)	486
Details of adjustments from the carrying amount of investments in joint ventures		
Net assets (a)	246,720	347,492
Ownership percentage (b)	50.00%	50.00%
Net assets of equity shares (a x b)	123,360	173,746
Intercompany transactions and other[2]	(4)	(4)
Carrying amount of joint ventures	123,356	173,742
Dividends from joint ventures		
Dividends	-	-

[1] Profit (loss) attributable to owners of the parent company.
[2] Consists of unrealized gains and losses and other differences.

(3) Profit (loss) attributable to owners of the parent company from associates and joint ventures which are not individually material for the years ended December 31, 2020 and 2019 are as follows:

	2020		2019	
(In millions of Korean won)	**Associates**	**Joint ventures**	**Associates**	**Joint ventures**
Profit from continuing operations	77,296	1,255	65,635	1,549
Other comprehensive income (loss)	(49,185)	(2,074)	10,714	3,088
Total comprehensive income (loss)	28,111	(819)	76,349	4,637

(F) Details of marketable investments in associates as of December 31, 2020 and 2019 are as follows:

(In millions of Korean won and number of shares)	December 31, 2020		December 31, 2019
	Number of shares held	**Market value**	**Market value**
Samsung Electro-Mechanics	17,693,084	3,149,369	2,211,636
Samsung SDS	17,472,110	3,118,772	3,398,325
Samsung Biologics	20,836,832	17,211,223	9,022,348
Samsung SDI	13,462,673	8,454,559	3,177,191
Cheil Worldwide	29,038,075	598,184	698,366

(G) Other matters

On July 12, 2018, the Korea Securities and Futures Commission determined an initial measure following an investigation relating to Samsung Biologics Co., Ltd., an associate of the Company, and its accounting for its investment in Samsung Bioepis Co., Ltd, a joint venture between Biogen Therapeutics Inc. and Samsung Biologics Co., Ltd. This measure included a recommendation to dismiss the director in charge, prosecution charges, and external auditor designation by the regulator, on the basis that the Joint Venture Agreement was not disclosed in the notes to the financial statements. On November 14, 2018, the Korea Securities and Futures Commission determined a second measure which included a penalty of ₩ 8,000 million, a recommendation to dismiss the CEO, a requirement to restate its financial statements, and further prosecution charges.

To prove justification of its accounting treatment, Samsung Biologics Co., Ltd. filed a suit for cancellation of the aforementioned measures to the Seoul Administrative Court, which is currently in progress. On September 24, 2020, the Seoul Administrative Court announced a decision to cancel the first measure charged by the Korea Securities and Futures Commission, and suspended its execution until the final rulings of the appeal. On October 16, 2020, the Korea Securities and Futures Commission appealed and the litigation is in progress at Seoul High Court. Samsung Biologics Co., Ltd. also filed for suspending the execution of the initial and second measures. On January 22, 2019 and February 19, 2019, the Seoul Administrative Court pronounced decisions to suspend the second and initial measure, respectively, until the final rulings. The Korea Securities and Futures Commission immediately appealed against the decisions but the appeals were dismissed by the Seoul High Court on May 13, 2019 and May 24, 2019, in relation to the second and first measures, respectively. On May 23, 2019 and June 10, 2019, The Korea Securities and Futures Commission re-appealed against the dismissals relating to the second and first measures, respectively. On September 6, 2019 and October 11, 2019, the Supreme Court of Korea dismissed the Korea Securities and Futures Commission's re-appeal relating to the second and first measures, respectively, and confirmed the decision to suspend execution of these measures.

Although the future outcome of the administrative litigation cannot be estimated, should Samsung Biologics Co., Ltd. be required to restate its financial statements to amend its historical accounting treatment relating to its investment in Samsung Bioepis Co., Ltd., the Company's share of profit or loss relating to its equity method investment, the amount of investment in associates, and retained earnings, for the years ended December 31, 2015 and onwards, and the profit on disposal of investment for the year ended December 31, 2016, may be impacted. Given the timing of completion and the final result of the administrative litigation between Samsung Biologics Co., Ltd. and the Korea Securities and Futures Commission is uncertain and cannot currently be estimated, it is not possible for the Company to recognize the effects of these proceedings in the current period consolidated financial statements.

10. Property, Plant and Equipment

(A) Changes in property, plant and equipment for the years ended December 31, 2020 and 2019 are as follows:

	2020					
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Construction in progress**	**Other**	**Total**
Balance as of January 1	9,774,554	30,469,620	52,149,936	23,930,019	3,501,345	119,825,474
Acquisition cost	9,828,309	48,839,439	211,416,021	23,930,019	10,061,981	304,075,769
Accumulated depreciation and impairment	(53,755)	(18,369,819)	(159,266,085)	-	(6,560,636)	(184,250,295)
Acquisitions and capital expenditures[1]	141,197	8,524,794	32,907,696	(3,443,884)	1,281,811	39,411,614
Depreciation	(45,707)	(2,978,741)	(22,780,113)	-	(1,311,174)	(27,115,735)
Disposals/scrap	(20,308)	(276,235)	(108,935)	(618)	(104,829)	(510,925)
Impairment(reversal)	-	(3,627)	(316,723)	-	(4,806)	(325,156)
Reclassification to assets held-for-sale	(29,275)	(540,258)	(181,744)	(8,947)	(6,390)	(766,614)
Other[2]	(48,305)	(643,549)	(675,987)	(300,653)	102,728	(1,565,766)
Balance as of December 31	9,772,156	34,552,004	60,994,130	20,175,917	3,458,685	128,952,892
Acquisition cost	9,850,942	55,026,369	233,056,501	20,175,917	10,496,584	328,606,313
Accumulated depreciation and impairment	(78,786)	(20,474,365)	(172,062,371)	-	(7,037,899)	(199,653,421)

[1] The capitalized borrowing costs are ₩ 3,897 million and the interest rate used to calculate the borrowing costs eligible for capitalization is 0.6%.
[2] Other includes effects of changes in foreign currency exchange rates and effects of the offset related to government grants.

	2019					
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Construction in progress**	**Other**	**Total**
Balance as of January 1	9,346,285	29,345,910	63,816,231	9,705,056	3,203,242	115,416,724
Acquisition cost	9,346,285	45,033,843	206,407,913	9,705,056	8,665,069	279,158,166
Accumulated depreciation and impairment	-	(15,687,933)	(142,591,682)	-	(5,461,827)	(163,741,442)
Acquisitions and capital expenditures[1]	144,291	1,760,347	10,488,174	14,490,901	1,136,367	28,020,080
Acquisitions through business combinations	2,310	21,481	381,117	7,488	5,262	417,658
Depreciation	(31,118)	(2,658,371)	(22,664,896)	-	(1,219,431)	(26,573,816)
Disposals, scrap	(97,930)	(287,546)	(180,627)	(577)	(75,218)	(641,898)
Impairment (reversal)	-	-	(85,215)	-	(8,344)	(93,559)
Other[2]	410,716	2,287,799	395,152	(272,849)	459,467	3,280,285
Balance as of December 31	9,774,554	30,469,620	52,149,936	23,930,019	3,501,345	119,825,474
Acquisition cost	9,828,309	48,839,439	211,416,021	23,930,019	10,061,981	304,075,769
Accumulated depreciation and impairment	(53,755)	(18,369,819)	(159,266,085)	-	(6,560,636)	(184,250,295)

[1] The capitalized borrowing costs are ₩ 6,331 million and the interest rate used to calculate the borrowing costs eligible for capitalization is 2.1%.
[2] Other includes the cumulative effect of changes in accounting policies, effects of changes in foreign currency exchange rates and effects of the offset related to government grants.

(B) Changes in right-of-use assets included in the property, plant and equipment for the years ended December 31, 2020 and 2019 are as follows:

	2020				
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Other**	**Total**
Balance as of January 1	438,095	2,361,717	130,965	381,142	3,311,919
Acquisition	116,683	593,157	42,447	58,536	810,823
Depreciation	(64,078)	(715,950)	(56,618)	(97,886)	(934,532)
Disposals/scrap	(8,968)	(160,267)	(6,526)	(24,720)	(200,481)
Reclassification to assets held-for-sale	(29,275)	-	(9)	(131)	(29,415)
Other[1]	(10,854)	26,703	(887)	(3,403)	11,559
Balance as of December 31	441,603	2,105,360	109,372	313,538	2,969,873

[1] Other includes effects of changes in foreign currency exchange rates.

	2019				
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Other**	**Total**
Balance as of January 1[1]	-	37,185	444	6,984	44,613
Acquisition	80,675	906,417	9,456	128,680	1,125,228
Depreciation	(31,118)	(593,725)	(59,756)	(101,182)	(785,781)
Disposals/scrap	(11,137)	(67,468)	(459)	(10,593)	(89,657)
Other[2]	399,675	2,079,308	181,280	357,253	3,017,516
Balance as of December 31	438,095	2,361,717	130,965	381,142	3,311,919

[1] The beginning balance is the financial lease assets recognized in accordance with previous accounting standard, Korean IFRS 1017 *Lease*
[2] Other includes the cumulative effect of changes in accounting policies and effects of changes in foreign currency exchange rates.

(C) Details of depreciation of property, plant and equipment for the years ended December 31, 2020 and 2019 are as follows:

(In millions of Korean won)	**2020**	**2019**
Cost of sales	23,824,208	23,606,255
Selling and administrative expenses, and etc.	3,291,527	2,967,561
Total	27,115,735	26,573,816

11. Intangible Assets

(A) Changes in intangible assets for the years ended December 31, 2020 and 2019 are as follows:

	2020					
(In millions of Korean won)	**Intellectual property rights**	**Development cost**	**Membership**	**Goodwill**	**Other**	**Total**
Balance as of January 1	4,365,510	740,774	222,499	6,250,439	9,124,282	20,703,504
External acquisitions	300,399	-	1,785	-	1,356,267	1,658,451
Internally generated/developed	-	109,482	-	-	-	109,482
Amortization	(297,465)	(455,990)	-	-	(2,466,426)	(3,219,881)
Disposals/scrap	(30,055)	-	(343)	-	(912)	(31,310)
Impairment (reversal)	(189,155)	(3,474)	7,091	(570,817)	(161,739)	(918,094)
Reclassification to assets held-for-sale	-	-	(313)	-	(1,108)	(1,421)
Other[1]	(115,330)	(19,401)	(732)	(5,980)	309,214	167,771
Balance as of December 31	4,033,904	371,391	229,987	5,673,642	8,159,578	18,468,502

[1] Other includes the cumulative effect of changes in foreign currency exchange rates and others.

	2019					
(In millions of Korean won)	**Intellectual property rights**	**Development cost**	**Membership**	**Goodwill**	**Other**	**Total**
Balance as of January 1	4,187,756	704,734	221,628	5,833,678	3,943,802	14,891,598
External acquisitions	289,905	-	1,936	-	1,275,458	1,567,299
Internally generated/developed	-	285,699	-	-	-	285,699
Acquisition through business combinations	130,308	51,872	-	337,926	107,384	627,490
Amortization	(305,056)	(279,709)	-	-	(2,439,057)	(3,023,822)
Disposals/scrap	(58,480)	-	(1,240)	-	(5,682)	(65,402)
Impairment (reversal)	-	-	(972)	(46,834)	(895)	(48,701)
Other[1]	121,077	(21,822)	1,147	125,669	6,243,272	6,469,343
Balance as of December 31	4,365,510	740,774	222,499	6,250,439	9,124,282	20,703,504

[1] Other includes effects of reclassification of licenses and changes in foreign currency exchange rates.

(B) Goodwill

Goodwill is allocated to each cash-generating unit. Details of goodwill as of December 31, 2020 and 2019 are as follows:

(In millions of Korean won)		**December 31, 2020**	**December 31, 2019**
CE segment		524,383	520,814
IM segment		657,146	674,327
DS segment	Semiconductor	153,520	366,963
	DP	138,754	133,540
Harman segment		4,199,334	4,545,802
Other		505	8,993
Total		5,673,642	6,250,439

Goodwill impairment reviews are performed annually, and the recoverable amounts of cash-generating units have been determined based on value-in-use calculations, etc. These calculations generally use pre-tax cash flow projections based on financial budgets approved by management covering a five-year period, unless it is reasonable to use long-term financial budgets longer than five years in new technology business. Perpetual cash flows beyond the five-year period are extrapolated using a constant growth rate assumption. The growth rate applied was capped at the long-term average growth rate for the industry.

As a result of an annual impairment test on goodwill allocated to cash-generating-units, the Company recognized an impairment loss of ₩ 206,741 million for the goodwill of PLP business, a cash-generating unit of DS segment's semiconductor business. The Company also recognized impairment loss of ₩ 364,076 million and ₩ 321,559 million for goodwill and other intangible assets allocated to Connected Car and Professional solution cash-generating-units of Harman segment, respectively. Principal assumptions used in the value-in-use calculations are as follows:

(In percent)	**DS(Semiconductor)**	**Harman International**
Permanent growth rate	0.0	3.0
Pre-tax discount rate [1]	11.5	10.0

[1] Pre-tax discount rate is applied in estimated cash flows.

(C) Details of amortization of intangible assets for the years ended December 31, 2020 and 2019 are as follows:

(In millions of Korean won)	**2020**	**2019**
Cost of sales	2,387,508	2,213,091
Selling and administrative expenses and other	832,373	810,731
Total	3,219,881	3,023,822

12. Borrowings

Details of the carrying amounts of borrowings as of December 31, 2020 and 2019 are as follows:

(In millions of Korean won)	**Financial institutions**	**Interest rates (%) as of Dec 31, 2020**	**December 31, 2020**	**December 31, 2019**
Short-term borrowings				
Collateralized borrowings[1]	Woori Bank and others	0.0~18.3	14,275,043	11,734,361
Non-collateralized borrowings	Citibank and others	0.0~16.3	2,278,386	2,659,107
Total			16,553,429	14,393,468
Current portion of long-term borrowings				
Bank borrowings	-	-	-	35,376
Lease liabilities[2]	CSSD and others	3.8	710,781	805,068
Total			710,781	840,444
Long-term borrowings				
Lease liabilities[2]	CSSD and others	3.8	1,999,716	2,197,181

[1] Collateralized borrowings are secured by trade receivables.

[2] Interest expenses arising from the lease liabilities for the years ended December 31, 2020 and 2019 amounted to ₩ 109,040 million and ₩ 103,240 million, respectively, which were determined using the weighted average incremental borrowing rate. The right-of-use assets are pledged as collateral to the lessor in the event of default. Short-term lease payments and low- valued asset lease payments that are not included in measurement of lease liabilities during the years ended December 31, 2020 and 2019 amount to ₩ 120,151 million and ₩ 233,467 million, respectively.

(A) Maturities of lease liabilities outstanding as of December 31, 2020 are as follows:

(In millions of Korean won)	**Lease liabilities**
Repayment terms	
2021	784,692
2022	558,170
2023	451,203
2024	354,367
2025 and thereafter	795,281
Total	2,943,713

13. Debentures

(A) Details of the carrying amounts of debentures as of December 31, 2020 and 2019 are as follows:

(In millions of Korean won)	Issue date	Due date	Interest rates (%) as of Dec 31, 2020	December 31, 2020	December 31, 2019
US dollar denominated straight bonds[1]	1997.10.2	2027.10.1	7.7	38,080 (USD 35 million)	46,312 (USD 40 million)
US dollar denominated debenture bonds[2]	2015.5.11	2025.5.15	4.2	435,200 (USD 400 million)	463,120 (USD 400 million)
EURO denominated debenture bonds[3]	2015.5.27	2022.5.27	2.0	468,383 (EUR 350 million)	454,100 (EUR 350 million)
Less: Discounts				(853)	(1,146)
Add: Premium				12,645	18,558
Less: Current portion				(5,318)	(5,646)
Total				948,137	975,298

[1] US dollar denominated straight bonds are repaid annually for twenty years after a ten-year grace period from the date of issuance. Interest is paid semi-annually.

[2] Harman International Industries, Inc. issued US dollar denominated debenture bonds. These debentures are repaid on the date of 10 years maturity and interest is paid semi-annually.

[3] Harman Finance International, SCA issued Euro denominated debenture bonds. These debentures are repaid on the date of 7 years maturity and interest is paid annually.

(B) Maturities of debentures outstanding as of December 31, 2020 are as follows:

(In millions of Korean won)	Debentures
Repayment terms	
2021	5,440
2022	473,823
2023	5,440
2024	5,440
2025 and thereafter	451,520
Total	941,663

14. Net Defined Benefit Liabilities (Assets)

(A) Details of net defined benefit liabilities (assets) recognized in the statements of financial position as of December 31, 2020 and 2019 are as follows:

(In millions of Korean won)	**December 31, 2020**	**December 31, 2019**
Present value of funded defined benefit obligations	12,400,964	10,864,675
Present value of unfunded defined benefit obligations	548,035	283,394
Subtotal	12,948,999	11,148,069
Fair value of plan assets	(13,840,043)	(11,267,121)
Total	(891,044)	(119,052)

(B) The components of defined benefit costs recognized in profit or loss for the years ended December 31, 2020 and 2019 relating to defined benefit plans are as follows:

(In millions of Korean won)	**2020**	**2019**
Current service cost	1,131,355	930,471
Net interest income	(9,801)	(3,755)
Past service cost	2,377	2,275
Other	2,193	7,629
Total	1,126,124	936,620

The amount recognized as expense of defined contribution plans for the years ended December 31, 2020 and 2019 are ₩ 164,055 million and ₩ 198,387 million, respectively.

(C) The expenses related to defined benefit plans recognized in the statements of profit or loss for the years ended December 31, 2020 and 2019 are as follows:

(In millions of Korean won)	**2020**	**2019**
Cost of sales	498,006	417,393
Selling and administrative expenses and other	628,118	519,227
Total	1,126,124	936,620

(D) Changes in the defined benefit obligations for the years ended December 31, 2020 and 2019 are as follows:

(In millions of Korean won)	**2020**	**2019**
Balance as of January 1	11,148,069	8,694,042
Current service cost	1,131,355	930,471
Interest cost	328,919	283,065
Past service cost	2,377	2,275
Remeasurement:		
Actuarial gains or losses arising from changes in demographic assumptions	(19,030)	(7,041)
Actuarial gains or losses arising from changes in financial assumptions	622,647	1,190,499
Other	285,440	326,369
Benefits paid	(514,853)	(308,182)
Other[1]	(35,925)	36,571
Balance as of December 31	12,948,999	11,148,069

[1] Other includes effects of changes in foreign currency exchange rates and business combinations.

(E) Changes in the fair value of plan assets for the years ended December 31, 2020 and 2019 are as follows:

(In millions of Korean won)	**2020**	**2019**
Balance as of January 1	11,267,121	8,752,334
Interest income on plan assets	338,720	286,820
Remeasurement of plan assets	(108,066)	(118,110)
Contributions by employer	2,623,122	2,600,576
Benefits paid	(295,520)	(283,778)
Other[1]	14,666	29,279
Balance as of December 31	13,840,043	11,267,121

[1] Other includes effects of changes in foreign currency exchange rates and business combinations.

Expected contributions to post-employment benefit plans for the year ended December 31, 2021 are ₩ 1,399,843 million.

(F) Plan assets as of December 31, 2020 and 2019 consist of the following:

(In millions of Korean won)	**December 31, 2020**	**December 31, 2019**
Principal guaranteed fixed income financial instruments and other	13,799,119	11,230,391
Other	40,924	36,730
Total	13,840,043	11,267,121

Plan assets are mostly invested in instruments which have a quoted price in active markets.

(G) The principal actuarial assumptions as of December 31, 2020 and 2019 are as follows:

(In percentage)	**December 31, 2020**	**December 31, 2019**
Discount rate	0.2~7.2	0.2 ~ 7.2
Salary growth rate (including the effects of inflation)	1.5~10.0	1.5 ~ 10.0

(H) The sensitivity analysis of the defined benefit obligations as of December 31, 2020 and 2019 to changes in the weighted principal assumptions is as follows:

(In percentage)	**December 31, 2020**	**December 31, 2019**
Discount rate		
1%p increase	91	92
1%p decrease	111	110
Salary growth rate		
1%p increase	111	110
1%p decrease	91	92

(I) The weighted average maturity of the defined benefit obligations is 9.82 years as of December 31, 2020.

15. Provisions

Changes in the provisions for the year ended December 31, 2020 are as follows:

(In millions of Korean won)	Warranty (A)	Royalty expenses (B)	Long-term incentives (C)	Other (D, E)	Total
Balance as of January 1	1,791,007	1,053,448	793,270	1,042,002	4,679,727
Charged to profit or loss	1,466,541	697,449	443,380	1,656,202	4,263,572
Payment	(1,452,453)	(357,148)	(588,119)	(921,435)	(3,319,155)
Other[1]	(39,213)	(89,658)	2,767	(97,049)	(223,153)
Balance as of December 31	**1,765,882**	**1,304,091**	**651,298**	**1,679,720**	**5,400,991**

[1] Other includes effects of changes in foreign currency exchange rates.

(A) The Company accrues warranty reserves for estimated costs of quality assurance, exchanges, repairs, recalls, and future services based on historical experience and terms of warranty programs.

(B) The Company recognizes provisions for the estimated royalty expenses that are under negotiation with counterparties. The timing and amount of payment depend on the settlement of the negotiation.

(C) The Company has a long-term incentive plan for its executives based on a three-year management performance criteria and recognizes a provision for the estimated incentive cost for the accrued period.

(D) The Company records provisions for future expenses expected to be incurred for products that have been discontinued from manufacturing and sales.

(E) The Company makes provisions for the carrying amounts of emission rights held by the Company and the emission in excess of the emission rights for the applicable years. Details of emission rights and liabilities as of December 31, 2020 are as follows:

(1) Allocated amount of emission permits and the estimated amount of emission as of December 31, 2020 are as follows:

(In ten thousand metric tons)	December 31, 2020
Allocated emission permits	1,733
Estimated volume of emission	1,789

(2) Changes in the emission permits rights for the year ended December 31, 2020 are as follows:

(In millions of Korean won)	2020
Balance as of January 1	38,787
Increase	6,236
Decrease	(158)
Balance as of December 31	44,865

(3) Changes in emissions liabilities for the year ended December 31, 2020 are as follows:

(In millions of Korean won)	2020
Balance as of January 1	18,414
Charged to profit or loss	13,640
Submission	(178)
Balance as of December 31	31,876

16. Commitments and Contingencies

(A) Litigation

The Company is involved in various claims, disputes, and investigations conducted by regulatory bodies, which arose during the normal course of business with numerous entities. Although the outflow of resources and timing of these matters are uncertain, as of the reporting date, the Company believes the outcome will not have a material impact on the financial position of the Company.

(B) Other commitments

(1) As of December 31, 2020, the Company has trade financing agreements, trade notes receivable discounting facilities, and loan facilities with accounts receivable pledged as collateral with 25 financial institutions including Woori Bank, with a combined limit of up to ₩ 19,807,809 million. In addition, the Company has a trade financing agreement (up to ₩ 13,748,448 million) with 19 financial institutions including Shinhan Bank and loan facilities with accounts receivable pledged as collateral and other financial agreements (up to ₩ 2,079,508 million).

(2) As of December 31, 2020, unfulfilled agreements relating to the acquisition of property, plant and equipment and intangible assets amount to ₩ 7,439,344 million.

17. Contract Liabilities

The Company has recognized contract liabilities related to contracts with customers as follows:

(In millions of Korean won)	**December 31, 2020**	**December 31, 2019**
Contract liabilities[1]	11,902,130	9,240,401

[1] Contract liabilities include advances received, accrued expenses, other current liabilities and others.

The revenue recognized during the year ended December 31, 2020 in relation to carried-forward contract liabilities as of January 1, 2020 amounts to ₩ 590,174 million.

18. Share Capital

As of December 31, 2020, the Company's total number of authorized shares is 25,000,000,000 shares (₩ 100 per share). The Company has issued 5,969,782,550 shares of ordinary shares and 822,886,700 shares of preference shares as of December 31, 2020, excluding retired shares. As of the December 31, 2020, the number of shares outstanding is the same as the number of shares issued above, and no changes were made to the number of shares outstanding during the years ended December 31, 2020 and 2019. Due to the retirement of shares, the total par value of the shares issued is ₩ 679,267 million (ordinary shares of ₩ 596,978 million and preference shares of ₩ 82,289 million), which does not agree with paid-in capital of ₩ 897,514 million.

19. Retained Earnings

(A) Retained earnings as of December 31, 2020 and 2019 consist of the following:

(In millions of Korean won)	**December 31, 2020**	**December 31, 2019**
Discretionary reserve, etc.	174,739,565	168,322,868
Unappropriated retained earnings	96,328,646	86,260,026
Total	271,068,211	254,582,894

(B) Details of interim and year-end dividends are as follows:

(1) Interim dividends (Record date: March 31, 2020 and 2019, June 30, 2020 and 2019 and September 30, 2020 and 2019)

(In millions of Korean won and number of shares)			**2020**	**2019**
1st Quarter	Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
		Preference shares	822,886,700	822,886,700
	Dividend rate (based on par value)		354%	354%
	Dividend amount	Ordinary shares	2,113,303	2,113,303
		Preference shares	291,302	291,302
		Total	2,404,605	2,404,605
2nd Quarter	Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
		Preference shares	822,886,700	822,886,700
	Dividend rate (based on par value)		354%	354%
	Dividend amount	Ordinary shares	2,113,303	2,113,303
		Preference shares	291,302	291,302
		Total	2,404,605	2,404,605
3rd Quarter	Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
		Preference shares	822,886,700	822,886,700
	Dividend rate (based on par value)		354%	354%
	Dividend amount	Ordinary shares	2,113,303	2,113,303
		Preference shares	291,302	291,302
		Total	2,404,605	2,404,605

(2) Year-end dividends (Record date: December 31, 2020 and 2019)

(In millions of Korean won and number of shares)		**2020**	**2019**
Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
	Preference shares	822,886,700	822,886,700
Dividend rate (based on par value)	Ordinary shares	1932%	354%
	Preference shares	1933%	355%
Dividend amount	Ordinary shares	11,533,620	2,113,303
	Preference shares	1,590,640	292,125
	Total	13,124,260	2,405,428

20. Other Components of Equity

Other components of equity as of December 31, 2020 and 2019 are as follows:

(In millions of Korean won)	**December 31, 2020**	**December 31, 2019**
Gain on valuation of financial assets at fair value through other comprehensive income	4,975,756	2,573,530
Share of other comprehensive loss of associates and joint ventures	(58,629)	(12,735)
Loss on overseas business translation	(10,977,583)	(5,645,769)
Remeasurement of net defined benefit assets	(2,653,425)	(1,944,284)
Other	26,726	60,429
Total	(8,687,155)	(4,968,829)

21. Expenses by Nature

Expenses by nature for the years ended December 31, 2020 and 2019 consist of the following:

(In millions of Korean won)	**2020**	**2019**
Changes in finished goods, work in process, and other	(3,234,887)	1,900,859
Raw materials used, merchandise purchased, and other	81,792,130	83,443,554
Wages and salaries	25,054,684	22,453,030
Post-employment benefit	1,290,179	1,171,606
Depreciation	27,115,735	26,573,816
Amortization	3,219,881	3,023,822
Welfare	4,655,347	4,489,617
Utilities	4,717,553	4,451,765
Outsourcing	5,409,889	5,181,792
Advertising	4,269,043	4,614,525
Sales promotion expenses	5,861,954	6,678,078
Other	40,661,604	38,649,908
Total[1]	200,813,112	202,632,372

[1] Equal to the sum of cost of sales and selling and administrative expenses in the consolidated statements of profit or loss.

22. Selling and Administrative Expenses

Selling and administrative expenses for the years ended December 31, 2020 and 2019 are as follows:

(In millions of Korean won)	**2020**	**2019**
Selling and administrative expenses		
Wages and salaries	6,763,143	6,123,653
Post-employment benefit	279,711	298,937
Commissions	5,678,703	5,513,083
Depreciation	1,593,365	1,571,473
Amortization	492,314	469,344
Advertising	4,269,043	4,614,525
Sales promotion expenses	5,861,954	6,678,078
Transportation	2,218,422	2,075,675
Service charges	3,368,401	2,968,421
Other	4,688,270	5,172,398
Subtotal	35,213,326	35,485,587
Research and development expenses		
Total expenses	21,220,972	20,192,935
Capitalized expenses	(109,482)	(285,699)
Subtotal	21,111,490	19,907,236
Total	56,324,816	55,392,823

23. Other Non-Operating Income and Expenses

Details of other non-operating income and expenses for the years ended December 31, 2020 and 2019 are as follows:

(In millions of Korean won)	**2020**	**2019**
Other non-operating income		
Dividend income	152,440	154,679
Rental income	147,104	153,357
Gain on disposal of investments	42,675	48,345
Gain on disposal of property, plant and equipment	154,249	304,091
Other	887,600	1,118,194
Total	1,384,068	1,778,666

(In millions of Korean won)	**2020**	**2019**
Other non-operating expenses		
Loss on disposal of property, plant and equipment	87,673	144,547
Donations	311,421	357,747
Other	2,089,808	912,413
Total	2,488,902	1,414,707

24. Financial Income and Expenses

Details of financial income and expenses for the years ended December 31, 2020 and 2019 are as follows:

(*In millions of Korean won*)	**2020**	**2019**
Financial income		
Interest income	1,974,458	2,660,024
Interest income from financial assets measured at amortized cost	1,974,141	2,659,740
Interest income from financial assets measured at fair value through profit or loss	317	284
Foreign exchange differences	9,270,039	6,769,000
Gains from derivatives	1,023,103	732,608
Total	12,267,600	10,161,632

(*In millions of Korean won*)	**2020**	**2019**
Financial expenses		
Interest expenses	583,013	686,356
Interest expenses from financial liabilities measured at amortized cost	302,782	248,659
Other financial liabilities	280,231	437,697
Foreign exchange differences	9,868,591	6,852,409
Losses from derivatives	866,451	736,106
Total	11,318,055	8,274,871

The Company recognizes foreign exchange gains and losses arising from foreign currency transactions and translation as financial income and expenses.

25. Income Tax Expense

(A) Income tax expense for the years ended December 31, 2020 and 2019 consists of the following:

(In millions of Korean won)	**2020**	**2019**
Current taxes		
Current tax on profits for the year	7,361,115	5,913,635
Adjustments recognize in the current year	339,673	(177,616)
Subtotal	7,700,788	5,736,019
Deferred taxes		
Changes in deferred taxes arising from unused tax credits	(325,880)	(26,114)
Changes in deferred taxes arising from temporary differences	2,312,926	2,934,705
Changes in deferred taxes arising from unused tax losses	264,349	47,616
Other	(14,898)	1,098
Subtotal	2,236,497	2,957,305
Items charged directly to equity	-	-
Income tax expense	9,937,285	8,693,324

(B) The tax on the Company's profit before income tax differs from the theoretical amount that would arise using the weighted average statutory tax rate applicable to profits of the Company as follows:

(In millions of Korean won)	**2020**	**2019**
Profit before income tax	36,345,117	30,432,189
Tax calculated at weighted average of applicable tax rates[1]	8,972,156	8,996,445
Adjustments:		
Permanent differences	(269,002)	86,509
Temporary differences for which no deferred income tax was recognized	(130,892)	393,620
Tax credits and exemptions	(1,902,680)	(3,195,793)
Results of interest in subsidiaries, etc.	2,774,410	2,272,967
Impact of changes in tax rates	(5,019)	28,951
Other	498,312	110,625
Subtotal	965,129	(303,121)
Income tax expense	9,937,285	8,693,324

[1] The weighted average of statutory tax rates are applied to the respective profits of the Company applicable to each tax authority as of December 31, 2020 and 2019.

(C) The movement in deferred income tax assets and liabilities resulting from the tax effect of temporary differences for the years ended December 31, 2020 and 2019 are as follows:

(1) 2020

	Temporary differences			Deferred income tax assets (liabilities)		
(In millions of Korean won)	**Balance as of January 1**	**Increase (Decrease)**	**Balance as of December 31**	**Balance as of January 1**	**Increase (Decrease)**	**Balance as of December 31**
Deferred tax arising from temporary differences						
Revaluation of land	(3,417,804)	(3,082)	(3,420,886)	(939,896)	(848)	(940,744)
Investments in subsidiaries, associates and joint ventures[1]	(96,397,199)	(15,527,660)	(111,924,859)	(16,669,138)	(2,503,271)	(19,172,409)
Accumulated depreciation and other	(4,529,334)	2,243,493	(2,285,841)	(982,556)	(10,221)	(992,777)
Accrued income	(248,662)	109,256	(139,406)	(61,332)	29,846	(31,486)
Provisions, accrued expenses and other	12,251,647	869,769	13,121,416	3,282,747	482,061	3,764,808
Foreign currency translation	(97,929)	73,246	(24,683)	(30,227)	20,150	(10,077)
Asset impairment losses	1,790,729	65,036	1,855,765	492,332	(38,846)	453,486
Other	2,252,684	(1,690,056)	562,628	270,071	(291,797)	(21,726)
Subtotal	(88,395,868)	(13,859,998)	(102,255,866)	(14,637,999)	(2,312,926)	(16,950,925)
Deferred tax arising from tax losses						
Unused tax losses	4,563,095	(944,494)	3,618,601	1,208,143	(264,349)	943,794
Deferred tax arising from tax credits						
Unused tax credits	1,311,498	17,029	1,328,527	1,007,507	325,880	1,333,387
Deferred tax recognized in equity						
Gain (loss) on valuation of financial assets at fair value through other comprehensive income and other	(2,928,550)	1,268,129	(1,660,421)	(895,922)	(13,254)	(909,176)
Remeasurement of net defined benefit assets	2,738,197	997,123	3,735,320	769,512	277,563	1,047,075
Subtotal	(190,353)	2,265,252	2,074,899	(126,410)	264,309	137,899
Deferred tax assets				4,505,049	(230,049)	4,275,000
Deferred tax liabilities				(17,053,808)	(1,757,037)	(18,810,845)
Total				(12,548,759)	(1,987,086)	(14,535,845)

[1] Deferred tax assets were not recognized if it is probable that the temporary differences will not reverse in the foreseeable future for investments in subsidiaries, associates and joint ventures.

(2) 2019

(In millions of Korean won)	Temporary differences			Deferred income tax assets (liabilities)		
	Balance as of January 1	**Increase (Decrease)**	**Balance as of December 31**	**Balance as of January 1**	**Increase (Decrease)**	**Balance as of December 31**
Deferred tax arising from temporary differences						
Revaluation of land	(3,422,280)	4,476	(3,417,804)	(941,127)	1,231	(939,896)
Investments in subsidiaries, associates and joint ventures[1]	(85,091,134)	(11,306,065)	(96,397,199)	(14,315,226)	(2,353,912)	(16,669,138)
Accumulated depreciation and other	(3,999,764)	(529,570)	(4,529,334)	(903,184)	(79,372)	(982,556)
Accrued income	(278,778)	30,116	(248,662)	(73,048)	11,716	(61,332)
Provisions, accrued expenses and other	11,733,192	518,455	12,251,647	3,239,039	43,708	3,282,747
Foreign currency translation	(81,476)	(16,453)	(97,929)	(22,158)	(8,069)	(30,227)
Asset impairment losses	1,528,707	262,022	1,790,729	421,608	70,724	492,332
Other	3,875,005	(1,622,321)	2,252,684	890,802	(620,731)	270,071
Subtotal	(75,736,528)	(12,659,340)	(88,395,868)	(11,703,294)	(2,934,705)	(14,637,999)
Deferred tax arising from tax losses						
Unused tax losses	4,692,966	(129,871)	4,563,095	1,255,759	(47,616)	1,208,143
Deferred tax arising from tax credits						
Unused tax credits	1,111,141	200,357	1,311,498	981,393	26,114	1,007,507
Deferred tax recognized in equity						
Loss on valuation of financial assets at fair value through other comprehensive income and other	(2,165,131)	(763,419)	(2,928,550)	(550,422)	(345,500)	(895,922)
Remeasurement of net defined benefit assets	1,110,260	1,627,937	2,738,197	322,043	447,469	769,512
Subtotal	(1,054,871)	864,518	(190,353)	(228,379)	101,969	(126,410)
Deferred tax assets				5,468,002	(962,953)	4,505,049
Deferred tax liabilities				(15,162,523)	(1,891,285)	(17,053,808)
Total				(9,694,521)	(2,854,238)	(12,548,759)

[1] Deferred tax assets were not recognized if it is probable that the temporary differences will not reverse in the foreseeable future for investments in subsidiaries, associates and joint ventures.

The Company assessed that the deferred tax asset is realizable as the estimated average annual taxable income in future years exceeds the tax loss carry forwards and tax credit carry forwards to be reversed in each accounting period. Temporary differences whose deferred tax effects were not recognized due to uncertainty regarding the ultimate realizability of such assets as of December 31, 2020 and 2019 are as follows:

(In millions of Korean won)	**2020**	**2019**
Unused tax losses	751,255	602,143
Unused tax credits	37,816	281,152

Expected expiry dates of unused tax losses and credits for which no deferred tax asset is recognized are as follows:

(In millions of Korean won)	**2020**	**2021**	**2022**	**2023 and after**
Unused tax losses	-	1,137	-	750,118
Unused tax credits	12,837	3,009	15,021	6,949

(D) Details of the period when the deferred tax assets (liabilities) are recovered (settled) as of December 31, 2020 and 2019 are as follows:

(In millions of Korean won)	**December 31, 2020**	**December 31, 2019**
Deferred tax assets		
Deferred tax assets to be recovered within 12 months	2,839,030	3,125,687
Deferred tax assets to be recovered after more than 12 months	1,435,970	1,379,362
Subtotal	**4,275,000**	**4,505,049**
Deferred tax liabilities		
Deferred tax liabilities to be settled after more than 12 months	(18,810,845)	(17,053,808)
Total	**(14,535,845)**	**(12,548,759)**

26. Earnings per Share

(A) Basic earnings per share

Basic earnings per share for the years ended December 31, 2020 and 2019 are calculated as follows:

(1) Ordinary shares

(In millions of Korean won, thousands of number of shares)	**2020**	**2019**
Profit for the year attributable to owners of the parent company	26,090,846	21,505,054
Profit for the year available for ordinary shares	22,929,390	18,899,137
Weighted-average number of ordinary shares outstanding	5,969,783	5,969,783
Basic earnings per ordinary share *(in Korean won)*	3,841	3,166

(2) Preference shares

(In millions of Korean won, thousands of number of shares)	**2020**	**2019**
Profit for the year attributable to owners of the parent company	26,090,846	21,505,054
Profit for the year available for preference shares	3,161,456	2,605,917
Weighted-average number of preference shares outstanding	822,887	822,887
Basic earnings per preference share *(in Korean won)*	3,842	3,167

(B) Diluted earnings per share

The Company does not have dilutive potential ordinary shares and as a result, basic earnings per share and diluted earnings per share are the same for the years ended December 31, 2020 and 2019.

27. Statements of Cash Flows

(A) The Company used the indirect method to present cash flows from operating activities. Adjustments and changes in assets and liabilities arising from operating activities for the years ended December 31, 2020 and 2019 are as follows:

- Adjustments

(In millions of Korean won)	**2020**	**2019**
Adjustments:		
Income tax expense	9,937,285	8,693,324
Financial income	(3,718,841)	(3,831,428)
Financial expenses	2,306,770	2,034,518
Post-employment benefits	1,290,179	1,171,606
Depreciation	27,115,735	26,573,816
Amortization	3,219,881	3,023,822
Bad debt expenses (reversal)	40,006	(183,380)
Dividend income	(152,440)	(154,679)
Share of profit of associates and joint ventures	(506,530)	(412,960)
Gain on disposal of property, plant and equipment	(154,249)	(304,091)
Loss on disposal of property, plant and equipment	87,673	144,547
Loss on valuation of inventories	1,000,763	785,215
Gain on disposal of investments	(42,675)	(48,345)
Others	1,194,997	(49,283)
Total	41,618,554	37,442,682

- Changes in assets and liabilities arising from operating activities

(In millions of Korean won)	**2020**	**2019**
Changes in assets and liabilities :		
Decrease in trade receivables	1,269,982	2,587,519
Decrease (increase) in non-trade receivables	471,034	(758,928)
Increase in prepaid expenses	(16,429)	(65,086)
Decrease (increase) in inventories	(7,540,656)	2,134,632
Increase (decrease) in trade payables	3,885,742	(1,269,177)
Increase (decrease) in other payables	196,710	(35,869)
Increase in advances received	95,851	440,597
Increase (decrease) in withholdings	99,300	(165,535)
Increase (decrease) in accrued expenses	5,332,676	(1,707,265)
Increase (decrease) in provisions	944,417	(198,829)
Payment of post-employment benefits	(610,734)	(543,864)
Increase in plan assets	(2,327,602)	(2,316,798)
Other	(1,677,867)	(647,153)
Total	122,424	(2,545,756)

(B) Significant non-cash investing and financing transactions for the years ended December 31, 2020 and 2019 are as follows:

(In millions of Korean won)	**2020**	**2019**
Valuation of financial assets at fair value through other comprehensive income	3,423,908	1,497,600
Valuation of investments in associates and joint ventures	43,297	32,397
Reclassification of construction in progress to property, plant and equipment	42,177,828	12,172,344
Acquisition of right-of-use assets (New lease contracts established)	810,823	1,125,228
Reclassification of current portion of debentures	5,318	5,646
Reclassification of current portion of long-term borrowings	710,781	771,405

(C) Changes in liabilities arising from financing activities for the years ended December 31, 2020 and 2019 are as follows:

(1) 2020

(In millions of Korean won)	**As of January 1**	**Cash flows from financing activities**	**Non-cash transactions**		**As of December 31**
			New lease contracts	**Other[1]**	
Short-term borrowings	14,393,468	2,191,186	-	(31,225)	16,553,429
Debentures and long-term borrowings	4,018,569	(850,452)	810,823	(314,988)	3,663,952
Total	18,412,037	1,340,734	810,823	(346,213)	20,217,381

[1] Other includes amortization and effects of changes in foreign currency exchange rates.

(2) 2019

(In millions of Korean won)	**As of January 1**	**Cash flows from financing activities**	**Non-cash transactions**		**As of December 31**
			New lease contracts	**Other[1]**	
Short-term borrowings	13,586,660	865,792	-	(58,984)	14,393,468
Debentures and long-term borrowings	1,080,443	(709,400)	1,125,228	2,522,298	4,018,569
Total	14,667,103	156,392	1,125,228	2,463,314	18,412,037

[1] Other includes amortization, effects of changes in foreign currency exchange rates, and the cumulative effect of changes in accounting policies.

For the years ended December 31, 2020 and 2019, cash outflows from principal repayment (financial activities) amount to ₩ 823,935 million and ₩ 684,318 million, respectively, and cash outflows due to interest expenses (operating activities) in relation to the lease liabilities amount to ₩ 109,040 million and ₩ 103,240 million, respectively.

(D) The Company reported cash receipts and payments arising from transactions occurring frequently, of large gross amounts, and with short-term maturities, such as short-term financial instruments, borrowings and other, on a net basis. As of December 31, 2020, most of the Company's cash and cash equivalents consist of bank deposits.

28. Financial Risk Management

The Company's financial risk management focuses on minimizing market risk, credit risk, and liquidity risk arising from operating activities. To mitigate these risks, the Company implements and operates a financial risk policy and program that closely monitors and manages such risks. In addition, the Company uses derivatives to hedge certain risk exposure.

The finance team mainly carries out the Company's financial risk management. After implementing the global financial risk management policies, the finance team periodically measures, evaluates, and hedges financial risk and also establishes and implements the global financial risk management policy.

The Company also manages foreign exchange risk by monitoring foreign exchange rate fluctuations at local finance centers across major regions (United States, United Kingdom, Singapore, China, Brazil, and Russia) and acting as an agent of foreign exchange transactions. In addition, the Company manages liquidity risk by utilizing a globally integrated finance structure.

The Company's financial assets that are under financial risk management are comprised of cash and cash equivalents, short-term financial instruments, financial assets at amortized cost, trade receivables and others. The Company's financial liabilities under financial risk management are comprised of trade payables, borrowings, and others.

(A) Market risk

(1) Foreign exchange risk

The Company is exposed to foreign exchange risk arising from its global operations performed in currencies other than its functional currency. The major currencies that are exposed to foreign exchange risk are the US dollar, Euro, and Indian Rupee.

The Company focuses on minimizing the impact of foreign exchange fluctuation by maintaining the equal amount of assets and liabilities denominated in each foreign currency, irrespective of foreign exchange fluctuation considerations. To prevent exchange position, the Company's foreign exchange management policy requires normal business transactions, including import and export, as well as financing transactions such as depositing and borrowing, to be in local currency or for the cash-in currency to be matched up with the cash-out currency. Moreover, the Company periodically evaluates and monitors the foreign exchange risk to efficiently mitigate such risk, and the speculative foreign exchange transactions are strictly prohibited.

As of December 31, 2020 and 2019, when currency rates change by 5%, the impact on profit or loss (before income tax effects) arising from financial assets and liabilities denominated in foreign currencies other than functional currency are as follows:

	December 31, 2020		**December 31, 2019**	
(In millions of Korean won)	**Increase**	**Decrease**	**Increase**	**Decrease**
USD	174,400	(174,400)	163,062	(163,062)
EUR	112,244	(112,244)	127,507	(127,507)
INR	21,959	(21,959)	64,153	(64,153)
JPY	(22,143)	22,143	(23,062)	23,062

(2) Interest rate risk

Risk of changes in interest rates for floating interest rate financial instruments is defined as the risk that the fair value of components of the statements of financial position, and future cash flows of interest income (expenses) of a financial instrument, will fluctuate because of changes in market interest rates. The Company's position with regard to interest rate risk exposure is mainly driven by its floating interest rate debt obligations and interest-bearing deposits. The Company implemented policies and operates to minimize uncertainty arising from changes in interest rates and financial expenses.

As of December 31, 2020 and 2019, changes in profit or loss (before income tax effects) as a result of a 1%p change in interest rates on floating interest rate financial assets and liabilities are presented below:

	December 31, 2020		**December 31, 2019**	
(In millions of Korean won)	**Increase**	**Decrease**	**Increase**	**Decrease**
Financial assets	81,013	(81,013)	70,183	(70,183)
Financial liabilities	(2,195)	2,195	(2,118)	2,118
Net effect	78,818	(78,818)	68,065	(68,065)

(3) Price risk

The Company's investment portfolio consists of direct and indirect investments in equity instruments classified as financial assets at fair value through other comprehensive income and financial assets at fair value through profit or loss, which is in line with the Company's strategy.

As of December 31, 2020 and 2019, price fluctuation of marketable equity securities (listed stocks) by 1% would result in changes in other comprehensive income (before income tax) of ₩ 69,101 million and ₩ 41,055 million, respectively, and changes in profit before tax of ₩ 4,316 million and ₩ 1,630 million, respectively.

(B) Credit risk

Credit risk arises during the normal course of transactions and investing activities where clients or other parties fail to discharge an obligation. The Company monitors and sets the client's and counterparty's credit limit on a periodic basis based on the client's and counterparty's financial conditions, default history and other important factors. Adequate insurance coverage is maintained for trade receivables related to trading partners situated in higher risk countries.

Credit risk can arise from transactions with financial institutions which include financial instrument transactions such as cash and cash equivalents, deposits, and derivative instruments. To minimize such risk, the Company transacts only with banks which have a strong international credit rating (S&P A and above), and all new transactions with financial institutions with no prior transaction history are approved, managed and monitored by the Company's finance team and the local finance center. The Company generally enters into a financial agreement with no restrictions, such as debt ratio covenants, provision of collateral and/or repayment of loans/ borrowings. The Company requires separate approvals for contracts with restrictions.

As of December 31, 2020 and December 31, 2019, the Company estimates that its maximum exposure to credit risk is the carrying amount of its financial assets, net of impairment losses.

(C) Liquidity risk

Due to large investments made by the Company, maintaining adequate levels of liquidity risk is critical. The Company strives to achieve this goal by periodically forecasting its capital balance, estimating required cash levels, and managing income and expenses.

The Company manages its liquidity risk by periodically forecasting projected cash flows. If abnormal signs are identified, the Company works with the local finance center and provides liquidity support by utilizing a globally integrated finance structure, such as Cash Pooling. In addition, the Company maintains a liquidity management process which provides additional financial support from the local finance center and the Company. The Cash Pooling program allows the sharing of surplus funds among entities and contributes to minimizing liquidity risk and strengthening the Company's competitive position by reducing capital operation expenses and financial expenses.

For the need of large scale of liquidity, the Company secures credit limit for the overseas subsidiaries through payment guarantees.

As of December 31, 2020 and 2019, the following table is an undiscounted cash flow analysis for financial liabilities according to their remaining contractual maturity.

	December 31, 2020				
(In millions of Korean won)	**Less than 3 months**	**4 - 6 months**	**7 – 12 months**	**1 - 5 years**	**More than 5 years**
Financial liabilities	44,988,792	733,776	1,651,951	3,945,429	578,346

	December 31, 2019				
(In millions of Korean won)	**Less than 3 months**	**4 – 6 months**	**7 - 12 months**	**1 - 5 years**	**More than 5 years**
Financial liabilities	41,041,672	655,089	1,603,676	4,241,964	1,381,109

The table above shows the Company's financial liabilities based on the remaining period at the consolidated statements of financial position date until the contractual maturity date. The amounts disclosed in the table are the contractual undiscounted cash flows.

The Company's derivative financial liabilities of ₩ 47,704 million (December 31, 2019: ₩ 63,496 million) has been included within the less than 3 months bucket. These are the Company's trading portfolio of derivative instruments, on a net settlement term, of which the contractual maturities are not essential for understanding its cash flows. These contracts are managed on a net fair value basis rather than by maturity date. Net settled derivatives consist of forwards on currency rates used by the Company to manage the exchange rate profile.

Derivatives that are settled on a gross basis by delivery of the underlying item, including derivatives for hedging, will be settled within the next 41 months from the end of the reporting period. These derivative are not included in the table above.

There is no maximum liquidity risk exposure from those other than the above financial liabilities (e.g., payment and performance guarantees) as of December 31, 2020.

(D) Derivative financial instruments

The Company applies cash flow hedge accounting to hedge the foreign currency risk of forecasted transaction including hedging the price risk associated with inventory. Details of derivative financial instruments that qualify as cash flow hedges as of December 31, 2020 and 2019 are as follows:

	December 31, 2020		December 31, 2019	
(In millions of Korean won)	**Assets**	**Liabilities**	**Assets**	**Liabilities**
Currency forward exchange contracts				
Current items	11,311	22,236	20,946	5,396
Non-current items	11,999	19,694	5,498	5,144
Total	23,310	41,930	26,444	10,540

For the years ended December 31, 2020 and 2019, the Company recognizes the gains and losses relating to the effective portion of changes in fair value of derivatives that are designated and qualify as cash flow hedges in other comprehensive income, which amount to loss of ₩ 33,406 million (after tax) and gain of ₩ 1,811 million (after tax), respectively, and recognizes the gains and losses relating to the ineffective portion in profit or loss, which amount to loss of ₩ 27 million (before tax) and gain of ₩ 975 million (before tax). Gains and losses reclassified directly from other comprehensive income to profit or loss amount to gain of ₩ 4,664 million (after tax) and loss of ₩ 916 million (after tax), and gains reclassified from other comprehensive income to the carrying amount of inventory amount to ₩ 3,792 million (after tax) and ₩ 30,786 million (after tax).

(E) Capital risk management

The purpose of capital management is to maintain a sound capital structure. The Company monitors capital on the basis of credit ratings and debt ratio. Debt ratio is calculated by dividing total liabilities by total equity in the financial statements.

The Company's capital risk management policy has not changed since the prior reporting periods. The Company has maintained an AA- and Aa3 credit rating from S&P and Moody's, respectively.

The total liabilities to equity ratios as of December 31, 2020 and 2019 are as follows:

(In millions of Korean won)	**December 31, 2020**	**December 31, 2019**
Total liabilities	102,287,702	89,684,076
Total equity	275,948,016	262,880,421
Debt ratio	37.1%	34.1%

(F) Fair value estimation

(1) Carrying amounts and fair values of financial instruments by category as of December 31, 2020 and 2019 are as follows:

	December 31, 2020		December 31, 2019	
(In millions of Korean won)	**Carrying amount**	**Fair value**	**Carrying amount**	**Fair value**
Financial assets				
Cash and cash equivalents	29,382,578	(*1)	26,885,999	(*1)
Short-term financial instruments	92,441,703	(*1)	76,252,052	(*1)
Short-term financial assets at amortized cost	2,757,111	(*1)	3,914,216	(*1)
Short-term financial assets at fair value through profit or loss	71,451	71,451	1,727,436	1,727,436
Trade receivables	30,965,058	(*1)	35,131,343	(*1)
Financial assets at fair value through other comprehensive income	12,575,216	12,575,216	8,920,712	8,920,712
Financial assets at fair value through profit or loss	1,202,969	1,202,969	1,049,004	1,049,004
Other(*2)	6,634,873	239,107	9,864,541	208,126
Total financial assets	**176,030,959**		**163,745,303**	
Financial liabilities				
Trade payables	9,739,222	(*1)	8,718,222	(*1)
Short-term borrowings	16,553,429	(*1)	14,393,468	(*1)
Other payables	10,645,637	(*1)	11,034,253	(*1)
Current portion of long-term liabilities	716,099	(*3)	846,090	(*1)(*3)
Debentures	948,137	997,101	975,298	1,013,245
Long-term borrowings	1,999,716	(*3)	2,197,181	(*3)
Long-term other payables(*2)	1,274,304	2,176	1,822,927	2,316
Other(*2)	9,639,252	284,628	8,374,146	215,211
Total financial liabilities	**51,515,796**		**48,361,585**	

(*1) Assets and liabilities whose carrying amount is a reasonable approximation of fair value are excluded from the fair value disclosures.

(*2) Assets measured at the cost of ₩ 6,395,766 million (December 31, 2019: ₩ 9,656,415 million) and liabilities measured at the cost of ₩ 10,626,752 million (December 31, 2019: ₩ 9,979,546 million) are excluded as the carrying amount is a reasonable estimation of fair value.

(*3) Lease liabilities, classified under the current portion of long-term liabilities and long-term borrowings, are excluded from the fair value disclosures in accordance with *Korean IFRS 1107.*

(2) Fair value hierarchy classifications of the financial instruments that are measured or disclosed at fair value as of December 31, 2020 and 2019 are as follows:

	December 31, 2020			
(In millions of Korean won)	**Level 1**	**Level 2**	**Level 3**	**Total balance**
1) Assets				
Financial assets at fair value through other comprehensive income	6,910,108	-	5,665,108	12,575,216
Financial assets at fair value through profit or loss	431,626	58,763	784,031	1,274,420
Other	-	239,107	-	239,107
2) Liabilities				
Debentures	-	997,101	-	997,101
Long-term other payables	-	-	2,176	2,176
Other	-	277,556	7,072	284,628

	December 31, 2019			
(In millions of Korean won)	**Level 1**	**Level 2**	**Level 3**	**Total balance**
1) Assets				
Financial assets at fair value through other comprehensive income	4,105,456	-	4,815,256	8,920,712
Financial assets at fair value through profit or loss	163,046	20,966	2,592,428	2,776,440
Other	-	208,126	-	208,126
2) Liabilities				
Debentures	-	1,013,245	-	1,013,245
Long-term other payables	-	-	2,316	2,316
Other	-	215,211	-	215,211

The levels of the fair value hierarchy and its application to financial assets and liabilities are described below.

- Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities
- Level 2: Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly
- Level 3: Inputs for the asset or liability that are not based on observable market data (that is, unobservable inputs)

The fair value of financial instruments traded in active markets is based on quoted market prices at the statements of financial position date. A market is regarded as active if quoted prices are readily and regularly available from an exchange, dealer, broker, industry group, pricing service, or regulatory agency, and those prices represent actual and regularly occurring market transactions on an arm's length basis. The quoted market price used for financial assets held by the Company is the current bid price. These instruments are included in Level 1. The instruments included in Level 1 are listed equity investments, most of which are classified as financial assets at fair value through other comprehensive income.

The fair value of financial instruments that are not traded in an active market (for example, over-the-counter derivatives) is determined by using valuation techniques. These valuation techniques maximize the use of observable market data where it is available and rely as little as possible on entity-specific estimates. If all significant inputs required to fair value an instrument are observable, the instrument is included in Level 2.

If one or more of the significant inputs are not based on observable market data, the instrument is included in Level 3.

The Company performs the fair value measurements required for financial reporting purposes, including Level 3 fair values and discusses valuation processes and results at least once every quarter in line with the Company's quarterly reporting dates. The Company's policy is to recognize transfers between levels at the end of the reporting period, if corresponding events or changes in circumstances have occurred.

Specific valuation techniques used to value financial instruments include:

- Quoted market prices or dealer quotes for similar instruments
- The fair value of forward foreign exchange contracts is determined using forward exchange rates at the statements of financial position date, with the resulting value discounted back to present value

Other techniques, such as discounted cash flow analysis, are used to determine fair value for the remaining financial instruments. For trade and other receivables that are classified as current assets, the book value approximates a reasonable estimate of fair value.

(3) Valuation technique and the inputs

The Company utilizes a present value technique to discount future cash flows using a proper interest rate for corporate bonds, government and public bonds, and bank debentures that are classified as Level 2 in the fair value hierarchy.

The following table presents the valuation technique and the inputs used for major financial instruments classified as Level 3 as of December 31, 2020.

(In millions of Korean won and percentage)

Classification	Fair value	Valuation technique	Level 3 inputs	Input range (Weighted average)
Financial assets at fair value through other comprehensive income				
Maltani	9,121	Discounted cash flow	Permanent growth rate	-1.0%~1.0%(0.0%)
			Weighted average cost of capital	8.7%~10.7%(9.7%)
Samsung Venture Investment	22,060	Discounted cash flow	Permanent growth rate	-1.0%~1.0%(0.0%)
			Weighted average cost of capital	18.7%~20.7%(19.7%)
Corning Incorporated convertible preference shares	4,775,362	Trinomial model	Risk-adjusted discount rate	4.2%~6.2%(5.2%)
			Price volatility	30.5%~36.5%(33.5%)
Long-term other payables				
Contingent financial liability	2,176	Probability-weighted discounted cash flow	Applicable probability rate	50.0%

(4) Changes in Level 3 instruments for the years ended December 31, 2020 and 2019 are as follows:

(In millions of Korean won)	**2020**	**2019**
Financial assets		
Balance as of January 1	7,407,684	7,165,466
Acquisitions	882,331	3,592,512
Disposals	(2,531,276)	(3,795,486)
Amount recognized in profit or loss	(55,103)	53,381
Amount recognized in other comprehensive income	829,764	302,616
Other	(84,261)	89,195
Balance as of December 31	6,449,139	7,407,684

(In millions of Korean won)	**2020**	**2019**
Financial liabilities		
Balance as of January 1	2,316	14,502
Repayment	-	(1,130)
Amount recognized in profit or loss	196	(11,655)
Other	6,736	599
Balance as of December 31	9,248	2,316

(5) Sensitivity analysis for recurring fair value measurements categorized within Level 3

Sensitivity analysis of financial instruments is performed to measure favorable and unfavorable changes in the fair value of financial instruments which are affected by the unobservable parameters, using a statistical technique. When the fair value is affected by more than two input parameters, the amounts represent the most favorable or unfavorable.

The results of the sensitivity analysis for effect on profit or loss (before tax amount for other comprehensive income or loss) from changes in inputs for major financial instruments which are categorized within Level 3 and subject to sensitivity analysis are as follows:

(In millions of Korean won)	**Favorable changes**		**Unfavorable changes**	
Classification	**Profit or loss**	**Equity**	**Profit or loss**	**Equity**
Financial assets at fair value through other comprehensive income[1]	-	181,764	-	(150,620)

[1] For equity securities, changes in fair value are calculated with the correlation between growth rate (-1%~1%), volatility (30.5%~36.5%) and discount rate, which are significant unobservable inputs.

29. Segment Information

(A) Operating segment information

The chief operating decision-maker has been identified as the Management Committee. The Company determines operating segments based on the units reported to the Management Committee. The Management Committee reviews the operating profits of each operating segment in order to assess performance and to make strategic decisions regarding the allocation of resources to the segment.

Sales revenue consists mostly of product sales. The operating segments are product-based and are identified based on the internal organization and revenue streams. As of the reporting date, the operating segments are comprised of CE, IM, DS (Semiconductor and DP), Harman, and others.

The segment information for each reporting period is prepared after allocating intercompany reconciliations to depreciation, amortization of intangible assets and operating profits. Total assets and liabilities of each operating segment are excluded from the disclosure as these have not been provided regularly to the Management Committee.

(1) For the year ended December 31, 2020

(In millions of Korean won)	CE	IM	DS			Harman	Total[1]	Intercompany elimination	Consolidated
			Total[1]	Semiconductor	DP				
Total revenue	110,116,900	208,211,782	211,477,724	142,840,934	65,824,403	10,298,318	542,059,756	(305,252,768)	236,806,988
Intercompany revenue	(61,943,576)	(108,624,289)	(108,441,578)	(69,983,131)	(35,238,688)	(1,114,570)	(305,252,768)	305,252,768	-
Net revenue[2]	48,173,324	99,587,493	103,036,146	72,857,803	30,585,715	9,183,748	236,806,988	-	236,806,988
Depreciation	582,929	855,573	24,330,737	18,124,847	6,183,077	264,928	27,115,735	-	27,115,735
Amortization	76,270	1,394,396	1,321,305	1,053,892	257,446	233,518	3,219,881	-	3,219,881
Operating profit	3,561,536	11,472,671	21,120,231	18,804,970	2,236,919	55,518	35,993,876	-	35,993,876

[1] Other operating segments are not separately disclosed.
[2] Net revenue includes intersegment revenues.

(2) For the year ended December 31, 2019

(In millions of Korean won)	CE[1]	IM	DS			Harman	Total[2]	Intercompany elimination	Consolidated
			Total[2]	Semiconductor	DP				
Total revenue	100,402,724	223,959,110	193,141,859	123,766,753	66,908,763	11,749,815	531,113,681	(300,712,800)	230,400,881
Intercompany revenue	(55,079,879)	(116,692,955)	(97,623,857)	(58,827,701)	(35,854,834)	(1,672,719)	(300,712,800)	300,712,800	-
Net revenue[3]	45,322,843	107,266,155	95,518,002	64,939,052	31,053,929	10,077,096	230,400,881	-	230,400,881
Depreciation	554,467	1,215,268	23,584,306	17,017,054	6,533,810	337,609	26,573,816	-	26,573,816
Amortization	73,536	1,388,619	1,138,678	836,951	291,721	232,104	3,023,822	-	3,023,822
Operating profit	2,508,998	9,272,468	15,581,687	14,016,302	1,581,333	322,331	27,768,509	-	27,768,509

[1] Segment information has been restated due to the reclassification of Healthcare and Medical Equipment business to CE segment.
[2] Other operating segments are not separately disclosed.
[3] Net revenue includes intersegment revenues.

(B) Regional information

The regional segment information provided to the Management Committee for the reportable segments as of and for the years ended December 31, 2020 and 2019 are as follows:

(1) As of and for the year ended December 31, 2020

(In millions of Korean won)	**Korea**	**America**	**Europe**	**Asia and Africa**	**China**	**Intercompany elimination**	**Consolidated**
Net revenue	37,035,377	78,305,571	45,967,097	37,692,286	37,806,657	-	236,806,988
Non-current assets[1]	110,075,478	9,035,206	6,087,436	8,972,711	13,782,478	(531,915)	147,421,394

[1] Financial instruments, deferred tax assets, and investments in associates and joint ventures are excluded from non-current assets.

(2) As of and for the year ended December 31, 2019

(In millions of Korean won)	**Korea**	**America**	**Europe**	**Asia and Africa**	**China**	**Intercompany elimination**	**Consolidated**
Net revenue	34,180,362	73,851,914	42,713,958	41,614,112	38,040,535	-	230,400,881
Non-current assets[1]	100,315,093	10,357,696	6,648,962	11,030,300	12,598,701	(421,774)	140,528,978

[1] Financial instruments, deferred tax assets, and investments in associates and joint ventures are excluded from non-current assets.

30. Related Party Transactions

(A) Sale and purchase transactions

Sale and purchase transactions with related parties for the years ended December 31, 2020 and 2019 are as follows:

(In millions of Korean won)	Name of company[1]	2020 Sales	2020 Disposal of non-current assets	2020 Purchases	2020 Purchase of non-current assets
Associates and joint ventures	Samsung SDS	108,634	77	1,752,792	469,270
	Samsung Electro-Mechanics	37,837	-	1,664,069	-
	Samsung SDI	73,561	272	601,286	91,949
	Cheil Worldwide	26,996	-	649,164	-
	Other	1,059,045	30	10,556,776	166,842
	Total	1,306,073	379	15,224,087	728,061
Other related parties	Samsung C&T	94,736	43,214	328,484	4,057,233
	Other	309,819	-	1,105,252	497,163
	Total	404,555	43,214	1,433,736	4,554,396
Other[2]	Samsung Engineering	4,104	-	70,073	1,946,409
	S-1	17,199	-	436,211	43,336
	Other	100,591	-	422,989	172,023
	Total	121,894	-	929,273	2,161,768

[1] Transactions with separate entities that are related parties of the Company.
[2] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

(In millions of Korean won)	Name of company[1]	2019 Sales	2019 Disposal of non-current assets	2019 Purchases	2019 Purchase of non-current assets
Associates and joint ventures	Samsung SDS	85,415	-	2,018,871	498,722
	Samsung Electro-Mechanics	48,874	-	2,214,388	16
	Samsung SDI	93,634	16,106	626,320	80,886
	Cheil Worldwide	25,821	-	813,808	958
	Other	914,634	2	10,482,459	245,683
	Total	1,168,378	16,108	16,155,846	826,265
Other related parties	Samsung C&T	116,272	17,367	383,645	4,208,197
	Other	204,758	-	1,078,775	1,168,865
	Total	321,030	17,367	1,462,420	5,377,062
Other[2]	Samsung Engineering	5,675	-	81,169	2,001,467
	S-1	18,270	-	406,685	29,153
	Other	125,320	1,477	365,795	557,852
	Total	149,265	1,477	853,649	2,588,472

[1] Transactions with separate entities that are related parties of the Company.
[2] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

(B) Balances of receivables and payables

Balances of receivables and payables arising from sales and purchases of goods and services as of December 31, 2020 and 2019 are as follows:

		December 31, 2020	
(In millions of Korean won)	**Name of company**[1]	**Receivables**	**Payables**[2]
Associates and joint ventures	Samsung SDS	36,905	543,388
	Samsung Electro-Mechanics	379	120,407
	Samsung SDI	108,561	89,178
	Cheil Worldwide	195	398,836
	Other	253,921	1,154,549
	Total	399,961	2,306,358
Other related parties	Samsung C&T	245,138	2,327,126
	Other	20,484	172,726
	Total	265,622	2,499,852
Other[3]	Samsung Engineering	492	538,853
	S-1	2,091	45,257
	Other	11,344	55,053
	Total	13,927	639,163

[1] Balances due from and to separate entities that are related parties of the Company.
[2] Payables and others include lease liabilities.
[3] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

		December 31, 2019	
(In millions of Korean won)	**Name of company**[1]	**Receivables**	**Payables**[2]
Associates and joint ventures	Samsung SDS	19,723	636,169
	Samsung Electro-Mechanics	2,457	207,339
	Samsung SDI	103,809	135,048
	Cheil Worldwide	423	415,785
	Other	177,491	997,632
	Total	303,903	2,391,973
Other related parties	Samsung C&T	230,535	1,215,575
	Other	18,884	170,130
	Total	249,419	1,385,705
Other[3]	Samsung Engineering	2,734	629,584
	S-1	1,464	50,498
	Other	12,211	115,072
	Total	16,409	795,154

[1] Balances due from and to separate entities that are related parties of the Company.
[2] Payables and others include lease liabilities.
[3] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

(C) For the years ended December 31, 2020 and 2019, the Company invested ₩ 83,280 million and ₩ 12,822 million, respectively, in associates and joint ventures. In addition, there was no return of investments in associates and joint ventures for the year ended December 31, 2020 (the return of investments in associates and joint ventures for the year ended December 31, 2019 was ₩ 1,437 million). Furthermore, the Company acquired the PLP business from Samsung Electro-Mechanics Co., Ltd., an associate, at ₩ 785,000 million for the year ended December 31, 2019.

(D) For the year ended December 31, 2020, the Company declared ₩ 1,659,962 million of dividends (₩ 1,661,903 million for the year ended December 31, 2019) to related parties. In addition, for the years ended December 31, 2020 and 2019, the Company declared ₩ 125,744 million of dividends to the entities that are not related parties of the Company in accordance with *Korean IFRS 1024*, but belong to the same conglomerate according to the Monopoly Regulation and Fair Trade Act. As of December 31, 2020 and December 31, 2019, no dividends declared remains unpaid.

(E) For the year ended December 31, 2020, the Company entered into lease agreements with its related parties amounted to ₩ 2,026 million, and the lease payments made to the related parties for the years ended December 31, 2020 and 2019 amounted to ₩ 51,798 million and ₩ 55,805 million, respectively.

(F) Key management compensation

The compensation paid or payable to key management (executive directors) for their services for the years ended December 31, 2020 and 2019 consists of:

(In millions of Korean won)	**2020**	**2019**
Short-term employee benefits	13,333	9,821
Post-employment benefits	987	1,321
Other long-term employee benefits	7,287	6,449

31. Information for Non-Controlling Interests

(A) Changes in accumulated non-controlling interests

The profit or loss allocated to non-controlling interests and accumulated non-controlling interests of subsidiaries that are material to the Company for the years ended December 31, 2020 and 2019 are as follows:

	Samsung Display Co., Ltd. and its subsidiaries	
(In millions of Korean won)	**2020**	**2019**
Percentage of non-controlling interests	15.2%	15.2%
Balance as of January 1	7,427,228	7,181,049
Profit for the year	294,139	212,351
Dividends	(54,121)	(3,797)
Other	56,538	37,625
Balance as of December 31	7,723,784	7,427,228

(B) The summarized financial information for each subsidiary with non-controlling interests that are material to the Company before intercompany eliminations for the years December 31, 2020 and 2019 are as follows:

(1) Summarized consolidated statements of financial position

	Samsung Display Co., Ltd. and its subsidiaries	
(In millions of Korean won)	**December 31, 2020**	**December 31, 2019**
Current assets	28,354,913	23,388,388
Non-current assets	26,904,627	30,343,285
Current liabilities	7,631,559	5,482,650
Non-current liabilities	841,323	3,687,057
Equity attributable to:	46,786,658	44,561,966
Owners of the parent company	46,282,988	44,021,178
Non-controlling interests	503,670	540,788

(2) Summarized consolidated statements of comprehensive income

	Samsung Display Co., Ltd. and its subsidiaries	
(In millions of Korean won)	**2020**	**2019**
Sales	30,474,830	30,957,776
Profit for the year	1,874,486	1,139,753
Other comprehensive income (loss)	408,022	161,549
Total comprehensive income attributable to:	2,282,508	1,301,302
Owners of the parent company	2,267,953	1,285,056
Non-controlling interests	14,555	16,246

(3) Summarized consolidated statements of cash flows

(In millions of Korean won)	Samsung Display Co., Ltd. and its subsidiaries	
	2020	**2019**
Cash flows from operating activities	7,800,766	7,606,805
Cash flows from investing activities	(6,933,401)	(6,108,946)
Cash flows from financing activities	(536,883)	(1,503,785)
Reclassification to assets held-for-sale	(139)	-
Effect of exchange rate changes on cash and cash equivalents	(27,688)	2,435
Increase (decrease) in cash and cash equivalents	302,655	(3,491)
Cash and cash equivalents at beginning of the year	672,880	676,371
Cash and cash equivalents at end of year	975,535	672,880

32. Assets and Liabilities Held-for-Sale

(A) Sales of ownership interest in SSM and SSL

For the year ended December 31, 2020, the Company decided to sell its 100% ownership in Samsung Suzhou Module Co., Ltd. ("SSM") and 60% ownership in Samsung Suzhou LCD Co., Ltd. ("SSL") to TCL China Star Opto-electronics Technologies Co. (CSOT). The Company entered into the sales agreement on August 28, 2020, and the sales will be completed within a year.

(B) Details of assets and liabilities classified as held-for-sale as of December 31, 2020 are as follows:

(In millions of Korean won)	**December 31, 2020**
Assets held-for-sale	
Cash and cash equivalents	139
Inventories	53,157
Other current assets	26,474
Property, plant and equipment	766,614
Intangible assets	1,421
Other non-current assets	81,627
Total	**929,432**
Liabilities held-for-sale	
Current liabilities	337,032
Non-current liabilities	1,710
Total	**338,742**

(C) Details of accumulated other comprehensive income attributable to assets held-for-sale are as follows:

(In millions of Korean won)	**December 31, 2020**
Loss on overseas business translation, net of tax	(12,132)

3. Other financial information

A. Restatement of financial statements and other matters to note

(1) Restatement of financial statements: N/A

(2) Acquisition, divestment, asset sales, and sale of business
The major acquisition, divestment and transfer of business during past three years are as follows.

[PLP Business]

- Details of acquisition
In accordance with the resolution of the Board of Directors on April 30, 2019, the Company acquired PLP business from Samsung Electro-Mechanics Co., Ltd.(location: South Korea; CEO: Kyehyun Kyung) at a price of KRW 785,000 million on June 1, 2019 to strengthen its semiconductor competitiveness through securing next-generation packaging technology.

- Details of the above statement can be found in the "Business Acquisition from Related Parties", published in DART (http://dart.fss.or.kr/) on April 30, 2019.

(KRW 100 mil)

	Account	Forecast		Actual			
		1st Year	2nd Year	1st Year		2nd Year	
				Actual	Difference	Actual	Difference
PLP Business	Sales	101	219	-	-	-	-
	Operating Income	△1,273	△2,155	△1,095	14%	△44	98%
	Net Income	△1,273	△2,155	△1,095	14%	△2,146	0%

No third-party sales is recognized from PLP business as its products are internally transferred within the Company's manufacturing process.
Actual operating income and net income for the first year of acquisition differs by 14% from the forecast due to several factors such as reduction in wages.
Actual operating income for the first year of acquisition differs by 98% from the forecast due to several factors such as reduction in wages.

[Corephotonics Ltd.]

- Samsung Electronics Benelux B.V. (SEBN), the Company's subsidiary, acquired 83.9% of the equity shares of Corephotonics Ltd.(location: Tel Aviv, Israel; CEO: David Mendlovic) on January 28, 2019 and additional 8.5% on March 4, 2019 to secure CIS optical technology and talent.

(3) Information on the accounting treatment of the sales of assets related to asset backed securities and contingent liabilities

Accounting Treatment of the sale of assets related to asset backed securities:

- Not applicable

Litigation

The Company is involved in various claims, disputes, and investigations conducted by regulatory bodies, which arose during the normal course of business with numerous entities. Although the outflow of resources and timing of these matters are uncertain, as of the reporting date, the Company believes the outcome will not have a material impact on the financial position of the Company.

Debt guarantee

- Domestic: Not applicable

- Overseas:

(USD thousand)

Company	Relationship	Creditor	Guarantee	Transactions				Limit of guarantee
			Expiry date	Beginning of period	Increase	Decrease	End of period	
SEA	Subsidiary	BOA etc.	16-Dec-21	-	-	-	-	1,328,000
SEM	Subsidiary	BBVA etc.	16-Dec-21	-	-	-	-	485,000
SAMCOL	Subsidiary	Citibank etc.	16-Dec-21	89,718	27,391	-	117,109	310,000
SEDA	Subsidiary	BRADESCO etc.	16-Dec-21	-	-	-	-	559,000
SECH	Subsidiary	Santander etc.	16-Dec-21	17,256	-	△17,256	-	142,000
SEPR	Subsidiary	BBVA etc.	16-Dec-21	90,587	-	△90,587	-	230,000
SSA	Subsidiary	SCB etc.	16-Dec-21	-	-	-	-	318,000
SEMAG	Subsidiary	SocGen etc.	16-Dec-21	-	-	-	-	110,000
SETK	Subsidiary	BNP etc.	16-Dec-21	64,752	104,528	-	169,280	837,000
SECE	Subsidiary	Citibank etc.	16-Dec-21	-	-	-	-	74,434
SEEG	Subsidiary	HSBC	13-Jun-21	-	-	-	-	85,000
SEIN	Subsidiary	BNP etc.	08-Nov-21	-	-	-	-	145,000
SJC	Subsidiary	Mizuho Bank etc.	16-Dec-21	-	-	-	-	916,062
SEUC	Subsidiary	Credit Agricole etc.	16-Dec-21	-	-	-	-	150,000
SEDAM	Subsidiary	Citibank etc.	16-Dec-21	-	-	-	-	222,000
SECA	Subsidiary	BoA	08-Nov-21	-	-	-	-	70,000
SELA	Subsidiary	Citibank	16-Dec-21	-	-	-	-	120,000
SEEH	Subsidiary	HSBC etc.	16-Dec-21	-	-	-	-	653,000
SERK	Subsidiary	SOCGEN etc.	16-Dec-21	-	-	-	-	269,800
SELV	Subsidiary	Citibank	16-Dec-21	-	-	-	-	10,000
SAPL	Subsidiary	BOA etc.	16-Dec-21	-	-	-	-	395,000
SEV	Subsidiary	SCB	08-Nov-21	-	-	-	-	15,000
SAVINA	Subsidiary	HSBC etc.	08-Nov-21	-	-	-	-	71,000
SET	Subsidiary	SCB	08-Nov-21	-	-	-	-	30,000
SCIC	Subsidiary	HSBC etc.	16-Dec-21	-	-	-	-	300,000
SME	Subsidiary	SCB	08-Nov-21	-	-	-	-	110,000
SAMEX	Subsidiary	Citibank	16-Dec-21	-	-	-	-	5,000
SEASA	Subsidiary	Citibank	16-Dec-21	-	-	-	-	2,000
SSAP	Subsidiary	SCB	08-Nov-21	-	-	-	-	30,000
SEPM	Subsidiary	HSBC	13-Jun-21	-	-	-	-	35,000
SESAR	Subsidiary	HSBC	13-Jun-21	-	-	-	-	50,000
AdGear Technologies Inc.	Subsidiary	BOA	08-Nov-21	-	-	-	-	2,000
Harman International Industries, Inc.	Subsidiary	JP Morgan	13-Jun-21	-	-	-	-	100,000
Harman International Japan Co., Ltd.	Subsidiary	MUFG	08-Nov-21	-	-	-	-	25,000
Harman RUS CIS LLC	Subsidiary	SocGen	08-Nov-21	-	-	-	-	15,000
Harman Holding Limited	Subsidiary	HSBC	13-Jun-21	-	-	-	-	30,000
Harman do Brasil IndustriaEletronica e Participacoes Ltda. Harman da Amazonia Industria Eletronica e Participacoes Ltda.	Subsidiary	SocGen	08-Nov-21	-	-	-	-	15,000
Harman Finance International, SCA	Subsidiary	JP Morgan etc.	27-May-22	392,210	38,289	-	430,499	430,499
SDN	Subsidiary	SIEL	17-Feb-23	-	273,243	-	243,243	478,175
Total				654,523	443,451	△107,843	990,131	9,172,970

Information above are prepared in consolidated basis. Debt guarantees for Harman Finance International, SCA, and SDN are provided by Harman International Industries, Inc. and Samsung Display Co., Ltd., respectively.
SEC requires Board approval for individual guarantees exceeding 2.5% of total equity. When the guarantee amount is between 0.1% and/or less than 2.5%, the approval decision is delegated to the Management Committee. Samsung Display Co., Ltd requires Board approval for individual guarantees over KRW 10,000 million. Debt guarantees provided to SDN were approved by Board of Samsung Display Co., Ltd.
SEC claims fees on the debt guarantees depending on the maturity date of each debt guarantee, general loan interest rate, etc.
In 2020, the Company claimed approximately USD 345,000 as guarantee fee and, as of the reporting date, has not received the amount.
In 2020, Samsung Display Co., Ltd. claimed approximately USD 69,000 as guarantee fee to SDN and, as of the reporting date, has not collected the amount.

Refer to the notes to the consolidated financial statements for the information on contingent liabilities.

(4) Other matters requiring attention in relation to the use of the financial statements

Emphasis of matter and key audit matter in Independent auditor's report

Period	Emphasis of matter	Key audit matter
2020	Not applicable	(Consolidated financial statement) 1. Sales deduction related to the Sales promotion activities of products 2. Impairment of goodwill and intangible assets with indefinite useful lives (Separate financial statement) 1. Sales deduction related to the Sales promotion activities of products
2019	Not applicable	(Consolidated financial statement) 1. Sales promotion activities related to the sales of products 2. Impairment of goodwill and intangible assets with indefinite useful lives 3. Appropriateness of depreciation expense cut-off on property, plant and equipment (Separate financial statement) 1. Sales promotion activities related to the sales of products 2. Appropriateness of depreciation expense cut-off on property, plant and equipment
2018	Not applicable	(Consolidated financial statement) 1. Sales promotion activities related to the sales of products 2. Impairment of goodwill and intangible assets with indefinite useful lives 3. Appropriateness of depreciation expense cut-off on property, plant and equipment 4. Impairment of investments in associates and joint ventures (Separate financial statement) 1. Sales promotion activities related to the sales of products 2. Appropriateness of depreciation expense cut-off on property, plant and equipment

B. Allowance for bad debt

The allowances for bad debt by account over the past 3 years are as follows:

(KRW mil)

Period	Account	Receivables amount	Allowance amount	Allowance (%)
2020	Trade receivables	31,283,789	318,731	1.0%
	Short-term loans	7,813	73	0.9%
	Other receivables	3,663,822	59,283	1.6%
	Advances	890,413	3,371	0.4%
	Trade receivables (long-term)	85,575	0	0.0%
	Other receivables (long-term)	401,582	204	0.1%
	Advances (long-term)	1,397,698	5,972	0.4%
	Long-term loans	113,944	1,309	1.1%
	Total	37,844,636	388,943	1.0%
2019	Trade receivables	35,471,674	340,331	1.0%
	Short-term loans	8,744	82	0.9%
	Other receivables	4,237,479	58,359	1.4%
	Advances	1,430,317	3,484	0.2%
	Trade receivables (long-term)	411,229	79	0.0%
	Other receivables (long-term)	346,780	307	0.1%
	Advances (long-term)	774,472	7,333	0.9%
	Long-term loans	120,540	1,335	1.1%
	Total	42,801,235	411,310	1.0%
2018	Trade receivables	34,433,876	566,143	1.6%
	Short-term loans	10,177	54	0.5%
	Other receivables	3,111,442	30,708	1.0%
	Advances	1,364,111	2,304	0.2%
	Trade receivables (long-term)	1,046,252	5,421	0.5%
	Other receivables (long-term)	223,986	337	0.2%
	Advances (long-term)	960,392	9,366	1.0%
	Long-term loans	125,700	549	0.4%
	Total	41,275,936	614,882	1.5%

Based on consolidated financial statements.
Receivables amount represents the value after deducting present value discount account.

Allowance for bad debt by year

(KRW mil)

	2020	2019	2018
1. Allowance for bad debt (beginning balance)	411,310	614,882	670,775
2. Net bad debt expense (① − ②±③)	65,575	16,715	18,697
① Bad debt expense, etc (Write-off)	40,487	6,579	24,721
② Bad debt recovered	745	11,294	6,024
③ Others	25,833	21,430	-
3. Bad debts expense	43,208	△186,857	△37,196
4. Allowance for bad debts (Ending balance)	388,943	411,310	614,882

Based on consolidated financial statements.

The guideline for bad debt allowances for trade receivables

(1) Calculation of bad debt allowance

- Bad debt allowance is calculated using an expected credit loss impairment model which is based on write-off experience rate and future expected bad debt amount.

(2) Calculation basis of write-off experience rate and future expected bad debt:

- Write-off experience rate for each aging group of receivables is calculated based on the actual rate of credit losses to three-year average receivables balance.
- Future expected bad debt is determined taking into consideration cases of debtor bankruptcy, compulsory execution, death, disappearance, credit information of debtor and forward-looking information.

[Bad debt allowance by circumstance]

Circumstance	Rate of allowance
Dispute or conflict	25%
Receivable through utilization of third party collection agency	50%
Receivable under litigation	75%
Customer filed or in the process of filing bankruptcy	100%

(3) Instruction: Write-off is recorded when trade receivables contain the following characteristics:

- Objective proof of bad debts, such as bankruptcy, compulsory execution, discontinuance of business, debtor's death or disappearance
- Legal action has failed or the right of collection has been extinguished.
- When the third party collection agency notifies that collection is not possible.
- When the collateral is sold or insurance is received.
- When collection expense exceeds receivables amount.

The outstanding period of trade receivables

(KRW mil)

	Less than 6 months	6 months ~ 1 year	1 year ~ 3 years	More than 3 years	Total
Amount	31,161,783	62,731	98,437	46,413	31,369,364
Ratio	99.4%	0.2%	0.3%	0.1%	100.0%

Base on consolidated financial statements.
Receivables amount in net present value.

C. Inventory

- The inventory status by Division over the last three years is as follows:

(KRW mil)

Division		Category	2020	2019	2018	Note
CE		Finished goods	2,351,619	1,554,116	1,635,420	
		Work in process	136,255	146,387	121,043	
		Raw material	3,503,321	2,012,159	2,498,358	
		Material in transit	1,335,111	1,895,387	1,923,804	
		Total	7,326,306	5,608,049	6,178,625	
IM		Finished goods	3,968,844	2,426,034	2,525,787	
		Work in process	458,318	420,664	624,129	
		Raw material	3,726,192	3,228,906	3,305,566	
		Material in transit	824,662	810,599	715,361	
		Total	8,978,016	6,886,203	7,170,843	
DS	Semi-conductor	Finished goods	1,639,523	1,740,881	2,498,132	
		Work in process	10,586,921	8,772,850	9,378,528	
		Raw material	1,636,803	1,332,267	863,607	
		Material in transit	43,564	66,033	22,697	
		Total	13,906,811	11,912,031	12,762,964	
	DP	Finished goods	134,963	345,940	549,432	
		Work in process	650,762	488,468	559,960	
		Raw Material	603,779	634,990	720,622	
		Material in transit	33,271	22,214	82,677	
		Total	1,422,775	1,491,612	1,912,691	
	DS total	Finished goods	1,861,756	2,130,587	3,107,878	
		Work in process	11,298,157	9,302,907	10,297,065	
		Raw material	2,254,591	1,991,422	1,741,613	
		Material in transit	73,688	89,044	48,306	
		Total	15,488,192	13,513,960	15,194,862	
Harman		Finished goods	502,117	746,742	558,014	
		Work in process	80,237	90,249	87,751	
		Raw material	337,386	372,231	363,432	
		Material in transit	224,961	145,329	141,524	
		Total	1,144,701	1,354,551	1,150,721	
Total		Finished goods	9,387,886	8,115,116	8,836,098	
		Work in process	11,818,090	9,886,634	11,066,511	
		Raw material	9,790,766	7,747,110	8,048,139	
		Material in transit	1,046,403	1,017,604	1,033,956	
		Total	32,043,145	26,766,464	28,984,704	
Inventory ratio (%) [Inventory ÷ Total Assets]			8.5%	7.6%	8.5%	
Inventory turnover (x) [Yearly COGS ÷ {(Beginning of inventory + End of inventory)÷2}]			4.9	5.3	4.9	

Based on consolidated financial statements.
Inventories as of December 31, 2019 and 2018 has been restated due to inclusion of Health and Medical Equipment business in CE division.

Inventory counts

(1) Inspection date

- End of May and November (twice a year)
- For the difference in inventories between the inspection date and at the end of the year, the Company checks all the warehouse record during the period in order to confirm the existence of the inventories as of the date of the financial statements.

(2) Inspection method

- Internal warehouse: Closed & entire quantity inspection

※ Sample inspection for semi-conductor and DP work-in-progress inventories, SVC materials

- Outside warehouse

  Perform check for the possession confirmation documents and sample tests at the third party warehouse and inventory-in-transit.
- External auditors join and observe the inspection and carry out sample tests to check the existence and completeness.

※ For the HQ, the most recent inventory inspection was conducted on November 29, November 30, and December 1, 2020. Subsidiaries conducted the inventory inspection during the same period as HQ except for countries that restrict movements due to recent spread of COVID-19.

Inventory aging and valuation

Inventories are stated at the lower of cost or net realizable value. Inventory as of Decenber 31, 2020 are as follows:

(KRW mil)

Category	Acquisition cost	Inventory valuation reserve	Balance	Note
Finished goods	9,711,668	△323,782	9,387,886	
Work in process	12,144,887	△326,797	11,818,090	
Raw material	10,464,679	△673,913	9,790,766	
Material in transit	1,046,403	-	1,046,403	
Total	33,367,637	△1,324,492	32,043,145	

Based on consolidated financial statements.

D. Fair value estimation

Refer to 6. Financial Instruments by Category and 31. Financial Risk Management in 『Ⅲ. Financial Affairs』.

E. List of issued debt securities

Issued debt securities

(As of December 31, 2020) (KRW mil, %)

Issuing company	Type of securities	Issuance method	Date of Issuance	Total nominal amount	Interest rate	Rating (rating institution)	Maturity date	Payment status	Management company
Samsung Electronics	Corporate bonds	Public offering	Oct 2,1997	108,800	7.7	AA-(S&P), Aa3(Moody's)	Oct 1, 2027	Partial redemption	Goldman Sachs et al.
Harman International Industries, Inc	Corporate bonds	Public offering	May 11, 2015	435,200	4.2	Baa1 (Moody's), A- (S&P)	May 15, 2025	Unredeemed	J.P.Morgan et al.
Harman Finance International, SCA	Corporate bonds	Public offering	May 27, 2015	468,383	2.0	Baa1 (Moody's), A- (S&P)	May 27, 2022	Unredeemed	HSBC et al.
Dowinsys Co., Ltd	Corporate bonds	Private placement	Feb 28, 2020	23,000	0.5	-	Feb 28, 2025	Unredeemed	-
SEMES	Commercial paper	Private placement	Jan 3, 2020	80,000	2.0	A1	Apr 1, 2020	Redeemed	-
SEMES	Commercial paper	Private placement	Feb 4, 2020	65,000	1.9	A1	May 4, 2020	Redeemed	-
SEMES	Commercial paper	Private placement	Feb 26, 2020	30,000	1.8	A1	May 26, 2020	Redeemed	-
SEMES	Commercial paper	Private placement	Feb 26, 2020	50,000	1.8	A1	May 22, 2020	Redeemed	-
SEMES	Commercial paper	Private placement	Apr 1, 2020	50,000	2.1	A1	Jun 30, 2020	Redeemed	-
SEMES	Commercial paper	Private placement	May 4, 2020	50,000	2.0	A1	Jul 31, 2020	Redeemed	-
SEMES	Commercial paper	Private placement	Jun 12, 2020	50,000	2.1	A1	Oct 5, 2020	Redeemed	-
SEMES	Commercial paper	Private placement	Jun 30, 2020	50,000	1.6	A1	Sep 28, 2020	Redeemed	-
SEMES	Commercial paper	Private placement	Jul 31, 2020	50,000	1.3	A1	Oct 29, 2020	Redeemed	-
SEMES	Commercial paper	Private placement	Oct 29, 2020	50,000	1.2	A1	Dec 30, 2020	Redeemed	-
Total	-	-	-	1,560,383	-	-	-	-	-

The exchange rate as of the reporting date has been applied.
The rating institutions of Commercial paper are NICE Investors Service and Korea Ratings Corporation.

Details and Compliance of the Bond Management Contract (Samsung Electronics)

(Reporting Date : December 31, 2020) (KRW mil, %)

Name of security	Date of issuance	Maturity date	Issued amount	Settlement date of bond management contract	Debenture management company
US$ 100,000,000 7.7% debenture	Oct 2, 1997	Oct 1, 2027	108,800	Oct 2, 1997	The Bank of New York Mellon Trust Company, N.A.

(Reporting Date: December 31, 2020)

Financial ratios	Contract details	Not applicable
	Implementation status	Not applicable
Constraint on collateral	Contract details	Less than 10% of net tangible assets
	Implementation status	Compliant (there is no collateral for the relevant assets)
Constraint on disposal of assets	Contract details	Certain requirements, such as transfer of obligations on the bond, must be satisfied to dispose all or most of an asset
	Implementation status	Compliant (disposed assets accounted for 0.1% of the total assets during 2020)
Constraint on governance	Contract Details	Not applicable
	Implementation Status	Not applicable
Submission of implementation report	Implementation status	Not applicable

The date of the bond management contract was signed on the same day as the Fiscal Agency Agreement; accordingly, the Bank of New York Mellon Trust Company, N.A. is under the authority of the Fiscal Agent.
The exchange rate as of the base date has been applied.
The net tangible assets subjected to the limitation of collaterals are production facilities and stocks owned by the Company.
The base date of implementation is the date when most recent financial statements were prepared, which are used to determine the status of implementation.
The constraint on governance is as of the reporting date.

Commercial Paper Balance

N/A

(Reporting Date: December 31, 2020) (KRW mil)

Maturity		Under 10 days	Above 10 days / under 30 days	Above 30 days / under 90 days	Above 90 days / under 180 days	Above 180 days / under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years	Total
Balance	Public	-	-	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-

Short Term Bond Unredeemed Balance

N/A

(Reporting Date: December 31, 2020) (KRW mil)

Maturity		Under 10 days	Above 10 days / under 30 days	Above 30 days / under 90 days	Above 90 days / under 180 days	Above 180 days / under 1 year	Total	Issue limit	Balance limit
Balance	Public	-	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-

Corporate Bond Unredeemed Balance

(Reporting Date: December 31, 2020) (KRW mil)

Maturity		Under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years / under 4 years	Above 4 years / under 5 years	Above 5 years / under 10 years	Above 10 years	Total
Balance	Public	5,440	473,823	5,440	5,440	440,640	10,880	-	941,663
	Private	-	-	-	-	-	-	-	-
	Total	5,440	473,823	5,440	5,440	440,640	10,880	-	941,663

Based on consolidated financial statements.
The exchange rate as of the reporting date has been applied.

- Corporate Bond Unredeemed Balance (Samsung Electronics)

(Reporting Date: December 31, 2020) (KRW mil)

Maturity		Under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years / under 4 years	Above 4 years / under 5 years	Above 5 years / under 10 years	Above 10 years	Total
Unredeemed balance	Public	5,440	5,440	5,440	5,440	5,440	10,880	-	38,080
	Total	5,440	5,440	5,440	5,440	5,440	10,880	-	38,080

The exchange rate as of the reporting date has been applied.

- Corporate Bond Unredeemed Balance (Harman)

(Reporting Date: December 31, 2020) (KRW mil)

Maturity		Under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years / under 4 years	Above 4 years / under 5 years	Above 5 years / under 10 years	Above 10 years	Total
Unredeemed balance	Public	-	468,383	-	-	435,200	-	-	903,583
	Total	-	468,383	-	-	435,200	-	-	903,583

The exchange rate as of the reporting date has been applied.

- Corporate Bond Unredeemed Balance (Dowinsys)

(Reporting Date: December 31, 2020) (KRW mil)

Maturity		Under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years / under 4 years	Above 4 years / under 5 years	Above 5 years / under 10 years	Above 10 years	Total
Unredeemed balance	Private	-	-	-	-	23,000	-	-	23,000
	Total	-	-	-	-	23,000	-	-	23,000

Outstanding balance of corporate bonds are intercompany balances eliminated in consolidated financial statements.

Hybrid Bond Outstanding Balance

N/A

(Reporting Date: December 31, 2020) (KRW mil)

Maturity		Under 1 year	Above 1 year / under 5 years	Above 5 years / under 10 years	Above 10 years / under 15 years	Above 15 years / under 20 years	Above 20 years / under 30 years	Above 30 years	Total
Unredeemed balance	Public	-	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-

Contingent Convertible Bond Outstanding Balance

N/A

(Reporting Date: December 31, 2020) (KRW mil)

Maturity		Under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years / under 4 years	Above 4 years / under 5 years	Above 5 years / under 6 years	Above 10 years / under 20 years	Above 20 years / under 30 years	Above 30 years	Total
Unredeemed balance	Public	-	-	-	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-	-

IV. Management Discussion and Analysis

1. Note on forward-looking statements

This annual report includes forward-looking statements that relate to future events and can be generally identified by phrases containing words such as “believes,” “expects,” “anticipates,” “foresees,” “forecasts,” “estimates” or other words or phrases of similar meaning. These forward-looking statements are not guarantees of future performance and may involve known and unknown risks, uncertainties and other factors that may affect our actual results, performance, achievements or financial position, making them materially different from the actual future results, performance, achievements or financial position expressed or implied by these forward-looking statements. Unless otherwise specified, all data presented in this report is from our consolidated financial statements.

Uncertain events that could positively or negatively affect the Company’s management condition and financial performance include, but are not limited to:

- Trends of financial markets domestically and abroad, including changes in exchange rates and interest rates
- The Company’s strategic decision making, including disposals and purchases of businesses
- Unexpected sudden changes in core businesses such as CE, IM, Semiconductor, DP and Harman
- Other changes domestically and abroad that can affect management condition and financial performance

The Company assumes no obligation to revise or update this report to reflect risks or uncertainties that arise after the reporting period.

2. Overview

The business environment remained challenging in 2020 as a slowdown in developed markets weighed on the global economy due to effects of the prolonged pandemic, while uncertainties, such as a US-China trade conflict, intensified.

Despite the formidable economic conditions, the support of our shareholders and hard work of our employees enabled Samsung Electronics in 2020 to achieve total revenue of KRW 237 trillion and operating profit of KRW 36 trillion on a consolidated basis, and total revenue of KRW 166 trillion and operating profit of KRW 21 trillion on a standalone basis.

Our financial structure remained sound—we recorded a debt ratio of 37.1%, capital adequacy ratio of 73.0%, and ROE of 9.8% on a consolidated basis. On a standalone basis, the respective figures were 25.3%, 79.8%, and 8.6%. Our brand value in 2020 was evaluated at USD 62.3 billion (Interbrand; October 2020), up 2% from last year’s figure and rising one position to become the world’s fifth most valuable brand.

On the business side, we further strengthened profitability and cost competitiveness of the component business, extending our capabilities in core technologies to include full-fledged migration to 6th generation V-NAND. In addition, we solidified our industry and market leadership by launching the Galaxy Z Flip and Z Fold 2 while expanding sales of ultra-large QLED TVs and Bespoke products.

In 2021, we expect the external environment to remain difficult: macro uncertainties such as trade conflicts and COVID-19 are likely to persist, while intensifying competition for our main products amid a rapidly changing paradigm in the IT industry will present numerous hurdles. As always, we plan to face challenges head on and use our meticulous preparation to turn them into opportunities.

3. Financial position and performance (consolidated)

A. Financial position

(KRW mil)

Classification	2020	2019	Increase/decrease	% change
Current assets	198,215,579	181,385,260	16,830,319	9.3%
- Cash and cash equivalents	29,382,578	26,885,999	2,496,579	9.3%
- Short-term financial instruments	92,441,703	76,252,052	16,189,651	21.2%
- Other current financial assets	2,828,562	5,641,652	(2,813,090)	(49.9%)
- Trade and other receivables	30,965,058	35,131,343	(4,166,285)	(11.9%)
- Inventories	32,043,145	26,766,464	5,276,681	19.7%
- Other current assets	10,554,533	10,707,750	(153,217)	(1.4%)
Non-current assets	180,020,139	171,179,237	8,840,902	5.2%
- Other non-current financial assets	13,778,185	9,969,716	3,808,469	38.2%
- Associates and joint ventures	8,076,779	7,591,612	485,167	6.4%
- Property, plant and equipment	128,952,892	119,825,474	9,127,418	7.6%
- Intangible assets	18,468,502	20,703,504	(2,235,002)	(10.8%)
- Other non-current assets	10,743,781	13,088,931	(2,345,150)	(17.9%)
Total assets	378,235,718	352,564,497	25,671,221	7.3%
Current liabilities	75,604,351	63,782,764	11,821,587	18.5%
Non-current liabilities	26,683,351	25,901,312	782,039	3.0%

Classification	2020	2019	Increase/decrease	% change
Total liabilities	102,287,702	89,684,076	12,603,626	14.1%
Equity attributable to owners of the parent	267,670,331	254,915,472	12,754,859	5.0%
Non-controlling interest	8,277,685	7,964,949	312,736	3.9%
Total equity	275,948,016	262,880,421	13,067,595	5.0%
Total liabilities and equity	378,235,718	352,564,497	25,671,221	7.3%
Capital adequacy ratio	73.0%	74.6%	(1.6%p)	
Debt-to-equity ratio	37.1%	34.1%	3.0%p	
Inventory turnover	4.9	5.3	(0.4)	

Presented in accordance with K-IFRS.
In case of rejection at the AGM or any revisions, amended figure and reasons will be announced via a corrective disclosure.

Samsung Electronics' total assets in 2020 were KRW 378.2357 trillion, an increase of KRW 25.6712 trillion (7.3%) from the previous year. This includes an increase of KRW 16.1897 trillion in short-term financial instruments, KRW 9.1274 trillion in tangible assets caused by large-scale facility investment for the semiconductor and DP businesses.

Total liabilities were KRW 102.2877 trillion, an increase of KRW 12.6036 trillion (14.1%) from the previous year. This includes an increase of KRW 11.8216 trillion (18.5%) in current liabilities and an increase of KRW 0.7820 trillion (3.0%) in non-current liabilities. The changes are attributable to a KRW 3.0425 trillion increase in tax liability and a KRW 1.7570 trillion increase in deferred tax liabilities. In addition, in 2020, lease liabilities and short-term borrowing increased by KRW 2.6617 trillion and 2.1600 trillion respectively.

Total equity was KRW 275.9480 trillion, an increase of KRW 13.0676 trillion (5.0%) from the previous year. Retained earnings increased by KRW 16.4853 trillion year-on-year from net income of KRW 26.0908 trillion and dividends of KRW 9.6192 trillion. Other components of equity decreased by KRW 3.7183 trillion due to factors such as the overseas operations translation difference.

In terms of financial ratios, the Company maintained a sound financial structure as the capital adequacy ratio decreased by 1.6%pts from the previous year to 73.0% and the debt-to-equity ratio increased by 3.0%pts from the previous year to 37.1%.

B. Performance

(KRW mil)

Classification	2020	2019	Increase/decrease	% change
Sales	236,806,988	230,400,881	6,406,107	2.8%
Cost of sales	144,488,296	147,239,549	(2,751,253)	(1.9%)
Gross profit	92,318,692	83,161,332	9,157,360	11.0%
Selling and administrative expenses	56,324,816	55,392,823	931,993	1.7%
Operating profit	35,993,876	27,768,509	8,225,367	29.6%
Other income	1,384,068	1,778,666	(394,598)	(22.2%)
Other expenses	2,488,902	1,414,707	1,074,195	75.9%
Gain on valuation using the equity method of accounting	506,530	412,960	93,570	22.7%
Financial income	12,267,600	10,161,632	2,105,968	20.7%
Financial expenses	11,318,055	8,274,871	3,043,184	36.8%
Income before income tax expense	36,345,117	30,432,189	5,912,928	19.4%
Income tax expense	9,937,285	8,693,324	1,243,961	14.3%
Net income	26,407,832	21,738,865	4,668,967	21.5%
Equity attributable to owners of the parent	26,090,846	21,505,054	4,585,792	21.3%
Non-controlling interests	316,986	233,811	83,175	35.6%

Presented in accordance with K-IFRS.
In case of rejection at the AGM or any revisions, amended figure and reasons will be announced via a corrective disclosure.

In 2020, revenue increased year-on-year by KRW 6.4061 trillion (2.8%) to KRW 236.8070 trillion driven by expanding sales of TVs and premium digital appliances as well as growing memory demand. Operating profit increased by KRW 8.2254 trillion (29.6%) to KRW 35.9939 trillion.

Income before income taxes increased year-on-year by KRW 5.9129 trillion (19.4%) to KRW 36.3451 trillion, and net income increased by KRW 4.6690 trillion (21.5%) to KRW 26.4078 trillion.

We continued to maintain a sound financial structure, showcased by an increase in ROE by 1.3%pts year-on-year to 9.8%, as well as increase in net profit ratio by 1.8%pts to 11.2%.

[Performance by division]

(KRW mil)

Classification	Division	Business	2020		2019		Change	
			Amount	Share	Amount	Share	Amount	(%)
Sales	CE Division		48,173,324	20.3%	45,322,843	19.7%	2,850,481	6.3%
	IM Division		99,587,493	42.1%	107,266,155	46.6%	(7,678,662)	(7.2%)
	DS Division	Semi-conductor	72,857,803	30.8%	64,939,052	28.2%	7,918,751	12.2%
		DP	30,585,715	12.9%	31,053,929	13.5%	(468,214)	(1.5%)
		Total	103,036,146	43.5%	95,518,002	41.5%	7,518,144	7.9%
	Harman Division		9,183,748	3.9%	10,077,096	4.4%	(893,348)	(8.9%)
	Overall Sales		236,806,988	100.0%	230,400,881	100.0%	6,406,107	2.8%
Operating profit	CE Division		3,561,536	9.9%	2,508,998	9.0%	1,052,538	42.0%
	IM Division		11,472,671	31.9%	9,272,468	33.4%	2,200,203	23.7%
	DS Division	Semi-conductor	18,804,970	52.2%	14,016,302	50.5%	4,788,668	34.2%
		DP	2,236,919	6.2%	1,581,333	5.7%	655,586	41.5%
		Total	21,120,231	58.7%	15,581,687	56.1%	5,538,544	35.5%
	Harman Division		55,518	0.2%	322,331	1.2%	(266,813)	(82.8%)
	Overall operating profit		35,993,876	100.0%	27,768,509	100.0%	8,225,367	29.6%

Includes inter-divisional sales.
2019 sales and operating profit was revised to include Health & Medical Equipment Business.

(CE Division)

The CE Division's revenue in 2020 increased by KRW 2.8505 trillion (6.3%) from the previous year to KRW 48.1733 trillion. Operating profit grew by KRW 1.0525 trillion (42.0%) to KRW 3.5615 trillion, the gains driven by an increase in sales of premium products, which include ultra-large QLED TVs, Grande AI, and models in the Bespoke lineup.

CE continues to grow by focusing on strategic products: market-leading ultra-large QLED TVs featuring premium technology, Bespoke refrigerators tailored to experience-oriented lifestyles, as well as large dryers, module-type air purifiers, and garment care appliances.

In the TV business, we continue to extend the boundaries of the overall market with innovative products such as 8K ultra-large TVs, Neo QLEDs that are full of innovative technologies, our Lifestyle TVs—The Premier in 120"–130", The Frame, The Serif, and The Sero—which are suitable for different lifestyles, as well as soundbars, outdoor signage, and gaming monitors. We offer new user experiences by applying AI and IoT to our picture and audio technologies, and have

remained atop the TV market, having captured the highest market share for a 15th consecutive year by utilizing our design competitiveness.

In 2021, we will keep executing our strategy in the premium TV market. For QLED, we aim to hone our competitiveness in picture quality with new models of further-enhanced Neo QLED TV, and launch MICRO LED TVs with top features in 80” to 110” range. In addition, we will enhance our eco-friendly activities, including the use of eco packaging and solar-powered remote control.

In the home appliance business, we continue to add and increase conveniences in our consumers’ lives with innovative products and services based on highly-efficient, eco-friendly technologies that are a result of a deep understanding of changing lifestyles. We are also creating new value with smart appliances that connect with other devices as well as a suite of services based on Bixby and SmartThings.

In 2021, we will keep fortifying our status as a global brand in home appliances by increasing sales of hygiene-related products to suit contactless lifestyles to counter the spread of COVID-19 and expanding Bespoke lineup—launched to address customer needs to enjoy the user experience—from refrigerators to other products

(IM Division)

The IM division’s revenue in 2020 was KRW 99.5875 trillion, a decrease of KRW 7.6787 trillion (7.2%) compared to the previous year, while operating profit increased by KRW 2.2002 trillion (23.7%) to KRW 11.4727 trillion. Although HHP sales declined due to the pandemic, operating profit grew as tablet sales increased and production costs improved.

Despite rapidly developing technologies and mounting global uncertainties, the IM Division achieved solid results by adopting new technologies and strengthening our lineup, focusing mainly the Galaxy Series, our premium models.

Starting with the April 2019 launch of the Galaxy S10 5G, the world’s first 5G smartphone, we quickly addressed the initial stages of the 5G market by introducing a number of 5G models and created a new category in the mobile market by introducing Galaxy Fold with a foldable display. In 2020, we led the mobile technology trend by introducing Galaxy Z Flip, which folds from top-down, and a further enhanced Z Fold, the Galaxy Z Fold2. In addition, we strengthened our product competitiveness by revamping our mass-market lineup, mainly the A Series, a move that was well received by the market and contributed to bolstering business efficiency.

To lead market changes amid fierce competition, we will differentiate our premium products by expanding our 5G lineup and bringing our foldable products to the mainstream. We will also quickly embrace state-of-the-art technologies to keep strengthening competitiveness of our mass-market models. Moreover, we will offer new and innovative user experiences by leading the convergence of technologies such as 5G, AI, and IoT. We will also provide a colorful and easy-to-use mobile experience for our smartphone users via connection with premium tablets including Galaxy Tab S, wearable devices such as a smartwatch, Wi-Fi Bluetooth earphones, and other accessories, as well as practical and valuable services such as Samsung Pay, Samsung Health, SmartThings, and more.

(DS Division: Semiconductor)

The semiconductor business’s 2020 revenue increased by KRW 7.9188 trillion (12.2%) from the previous year to KRW 72.8578 trillion due to strong demand for server and mobile. Operating profit increased by KRW 4.7887 trillion (34.2%) to KRW 18.8050 trillion year-on-year.

In the memory business, we achieved a solid performance by addressing demand from contactless businesses amid exacerbating uncertainties due to prolonged impact of COVID-19. In 2021, we will preemptively address the changes expected to take place after the pandemic by capitalizing on our product competitiveness, as demand is expected to be strong driven by an acceleration of a digital transformation and economic recovery.

For DRAM, we are the only player in the industry to mass produce EUV-based products, having become the first to secure core technology in next-generation DRAM development and achieving a breakthrough in advanced node processes. We will continue to lead the market by enhancing competitiveness in the markets for emerging technologies, including AI and edge computing.

For NAND, we conducted full-fledged migration to 6th-generation V-NAND while actively addressing mobile and laptop SSD demand. We will work to expand our market share by entering the premium market with high-performance SSDs and by securing leadership in both the capacity and function of mobile products.

System LSI grew year-on-year, led by increase in demand for IT devices on the continuation of a trend toward remote working and learning due to COVID-19. We will remain flexible to changes in the market by expanding our new areas of business where strong growth is expected, such as in automotives and wearables.

For SoC products, we improved our competitiveness and strengthened our lineup with high-end products as well as flagship products. In addition, we are preparing for the future by developing our own next-generation communications technology solutions and GPU solutions. For image sensors, we are leading the market for mobile image sensors that are on the level of DSLR with ISOCELL Bright technology. We will continue to grow by strengthening our portfolio by developing and commercializing sensors with new technologies, such as image sensors for automotives.

Foundry demand is expected to be strong for the time being, due to competition between fabless customers and growing demand for data centers and PCs. We will address the demand via EUV-line ramp-ups and early operation of the new line in Pyeongtaek. In addition, we will continue expanding our business by securing technology competitiveness in advanced nodes and diversifying our legacy process portfolio.

(DS Division: Display)

The DP Division's revenue in 2020 was KRW 30.5857 trillion, slightly down from the previous year by KRW 0.4682 trillion (1.5%). However, operating profit increased by KRW 0.6556 trillion (41.5%) to KRW 2.2369 trillion as sales of value-added OLED panels expanded.

In mobile display, market uncertainties were aggravated by weak consumer sentiment due to the pandemic and rising competition. Yet, we solidified our position in the smartphone panel market by increasing our customer base thanks to our continuous efforts to offer differentiated technology.

In 2021, amid accelerating penetration of 5G smartphones, we will continue to improve the basic features of OLED panels as smartphone makers are likely to increasingly adopt the technology in their growing number of 5G models for advantages such as power efficiency and ultra-thin design. We will also use our differentiated technology to expand our customer base. Moreover, we will secure technologies needed to increase accessibility of foldable products and enhance product quality through cooperation with our clients.

In large displays, we will solidify the foundation for our business in the premium market by changing our business structure based on our differentiated technology to QD display in a timely manner and establishing a solid customer portfolio.

(Harman Division)

The Harman Division's revenue and operating profit in 2020 declined year-on-year as COVID-19 weakened demand from automotive companies and consumers. Revenue decreased by KRW 0.8933 trillion (8.9%) to KRW 9.1837 trillion and profitability decreased by KRW 0.2668 trillion (82.8%) to KRW 0.0555 trillion.

Harman is working to continue its outstanding performance in automotive components, consumer audio, and professional solutions. To do so, we constantly strive to enhance our competitiveness through innovations, conversion with other areas of our businesses—including mobile, IT, display, and AI—and with offerings of a variety of brands and product groups.

As a leader in the car component market, we will continue to supply the quality made famous by the Harman brand across all segments, ranging from the mass-market through to and beyond premium models. We will enhance the leadership even further by spearheading technology innovations, such as the world's first 5G TCU (telematics control unit).

In the consumer audio market, Harman's innovative technologies have firmly established the brand's reputation among consumers and music lovers. Our portable Bluetooth speakers and earphones have achieved the highest market share for several years based on our brand reputation, leading the consumer audio market. We will continue to launch products to

deliver new user experiences, improving our performance and pushing our brand reputation even higher.

We expect the business environment in 2021 to remain clouded by external uncertainties—the prolonged pandemic, short supply of automotive semiconductors globally, and trade conflicts, all amid and intense competition. We plan to face such challenges head on and keep preparing thoroughly for the future, such as by offering a whole new experience inside an automobile by integrating IT and connectivity technologies with automotive technology and thus strengthening our position in the connected car market. Through these efforts, we will achieve solid earnings and, in turn, contribute to enhancing shareholder value.

C. New and closed businesses

N/A

D. Changes in organizational structure

In November 2016, the Company spun off its printing solutions business and established S-Printing Solution Co., Ltd., and then completed the sale of the printing solutions business in November 2017; in June 2017, the System LSI business was divided into Foundry and System LSI businesses.

[As of December 2016]

	Before	After
Business organization	CE Division (Visual Display, Digital Appliances, Printing Solution, Medical Devices)	CE Division (Visual Display, Digital Appliances, Medical Devices)
	IM Division (Mobile, Network)	IM Division (Mobile, Network)
	DS Division (Memory, System LSI, DP)	DS Division (Memory, System LSI, DP)
Regional headquarters	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa
	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)

[As of June 2017]

	Before	After
Business organization	CE Division (Visual display, Digital appliances, Medical devices)	CE Division (Visual display, Digital appliances, Medical devices)
	IM Division (Mobile, Network)	IM Division (Mobile, Network)
	DS Division (Memory, System LSI, DP)	DS Division (Memory, System LSI, Foundry, DP)
	-	Harman Division
Regional headquarters	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa
	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)

The Harman Division was added with the acquisition of Harman International Industries, Inc. in March 2017.
The Health & Medical Equipment Business was excluded from the CE Division in 1Q18 and re-included in 1Q20.

E. Foreign exchange risk

The Company experiences currency gains and losses based on the different functional currency of each entity due to global operations. As such, the Company is exposed to foreign currency volatility from exchange positions of currencies, especially related to the US dollar, Euro, Indian rupee and Japanese yen.

(KRW)

Currency	2020	2019	Change	Change (%)
USD	1088.00	1157.80	(69.80)	(6.0)
EUR	1338.24	1297.43	40.81	3.1
INR	14.86	16.23	(1.37)	(8.4)
JPY	10.54	10.63	(0.09)	(0.9)

The foreign currency exposure to financial assets and liabilities of a 5% currency rate change against the Korean won (before income tax) are presented below:

(KRW mil)

Currency	December 31, 2020		December 31, 2019	
	Increase	Decrease	Increase	Decrease
USD	174,400	(174,400)	163,062	(163,062)
EUR	112,244	(112,244)	127,507	(127,507)
INR	21,959	(21,959)	64,153	(64,153)
JPY	(22,143)	22,143	(23,062)	23,062

To minimize foreign exchange risk arising from operating activities, the Company maintains the same level of equity and liability in each currency regardless of foreign exchange fluctuations. The Company's foreign exchange management policy requires normal business transactions (including imports and exports) to be conducted in the local currency or for the cash-in currency to be matched with the cash-out currency.

The Company effectively manages its foreign exchange risk by regular monitoring foreign exchange rates and limits all foreign exchange transactions besides the purpose of hedging risks.

F. Recognition of asset impairment loss

The Company conducts an annual review on asset impairment of CGUs (cash generating unit). The recoverable amount of a CGU is based on the calculation of value in use, and the value in use is calculated using a BTCF (before tax cash flow) assumption that based on the financial budget for the next five years (or longer if mid- to long-term plans for new businesses with emerging technologies are deemed appropriate) approved by the management committee. In calculating terminal-year cash flow for period that exceeds the term, assumption of fixed average growth (does not exceed industry average) was used.

Impairment losses are recognized to the extent the carrying amount exceeds the recoverable amount of a CGU. The recoverable amount is determined by choosing the greater figure between the use-value and fair-value, which deducts the disposal amount per cost. Recognized impairment gains or losses in 2020 reached KRW 325.2 billion for tangible assets and KRW 918.1 billion for intangible assets.

Refer to 『E. Equity Investments in other corporations』 of 『IX. Affiliates and Subsidiaries』 for more details about asset impairment loss.

4. Liquidity, financing, and expenditure

Due to large investments made by the Company, maintaining adequate levels of liquidity is critical. The Company strives to achieve this goal by periodically forecasting its cash flow, estimating required cash levels, and managing income and expenses.

The Company preemptively manages risks by predicting cash flow on a regular basis. We efficiently manage liquidity risk through cash pooling by region, which allows the use of internal funds in case of lack of funds in the region. The cash pooling program allows sharing of surplus funds among entities and contributes to minimizing liquidity risk and strengthening the Company's competitive position by reducing capital operating expenses and finance expenses.

In addition, the Company provides payment guarantees, securing the limit of borrowing for overseas subsidiaries to prepare for any potential need for large-scale liquidity.

A. Current status of liquidity

The Company has ample liquidity according to the liquidity assessment index of the global credit rating agency Moody's. The Company's cash coverage (liquid funds/borrowings), which is a major liquidity index that Moody's uses, corresponds to the highest level, Aaa.

	2020	2019
Cash coverage (liquid funds/borrowings)	617%	591%

Moody's requires 400% or higher for an Aaa rating

As of December 31, 2020, the Company's liquidity is presented below:

(KRW mil)

Classification	2020	2019	Change
Liquid funds			
Cash and cash equivalents	29,382,578	26,885,999	2,496,579
Short-term financial instruments	92,441,703	76,252,052	16,189,651
Short-term financial assets at amortized cost	2,757,111	3,914,216	(1,157,105)
Financial assets at fair value through profit or loss	71,451	1,727,436	(1,655,985)
Total financial assets	124,652,843	108,779,703	15,873,140
Borrowings			
Short-term borrowings	16,553,429	14,393,468	2,159,961
Current portion of long-term liabilities	716,099	846,090	(129,991)
Debentures	948,137	975,298	(27,161)
Long-term borrowings	1,999,716	2,197,181	(197,465)
Total financial liabilities	20,217,381	18,412,037	1,805,344
Net cash (liquid funds – borrowings)	104,435,462	90,367,666	14,067,796

Current portion of long-term liabilities is current portion of long-term borrowings and current portion of debentures.

As of the end of 2020, the Company had KRW 124.6528 trillion of financial assets.

These liquid funds include: i) cash and cash equivalents; ii) short-term financial instruments; iii) short-term financial assets at amortized cost; and iv) financial assets at fair value through other comprehensive income. This balance increased by KRW 15.8731 trillion from KRW 108.7797 trillion at the end of the previous year.

The Company's borrowings (including debentures) are KRW 20.2174 trillion, an increase of KRW 1.8053 trillion from KRW 18.4120 trillion at the end of the previous year.

The Company's liquidity includes an inflow of KRW 65.2870 trillion in cash flows from operating activities and an outflow of KRW 40.2718 trillion in acquisition of tangible assets, and KRW 9.6768 in dividends. The Company's net cash (liquid funds – borrowings) in 2020 is KRW 104.4355 trillion, which is an increase of KRW 14.0678 trillion from KRW 90.3677 trillion at the end of the previous year.

B. Financing and expenditures

(Borrowings)

As of December 31, 2020, the Company's borrowings (including debentures) are presented below:

(KRW mil)

Classification	Creditor	Annual interest rate (%)	2020	2019
Short-term borrowings				
Collateralized borrowings	Woori Bank, etc.	0.0–18.3	14,275,043	11,734,361
Non-collateralized borrowings	CitiBank, etc.	0.0–16.3	2,278,386	2,659,107
Total short-term borrowings			16,553,429	14,393,468
Liquid long-term borrowings				
Bank borrowings	-	-	-	35,376
Capital lease liabilities	CSSD, etc.	3.8	710,781	805,068
Total liquid long-term borrowings			710,781	840,444
Long-term borrowings				
Capital lease liabilities	CSSD, etc.	3.8	1,999,716	2,197,181

Classification	Issuance date	Maturity date	Annual interest rate (%)	2020	2019
Debentures					
USD denominated straight bonds	Oct 2, 1997	Oct 1, 2027	7.7	38,080 (USD 35,000,000)	46,312 (USD 40,000,000)
USD denominated debenture bonds	May 11, 2015	May 15, 2025	4.2	435,200 (USD 400,000,000)	463,120 (USD 400,000,000)
EUR denominated debenture bonds	May 27, 2015	May 27, 2022	2.0	468,383 (EUR 350,000,000)	454,100 (EUR 350,000,000)
Sub Total				941,663	963,532
Premium on bonds payable (discount on bonds payable)				11,792	17,412
Total				953,455	980,944
Deduction: Current debentures				-5,318	-5,646
Non-current debentures				948,137	975,298

(Borrowings and payment of borrowings)

The Company's short-term borrowing increases or decreases depending on the discount amount of trade receivables. In 2020, short-term borrowing and long-term borrowing increased by KRW 2.1912 trillion and 0.0145 trillion, respectively. KRW 0.8649 trillion of debenture and long-term borrowing was repaid.

(Plan for payment of borrowings)

The Company's plan for payment of borrowings (including debentures) is presented below:

(KRW mil)

Year of payment	Amount of payment
2021	17,343,561
2022	1,031,993
2023	456,643
2024	359,807
2025~	1,246,801
Total	20,438,805

Amount calculated excluding bond discount, premium on bonds payable, and present value of bonds payable discount.

(Compliance to bond management contract conditions)

The Company's bonds are subject to conditions to protect investors such as constraint on collateral, constraint on disposal of assets, etc., and the Company complies with these conditions.

5. Off-Balance Sheet Activities

- Refer to 『2. Notes to Consolidated Financial Statements』 in 『III. Financial Affairs』

6. Other information for investment decision making

A. Significant accounting policies and estimation

- The Company applied the following major amended and enacted standards for the annual period beginning on January 1, 2020:

Korean IFRS 1103 (revised), Business Combinations

The Company has applied *Korean IFRS 1103, Business Combinations*, for the first time for their annual reporting period commencing January 1, 2020. In accordance with the transitional provisions in *Korean IFRS 1103*, comparative figures have not been restated. The application impacts of *Korean IFRS 1103* refer to 『2. Notes to Consolidated Financial Statements』 in 『III. Financial Affairs』

B. Environment and employees

- Refer to 『5. Sanctions and others』 in 『XI. Other information』 for environmental sanctions or administrative actions.
- No significant changes in employee positions during this period.

C. Legal regulations

- Refer to 『5. Sanctions and others』 of 『XI. Other information』 for major legal regulations on the Company's businesses.

D. Derivatives and risk management policy

- To manage exchange rate risk, overseas companies enter into currency forwards which are denominated in the trading currency of a foreign currency position as opposed to the companies' reporting currencies. Overseas offices buy or sell currency forwards to avert risk.

- Refer to 『8. Derivative Instruments and Put Options』 in 『II. Businesses Overview』 and 『3. Notes to Financial Statements』 in 『III. Financial Affairs』 for Derivatives and risk management policy.

V. Auditor's Report

1. Introduction

Deloitte Anjin conducted audits on the consolidated/separate financial statements of financial position of the Company as at December 31, 2020 and Samil PwC conducted audits on the Company's consolidated/separate statements of financial position as at December 31, 2019, and 2018, and the related consolidated/separate statements of profit or loss, comprehensive income, changes in equity and cash flows for the years then ended and expressed an unqualified opinion on those financial statements. All of the Company's subsidiaries were expressed unqualified opinion for the years ended December 31, 2020, 2019, and 2018.

Period end	Company Auditor	Audit Opinion	Emphasis of Matter	Key Audit Matter(s)
Dec 31, 2020	Deloitte Anjin	Unqualified	Not applicable	(Consolidated) 1. Sales deduction related to the sales promotion activities of products 2. Impairment of goodwill and intangible assets with indefinite useful lives (Separate) 1. Sales deduction related to the sales promotion activities of products
Dec 31, 2019	Samil PwC	Unqualified	Not applicable	(Consolidated) 1. Sales promotion activities related to the sale of products. 2. Impairment of goodwill and intangible assets with indefinite useful lives. 3. Appropriateness of depreciation expense cut-off on property, plant and equipment. (Separate) 1. Sales promotion activities related to the sale of products. 2. Appropriateness of depreciation expense cut-off on property, plant and equipment.
Dec 31, 2018	Samil PwC	Unqualified	Not applicable	(Consolidated) 1. Sales promotion activities related to the sale of products. 2. Impairment of goodwill and intangible assets with indefinite useful lives. 3. Appropriateness of depreciation expense cut-off on property, plant and equipment 4. Impairment of investments in associates and joint ventures. (Separate) 1. Sales promotion activities related to the sale of products. 2. Appropriateness of depreciation expense cut-off on property, plant and equipment

Audit opinion on both separate and consolidated financial statements.

< Review and audit plan for the year ended December 31, 2020>

Review Period		Planned Dates
2020 1Q	Pre-review	Mar 9, 2020 – Mar 27, 2020
	Review	Apr 6, 2020 – May 13, 2020
2020 2Q	Pre-review	Jun 8, 2020 – Jun 26, 2020
	Review	Jul 6, 2020 – Aug 13, 2020
2020 3Q	Pre-review	Sep 7, 2020 – Sep 25, 2020
	Review	Oct 5, 2020 – Nov 13, 2020
Audit of IT systems and automated internal controls		Apr 9, 2020 – Jan 29, 2021
Early substantive audit procedures (annual audit)		Mar 9, 2020 – Dec 31, 2020
Audit of Internal Control over Financial Reporting ("ICFR")		Apr 27, 2020 – Feb 17, 2021
Update of early substantive audit procedures and audit of financial statements		Jan 11, 2021 – Feb 17, 2021

Above schedule is for the review and audit of separate and consolidated financial statements and the audit of ICFR.

[Audit Contract Description] (KRW mil)

Fiscal Period	Auditor	Description	Contract		Actual	
			Audit fee	Total Hours	Fee Claimed	Hours spent
Year ended Dec 31, 2020	Deloitte Anjin	- Review of the interim separate/consolidated financial statements - Audit of separate/consolidated financial statements - Audit of Internal Control over Financial Reporting (ICFR)	8,400	85,721	8,400	86,128
Year ended Dec 31, 2019	Samil PwC	- Review of the interim separate/consolidated financial statements - Audit of separate/consolidated financial statements - Audit of Internal Control over Financial Reporting (ICFR)	6,481	69,685	6,481	69,021
Year ended Dec 31, 2018	Samil PwC	- Review of the interim consolidated/separate financial statements - Audit on consolidated/separate financial statements	4,400	50,004	4,400	50,401

[Non-Audit Service Contract Description] (KRW mil)

Fiscal Period	Contract Date	Non-audit Service Description	Period for Service	Compensation	Note
Year ended Dec 31, 2020	Jun 2017	E-discovery advisory services	Jan – Dec 2020	59	Deloitte Anjin
Year ended Dec 31, 2019	Feb 2019	SOC 2 certification and other advisory services	Feb – Sep 2019	258	Samil PwC
	Oct 2019	Custom tax and other advisory services	Oct – Dec 2019	127	
	Subtotal			385	
Year ended Dec 31, 2018	Nov 2017	Tax advisory	Jan ~ Mar 2018	194	Samil PwC
	Dec 2018	Tax advisory	Dec 2018	149	
	Dec 2016	Custom tax advisory	Jan ~ Dec 2018	253	
	Subtotal			596	

In addition to audit of the Company's financial statements, Deloitte Anjin has provided non-audit service described above.
The Company has not expensed any fee for such service during the 2020.

[Details of internal audit committee's discussion with Auditors]

No.	Date	Participants	Method	Details of discussion
1	Jan 28, 2020	Audit Committee: 3 members Company: Head of Audit Team Auditor: Signing partner and 1 other	Face-to-face meeting	- Key Audit Matters and others audit focus areas - Progress of audit of Internal Control over Financial Reporting - Other required communications at the completion stage of the audit
2	Apr 27, 2020	Audit Committee: 3 members Company: Head of Audit Team Auditor: Signing partner and 1 other	Face-to-face meeting	- Audit plan for the year ending December 31, 2020 - Discussion of quarterly review focus areas and independence of non-audit services - Other mandatory communications at the planning stage of the audit
3	Jul 28, 2020	Audit Committee: 3 members Company: Head of Audit Team Auditor: Signing partner and 1 other	Face-to-face meeting	- Annual audit plan and its progress - Plan for the Key Audit Matters selection - Progress of audit of Internal Control over Financial Reporting - Discussion of quarterly review focus areas and other required communications
4	Oct 27, 2020	Audit Committee: 3 members Company: Head of Audit Team Auditor: Signing partner and 1 other	Face-to-face meeting	- Annual audit plan and its progress - Plan for the Key Audit Matters selection - Progress of audit of Internal Control over Financial Reporting - Discussion of quarterly review focus areas and other required communications
5	Jan 26, 2021	Audit Committee: 3 members Company: Head of Audit Team Auditor: Signing partner and 1 other	Face-to-face meeting	- Key Audit Matters and others audit focus areas - Progress of audit of Internal Control over Financial Reporting - Other required communications at the completion stage of the audit

Samil PwC discussed with the audit committee from April, 2018 to January, 2020, and Deloitte Anjin discussed with the audit committee from April 2020.

2. Change of Independent Auditor

Upon termination of the contract with previous auditor, Samil PwC, Deloitte Anjin has been designated as the Company's external auditor for three years ending December 31, 2022, in accordance with periodic designation regulation of Article 11 (1) and (2) of the "Act on External Audit of Stock Companies, Etc.", Article 17 of the "Enforcement Decree of the Act on External Audit of Stock Companies, Etc.", and Article 10 and Article 15 (1) of "Regulations on External Audit and Accounting"

There are 241 subsidiaries as at December 31, 2020. For the year ending December 31, 2020, 6 domestic subsidiaries, including Samsung Display Co., Ltd., changed external auditor from Samil PwC to Deloitte Anjin, 24 overseas subsidiaries, including Samsung Electronics America, Inc. (SEA), changed PwC to Deloitte, and 2 overseas subsidiaries, Samsung Electronica da Amazonia Ltda. (SEDA) and Samsung Gulf Electronics Co., Ltd. (SGE), changed KPMG to Deloitte. These changes in external auditors were to improve efficiency in audit of consolidated financial statements due to designation of the Company's external auditor.

Details of change in subsidiaries' external auditors are as follows:

Subsidiaries	Previous auditor	Current Auditor
Samsung Display Co., Ltd.	Samil PwC	Deloitte Anjin
Samsung Electronics Service Co., Ltd.	Samil PwC	Deloitte Anjin
Samsung Electronics Service CS Co., Ltd.	Samil PwC	Deloitte Anjin
Samsung Electronics Sales Co., Ltd.	Samil PwC	Deloitte Anjin
Samsung Electronics Logitech Co., Ltd.	Samil PwC	Deloitte Anjin
Mirero System Co., Ltd.	Samil PwC	Deloitte Anjin
Samsung Electronics America, Inc. (SEA)	PwC	Deloitte
Samsung Semiconductor, Inc. (SSI)	PwC	Deloitte
Samsung Mexicana S.A. de C.V (SAMEX)	PwC	Deloitte
Samsung International, Inc. (SII)	PwC	Deloitte
Samsung Austin Semiconductor LLC. (SAS)	PwC	Deloitte
Samsung Electronics Mexico S.A. De C.V. (SEM)	PwC	Deloitte
Samsung Electronics (UK) Ltd. (SEUK)	PwC	Deloitte
Samsung Electronics Holding GmbH (SEHG)	PwC	Deloitte
Samsung Semiconductor Europe GmbH (SSEG)	PwC	Deloitte
Samsung Electronics GmbH (SEG)	PwC	Deloitte
Samsung Electronics Benelux B.V. (SEBN)	PwC	Deloitte
Samsung Vina Electronics Co., Ltd. (SAVINA)	PwC	Deloitte
Samsung Asia Private Ltd. (SAPL)	PwC	Deloitte
Samsung Electronics Australia Pty. Ltd. (SEAU)	PwC	Deloitte
Thai Samsung Electronics Co., Ltd. (TSE)	PwC	Deloitte
Samsung Display Vietnam Co., Ltd. (SDV)	PwC	Deloitte
Samsung Electronics Vietnam Co., Ltd. (SEV)	PwC	Deloitte
Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	PwC	Deloitte
Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	PwC	Deloitte
Samsung (CHINA) Investment Co., Ltd. (SCIC)	PwC	Deloitte
Shanghai Samsung Semiconductor Co., Ltd. (SSS)	PwC	Deloitte
Samsung Electronics Saudi Arabia Ltd. (SESAR)	PwC	Deloitte
Samsung Electronics Turkey (SETK)	PwC	Deloitte
Samsung Electronics Rus Company LLC (SERC)	PwC	Deloitte
Samsung Electronica da Amazonia Ltda. (SEDA)	KPMG	Deloitte
Samsung Gulf Electronics Co., Ltd. (SGE)	KPMG	Deloitte

The newly acquired subsidiary during 2020, TeleWorld Solutions, Inc.(TWS), appointed PwC as their external auditor.

There were 240 subsidiaries as at December 31, 2019. The newly acquired entities during 2019, FOODIENT LTD. and Corephotonics Ltd. appointed PwC and E&Y, respectively, as the external auditor. The newly incorporated entities during 2019, Samsung Display Noida Private Limited (SDN) and Samsung Venture Capital Union SVIC No. 45 and No. 48 appointed PwC and KPMG, respectively, as the external auditor.

There were 252 subsidiaries as of December 31, 2018. Two subsidiaries including Samsung Display Dongguan Co., Ltd. have changed the external auditor to PwC. The newly incorporated entity during 2017, Samsung Electronics Home Appliance America, LLC, appointed PwC as the external auditor and newly incorporated entities during 2018, Samsung Venture Capital Union #40, Samsung Venture Capital Union #42, Samsung Venture Capital Union #43, appointed KPMG as the external auditor. The subsidiaries appointed the external auditors at their own decision.

Appointment of auditors were decided at at each newly acquired subsidiary's own discretion.

3. Regarding Internal Control

[Review and Audit opinion of Internal Control over Financial Reporting (ICFR)]

Fiscal Period	Group Auditor	Opinion	Remarks
Year ended Dec 31, 2020	Deloitte Anjin	[Audit Opinion] The Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020, based on *Conceptual Framework for Designing and Operating Internal Control over Financial Reporting*.	Not applicable
Year ended Dec 31, 2019	Samil PwC	[Audit Opinion] The Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on *Conceptual Framework for Designing and Operating Internal Control over Financial Reporting*.	Not applicable
Year ended Dec 31, 2018	Samil PwC	[Review Opinion] Nothing has come to attention that causes them to believe that management's report on the operations of the IACS is not presented fairly, in all material respects, in accordance with IACS standards.	Not applicable

VI. Corporate Governance

1. Board of Directors

A. Overview

The Board of Directors consisted of 11 directors, 5 of whom are Executive Directors (Ki-nam Kim, Hyun-suk Kim, Dong-jin Koh, Jong-hee Han, and Yoon-ho Choi) and 6 Independent Directors (Jae-wan Bahk, Sun-uk Kim, Byung-gook Park, Jeong Kim, Curie Ahn, and Han-jo Kim). The Board has appointed Jae-wan Bahk as Chairman as he will be able to mediate the different opinions of Directors and is most qualified to manage Board activities. The roles of Board Chairman and CEO have been separated to enhance the Board's independence and transparency.

The Board has six committees: Management Committee, Audit Committee, Independent Director Recommendation Committee, Related Party Transactions Committee, Compensation Committee, and Governance Committee.

[As of Dec 31, 2020]

Classification	Composition	Members	Head	Role
Board of Directors	5 Executive Directors	Ki-nam Kim, Hyun-suk Kim, Dong-jin Koh, Jong-hee Han, Yoon-ho Choi	Jae-wan Bahk (Independent)	- Make resolutions on matters provided for by the relevant laws and regulations or the Articles of Incorporation, matters delegated by a general meeting of shareholders, as well as on important matters concerning basic policies and business execution. - Supervise management.
	6 Independent Directors	Jae-wan Bahk, Sun-uk Kim, Byung-gook Park, Jeong Kim, Curie Ahn, Han-jo Kim		
Management Committee	5 Executive Directors	Ki-nam Kim, Hyun-suk Kim, Dong-jin Koh, Jong-hee Han, Yoon-ho Choi	Ki-nam Kim (Executive)	- Deliberate and decide on matters related to finance, general management, and on matters specifically delegated by the Board.
Audit Committee	3 Independent Directors	Jae-wan Bahk Sun-uk Kim Han-jo Kim	Jae-wan Bahk (Independent)	- Review and audit matters concerning management of the Company, including the Company's financial situation.
Independent Director Recommendation Committee	3 Independent Directors	Jeong Kim Byung-gook Park Curie Ahn	Jeong Kim (Independent)	- Assess the independence, diversity, and ability of potential candidates for Independent Director positions. - Recommend candidates.
Related Party Transactions Committee	3 Independent Directors	Sun-uk Kim Jae-wan Bahk Han-jo Kim	Sun-uk Kim (Independent)	- Voluntarily comply with fair transaction regulations to enhance corporate transparency.
Compensation Committee	3 Independent Directors	Byung-gook Park Jae-wan Bahk Jeong Kim	Byung-gook Park (Independent)	- Ensure the objectivity and transparency of the decision-making process for Director compensation
Governance Committee	6 Independent Directors	Jae-wan Bahk, Sun-uk Kim, Byung-gook Park, Jeong Kim, Curie Ahn, Han-jo Kim	Jae-wan Bahk (Independent)	- Promote the Company's corporate social responsibility and act to enhance shareholder value.

Feb 14, 2020: Sang-hoon Lee resigned from his position of Executive Director.
Feb 20, 2020: Independent Director Byung-gook Park was appointed as the head of the compensation committee.
Feb 21, 2020: Independent Director Jae-wan Bahk was appointed as the Chairman of the Board.
Mar 18, 2020: Jong-hee Han and Yoon-ho Choi were newly appointed as Executive Directors at the AGM.

The number of Independent Directors and changes in the number are shown below.

Number of Directors	Number of Independent Directors	Changes of Independent Directors		
		Appointed	Dismissed	Resigned
11	6	-	-	-

B. Agendas considered and voting results (2020)

Date	Agenda	Results	Executive Directors (attendance)						Independent Directors (attendance)					
			Sang-hoon Lee (0%)	Ki-nam Kim (100%)	Hyun-suk Kim (100%)	Dong-jin Koh (100%)	Jong-hee Han (100%)	Yoon-ho Choi (100%)	Jae-wan Bahk (100%)	Sun-uk Kim (100%)	Byung-gook Park (100%)	Jeong Kim (100%)	Curie Ahn (100%)	Han-jo Kim (100%)
Jan 30	① Approval of FY19 financial statements and annual business report	Approved	Absent	For	For	For			For	For	For	For	For	For
	② Charitable contribution to Samsung Dream Scholarship Foundation	Approved	Absent	For	For	For			For	For	For	For	For	For
	③ Adoption of electronic voting	Approved	Absent	For	For	For			For	For	For	For	For	For
	④ Appointment of Compliance Officer	Approved	Absent	For	For	For			For	For	For	For	For	For
	⑤ Approval of establishment and operation of Samsung Compliance Committee	Approved	Absent	For	For	For			For	For	For	For	For	For
	⑥ Revision of compliance standard	Approved	Absent	For	For	For			For	For	For	For	For	For
	※ Reported items: 1) Report on the internal accounting management system 2) Assessment of the internal accounting management system													
Feb 21	① Appointment of Board Chairman													
	② Decision to convene the 51st AGM	Approved		For	For	For			For	For	For	For	For	For
	③ Decisions on the 51st AGM agenda items	Approved		For	For	For			For	For	For	For	For	For
	※ Reported Items: 1) FY19 annual audit report, 2) FY19 annual business report, 3) Assessment of the internal accounting management system	Approved		For	For	For	N/A	N/A	For	For	For	For	For	For
	※ Agenda item 1: Approval of FY19 financial statements, including balance sheet, income statement, and the statement of appropriation of retained earnings (draft), etc.													
	※ Agenda item 2: Appointment of Executive Directors 2-1: Jong-hee Han 2-2: Yoon-ho Choi		N/A											
	※ Agenda item 3: Approval of remuneration limit for Directors	Approved		For	For	For			For	For	For	For	For	For
	④ Approval of 2020 social contribution matching fund	Approved		-	For	For			For	For	For	For	For	For
	⑤ Donation to Chung-nam Samsung Institute													
Feb 26	① COVID-19 related emergency relief support	Approved		For	For	For			For	For	For	For	For	For
Mar 18	① Appointment of Board committee members	Approved		For	For	For	For	For	For	For	For	For	For	For
	② Setting remuneration of Directors	Approved		For	For	For	For	For	For	For	For	For	For	For
	③ Application for product liability insurance	Approved		For	For	For	For	For	For	For	For	For	For	For

Apr 29	① Approval of 1Q20 interim business report and quarterly dividend	Approved		For	For	For	For	For	For	For	For	For	For	For
	② Lease contract of office space in Seocho	Approved		For	For	For	For	For	For	For	For	For	For	For
	③ Charitable contributions	Approved		For	For	For	For	For	For	For	For	For	For	For
	④ Lease contract with Samsung SDI	Approved		For	For	For	For	For	For	For	For	For	For	For
	⑤ Donation to incentive fund for DS Division's suppliers	Approved		For	For	For	For	For	For	For	For	For	For	For
May 27	① Package insurance policy for domestic operations	Approved		For	For	For	For	For	For	For	For	For	For	For
	② Charitable contributions	Approved		For	For	For	For	For	For	For	For	For	For	For
Jun 11	① Appointment of members of the Samsung Compliance Committee	Approved		For	For	For	For	For	For	For	For	For	For	For
Jul 30	① Approval of half-year business report and 2Q quarterly dividend	Approved		For	For	For	For	For	For	For	For	For	For	For
	② Lease contract with Samsung Display	Approved		For	For	For	For	For	For	For	For	For	For	For
	※ Reported Items: 1) Establishment and operation of labor-management relationship advisory group													
Oct 29	① Approval of 3Q20 interim business report and 3Q quarterly dividend	Approved		For	For	For	For	For	For	For	For	For	For	For
	② Royalty income from Samsung Biologics	Approved		For	For	For	For	For	For	For	For	For	For	For
	※ Reported Items: 1) Report on assessment of effectiveness of compliance review													
Nov 30	① Approval of transaction with affiliate company	Approved		For	For	For	For	For	For	For	For	For	For	For
	② Payment of retirement pension plan	Approved		For	For	For	For	For	For	For	For	For	For	For
	③ Approval of business plan for 2021	Approved		For	For	For	For	For	For	For	For	For	For	For
	④ Contribution to Community Chest of Korea's annual fundraising campaign for 2021	Approved		For	For	For	For	For	For	For	For	For	For	For
	⑤ Contribution to UNDP sourced from Samsung Global Goals	Approved		For	For	For	For	For	For	For	For	For	For	For
	⑥ Lease contract with Samsung Display	Approved		For	For	For	For	For	For	For	For	For	For	For
	※ Reported Items: 1) Report on tactics to bolster compliance culture 2) Report on results of the compliance review													

Feb 14, 2020: Sang-hoon Lee resigned from his position of Executive Director.
Feb 21, 2020: Director Ki-nam Kim did not exercise his voting right on the agenda of donation to Chung-nam Samsung Institute as the donations is regarded as a transaction between a Director and Company under the Commercial Act and the Director has special interest in the Company as the CEO.
Feb 21, 2020: Independent Director Jae-wan Bahk was appointed as the Chairman of the Board.
Mar 18, 2020: Jong-hee Han and Yoon-ho Choi were newly appointed as Executive Directors at the AGM.

C. Committees

(1) Composition of Board Committees

[As of Dec 31, 2020]

Committee	Composition	Members	Responsibilities and authorities	Note
Management	5 Executive Directors	Ki-nam Kim (head), Hyun-suk Kim, Dong-jin Koh, Jong-hee Han, Yoon-ho Choi	See below	-
Related Party Transactions	3 Independent Directors	Sun-uk Kim (head), Jae-wan Bahk, Han-jo Kim		-
Compensation	3 Independent Directors	Byung-gook Park (head), Jae-wan Bahk, Jeong Kim		-
Governance	6 Independent Directors	Jae-wan Bahk (head), Sun-uk Kim, Byung-gook Park, Jeong Kim, Curie Ahn, Han-jo Kim		-

The Audit Committee and Independent Director Recommendation Committee were excluded according to Corporate Disclosure Guidelines

(The Management Committee)

- Responsibilities: The Management Committee deliberates and decides on matters specified by Board regulations and resolutions or specifically delegated by the Board. The composition and operation of the management committee are determined by the Board.

- Authorities:

(A) General management

1. Annual or mid to long-term management policy and strategy
2. Key management strategy
3. Business planning and restructuring
4. Establishment, relocation, and withdrawal of overseas branch and corporation
5. Initiating cooperation such as strategic partnership with foreign companies
6. Acquisition or disposal of domestic and overseas subsidiaries (provided that the value of transaction exceeds 0.1% of total equity)
7. Other major management matters
8. Establishment, relocation, and withdrawal of branches and operations
9. Appointment or dismissal of supervisors
10. Suspension or shutdown of production over 5% of the total production in the recent year
11. Licensing agreements and technology transfer, partnership in regards to technology of over 0.5% of the total equity
12. Acquisitions and transfers of patents related to new material and new technology of over 0.5% of the total equity
13. Collection and destruction of products corresponding to over 5% of the total sales in the recent business year
14. Contracting for over 5% of the total sales in the recent business year
15. Contracting or canceling of single sales agency and suppliers over 5% of the total sales in the recent business year
16. Establishment of basic principles of organization management
17. Decision making on basic principles and any changes related to wages, bonus, and fringe benefits
18. Appointments, dismissals and changes of transfer agent
19. Closing of shareholder register and setting reference date
20. Establishment of corporate guidelines for business and management related activities

(B) Matters related to Finance

1. Acquisitions or disposals of equity investments with a value no less than 0.1% and less than 2.5% of the total equity
2. Direct overseas investments with a value no less than 0.1% and less than 2.5% of the total equity
3. New debt guarantee (excluding extension of period) or collateral issuance with a value no less than 0.1% and less than 2.5% of the total equity
   A. Collateral: Only in the case of providing collateral for others
   B. Guarantee: Excludes performance guarantee (eg, bid, contract, defect, difference guarantee) and tax payment guarantee
4. New credit agreement contract (excluding extension of period) with a value no less than 0.1% and less than 5% of the total equity
5. Approval of related party transactions:
   Related party transactions with affiliates involving cash (loans and payments), equity (stocks and bonds) or assets (such as real estate and intangible property rights) with a value between KRW 3 billion and/or less than KRW 5 billion, as defined in the Monopoly Regulation and Fair Trade Act
   ※ Excluding cases where existing contracts are renewed without significant change.
6. Issuance of corporate bonds
7. Acquisition and disposal of real estate with a value of over 0.1% of the total equity, provided that the transaction is with a third party
8. Any matters that the CEO deems necessary and important for the business (eg, capex)

(C) All other matters except for those delegated to the Board and other committees in accordance with Board regulations

(Related Party Transactions Committee)

- Responsibilities: Improve management transparency through the establishment of a voluntary compliance system
- Authorities:

1. Right to receive reports on related party transactions:
   The Committee can request reports on related party transactions with affiliates
   ※ According to the Monopoly Regulation and Fair Trade Act, the Related Party Transactions committee is permitted to conduct preliminary reviews and approves on related party transactions over KRW 5 billion and other transactions that are deemed as significant
2. Right to order ex officio investigation of related party transactions
3. Right to propose corrective measures for related party transactions

(Compensation Committee)

- Responsibilities: Provide transparent and objective decision making process related to remuneration of directors
- Authorities:

1. Propose remuneration limit of directors at AGM
2. Establish the director remuneration system
3. Other matters delegated by the Board

(Governance Committee)

- Responsibilities: Fulfill corporate social responsibility and enhance shareholder value
- Authorities:

1. Matters related to corporate social responsibility
2. Matters related to shareholder value enhancement
   - Preliminary review on shareholder return policies
   - Activities for improving shareholders' rights and interests
   - Other important management matters that can significantly impact shareholder value
3. Establishment, composition, operation of organizations under the committee including research groups, councils, etc.
4. Other matters delegated by the Board

(2) Committee Activities

☐ The Management Committee (2020)

Date	Agenda	Voting results	Director (attendance)				
			Ki-nam Kim (100%)	Hyun-suk Kim (92%)	Dong-jin Koh (92%)	Jong-Hee Han (89%)	Yoon-Ho Choi (100%)
Jan 13	① Licensing agreement	Approved	For	For	For	N/A (newly appointed)	N/A (newly appointed)
Jan 30	① Investment in memory business	Approved	For	For	For		
Mar 6	① Investment in foundry business (5-nano)	Approved	For	For	For		
	② Investment in foundry business (CIS)	Approved	For	For	For		
Apr 3	① Investment in memory business	Approved	For	For	For	For	For
	② Liquidation of overseas subsidiary	Approved	For	For	For	For	For
May 8	① Investment in foundry business	Approved	For	For	For	For	For
May 27	① Investment in memory business	Approved	For	For	For	For	For
Aug 14	① Investment in foundry business (Pyeongtaek) ② Investment in foundry business (Hwaseong)	Approved	For	For	For	For	For
Aug 28	① Sales of overseas subsidiary	Approved	For	For	For	For	For
Sep 25	① Investment in memory business	Approved	For	For	For	For	For
	② Liquidation of overseas subsidiary	Approved	For	For	For	For	For
Oct 23	① Investment in memory business	Approved	For	Absent	For	Absent	For
	② Investment in memory business (Pyeongtaek)	Approved	For	Absent	For	Absent	For
	③ Investment in foundry business (Pyeongtaek)	Approved	For	Absent	For	Absent	For
	④ Investment in foundry business (Hwaseong)	Approved	For	Absent	For	Absent	For
	⑤ Royalty income	Approved	For	Absent	For	Absent	For
	⑥ Establishment of overseas subsidiary	Approved	For	Absent	For	Absent	For
Nov 30	① Merger of overseas subsidiary	Approved	For	For	Absent	For	For
Dec 23	① Licensing agreement	Approved	For	For	For	For	For

☐ The Related Party Transactions Committee (2020)

Date	Agenda	Voting Results	Directors (attendance)		
			Sun-uk Kim (100%)	Jae-wan Bahk (100%)	Han-jo Kim (100%)
Jan 30	① Report on 4Q19 related party transactions	-	-	-	-
Mar 16	① Prior review on large-scale related party transactions 1) Application for product liability insurance	-	-	-	-
Apr 27	① Prior review on large-scale related party transactions 1) Lease contract of office space in Seocho 2) Charitable contribution 3) Lease contract with Samsung SDI ② Report on 1Q20 related party transactions	- -	- -	- -	- -
May 25	① Prior review on large-scale related party transactions 1) Package insurance policy for domestic operations	-	-	-	-
Jul 28	① Prior review on large-scale related party transactions 1) Lease contract with Samsung Display ② Report on 2Q20 related party transactions	- -	- -	- -	- -
Oct 27	① Prior review on large-scale related party transactions 1) Royalty income from Samsung Biologics ② Report on 3Q20 related party transactions	- -	- -	- -	- -
Nov 30	① Prior review on large-scale related party transactions 1) Lease contract with Samsung Display 2) Payment of retirement pension plan 3) Approval of 2021 large-scale product and service transactions	-	-	-	-

☐ The Compensation Committee (2020)

Date	Agenda	Voting Results	Directors (attendance)		
			Byung-gook Park (100%)	Jae-wan Bahk (100%)	Jeong Kim (100%)
Feb 20	① Appointment of head of the Committee ② Review of fixed annual income for each executive Directors in 2020 ③ Review on 2020 remuneration limit for Directors	Approved Approved Approved	For For For	For For For	For For For

☐ The Governance Committee (2020)

Date	Agenda	Voting Results	Directors (attendance)					
			Jae-wan Bahk (100%)	Sun-uk Kim (100%)	Byung-gook Park (100%)	Jeong Kim (100%)	Curie Ahn (100%)	Han-jo Kim (100%)
Jan 30	※ Reporting Item ① Reporting on current status of IR	-	-	-	-	-	-	-
Feb 20	※ Items reviewed ① Review of Board Chairman appointment	-	-	-	-	-	-	-
Apr 29	※ Reporting Item ① Reporting on current status of IR ② Report on plans for publishing Sustainability Report	-	-	-	-	-	-	-
Jul 30	※ Reporting Item ① Reporting on current status of IR	-	-	-	-	-	-	-
Oct 29	※ Reporting Item ① Reporting on current status of IR ② Reporting on meeting results from IR/sustainability roadshow	-	-	-	-	-	-	-

D. Director independence

(1) Appointment of Directors

The Board nominates Executive Director candidates and the Independent Director Recommendation Committee nominates Independent Director candidates. Directors are then appointed at the general meeting.

A candidate for Director needs to meet the requirements of relevant laws and the Articles of Incorporation. Executive Directors are appointed based on his or her expertise and leadership among a list of candidates that is constantly updated. Independent Directors should have no material interests with the Company and its major shareholder, possess knowledge and experience in IT, accounting, finance, law, economics, EHS, etc., and be able to fulfill the roles and responsibilities of supervising management from an independent position. The company has not set separate standards with respect to the independence of Directors besides the requirements in relevant laws and the Article of Incorporation.

Please refer to 『VIII. Executives and Employees』 for more information about the career of each Director.

The Board submits shareholders' proposal for appointment of Directors at the general shareholder meeting as a separate agenda if the proposal satisfies related laws and regulations.

The composition of the Board of Directors, as appointed by shareholders, is as follows:

[As of Dec 31, 2020]

Position	Name	Term	Reasons for appointment	Nominator	Responsibility	Transaction with the Company	Relationship with the Company's major shareholders
Executive Director (CEO)	Ki-nam Kim	Mar 2018 – Mar 2021	Director Ki-nam Kim has built expertise based on his experience as the president of Samsung Advanced Institute of Technology, head of the memory business, and president of the semiconductor business. He will play a critical role in solidifying leadership of the component business despite growing external uncertainty.	The Board	Head of DS Division	N/A	Related party
Executive Director (CEO)	Hyun-suk Kim	Mar 2018 – Mar 2021	Director Hyun-suk Kim is an expert in display R&D and played a crucial role in positioning the company as the leader in the global TV market. He will use this successful experience in other businesses such as the home appliance business to create synergies within the CE division.	The Board	Head of CE Division	N/A	Related party
Executive Director (CEO)	Dong-jin Koh	Mar 2018 – Mar 2021	Director Dong-jin Koh is an expert in mobile R&D and has contributed in advancing our mobile business with the galaxy lineup. He will play a critical role in becoming a first mover in the stagnant yet competitive smartphone market.	The Board	Head of IM Division	N/A	Related party

Position	Name	Term	Reasons for appointment	Nominator	Responsibility	Transaction with the Company	Relationship with the Company's major shareholders
Executive Director	Jong-hee Han	Mar 2020 – Mar 2023	Director Jong-hee Han is an expert in display R&D and played a leading role in achieving the top position in global TV market for 14 consecutive years. He will contribute to further solidifying leadership in TV market amid intensifying competition by using his excellent business capabilities.	The Board	Head of Visual Display Business	N/A	Related party
Executive Director	Yoon-ho Choi	Mar 2020 – Mar 2023	Director Yoon-ho Choi is a finance expert and contributed to enhancing synergy among businesses in SEC. He will contribute to efficient and stable management of the Company by capitalizing on his capabilities in risk management amid uncertain global economy.	The Board	General management	N/A	Related party
Independent Director	Jae-wan Bahk	Mar 2016 – Mar 2022 (second term)	Director Jae-wan Bahk is an expert in finance and public sector with abundant experience relative to state affairs and policy design. He can contribute to objective supervision of the management and the Board's strategic decisions.	Independent Director Recommendation Committee	Chairman of the Board	N/A	N/A
Independent Director	Sun-uk Kim	Mar 2018 – Mar 2021	Director Sun-uk Kim is a legal expert and has experience as a professor at a school of law and the Legislation Minister. She can present a new perspective to the Board based on objective and juridical reasoning.	Independent Director Recommendation Committee	Overall management	N/A	N/A
Independent Director	Byung-gook Park	Mar 2018– Mar 2021	Director Byung-gook Park is a professor at electrical engineering and an expert in flash memory. He will play a crucial role in strengthening expertise of the Board.	Independent Director Recommendation Committee	Overall management	N/A	N/A
Independent Director	Jeong Kim	Mar 2018 – Mar 2021	Director Jeong Kim is an IT expert and an entrepreneur. He will contribute to the Board's strategic decisions by utilizing his expertise, wide network, and business capability.	Independent Director Recommendation Committee	Overall management	N/A	N/A
Independent Director	Curie Ahn	Mar 2019 – Mar 2022	Director Curie Ahn is a medical expert who has been working for the marginalized and public good. Director Ahn will help address the increasingly important EHS issues, improving social communication and achieving sustainable growth.	Independent Director Recommendation Committee	Overall management	N/A	N/A

Position	Name	Term	Reasons for appointment	Nominator	Responsibility	Transaction with the Company	Relationship with the Company's major shareholders
Independent Director	Han-jo Kim	Mar 2019 – Mar 2022	Director Han-jo Kim has built expertise in finance and business management through his experience as a President of Korea Exchange Bank and now serves as the chairman of a social contribution foundation. He will contribute to the Company by providing valuable insight on overall business issues and by utilizing expertise in finance, co-growth, etc.	Independent Director Recommendation Committee	Overall management	N/A	N/A

Feb 14, 2020: Sang-hoon Lee resigned from his position of Executive Director.
Feb 21, 2020: Independent Director Jae-wan Bahk was appointed as the Chairman of the Board.
Mar 18, 2020: Jong-hee Han and Yoon-ho Choi were newly appointed as Executive Directors at the AGM.
Relationship with Company's major shareholders is in accordance with Article 542-8 of the Commercial Act.

(2) Independent Director Recommendation Committee

The Independent Director Recommendation Committee assesses the independence and ability of potential candidates and recommends selected candidates to be appointed at the annual general meeting of shareholders. As of the reporting date (December 31, 2020), the committee is composed of three Independent Directors (Jeong Kim, Byung-gook Park, and Curie Ahn) based on related laws that states more than a majority of members should be independent directors in accordance with clause 4 of Article 542-8 of the Commercial Law.

Date	Agenda	Voting Results	Directors (attendance)		
			Jeong Kim (N/A)	Byung-gook Park (N/A)	Curie Ahn (N/A)
-	-	-	-	-	-

(3) Expertise of Independent Directors

1) Support team for Independent Directors

[As of Dec 31, 2020]

Team	Number of Employees	Position (Total years served/ years in support team)	Key activities
HR	5	Executive Vice President: 1 person (30 years and 1 months / 2 years) Vice President: 1 person (26 years and 10 months / 11 months) Principal Professional: 1 person (17 years and 11 months / 1 year and 5 months) Senior Professional: 2 persons (average: 12 years and 11 months / 4 years and 11 months)	· Support operation of annual shareholders' meeting, Board meetings, and Committee meetings · Support education for Independent Directors and their activities · Establish database on Director candidates · Provide information for resolution process to each Directors · Administrative work for meetings · Record meeting agendas for the Board and committee meetings

2) Education programs to provide updates on key management issues for Independent Directors

① Inspection of domestic and overseas business sites

Date	Organizer	Participants	Reasons for absence	Education contents
Jan 8, 2018 – Jan 10, 2018	HR team and management team of the region where the inspection takes place	In-ho Lee, Han-joong Kim, Kwang-soo Song, Byeong-gi Lee, Jae-wan Bahk	N/A	On-site inspection to check business operations
Aug 15, 2018 – Aug 22, 2018	HR team and management team of the region where the inspection takes place	In-ho Lee, Kwang-soo Song, Sun-uk Kim, Jae-wan Bahk, Byung-gook Park, Jeong Kim	N/A	On-site inspection to check business operations
Aug 16, 2019 – Aug 23, 2019	HR team and management team of the region where the inspection takes place	Jae-wan Bahk, Sun-uk Kim, Byung-gook Park, Jeong Kim, Curie Ahn, Han-jo Kim	N/A	On-site inspection to check business operations

② Orientation for newly appointed Independent Directors

Date	Organizer	Participants	Reasons for absence	Education contents
Mar 23, 2018	HR team	Sun-uk Kim, Byung-gook Park, Jeong Kim	N/A	Key issues regarding Board activities and management
Apr 25, 2018	HR team and relevant management team	Sun-uk Kim, Byung-gook Park, Jeong Kim	N/A	Key issues regarding Board activities and management
Mar 20, 2019	HR team	Curie Ahn, Han-jo Kim	N/A	Key issues regarding Board activities and management
Apr 30, 2019	HR team and relevant management team	Curie Ahn, Han-jo Kim	N/A	Key issues regarding Board activities and management
Jul 30, 2019	HR team and relevant management team	Curie Ahn, Han-jo Kim	N/A	Key issues regarding Board activities and management

③ Orientation for Independent Directors

Date	Organizer	Participants	Reasons for absence	Education contents
Jan 30, 2019	Support Team	In-ho Lee, Kwang-soo Song, Jae-wan Bahk, Sun-uk Kim, Byung-gook Park, Jeong Kim	N/A	Business plans for 2019
Jan 31, 2019	Network business	In-ho Lee, Kwang-soo Song, Jae-wan Bahk, Sun-uk Kim, Byung-gook Park, Jeong Kim	N/A	Briefing on 5G technology and tour of production lines
Nov 27, 2020	Planning Team	Jae-wan Bahk, Sun-uk Kim, Byung-gook Park, Jeong Kim, Curie Ahn, Han-jo Kim	N/A	Changing environment in post-COVID-19 era and mid- to long-term strategy

2. Audit System

A. Profiles of Audit Committee members

As of December 31, 2020, SEC operates an Audit Committee consisting of three Independent Directors. Directors Jae-wan Bahk (head) and Han-jo Kim qualify as experts in finance in accordance with relevant regulations.

Name	Major experience	Accounting/financial expertise[1]	
		Classification	Relevant experience
Jae-wan Bahk (Head)	· 2020–present: Professor Emeritus, Department of Public Administration Graduate School of Governance at Sungkyunkwan University · 1996–2020: Professor, Department of Public Administration & Graduate School of Governance, Sungkyunkwan University · 2016–present: Independent Director, Lotte Shopping · 2014–present: Chief Director, Hansun Foundation · 2011–2013: Minister of Strategy and Finance · 2010–2011: Minister of Employment and Labor · 2004–2008: Member of the 17th National Assembly	Type 2[2]	· 1996–2020: Professor of Public Administration, Sungkyunkwan University · 1992: Gained Ph.D. in Financial Administration
Sun-uk Kim	· 2018–present: Professor Emeritus, School of Law, Ewha Womans University · 1995–2018: Professor, Ewha Law School, Ewha Womans University · 2010–2014: President, Ewha Womans University · 2005–2007: Minister of Government Legislation	–	–
Han-jo Kim	· 2019–present: CEO/Rep Director, Hana Foundation · 2015–2019: CEO/Rep Director, Hana Nanum Foundation · 2015–2016: Vice Chairman, Hana Financial Group · 2014–2015: President, Korea Exchange Bank · 2013–2014: President, KEB Capital Inc.	Type 4[3]	· 2015–2016: Vice Chairman, Hana Financial Group · 2014–2015: President, Korea Exchange Bank · 2013–2014: President, KEB Capital · 2012–2013: Head of Corporate Business Group, Korea Exchange Bank · 1999–2002, 2004–2005: Head of Branch, Korea Exchange Bank

1) Defined in Public Disclosure Guideline and Article 37-2 of the Enforcement Decree of the Commercial Act
2) Holds at least a master's degree in accounting or finance and who has worked for a research institute or university at least as a researcher or an assistant professor in accounting or finance for an aggregate of at least five years
3) Experience at financial, government, securities-related organizations in charge of accounting or finance or in charge of supervision over accounting or finance for an aggregate of at least five years

B. Audit Committee independence

Pursuant to related laws and the Articles of Incorporation, SEC has prepared internal audit regulations which encompass composition, operation, authority, and responsibility of the Audit Committees to carry out audit related activities.

The Audit Committee is exclusively composed of Independent Directors recommended by the Board and appointed at the general shareholder meeting. Currently, it includes financial experts Jae-wan Bahk (head) and Han-jo Kim and legal expert Sun-uk Kim. Committee members do not have any relation to the Company's major shareholders that may undermine the independence of the Committee. Also, the Audit Committee satisfies requirements of relevant laws (eg, the stipulation that the role of head of the committee be held by an Independent Director).

Requirements	Requirement status	Applicable acts, etc.
The audit committee shall consist of at least three directors.	Satisfied: the committee consists of three Directors	Article 415-2 (2) of the Commercial Act, Article 2 of the Company's Audit Committee Regulation
The ratio of independent directors shall exceed two thirds of the total number of members.	Satisfied: all members are independent directors)	
At least one member of the committee shall be an accounting or financing expert.	Satisfied: Jae-wan Bahk; Han-jo Kim	Article 542-11 (2) of the Commercial Act, Article 3 of the Company's Audit Committee Regulation
The representative of the committee shall be an independent director.	Satisfied: Independent Director Jae-wan Bahk	
Other conditions (related party of the major shareholder, etc.)	Satisfied (n/a)	Article 542-11 (3) of the Commercial Act

[As of Dec 31, 2020]

Name	Term	Reasons for appointment	Nominator	Relationship with the Company	Relationship with the Company's major shareholders	Concurrent positions
Jae-wan Bahk (Head)	Mar 2019– Mar 2022	Expertise in finance and public sector and abundant experience in state affairs and policy design. He can contribute to the committee's activities by offering an objective perspective.	Independent Director Recommendation Committee	N/A	N/A	Independent Director Lotte Shopping, Co., Ltd 2016~
Sun-uk Kim	Mar 2018– Mar 2021	Based on the legal expertise and experience running organizations in areas including administration, finance, international affairs, etc., she can carry out the duties in an aboveboard manner with strict standards.	Independent Director Recommendation Committee	N/A	N/A	-
Han-jo Kim	Mar 2019– Mar 2022	An expert in finance with broad experience, he offers impartial judgement on overall management activities while carrying out his duties	Independent Director Recommendation Committee	N/A	N/A	-

Relationship with the Company and Company's major shareholders is in accordance with Article 542-8 of the Commercial Act.

The Audit Committee reviews accounting documents including financial statements and audit process related documents presented by the external auditor, and if needed, requests the external auditor to perform additional reviews on accounting books and records. To ensure the reliability of accounting related disclosures, the audit committee receives and reviews a report on internal accounting control systems prepared by internal accounting managers. In addition, the Committee attends the Board meetings and other significant meetings. The Committee receives reports on deliberations of the Management Committee and on business performance from Directors and requests additional reviews and supplementation of data as needed.

C. Major activities of the Audit Committee (2020)

Date	Agenda	Voting Results	Directors (attendance)		
			Jae-wan Bahk (100%)	Sun-uk Kim (100%)	Han-jo Kim (100%)
Jan 28	- Report on 2019 internal accounting management system activities	-	-	-	-
	- Report on evaluation of 2019 internal accounting management system activities	-	-	-	-
	- Report on audit activities by external auditor	-	-	-	-
	- Report on 2019 financial statement and business report	-	-	-	-
	- Report on 4Q19 non-audit activities	-	-	-	-
	- Report on 4Q19 external contributions	-	-	-	-
	- Report on 2019 audit activities	-	-	-	-
Feb 20	- Review of the 2019 AGM agenda	-	-	-	-
	- Report on activities of internal compliance system in 2019	-	-	-	-
Apr 27	- Communication between external auditor and audit committee	-	-	-	-
	- Report on 1Q20 report	-	-	-	-
	- Report on 1Q20 non-audit activities	-	-	-	-
	- Report on plans for reviewing 2020 internal accounting management system activities	-	-	-	-
	- Report on 1Q20 external contributions	-	-	-	-
	- Report on plans for evaluating 2020 internal accounting management system activities	-	-	-	-
Jul 28	- Communication between external auditor and audit committee	-	-	-	-
	- Report on 1H20 report	-	-	-	-
	- Report on 2Q20 non-audit activities	-	-	-	-
	- Report on progress of 2020 internal accounting management system activities	-	-	-	-
	- Report on 2Q20 external contributions	-	-	-	-
	- Report on 1H20 audit activities	-	-	-	-
	- Report on evaluating 2020 internal accounting management system activities	-	-	-	-
Oct 27	- Communication between external auditor and audit committee	-	-	-	-
	- Report on 3Q20 report	-	-	-	-
	- Report on 3Q20 non-audit activities	-	-	-	-
	- Report on 3Q20 external contributions	-	-	-	-

D. Education programs for the Audit Committee

In accordance with the working guide for internal accounting management system, we are conducting additional training to ensure the expertise of the Audit Committee. Organized by external experts, finance team, and audit team, education on changes to internal control, internal accounting management system is provided more than once a year.

E. Previous education sessions

Date	Organizer	Participants	Reasons for absence	Education contents
Apr 29, 2019	Audit team Finance team HR team External experts	Jae-wan Bahk Sun-uk Kim Han-jo Kim	N/A	Introduction materials
Jul 30, 2019	External experts	Jae-wan Bahk Sun-uk Kim Han-jo Kim	N/A	Internal accounting management system
Jul 28, 2020	External experts	Jae-wan Bahk Sun-uk Kim Han-jo Kim	N/A	Internal accounting management system

F. Support team for the Audit Committee

[As of Dec 31, 2020]

Team	Composition	Service years on team	Major tasks
Audit team	1 Executive Vice President, 3 Senior Professionals	Executive Vice President: 1 Year Senior Professionals: 2 years and 5 months (average)	Support the Audit Committee
Internal accounting assessment support group	1 Vice President, 1 Lawyer, 1 Senior Professional	Vice President: 2 years Lawyer: 2 years Senior Professional: 2 years	Support assessment of the internal accounting management system

G. Compliance Officer

[As of Dec 31, 2020]

1. Personal information and major career	**Name**	Duk-ho Ahn
	Date of birth	July 1968
	Sex	Male
	Current position	Corporate Compliance Team leader at Samsung Electronics (Jan 2020–present)
	Career	- Jan 2020: Head of Compliance Team, SEC (Executive Vice President) - Nov 2017: Head of Legal Support Team, SEC DS Division (Executive Vice President) - Apr 2017: Head of Legal Support Team, SEC DS Division (Senior Vice President) - Dec 2010: Office of Compliance Management, SEC (Senior Vice President) - Mar 2006: Office of Legal Affairs, SEC (Vice President) - Mar 2005: Office of Legal Affairs, Samsung Restructuring Head Office (Vice President) - 1997–2005: Judge at the Seoul District Court, Seoul Administration Court
	Academic background	Bachelor's Degree in Law (Seoul National University)
2. Date of Board resolution		Jan 30, 2020
3. Disqualifications		N/A
4. Others		N/A

Compliance officer meets the eligibility requirement (lawyer) stated in Article 542-13 (5) of the Commercial Act.

H. Major compliance activities

The Company conducts compliance assessments on a regular and ad-hoc basis and reflects the results in the Company's business activities to improve compliance of the Company and its employees.

Date	Assessment subject	Assessment area	Results
Mar 2020	Violation of customers' business secrets	Business secret	Overall result was satisfactory. Internal policies were followed in areas where there was room for improvement.
	Compliance of domestic marketing organizations	Fair trade	
	Compliance of overseas third-party production companies	Technology leak, product liability, etc.	
May 2020	Compliance of domestic marketing organizations	Fair trade, business secret, etc.	
	Compliance of waste management process	Environment & safety	
Jun 2020	Compliance of patent application process	Technology misuse, business secret, etc.	
	Voluntary compliance of overseas subsidiaries	Status of compliance program	
	Compliance of domestic and overseas third-party production companies	Technology leak, product liability, etc.	
Jul 2020	Idea management process	Technology misuse, business secret	
	Compliance of subsidiaries	Business secret, personal information, etc.	
Sep 2020	Execution of external contributions	Anti-corruption	
	Voluntary domestic compliance	Fair trade, anti-corruption, business secret	
	Compliance of domestic and overseas third-party production companies	Technology leak, product liability, etc.	
Nov 2020	Compliance of patent application process	Technology misuse, business secret, etc.	
	Compliance of reporting process for competitor contact	Fair trade	
	Compliance of domestic marketing organizations	Fair trade	
Dec 2020	Compliance of partner companies' technology misuse	Technology misuse	
	Compliance of health and safety risk	Environment & safety	
	Compliance of domestic and overseas third-party production companies	Technology leak, product liability, etc.	

Assessment conducted in the final month of each quarter.
Each assessment was conducted on selected organizations.

I. Support team for the Compliance Officer

[As of Dec 31, 2020]

Team	Composition	Service years (average)	Major tasks
Compliance team, etc.	3 Vice Presidents 11 Principal Professionals 12 Lawyers 28 Senior Professionals 8 Professionals (Total: 62)	Vice Presidents (4 years and 3 months) Principal Professionals (7 years and 2 months) Lawyers (4 years and 3 months) Senior Professionals (4 years and 10 months) Professionals (2 years and 5 months)	Supports activities of the Compliance Officer

Service years refer to time performing work relevant to support activity.

3. Voting rights of shareholders

A. Voting method

On January 30, 2020, the Board resolved to adopt electronic voting to enhance convenience in exercising voting rights for shareholders in accordance with Article 368-4 (Exercise of Voting Rights by Electronic Means) of the Commercial Act. E-voting was first introduced at the 51st AGM, held on March 18, 2020.
The convocation notice of general meeting of shareholders includes the information that voting rights can be exercised electronically. Owners of shares as of the last day of every settlement term can exercise their voting rights via the electronic voting system of Korea Securities Depository ten days prior to general meeting date until the day before the meeting, without being present at the meeting.

The Company has yet to adopt a cumulative voting system and paper voting.

B. Minority shareholder rights

No minority shareholder rights were exercised during the reporting period.

C. Competition over management rights

No competition over management rights occurred during the reporting period.

VII. Information on Shareholders

1. Ownership of shares by the major shareholder and related parties

[As of Dec 31, 2020]

Name	Relationship[1)]	Type of share	Ownership				Notes
			Period start		Period end		
			Shares	Stake (%)	Shares	Stake (%)	
Kun-hee Lee	Major shareholder	Common	249,273,200	4.18	249,273,200	4.18	-
Kun-hee Lee	Major shareholder	Preferred	619,900	0.08	619,900	0.08	-
Samsung C&T	Affiliate	Common	298,818,100	5.01	298,818,100	5.01	-
Samsung Welfare Foundation	Funded foundation	Common	4,484,150	0.08	4,484,150	0.08	-
Samsung Foundation Of Culture	Funded foundation	Common	1,880,750	0.03	1,880,750	0.03	-
Ra-hee Hong	Spouse of the major shareholder	Common	54,153,600	0.91	54,153,600	0.91	-
Jae-yong Lee	Son of the major shareholder	Common	42,020,150	0.70	42,020,150	0.70	-
Samsung Life Insurance	Affiliate	Common	508,157,148	8.51	508,157,148	8.51	-
Samsung Life Insurance	Affiliate	Preferred	43,950	0.01	43,950	0.01	-
Samsung Life Insurance (special accounts)	Affiliate	Common	18,286,593	0.31	16,284,877	0.27	Open market transactions
Samsung Life Insurance (special accounts)	Affiliate	Preferred	1,352,563	0.16	772,567	0.09	Open market transactions
Samsung Fire & Marine Insurance	Affiliate	Common	88,802,052	1.49	88,802,052	1.49	-
Ki-nam Kim	Executive member	Common	200,000	0.00	200,000	0.00	-
Hyun-suk Kim	Executive member	Common	99,750	0.00	99,750	0.00	-
Dong-jin Koh	Executive member	Common	75,000	0.00	75,000	0.00	-
Jong-hee Han	Executive member	Common	0	0.00	5,000	0.00	Newly appointed
Curie Ahn	Executive member	Common	800	0.00	2,600	0.00	Open market transactions
Han-jo Kim	Executive member	Common	2,175	0.00	2,175	0.00	-
Sang-hoon Lee	Executive member	Common	16.000	0.00	0	0.00	Resigned from Director position
Total		Common	1,266,269,468	21.21	1,264,258,552	21.18	-
		Preferred	2,016,413	0.25	1,436,417	0.17	-

Common shares carry full voting rights while preferred shares do not (owners of certain common shares have limited voting rights in accordance with relevant laws. For information on voting rights, please refer to 『I. Corporate Overview-5. Voting Shares』).

1) In accordance with Article 3 Paragraph 1 of Enforcement Decree of the Act on Corporate Governance of Financial Companies.

2. Matters related to the major shareholder

[The major shareholder]

1) Name: Kun-hee Lee

2) Career (recent 5 years): Chairman of Samsung Electronics (March 2010– 2020)
Honorary member of the International Olympic Committee (2017–2020)
Member of the International Olympic Committee (1996–2017)

3) The major shareholder of record has not changed during the reporting period.

* Changes related to the passing of the major shareholder on October 25, 2020 will be disclosed when finalized.

3. Ownership of shares

A. Share ownership status

[As of Dec 31, 2020]

Classification	Name	Number of shares owned	Share ratio	Note
Shareholders with over 5% voting shares[1)]	National Pension Service	638,687,780	10.70%	-
	Samsung Life Insurance	524,442,025	8.78%	-
	BlackRock Fund Advisors	300,391,061	5.03%	Based on the Report on Mass Holding of Securities (disclosed on February 7, 2019)
	Samsung C&T	298,818,100	5.01%	-
Employee Stock Ownership Association		-	-	-

BlackRock Fund Advisors information as of January 28, 2019.
The number of shares owned and share ratio of Samsung Life Insurance includes special accounts.
1) Including shares with limited voting rights in accordance with relevant laws. For more information, please refer to 『I. Corporate Overview-5. Voting Shares』

B. Minority Shareholders

[As of Dec 31, 2020]

Classification	Shareholder			Shares owned[1)]			Note
	Number of shareholders	Total shareholders	Portion	Number of shares	Total number of shares	Portion	
Minority shareholder	2,153,969	2,154,081	99.99%	3,737,268,243	5,969,782,550	62.60%	–

Shareholders with shares less than 1/100 of total issued stocks
1) Number of voting shares, including those with limited voting rights in accordance with relevant laws.

4. Stock affairs

Preemptive Rights in the Articles of Incorporation
1. New shares to be issued by the Company shall be allocated to the shareholders in proportion to their respective shareholdings in accordance with Paragraph 6, Article 8. If shares are not subscribed for as a result of waiver or loss of the preemptive right of the shareholders to subscribe for new shares, or if fractional shares remain at the time of allocation of new shares, such shares may be disposed of by a resolution of the Board of Directors in accordance with applicable laws and regulations. 2. Notwithstanding the above Paragraph 1, new shares may be allocated to persons other than shareholders in the following cases: a. If the Company issues new shares or causes underwriters to underwrite new shares by a resolution of the Board of Directors in accordance with applicable laws and regulations including the Financial Investment Services and Capital Markets Act; b. If the Company allocates new shares preferentially to members of the Employee Stock Ownership Association by a resolution of the Board of Directors in accordance with applicable laws and regulations including the Financial Investment Services and Capital Markets Act; c. If the Company issues new shares for the issuance of depositary receipts (DR) by a resolution of the Board of Directors in accordance with the applicable laws and regulations including the Financial Investment Services and Capital Markets Act; d. If the Company issues new shares by public offering in accordance with Article 11-3; e. If new shares are issued by the exercise of stock options in accordance with Article 11-4; f. If the Company issues new shares to the extent of 20% of the total issued and outstanding shares to domestic or foreign financial institutions for the purpose of obtaining financing urgently or to the relevant partner company for the purpose of inducing technology therefrom, etc., by a resolution of the Board of Directors; provided that the issue price of the new shares shall not be less than the price prescribed by the Financial Investment Services and Capital Markets Act and other applicable laws and regulations. ☞ (Note) Paragraph 6, Article 8 In the case of rights issue, bonus issue or stock dividend, the holders of common shares shall be entitled to common shares, and the holders of preferred shares shall be entitled to preferred shares, in proportion to their respective shareholdings; provided that in the case of rights issue and stock dividend the Company may, if necessary, issue only one kind of shares, where all the shareholders shall be entitled to such kind of shares to be issued. ☞ (Note) Article 11-3 (Public Offering) 1. The Company may issue new shares by public offering to the extent that the new shares do not exceed 20% of the total number of issued and outstanding shares by a resolution of the Board of Directors, pursuant to Article 165-6, Paragraph 1, Item 3 of the Financial Investment Services and Capital Markets Act. 2. If the Company issues new shares by public offering, the type, quantity and issue price of the shares to be newly issued shall be determined by a resolution of the Board of Directors; provided that the issue price of such new shares shall not be less than the price prescribed by the Financial Investment Services and Capital Markets Act and other applicable laws and regulations. ☞ (Note) Article 11-4 (Stock Options) 1. The Company may grant stock options to its officers and employees (including officers and employees of the related companies as set forth in Article 542-3, Paragraph 1 of the Commercial Code; the same shall apply for the purpose of this Article) by a special resolution of the general meeting of shareholders pursuant to Article 542-3 of the Commercial Code, to the extent permitted by the Commercial Code; provided, however, that the Company may grant the stock options to its officers and employees (except for the directors of the Company) by a resolution of the Board of Directors to the extent determined by the relevant laws and regulations. 2. The person to whom stock options may be granted are the officers and employees who have contributed or have the capacity to contribute to the establishment, management, overseas business, technical innovation, etc. of the Company; provided, however, that the officers and employees who may not be entitled to stock options under the relevant laws and regulations shall be excluded. 3. The shares to be issued to the officers or employees by the exercise of their stock options (in case the Company pays, either in cash or treasury shares, the difference between the exercise price of stock options and the market price, they refer to the shares which are the basis for such calculation) shall be common shares in registered form or preferred shares in registered form. 4. Total number of shares to be delivered in accordance with the exercise of stock options shall be up to the extent permitted by the relevant laws

and regulations.

5. The stock options may be exercised until an expiry date determined by a resolution of the general meeting of shareholders or the Board of Directors and such expiry date shall be determined within a period not exceeding eight (8) years from the date when two (2) years have elapsed from the date of the general meeting of shareholders or the date of the Board of Directors' meeting at which a resolution to grant such stock options is adopted; provided, however, that the person to whom a stock option is granted should serve the Company for at least two (2) years after the date of such resolution in order to exercise such stock option, unless otherwise set forth by relevant laws and regulations.

6. The terms and conditions for stock options, such as the contents and exercise price thereof shall be determined by a special resolution of the general meeting of shareholders or by a resolution of the Board of Directors in accordance with the relevant laws and regulations and the Articles of Incorporation; provided, however, that such matters which are not provided for as matters reserved for resolutions of the general meeting of shareholders or the Board of Directors' meeting under the relevant laws and regulations or the Articles of Incorporation may be determined by the Board of Directors or a committee authorized by the Board of Directors.

7. The Company may cancel the grant of stock options by a resolution of the Board of Directors in any of the following cases:

a. In case the relevant officer or employee voluntarily retires from his/her office or leaves the Company after the grant of stock options;
b. In case the relevant officer or employee causes substantial damages to the Company due to his/her willful misconduct or negligence;
c. In case any of the causes for cancellation set forth in the stock option agreement occurs.

Settlement date	Dec 31	Annual General Meetings of Shareholders	Within 3 months after the end of every business year
Record date (closing period)			Last day of fiscal year (One month from Jan 1)
Transfer agent	Korea Securities Depository (T: +82-51-519-1500): 40 Munhyeongeumyung-ro, Nam-gu, Busan, Korea		
Shareholder benefit	n/a	Published on	Joongang Daily

With Act on Electronic Registration of Stocks, Bonds, etc. ("Electronic Securities Act") taking effect Sep 16, 2019, rights specified on stocks and subscription warrants are subject to mandatory electronic registration, therefore, "Stock types" are no longer applicable.
Related information is published on Joongang Daily in pursuant to our Articles of Incorporation, as well as on our website (http://www.samsung.com/sec/ir).

5. Stock price and stock transactions

A. Domestic stock market

Type			Jul 2020	Aug 2020	Sep 2020	Oct 2020	Nov 2020	Dec 2020
Common stock	Stock price	High	59,000	59,000	61,000	60,900	68,200	81,000
		Low	52,600	54,000	54,200	56,600	57,400	67,800
		Average	54,726	56,980	58,176	59,737	63,419	73,619
	Volume	High (day)	48,431,566	32,671,367	31,517,520	26,907,844	43,811,016	40,085,044
		Low (day)	10,096,174	14,021,705	11,444,683	9,322,232	14,063,434	16,304,910
		Month	437,314,531	401,697,954	426,302,298	327,557,687	496,431,342	529,998,852
Preferred stock	Stock price	High	50,600	50,700	52,000	53,600	61,900	73,600
		Low	46,100	47,500	47,100	50,100	51,200	62,500
		Average	47,576	49,478	50,090	52,532	57,429	68,467
	Volume	High (day)	6,280,763	3,748,473	3,836,969	3,716,282	6,415,253	8,145,726
		Low (day)	956,861	1,278,718	1,636,797	1,455,825	1,447,736	2,109,156
		Month	45,752,754	38,335,293	49,122,043	44,891,228	70,569,616	90,213,209

Stock price is based on the closing exchange rate of the applicable trading day.

B. Overseas stock market

□ Name of stock exchange: London Stock Exchange (common stock)

Type				Jul 2020	Aug 2020	Sep 2020	Oct 2020	Nov 2020	Dec 2020
Common stock	Price per GDR	High	USD	1,237.00	1,261.00	1,308.00	1,345.00	1,554.00	1,847.00
			KRW	1,478,339	1,494,159	1,544,094	1,532,897	1,718,413	2,019,140
		Low	USD	1,098.00	1,177.00	1,149.00	1,263.00	1,270.00	1,544.00
			KRW	1,311,561	1,395,569	1,361,105	1,431,484	1,435,608	1,705,966
		Average	USD	1,144.35	1,210.75	1,237.18	1,307.36	1,429.57	1,683.10
			KRW	1,372,143	1,436,617	1,458,444	1,502,258	1,596,812	1,844,553
	Volume[1]	High (day)		41,739	35,398	55,465	39,216	35,136	49,065
		Low (day)		2,496	10,970	12,789	10,714	10,416	3,897
		Month		487,210	400,122	571,733	438,854	464,256	462,885

Stock price in KRW is based on the closing exchange rate of the applicable trading day.
High and low price in KRW are based on the KRW/USD closing exchange rate of the applicable trading day; average price in KRW is based on monthly average KRW/USD exchange rate.
Conversion ratio between GDRs and original shares is 1:25.
1) Number of shares.

□ Name of stock exchange: Luxembourg Stock Exchange (preferred stock)

Type				Jul 2020	Aug 2020	Sep 2020	Oct 2020	Nov 2020	Dec 2020
Preferred stock	Price per GDR	High	USD	1,042.00	1,076.00	1,102.00	1,184.00	1,400.00	1,676.00
			KRW	1,245,398	1,276,136	1,300,911	1,342,774	1,550,080	1,832,203
		Low	USD	965.00	1,018.00	974.00	1,098.00	1,134.00	1,402.00
			KRW	1,156,553	1,207,043	1,156,625	1,288,503	1,281,874	1,549,070
		Average	USD	992.57	1,048.20	1,061.95	1,143.73	1,284.00	1,552.48
			KRW	1,190,147	1,243,743	1,251,878	1,314,227	1,434,211	1,701,404
	Volume[1]	High (day)		5,573	2,973	10,533	4,361	5,023	6,015
		Low (day)		281	529	529	598	319	92
		Month		44,152	26,354	60,394	42,944	45,307	47,684

Stock price in KRW is based on the closing exchange rate of the applicable trading day.
High and low price in KRW are based on the KRW/USD closing exchange rate of the applicable trading day; average price in KRW is based on monthly average KRW/USD exchange rate.
Conversion ratio between GDRs and original shares is 1:25.
1) Number of shares.

VIII. Executives and Employees

1. Executives and employees

A. Registered Executives

[As of Dec 31, 2020] (Shares)

Name	Gender	Date of birth	Position	Registered Executive	Full/ part-time	Responsibility	Major career	Number of shares owned		Relationship with the major shareholder[1)]	Length of service (months)	Term expiration
								Common	Preferred			
Ki-nam Kim	M	Apr 1958	CEO	Yes	Full	Head of DS Division	- Doctor's degree in Electrical Engineering from UCLA - Head of DS Division	200,000	-	Executive member	34	Mar 22, 2021
Hyun-suk Kim	M	Jan 1961	CEO	Yes	Full	Head of CE Division	- Master's degree in Electrical Engineering from Portland State University - Head of CE Division	99,750	-	Executive member	34	Mar 22, 2021
Dong-jin Koh	M	Mar 1961	CEO	Yes	Full	Head of IM Division	- Master's degree in Technology Policy from University of Sussex - Head of IM Division	75,000	-	Executive member	34	Mar 22, 2021
Jong-hee Han	M	Mar 1962	Executive Director	Yes	Full	Head of Visual Display Business	- Bachelor's degree in Electronic Engineering from Inha University - Head of Visual Display Business	5,000	-	Executive member	10	Mar 17, 2023
Yoon-ho Choi	M	Jan 1963	Executive Director	Yes	Full	Overall Management	- Bachelor's degree in Business Management from Sungkyunkwan University - Head of Corporate Management Office	-	-	Executive member	10	Mar 17, 2023
Jae-wan Bahk	M	Jan 1955	Independent Director	Yes	Part	Chairman of the Board	- Doctor's degree in Public Policy from Harvard University - Professor Emeritus of Graduate School of Public Administration at Sungkyunkwan University	-	-	Executive member	58	Mar 10, 2022
Sun-uk Kim	F	Dec 1952	Independent Director	Yes	Part	Overall management	- Doctor's degree in Administrative Law from University of Konstanz - Professor Emeritus at Ewha Womans University	-	-	Executive member	34	Mar 22, 2021
Byung-gook Park	M	Apr 1959	Independent Director	Yes	Part	Overall management	- Doctor's degree in Electrical Engineering from Stanford University - Professor of Electrical Engineering at Seoul National University	-	-	Executive member	34	Mar 22, 2021
Jeong Kim	M	Aug 1960	Independent Director	Yes	Part	Overall management	- Doctor's degree in Reliability Engineering from the University of Maryland - President of Kiswe Mobile	-	-	Executive member	34	Mar 22, 2021
Curie Ahn	F	Mar 1955	Independent Director	Yes	Part	Overall management	- Doctor's degree in Medicine from Seoul National University - Professor Emeritus at the Division of Nephrology of Seoul National University	2,600	-	Executive member	22	Mar 19, 2022

Han-jo Kim	M	Jul 1956	Independent Director	Yes	Part	Overall management	- Bachelor's degree in French language and Literature from Yonsei University - Chairman of Hana Nanum Foundation	2,175	-	Executive member	22	Mar 19, 2022

Feb 14, 2020: Sang-hoon Lee resigned from his position of Executive Director.
Mar 18, 2020: Jong-hee Han and Yoon-ho Choi were appointed as Executive Directors at the AGM.
1) In accordance with Article 3 Paragraph 1 of Enforcement Decree Of The Act On Corporate Governance Of Financial Companies.

B. Registered executive director candidates (or to be retired)

[As of Dec 31, 2020]

	Name	Gender	Date of birth	Executive or Independent Director	Career highlights	Date of appointment or retirement	Relationship with the major shareholder
Director candidate	Ki-nam Kim	M	Apr 1958	Executive Director	- Doctor's degree in Electrical Engineering from UCLA (1994) - President of Semiconductor Business Samsung Electronics (2014–2017) - Head of DS Division Samsung Electronics (2017–present) - Vice Chairman and CEO Samsung Electronics (2018–present)	March 17, 2021	Executive member
Director candidate	Hyun-suk Kim	M	Jan 1961	Executive Director	- Master's degree in Electrical Engineering from Portland State - - University (1987) - Head of the Visual Display Business Samsung Electronics (2011–2017) - Head of CE Division (2017–present) - President and CEO Samsung Electronics (2018–present)	March 17, 2021	Executive member
Director candidate	Dong-jin Koh	M	Mar 1961	Executive Director	- Master's degree in Technology Policy from University of Sussex (1993) - Head of Mobile Business (2015–2020) - Head of IM Division (2017–present) - President and CEO (2018–present)	March 17, 2021	Executive member
Director candidate	Sun-uk Kim	F	Dec 1952	Audit Committee member	- Doctor's degree in Administrative Law from University of Konstanz (1988) - Minister of Government Legislation (2005–2007) - President, Ewha Womans University (2010~2014) - Chair, POSCO TJ Park Foundation (2018–present) - Professor Emeritus at Ewha Womans University (2018–present) - Chair, Policy Committee of Ministry of Justice (2020–present)	March 17, 2021	Executive member
Director candidate	Byung-gook Park	M	Apr 1959	Independent Director (not Audit Committee member)	- Doctor's degree in Electrical Engineering from Stanford University (1990) - Professor of Electrical Engineering at Seoul National University (1994–present) - Fellow, The Korean Academy of Science and Technology (2019–present) - Fellow, Institute of Electrical and Electronics Engineers (2020–present)	March 17, 2021	Executive member
Director candidate	Jeong Kim	M	Aug 1960	Independent Director (not Audit Committee member)	- Doctor's degree in Reliability Engineering from the University of Maryland (1991) - President and co-founder of Kiswe Mobile	March 17, 2021	Executive member

C. Registered Executives with concurrent positions

[As of Dec 31, 2020]

Concurrent office holder		Company		
Name	Position	Name of company	Position	Period
Jae-wan Bahk	Independent Director	Lotte Shopping Co., Ltd	Independent director	2016–present
Jeong Kim	Independent Director	Kiswe Mobile	President	2013–present

D. Employees

[As of Dec 31, 2020]

(KRW mil)

Division	Gender	Number of employees[1]				Average length of service (years)	Total compensation (KRW mil)	Average compensation per employee[2] (KRW mil)	Non-affiliated[3]		
		Regular	Contract-based	Others	Total				Male	Female	Total
CE	M	10,262	60	-	10,322	16.1	-	-	18,861	9,000	27,861
	F	2,165	15	-	2,180	11.2	-	-			
IM	M	19,762	165	-	19,927	14.1	-	-			
	F	7,144	23	-	7,167	12.0	-	-			
DS	M	42,391	138	-	42,529	10.9	-	-			
	F	16,726	15	-	16,741	10.8	-	-			
Others	M	8,159	145	-	8,304	15.1	-	-			
	F	2,271	49	-	2,320	11.4	-	-			
Gender total	M	80,574	508	-	81,082	12.8	10,643,957	136			
	F	28,306	102	-	28,408	11.2	2,523,709	98			
Total		108,880	610	-	109,490	12.4	13,167,666	127			

Total compensation and average compensation per employee were calculated before income tax and other deductions based on the earned income payment record submitted to the district tax office in accordance with Article 20 of the Income Tax Law.

1) Standalone basis; represents employees of domestic headquarters in Korea, including employees on leave and excluding 11 registered executives (5 Executive Directors and 6 Independent Directors).

2) Calculated based on average number of employees: 104,043 employees (male: 78,193, female: 25,850).

E. Remuneration of non-registered Executives

[As of Dec 31, 2020] (KRW mil)

Classification	Number of employees	Total compensation	Average compensation per employee	Note
Non-registered Executives	964	716,674	743	-

As per Public Disclosure Guideline, the number of employees and total annual salary is shown only for those who are active and the amount of compensation is calculated based on the earned income payment record (before earned income tax credit) submitted to the district tax office in accordance with Article 20 of the Income Tax Law.
A total of 125 non-registered executives were excluded as they did not earn domestic income (eg, expatriates).

2. Remuneration for directors

A. Summary on total remuneration

<Remuneration of directors and auditors>

(1) Remuneration approved at the annual general meetings of shareholders

(KRW mil)

	Number of persons[1)]	Amount approved at shareholders' meeting[2)]	Note
Registered Directors	5	-	-
Independent Directors	3	-	-
Audit Committee members or Auditor	3	-	-
Total	11	55,000	-

1) As of the day of AGM, as approved on the occasion
2) Remuneration limit for directors (including those retired) approved at the AGM on March 18, 2020, as per Article 388 of Commercial Act and our Articles of Incorporation.

(2) Remuneration Paid

[Remuneration paid for directors and auditors]

(KRW mil)

Number of persons[1)]	Total amount of remuneration[2)]	Average remuneration per Director	Note
12	33,082	2,757	-

There are no recognized expenses (compensation expenses) in this term from granting stock options.
Based on the Income Tax Act that incumbent or retired registered directors, independent directors, and members of audit committee in the fiscal year received in accordance with Article 159 of the Financial Investment Services and Capital Markets Act and Article 168 of the enforcement decree of the same law.
1) Includes a director who resigned in 2020. As of the reporting date, the number of incumbent directors is 11.
2) Earned income as per Income Tax Law (Article 20: Wage and Salary Income, Article 21: Other Income, Article 22: Retirement income). Includes remuneration that newly appointed or resigned directors received as non-registered executives.

[Remuneration paid, by Director type]

(KRW mil)

	Number of persons[1)]	Total amount of remuneration[2)]	Average remuneration per Director[3)]
Registered Directors (excluding Independent Directors and Audit Committee members)	6	32,248	5,375
Independent Directors (excluding Audit Committee members)	3	541	180
Audit Committee members	3	293	98
Auditor	-	-	-

There are no recognized expenses (compensation expenses) in this term from granting stock options.
Based on the Income Tax Act that incumbent or retired registered directors, independent directors, and members of audit committee in the fiscal year received in accordance with Article 159 of the Financial Investment Services and Capital Markets Act and Article 168 of the enforcement decree of the same law.
1) Includes a director who resigned in 2020. As of the reporting date, the number of incumbent registered directors is 5.
2) Earned income as per Income Tax Law (Article 20: Wage and Salary Income, Article 21: Other Income, Article 22: Retirement income). Includes remuneration that newly appointed or resigned directors received as non-registered executives.

(3) Criteria and methodology

Remuneration of directors is paid in accordance with internal regulations for Executive treatment and Independent Director treatment within the remuneration limit approved at the AGM.

Type	Criteria and methodology
Registered Directors (excluding Independent Directors and Audit Committee members)	• Salary: In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position, responsibilities, and performance results. • Traditional holiday bonus: 100% of monthly wage • Target achievement incentive: Paid biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) • Performance incentive: When performance exceeds the Company's goal; CEO decides the amount based on 20% profit. Paid once a year within 0–50% of salary. (Adjusted according to individual performance.) • Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. • Fringe benefits: Medical services, checkups, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
Independent Directors (excluding Audit Committee members)	• Salary: In accordance with internal regulations for independent director treatment, remuneration is determined based on responsibilities, etc. • Fringe benefits: Medical services, checkups, group accident insurance are provided in line with the internal regulations for independent director treatment
Audit Committee members	• Salary: In accordance with internal regulations for independent director treatment, remuneration is determined based on responsibilities, etc. • Fringe benefits: Medical services, checkups, group accident insurance are provided in line with the internal regulations for independent director treatment

No bonus based on performance for Independent Directors including members of the audit committee.

<Remuneration for individual Executive Directors>

(1) Summary on Remuneration by Executive

(KRW mil)

Name	Position	Total amount of remuneration	Remuneration not included in total amount
Ki-nam Kim	Executive Director	8,274	-
Hyun-suk Kim	Executive Director	5,457	-
Dong-jin Koh	Executive Director	6,712	-
Jong-hee Han	Director	4,183	-
Yoon-ho Choi	Director	3,028	-
Sang-hoon Lee	President	4,594	-

Based on the Income Tax Act that incumbent or retired registered directors, independent directors, and members of audit committee in the fiscal year received in accordance with Article 159 of the Financial Investment Services and Capital Markets Act and Article 168 of the enforcement decree of the same law.
Earned income as per Income Tax Law (Article 20: Wage and Salary Income, Article 21: Other Income, Article 22: Retirement income). Includes remuneration that newly appointed or resigned directors received as non-registered executives.

(2) Criteria and methodology

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Ki-nam Kim (CEO)	Earned Income	Salary	1,499	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position (vice chairman), responsibilities, and performance results. He was paid KRW 114 million per month from January to February, KRW 146 million in March, and KRW 125 million per month from April to December.
		Bonus	6,612	- Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: When performance exceeds the Company's goal; CEO decides the amount based on 20% profit. Paid once a year within 0–50% of salary. (Adjusted according to individual performance.) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved a ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% over 2017–2019; and that the DS division achieved sales of KRW 103.0 trillion and operating profit of KRW 21.1 trillion in 2020. Qualitative indicators include enhancing business competitiveness with excellent leadership in the memory market and aggressive investments in the non-memory business including System LSI and Foundry. The amount of the bonus was determined based on the indicators.
		Profit from exercising stock option	-	n/a
		Other Income	163	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Hyun-suk Kim (CEO)	Earned Income	Salary	998	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (president), responsibilities, and performance results. He was paid KRW 76 million per month from January to February, KRW 97 million in March, and KRW 83 million per month from April to December.
		Bonus	4,360	- Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: When performance exceeds the Company's goal; CEO decides the amount based on 20% profit. Paid once a year within 0–50% of salary. (Adjusted according to individual performance.) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the CE division achieved sales of KRW 48.2 trillion and operating profit of KRW 3.6 trillion in 2020. Qualitative indicators include strengthening product leadership amid intense competition in the digital appliance market by launching innovative products such as Lifestyle TVs and expanding the Bespoke lineup, and establishing a strong profit model by improving operational structure. The amount of the bonus was determined based on the indicators.
		Profit from exercising stock option	-	n/a
		Other Income	98	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Dong-jin Koh (CEO)	Earned Income	Salary	1,170	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (president), responsibilities, and performance results. He was paid KRW 98 million per month from January to December.
		Bonus	5,460	- Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: When performance exceeds the Company's goal; CEO decides the amount based on 20% profit. Paid once a year within 0–50% of salary. (Adjusted according to individual performance.) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the IM division achieved sales of KRW 99.6 trillion and operating profit of KRW 11.5 trillion in 2020. Qualitative indicators include leading the market with mobile innovation by launching S20, foldable phones, etc. and contributions to securing next-generation

				communications technologies. The amount of bonus was determined based on the indicators.
		Profit from exercising stock option	-	n/a
		Other Income	82	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Jong-hee Han (Director)	Earned Income	Salary	806	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (president), responsibilities, and performance results. He was paid KRW 57 million per month from January to February, KRW 89 million in March and KRW 67 million per month from April to December.
		Bonus	3,288	- Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: When performance exceeds the Company's goal; CEO decides the amount based on 20% profit. Paid once a year within 0–50% of salary. (Adjusted according to individual performance.) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the CE division achieved sales of KRW 48.2 trillion and operating profit of KRW 3.6 trillion in 2020. Qualitative indicators include driving solid growth by introducing innovative products including MICRO LED, Lifestyle TV, etc. and maintaining the top position in the TV market for a 15th consecutive year despite a challenging environment. The amount of bonus was determined based on the indicators.
		Profit from exercising stock option	-	n/a
		Other Income	89	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Yoon-ho Choi (Director)	Earned Income	Salary	728	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (president), responsibilities, and performance results. He was paid KRW 54 million per month from January to February, KRW 75 million in March, and KRW 61 million per month from April to December.
		Bonus	2,208	- Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid biannual basis within the range of 0–200% of monthly

				wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: When performance exceeds the Company's goal; CEO decides the amount based on 20% profit. Paid once a year within 0–50% of salary. (Adjusted according to individual performance.) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the Company achieved sales of KRW 236.8 trillion and operating profit of KRW 36.0 trillion in 2020. Qualitative indicators include preemptive management of risks on businesses, driving solid revenue growth with advanced operation of resources, strategic investment in emerging technologies such as AI and robots, and solidifying the foundation for sustainable growth by strengthening ESG and compliance activities. The amount of bonus was determined based on the indicators.
		Profit from exercising stock option	-	n/a
		Other Income	92	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Sang-hoon Lee (Director)	Earned Income	Salary	778	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (president), responsibilities, and performance results. He was paid KRW 65 million per month from January to December.
		Bonus	3,691	- Traditional holiday bonus: 100% of monthly wage - Target Achievement Incentive: Paid biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance Incentive: When performance exceeds the Company's goal; CEO decides the amount based on 20% profit. Paid once a year within 0–50% of salary. (Adjusted according to individual performance.) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the company achieved sales of KRW 236.8 trillion and operating profit of KRW 36.0 trillion in 2020. Qualitative indicators include enhancing Company management, and providing ways to strengthen ESG activities as a former Chairman of the Board. The amount of the bonus was determined based on the indicators.
		Profit from exercising stock option	-	n/a
		Other Income	125	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

< Remuneration for five highest-paid Executive Directors (KRW 500 million or more) >

(1) Summary on remuneration by Executive

(KRW mil)

Name	position	Total amount of remuneration	Remuneration not included in total amount
Oh-hyun Kwon	Advisor	17,233	-
Boo-keun Yoon	Advisor	11,527	-
Jong-kyun Shin	Advisor	11,327	
Dong-soo Jun	Former advisor	10,908	
Ki-nam Kim	CEO	8,274	

Earned income as per Income Tax Law (Article 20: Wage and Salary Income, Article 21: Other Income, Article 22: Retirement income).

(2) Criteria and methodology

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Oh-hyun Kwon	Earned Income	Salary	792	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position (chairman), responsibilities, and performance results. He was paid KRW 104 million in January. Following appointment as an advisor, he was paid KRW 63 million per month from February to December.
		Bonus	7,032	- Traditional holiday bonus: 100% of monthly wage - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. - Special bonus: In accordance with internal regulations for executive treatment (Board resolution), paid one-time special bonus ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the Company achieved sales of KRW 236.8 trillion and operating profit of KRW 36.0 trillion in 2020. Qualitative indicators include identifying emerging technologies, presenting mid- to long-term business direction, and nurturing the next generation executives. The amount of bonus was determined based on the indicators.
		Profit from exercising stock option	-	n/a
		Other Income	119	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		9,290	In accordance with internal regulations for severance pay of executives (Board resolution), calculated by multiplying KRW 104 million (monthly wage at the time of retirement), 27 (years of service), and a variable within a 1.0-3.5 range.
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Boo-keun Yoon	Earned Income	Salary	656	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position (vice chairman), responsibilities, and performance results. He was paid KRW 86 million in January. Following appointment as an advisor, he was paid KRW 52 million per month from February to December.

		Bonus	4,573	- Traditional holiday bonus: 100% of monthly wage - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019. Qualitative indicators include providing mid- to long-term direction for emerging technologies and strategies for CE Division and identifying external risks on the business. The amount of the bonus was determined based on the indicators.
		Profit from exercising stock option	-	n/a
		Other Income	203	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		6,095	In accordance with internal regulations for severance pay of executives (Board resolution), calculated by multiplying KRW 86 million (monthly wage at the time of retirement), 21 (years of service), and a variable within a 1.0-3.5 range.
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Jong-kyun Shin	Earned Income	Salary	656	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (vice chairman), responsibilities, and performance results. He was paid KRW 86 million in January. Following appointment as an advisor, he was paid KRW 52 million per month from February to December.
		Bonus	4,573	- Traditional holiday bonus: 100% of monthly wage - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019. Qualitative indicators include providing mid- to long-term direction for emerging technologies and strategies for the IM Division, passing on management insights, and enhancing human resource by nurturing the next generation executives. The amount of the bonus was determined based on the indicators.
		Profit from exercising stock option	-	n/a
		Other Income	197	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		5,900	In accordance with internal regulations for severance pay of executives (Board resolution), calculated by multiplying KRW 86 million (monthly wage at the time of retirement), 20 (years of service), and a variable within a 1.0-3.5 range.
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Dong-soo Jun	Earned Income	Salary	504	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (president), responsibilities, and performance results. He was paid KRW 85 million in January. Following appointment as an advisor, he was paid KRW 42 million per month from February to December. Amount paid by the subsidiary where he works concurrently, is not included in the total amount.

		Bonus	3,650	- Traditional holiday bonus: 100% of monthly wage. Amount paid by the subsidiary where he works concurrently, is not included in the total amount. - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019. Qualitative indicators include providing mid- to long-term direction for emerging technologies and strategies for Health & Medical Equipment Business and enhancing business competitiveness. The amount of the bonus was determined based on the indicators.
		Profit from exercising stock option	-	n/a
		Other Income	119	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		6,634	In accordance with internal regulations for severance pay of executives (Board resolution), calculated by multiplying KRW 85 million (monthly wage at the time of retirement), 24 (years of service), and a variable within a 1.0-3.5 range.
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Ki-nam Kim	Earned Income	Salary	1,499	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (vice chairman), responsibilities, and performance results. He was paid KRW 114 million per month from January to February, KRW 146 million in March, and KRW 125 million per month from April to December.
		Bonus	6,612	- Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: When performance exceeds the Company's goal; CEO decides the amount based on 20% profit. Paid once a year within 0–50% of salary. (Adjusted according to individual performance.) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved a ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% over 2017–2019; and that the DS division achieved sales of KRW 103.0 trillion and operating profit of KRW 21.1 trillion in 2020. Qualitative indicators include enhancing business competitiveness with excellent leadership in memory market and aggressive investments in the non-memory business including System LSI and Foundry. The amount of the bonus was determined based on the indicators.
		Profit from exercising stock option	-	n/a
		Other Income	163	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

B. Stock options granted and exercised

(1) Status of stock options granted to registered Directors

As of December 31, 2020, there were no accumulated-basis unexercised stock options granted to registered Directors.

(KRW mil)

Type	Number[1)]	Total fair value of stock options	Note
Registered Director	5	-	-
Independent Director	3	-	-
Audit Committee member or Auditor	3	-	-
Total	11	-	-

1) As of the reporting date.

(2) Status of stock options granted to non-registered Executives

As of December 31, 2020, there were no accumulated-basis unexercised stock options granted to non-registered Executives.

IX. Affiliates and Subsidiaries

1. *Affiliates & subsidiaries*

A. Affiliates

- Name of affiliated group: Samsung

As of December 31, 2020, Samsung Group had a total of 59 domestic affiliates. Among the Samsung Group's 59 domestic affiliates, sixteen (16) affiliates including Samsung Electronics are listed, and forty-four (43) affiliates are unlisted.

[As of December 31, 2020]

	No. of affiliates	Name of affiliates
Listed	**16**	Samsung C&T; Samsung Electronics; Samsung SDI; Samsung Electro-mechanics; Samsung Fire & Marine Insurance; Samsung Heavy Industries; Samsung Life Insurance; Multicampus; Samsung Securities; Samsung SDS; Samsung Card; Samsung Engineering; S1; Cheil Worldwide; Hotel Shilla; Samsung Biologics
Unlisted	**43**	Seoul Lakeside CC; Samwoo Architects & Engineers; CVnet Corporation; Samsung Bioepis; Samsung Display; Samsung Corning Advanced Glass; SU Materials; STECO; SEMES; Samsung Electronics Service; Samsung Electronics Sales; Samsung Electronics Logitech; Suwon Samsung Bluewings FC; Samsung Medison; Samsung Claim Adjustment Service; Samsung Fire & Marine Insurance Service; Samsung Fire & Marine Insurance Financial Service; Samsung Electronics Service CS; Samsung Futures; Samsung Asset Management; Samsung Life Service; Samsung SRA Asset Management; Samsung Life Financial Service; SD Flex; Cheil Fashion Retail Co., Ltd.; Samsung Welstory; SECUI; STM; S-Core; OpenHands; Miracom; Samsung Card Customer Service; Human TSS; S-1CRM; Shilla Stay; HDC Shilla Duty Free LTD; Samsung Economic Research Institute (SERI); Samsung Lions; Samsung Venture Investment Corporation; Samsung Active Asset Management; Samsung Hedge Asset Management; Harman International Korea; SBTM
Total	**59**	

B. Ownership status of affiliates and subsidiaries

1) Domestic

Investee / Investor	Samsung C&T Corp	Samsung BioLogics	Samsung Life Insurance	Samsung SDI	Samsung SDS	Samsung Engineering	Samsung Electro-mechanics	Samsung Electronics	Samsung Heavy Industries	Samsung Securities	Samsung Card	Samsung Fire & Marine Insurance	MULTI CAMPUS	S1 Corporation	Cheil Worldwide
Samsung C&T Corporation		43.4	19.3		17.1	7.0		5.0	0.1						
Samsung BioLogics															
Samsung Life Insurance	0.1	0.1		0.1	0.1	0.2	0.2	8.8	3.1	29.6	71.9	15.0	0.0	5.4	0.3
Samsung SDI						11.7			0.4					11.0	
Samsung SDS													47.2		
Samsung Electro-mechanics									2.2						
Samsung Electronics		31.5		19.6	22.6		23.7		16.0						25.2
Samsung Heavy Industries															
Samsung Securities.														1.3	
Samsung Card														1.9	3.0
Samsung Fire & Marine Insurance						0.2		1.5						1.0	
S1 Corporation															
Cheil Worldwide									0.1						
Hotel Shilla															
SDC															
Samsung Asset Management															
Samsung Eelectronics Service															
Miracom															
SERI													15.2		
Harman International Industries, Inc.															
Total	0.1	75.0	19.3	19.7	39.7	19.0	23.9	15.3	21.9	29.6	71.9	15.0	62.4	20.6	28.6

Percent of ownership as of December 31, 2020 based on common shares.

Investee Investor	Hotel Shilla	Samsung Display	Samsung Medison	Samsung BioEpis	Samsung Venture Investment	Samsung Life Service	Samsung Futures	Samsung Active Asset Management	Samsung SRA Asset Management	Samsung Welstory	Samsung Asset Management	Samsung Electronics Logitech	Samsung Electronics Service	Service CS	Samsung Electronics Sales
Samsung C&T Corporation					16.7					100.0					
Samsung BioLogics				50.0											
Samsung Life Insurance	7.5					99.8			100.0		100.0				
Samsung SDI	0.1	15.2			16.3										
Samsung SDS															
Samsung Electro-mechanics					17.0										
Samsung Electronics	5.1	84.8	68.5		16.3							100.0	99.3		100.0
Samsung Heavy Industries					17.0										
Samsung Securities.	3.1				16.7		100.0								
Samsung Card	1.3														
Samsung Fire & Marine Insurance															
S1 Corporation															
Cheil Worldwide															
Hotel Shilla															
SDC															
Samsung Asset Management								100.0							
Samsung Eelectronics Service														100.0	
Miracom															
SERI															
Harman International Industries, Inc.															
Total	17.1	100.0	68.5	50.0	100.0	99.8	100.0	100.0	100.0	100.0	100.0	100.0	99.3	100.0	100.0

Percent of ownership as of December 31, 2020 based on common shares.

Investee / Investor	Samsung Card Customer Service	Samsung Corning Advanced Glass	Samsung Hedge Asset Management	Samsung Fire & Marine Insurance Service	Samsung Claim Adjustment Service	SEMES	Suwon Samsung Bluewings FC	STECO	Shilla Stay	SD Flex	SBTM	S-1CRM	SU Materials	S-Core	STM
Samsung C&T Corporation															
Samsung BioLogics															
Samsung Life Insurance															
Samsung SDI										50.0					100.0
Samsung SDS														81.8	
Samsung Electro-mechanics															
Samsung Electronics						91.5		70.0							
Samsung Heavy Industries															
Samsung Securities.															
Samsung Card	100.0														
Samsung Fire & Marine Insurance				100.0	100.0										
S1 Corporation												100.0		0.6	
Cheil Worldwide							100.0							5.2	
Hotel Shilla									100.0		100.0				
SDC		50.0											50.0		
Samsung Asset Management			100.0												
Samsung Eelectronics Service															
Miracom														0.5	
SERI															
Harman International Industries, Inc.															
Total	100.0	50.0	100.0	100.0	100.0	91.5	100.0	70.0	100.0	50.0	100.0	100.0	50.0	88.1	100.0

Percent of ownership as of December 31, 2020 based on common shares.

Investee / Investor	HDC Shilla Duty Free LTD	Open Hands	Cheil Fashion Retail	Miracom	SERI	Samsung Lions	Samsung Life Financial Service	Samsung Fire & Marine Financial Service	Samwoo Architects & Engineers	Seoul Lakeside CC	SECUI	CVnet	Harman International Korea	Human TSS
Samsung C&T Corporation			100.0		1.0				100.0	100.0	8.7	40.1		
Samsung BioLogics														
Samsung Life Insurance					14.8		100.0							
Samsung SDI					29.6									
Samsung SDS		100.0		83.6							56.5	9.4		
Samsung Electro-mechanics					23.8									
Samsung Electronics					29.8									
Samsung Heavy Industries					1.0									
Samsung Securities.														
Samsung Card														
Samsung Fire & Marine Insurance								100.0						
S1 Corporation				0.6										100.0
Cheil Worldwide				5.4		67.5								
Hotel Shilla	50.0													
SDC														
Samsung Asset Management														
Samsung Eelectronics Service														
Miracom														
SERI														
Harman International Industries, Inc.													100.0	
Total	50.0	100.0	100.0	89.6	100.0	67.5	100.0	100.0	100.0	100.0	65.2	49.5	100.0	100.0

Percent of ownership as of December 31, 2020 based on common shares.

2) Overseas

Investor	Investee	Ownership
Samwoo Architects & Engineers	SAMOO HU Designer and Engineering Services Limited	100.0
Samwoo Architects & Engineers	SAMOO DESIGNERS & ENGINEERS INDIA PRIVATE LIMITED	100.0
Samwoo Architects & Engineers	SAMOO (KL) SDN. BHD.	100.0
Samsung C&T America Inc.	Meadowland Distribution	100.0
Samsung C&T America Inc.	Samsung Green repower, LLC	100.0
Samsung C&T America Inc.	Samsung Solar Construction Inc.	100.0
Samsung C&T America Inc.	QSSC, S.A. de C.V.	20.0
Samsung C&T America Inc.	Samsung Solar Energy LLC	100.0
Samsung C&T America Inc.	Samsung C&T America Inc.	70.0
Samsung C&T America Inc.	S-print Inc	24.0
Samsung Renewable Energy Inc.	SP Armow Wind Ontario LP	50.0
Samsung Renewable Energy Inc.	SRE GRW EPC GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE GRW EPC LP	100.0
Samsung Renewable Energy Inc.	SRE SKW EPC GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE SKW EPC LP	100.0
Samsung Renewable Energy Inc.	SRE WIND PA GP INC.	100.0
Samsung Renewable Energy Inc.	SRE WIND PA LP	100.0
Samsung Renewable Energy Inc.	SRE GRS Holdings GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE GRS Holdings LP	100.0
Samsung Renewable Energy Inc.	SRE K2 EPC GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE K2 EPC LP	100.0
Samsung Renewable Energy Inc.	SRE KS HOLDINGS GP INC.	100.0
Samsung Renewable Energy Inc.	SRE KS HOLDINGS LP	100.0
Samsung Renewable Energy Inc.	SP Belle River Wind LP	42.5
Samsung Renewable Energy Inc.	SRE Armow EPC GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Armow EPC LP	100.0
Samsung Renewable Energy Inc.	North Kent Wind 1 LP	35.0
Samsung Renewable Energy Inc.	SRE Wind GP Holding Inc.	100.0
Samsung Renewable Energy Inc.	South Kent Wind LP Inc.	50.0
Samsung Renewable Energy Inc.	Grand Renewable Wind LP Inc.	45.0
Samsung Renewable Energy Inc.	SRE North Kent 2 LP Holdings LP	100.0
Samsung Renewable Energy Inc.	SRE Solar Development GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Solar Development LP	100.0
Samsung Renewable Energy Inc.	SRE Windsor Holdings GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Southgate Holdings GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Solar Construction Management GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Solar Construction Management LP	100.0
Samsung Renewable Energy Inc.	SRE DEVELOPMENT GP INC.	100.0
Samsung Renewable Energy Inc.	SRE DEVELOPMENT LP	100.0
Samsung Renewable Energy Inc.	SRE BRW EPC GP INC.	100.0
Samsung Renewable Energy Inc.	SRE BRW EPC LP	100.0
Samsung Renewable Energy Inc.	SRE North Kent 1 GP Holdings Inc	100.0
Samsung Renewable Energy Inc.	SRE North Kent 2 GP Holdings Inc	100.0
Samsung Renewable Energy Inc.	SRE Belle River GP Holdings Inc	100.0
Samsung Renewable Energy Inc.	SRE NK1 EPC GP Inc	100.0
Samsung Renewable Energy Inc.	SRE NK1 EPC LP	100.0
Samsung Renewable Energy Inc.	SRE Summerside Construction GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Summerside Construction LP	100.0
Samsung Renewable Energy Inc.	Kneehill Solar GP	100.0
Samsung Renewable Energy Inc.	Kneehill Solar LP	100.0
Samsung Renewable Energy Inc.	Michichi Solar GP Inc.	100.0
Samsung Renewable Energy Inc.	Michichi Solar LP	100.0
Samsung Green repower, LLC	SOLAR PROJECTS SOLUTIONS,LLC	50.0

Investor	Investee	Ownership
Samsung Green repower, LLC	Monument Power, LLC	100.0
SP Armow Wind Ontario GP Inc	SP Armow Wind Ontario LP	0.0
Samsung C&T Oil & Gas Parallel Corp.	PLL Holdings LLC	83.6
Samsung C&T Oil & Gas Parallel Corp.	PLL E&P LLC	90.0
SRE GRW EPC GP Inc.	SRE GRW EPC LP	0.0
SRE SKW EPC GP Inc.	SRE SKW EPC LP	0.0
PLL Holdings LLC	Parallel Petroleum LLC	61.0
SRE WIND PA GP INC.	SRE WIND PA LP	0.0
SRE GRS Holdings GP Inc.	Grand Renewable Solar GP Inc.	50.0
SRE GRS Holdings GP Inc.	SRE GRS Holdings LP	0.0
SRE K2 EPC GP Inc.	SRE K2 EPC LP	0.0
SRE KS HOLDINGS GP INC.	KINGSTON SOLAR GP INC.	50.0
SRE KS HOLDINGS GP INC.	SRE KS HOLDINGS LP	0.0
SP Belle River Wind GP Inc	SP Belle River Wind LP	0.0
SRE Armow EPC GP Inc.	SRE Armow EPC LP	0.0
SRE Wind GP Holding Inc.	SP Armow Wind Ontario GP Inc	50.0
SRE Wind GP Holding Inc.	South Kent Wind GP Inc.	50.0
SRE Wind GP Holding Inc.	Grand Renewable Wind GP Inc.	50.0
South Kent Wind GP Inc.	South Kent Wind LP Inc.	0.0
Grand Renewable Wind GP Inc.	Grand Renewable Wind LP Inc.	0.0
North Kent Wind 1 GP Inc	North Kent Wind 1 LP	0.0
SRE Solar Development GP Inc.	SRE Solar Development LP	0.0
SRE Solar Construction Management GP Inc.	SRE Solar Construction Management LP	0.0
SRE DEVELOPMENT GP INC.	SRE DEVELOPMENT LP	0.0
SRE BRW EPC GP INC.	SRE BRW EPC LP	0.0
SRE North Kent 1 GP Holdings Inc	North Kent Wind 1 GP Inc	50.0
SRE North Kent 2 GP Holdings Inc	SRE North Kent 2 LP Holdings LP	0.0
SRE Belle River GP Holdings Inc	SP Belle River Wind GP Inc	50.0
SRE NK1 EPC GP Inc	SRE NK1 EPC LP	0.0
SRE Summerside Construction GP Inc.	SRE Summerside Construction LP	0.0
Samsung Solar Energy LLC	Samsung Solar Energy 1 LLC	100.0
Samsung Solar Energy LLC	Samsung Solar Energy 2 LLC	100.0
Samsung Solar Energy LLC	Samsung Solar Energy 3, LLC	100.0
Samsung Solar Energy 1 LLC	CS SOLAR LLC	50.0
Kneehill Solar GP	Kneehill Solar LP	0.0
Samsung Solar Energy 3, LLC	SST SOLAR, LLC	50.0
Michichi Solar GP Inc.	Michichi Solar LP	0.0
Samsung C&T Deutschland GmbH	POSS-SLPC, S.R.O	20.0
Samsung C&T Deutschland GmbH	Solluce Romania 1 B.V.	20.0
Samsung C&T Deutschland GmbH	S.C. Otelinox S.A	99.7
Solluce Romania 1 B.V.	LJG GREEN SOURCE ENERGY ALPHA S.R.L.	78.0
Samsung C&T Malaysia SDN. BHD	WARIS GIGIH ENGINEERING AND TECHNOLOGY SDN. BHD.	70.0
Samsung C&T Singapore Pte., Ltd.	Samsung Chemtech Vina LLC	48.3
Samsung C&T Singapore Pte., Ltd.	S-print Inc	16.0
Samsung C&T Singapore Pte., Ltd.	Samsung C&T Thailand Co., Ltd	0.2
Samsung C&T Singapore Pte., Ltd.	PT. INSAM BATUBARA ENERGY	10.0
Samsung C&T Singapore Pte., Ltd.	Malaysia Samsung Steel Center Sdn.Bhd	30.0
Samsung C&T Singapore Pte., Ltd.	S&G Biofuel PTE.LTD	12.6
S&G Biofuel PTE.LTD	PT. Gandaerah Hendana	95.0
S&G Biofuel PTE.LTD	PT. Inecda	95.0
Samsung C&T Hongkong Ltd.	Samsung C&T Thailand Co., Ltd	6.8
Samsung C&T Hongkong Ltd.	SAMSUNG TRADING (SHANGHAI) CO., LTD	100.0
Samsung C&T Hongkong Ltd.	Samsung Precision Stainless Steel(pinghu) Co.,Ltd.	45.0
Samsung Electronics	Samsung Japan Corporation	100.0
Samsung Electronics	Samsung R&D Institute Japan Co. Ltd.	100.0

Investor	Investee	Ownership
Samsung Electronics	Samsung Electronics America, Inc.	100.0
Samsung Electronics	Samsung Electronics Canada, Inc.	100.0
Samsung Electronics	Samsung Electronics Mexico S.A. De C.V.	63.6
Samsung Electronics	Samsung Electronics Ltd.	100.0
Samsung Electronics	Samsung Electronics (UK) Ltd.	100.0
Samsung Electronics	Samsung Electronics Holding GmbH	100.0
Samsung Electronics	Samsung Electronics Iberia, S.A.	100.0
Samsung Electronics	Samsung Electronics France S.A.S	100.0
Samsung Electronics	Samsung Electronics Hungarian Private Co. Ltd.	100.0
Samsung Electronics	Samsung Electronics Italia S.P.A.	100.0
Samsung Electronics	Samsung Electronics Europe Logistics B.V.	100.0
Samsung Electronics	Samsung Electronics Benelux B.V.	100.0
Samsung Electronics	Samsung Electronics Overseas B.V.	100.0
Samsung Electronics	Samsung Electronics Polska, SP.Zo.o	100.0
Samsung Electronics	Samsung Electronics Portuguesa S.A.	100.0
Samsung Electronics	Samsung Electronics Nordic Aktiebolag	100.0
Samsung Electronics	Samsung Electronics Austria GmbH	100.0
Samsung Electronics	Samsung Electronics Slovakia s.r.o	55.7
Samsung Electronics	Samsung Electronics Europe Holding Cooperatief U.A.	100.0
Samsung Electronics	Samsung Electronics Display (M) Sdn. Bhd.	75.0
Samsung Electronics	Samsung Electronics (M) Sdn. Bhd.	100.0
Samsung Electronics	Samsung Vina Electronics Co., Ltd.	100.0
Samsung Electronics	Samsung Asia Private Ltd.	100.0
Samsung Electronics	Samsung India Electronics Private Ltd.	100.0
Samsung Electronics	Samsung R&D Institute India-Bangalore Private Limited	100.0
Samsung Electronics	Samsung Electronics Australia Pty. Ltd.	100.0
Samsung Electronics	PT Samsung Electronics Indonesia	100.0
Samsung Electronics	Thai Samsung Electronics Co., Ltd.	91.8
Samsung Electronics	Samsung Malaysia Electronics (SME) Sdn. Bhd.	100.0
Samsung Electronics	Samsung Electronics Hong Kong Co., Ltd.	100.0
Samsung Electronics	Suzhou Samsung Electronics Co., Ltd.	69.1
Samsung Electronics	Samsung (CHINA) Investment Co., Ltd.	100.0
Samsung Electronics	Samsung Electronics Suzhou Semiconductor Co., Ltd.	100.0
Samsung Electronics	Samsung Electronics Huizhou Co., Ltd.	89.6
Samsung Electronics	Tianjin Samsung Electronics Co., Ltd.	48.2
Samsung Electronics	Samsung Electronics Taiwan Co., Ltd.	100.0
Samsung Electronics	Tianjin Samsung Telecom Technology Co., Ltd.	90.0
Samsung Electronics	Shanghai Samsung Semiconductor Co., Ltd.	100.0
Samsung Electronics	Samsung Electronics Suzhou Computer Co., Ltd.	73.7
Samsung Electronics	Shenzhen Samsung Electronics Telecommunication Co., Ltd.	100.0
Samsung Electronics	Samsung Semiconductor (China) R&D Co., Ltd.	100.0
Samsung Electronics	Samsung (China) Semiconductor Co., Ltd.	100.0
Samsung Electronics	Samsung SemiConductor Xian Co., Ltd.	100.0
Samsung Electronics	Samsung Gulf Electronics Co., Ltd.	100.0
Samsung Electronics	Samsung Electronics Egypt S.A.E	0.1
Samsung Electronics	Samsung Electronics South Africa(Pty) Ltd.	100.0
Samsung Electronics	Samsung Electronics Latinoamerica(Zona Libre), S. A.	100.0
Samsung Electronics	Samsung Electronica da Amazonia Ltda.	87.0
Samsung Electronics	Samsung Electronics Argentina S.A.	98.0
Samsung Electronics	Samsung Electronics Chile Limitada	4.1
Samsung Electronics	Samsung Electronics Rus Company LLC	100.0
Samsung Electronics	Samsung Electronics Rus Kaluga LLC	100.0
Samsung Electronics	Tianjin Samsung LED Co., Ltd.	100.0
Samsung Biologics	Samsung Biologics America, Inc.	100.0
Samsung BioEpis	SAMSUNG BIOEPIS UK LIMITED	100.0

Investor	Investee	Ownership
Samsung BioEpis	Samsung Bioepis NL B.V.	100.0
Samsung BioEpis	Samsung Bioepis CH GmbH	100.0
Samsung BioEpis	Samsung Bioepis PL Sp z o.o.	100.0
Samsung BioEpis	SAMSUNG BIOEPIS AU PTY LTD	100.0
Samsung BioEpis	SAMSUNG BIOEPIS NZ LIMITED	100.0
Samsung BioEpis	SAMSUNG BIOEPIS TW Limited	100.0
Samsung BioEpis	Samsung Bioepis HK Limited	100.0
Samsung BioEpis	SAMSUNG BIOEPIS IL LTD	100.0
Samsung BioEpis	SAMSUNG BIOEPIS BR PHARMACEUTICAL LTDA	100.0
Samsung Display	Intellectual Keystone Technology LLC	41.9
Samsung Display	Samsung Display Slovakia, s.r.o.	100.0
Samsung Display	Samsung Display Vietnam Co., Ltd.	100.0
Samsung Display	Samsung Display Noida Private Limited	100.0
Samsung Display	Samsung Suzhou Module Co., Ltd.	100.0
Samsung Display	Samsung Suzhou LCD Co., Ltd.	60.0
Samsung Display	Samsung Display Dongguan Co., Ltd.	100.0
Samsung Display	Samsung Display Tianjin Co., Ltd.	95.0
Samsung Display	Novaled GmbH	9.9
SEMES	SEMES America, Inc.	100.0
SEMES	SEMES (XIAN) Co., Ltd.	100.0
Samsung Electronics America, Inc.	NeuroLogica Corp.	100.0
Samsung Electronics America, Inc.	Dacor Holdings, Inc.	100.0
Samsung Electronics America, Inc.	Samsung HVAC America, LLC	100.0
Samsung Electronics America, Inc.	SmartThings, Inc.	100.0
Samsung Electronics America, Inc.	Samsung Oak Holdings, Inc.	100.0
Samsung Electronics America, Inc.	Joyent, Inc.	100.0
Samsung Electronics America, Inc.	TeleWorld Solutions, Inc.	100.0
Samsung Electronics America, Inc.	Prismview, LLC	100.0
Samsung Electronics America, Inc.	Samsung Semiconductor, Inc.	100.0
Samsung Electronics America, Inc.	Samsung Research America, Inc	100.0
Samsung Electronics America, Inc.	Samsung Electronics Home Appliances America, LLC	100.0
Samsung Electronics America, Inc.	Samsung International, Inc.	100.0
Samsung Electronics America, Inc.	Harman International Industries, Inc.	100.0
Dacor Holdings, Inc.	Dacor, Inc.	100.0
Dacor, Inc.	Dacor Canada Co.	100.0
Samsung Oak Holdings, Inc.	Stellus Technologies, Inc.	100.0
TeleWorld Solutions, Inc.	TWS LATAM B, LLC	100.0
TeleWorld Solutions, Inc.	TWS LATAM S, LLC	100.0
TWS LATAM B, LLC	SNB Technologies, Inc. Mexico S.A. de. C.V	50.0
TWS LATAM S, LLC	SNB Technologies, Inc. Mexico S.A. de. C.V	50.0
Samsung Semiconductor, Inc.	Samsung Austin Semiconductor LLC.	100.0
Samsung Electronics Canada, Inc.	AdGear Technologies Inc.	100.0
Samsung Electronics Canada, Inc.	SigMast Communications Inc.	100.0
Samsung Research America, Inc	SAMSUNG NEXT LLC	100.0
Samsung Research America, Inc	Viv Labs, Inc.	100.0
SAMSUNG NEXT LLC	SAMSUNG NEXT FUND LLC	100.0
Samsung International, Inc.	Samsung Mexicana S.A. de C.V	100.0
Samsung Electronics Mexico S.A. De C.V.	Samsung Electronics Digital Appliance Mexico, SA de CV	100.0
Harman International Industries, Inc.	Harman International Japan Co., Ltd.	100.0
Harman International Industries, Inc.	Harman International Industries Canada Ltd.	100.0
Harman International Industries, Inc.	Harman Becker Automotive Systems, Inc.	100.0
Harman International Industries, Inc.	Harman Professional, Inc.	100.0
Harman International Industries, Inc.	Harman Connected Services, Inc.	100.0
Harman International Industries, Inc.	Harman Financial Group LLC	100.0
Harman International Industries, Inc.	Harman Belgium SA	100.0

Investor	Investee	Ownership
Harman International Industries, Inc.	Harman France SNC	100.0
Harman International Industries, Inc.	Red Bend Software SAS	100.0
Harman International Industries, Inc.	Harman Inc. & Co. KG	66.0
Harman International Industries, Inc.	Harman KG Holding, LLC	100.0
Harman International Industries, Inc.	Harman Becker Automotive Systems Italy S.R.L.	100.0
Harman International Industries, Inc.	Harman Finance International, SCA	100.0
Harman International Industries, Inc.	Harman Finance International GP S.a.r.l	100.0
Harman International Industries, Inc.	Harman Industries Holdings Mauritius Ltd.	100.0
Harman International Industries, Inc.	Harman International Mexico, S. de R.L. de C.V.	99.9
Harman Becker Automotive Systems, Inc.	Harman International Estonia OU	100.0
Harman Professional, Inc.	AMX UK Limited	100.0
Harman Professional, Inc.	Harman Singapore Pte. Ltd.	100.0
Harman Professional, Inc.	Harman da Amazonia Industria Eletronica e Participacoes Ltda.	0.0
Harman Professional, Inc.	Harman do Brasil Industria Eletronica e Participacoes Ltda.	0.0
Harman Connected Services, Inc.	Harman Connected Services Engineering Corp.	100.0
Harman Connected Services, Inc.	Harman Connected Services AB.	100.0
Harman Connected Services, Inc.	Harman Connected Services UK Ltd.	100.0
Harman Connected Services, Inc.	Harman Connected Services Corp. India Pvt. Ltd.	1.6
Harman Connected Services, Inc.	Global Symphony Technology Group Private Ltd.	100.0
Harman Financial Group LLC	Harman International (India) Private Limited	0.0
Harman Financial Group LLC	Harman International Mexico, S. de R.L. de C.V.	0.1
Harman Financial Group LLC	Harman de Mexico, S. de R.L. de C.V.	0.0
Samsung Electronics (UK) Ltd.	Samsung Semiconductor Europe Limited	100.0
Samsung Electronics Holding GmbH	Samsung Semiconductor Europe GmbH	100.0
Samsung Electronics Holding GmbH	Samsung Electronics GmbH	100.0
Samsung Electronics Hungarian Private Co. Ltd.	Samsung Electronics Czech and Slovak s.r.o.	31.4
Samsung Electronics Hungarian Private Co. Ltd.	Samsung Electronics Slovakia s.r.o	44.3
Samsung Electronics Benelux B.V.	Samsung Electronics Mexico S.A. De C.V.	36.4
Samsung Electronics Benelux B.V.	SAMSUNG ELECTRONICS BALTICS SIA	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics West Africa Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics East Africa Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Saudi Arabia Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Egypt S.A.E	99.9
Samsung Electronics Benelux B.V.	Samsung Electronics Israel Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Tunisia S.A.R.L	99.0
Samsung Electronics Benelux B.V.	Samsung Electronics Pakistan(Private) Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics South Africa Production (pty) Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Turkey	100.0
Samsung Electronics Benelux B.V.	Samsung Semiconductor Israel R&D Center, Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Levant Co.,Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Maghreb Arab	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Venezuela, C.A.	100.0
Samsung Electronics Benelux B.V.	Samsung Eletronica da Amazonia Ltda.	13.0
Samsung Electronics Benelux B.V.	Samsung Electronics Chile Limitada	95.9
Samsung Electronics Benelux B.V.	Samsung Electronics Peru S.A.C.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Ukraine Company LLC	100.0
Samsung Electronics Benelux B.V.	Samsung R&D Institute Rus LLC	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Central Eurasia LLP	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Caucasus Co. Ltd	100.0
Samsung Electronics Benelux B.V.	Corephotonics Ltd.	100.0
Zhilabs, S.L.	Zhilabs Inc.	100.0
Samsung Electronics Nordic Aktiebolag	Samsung Nanoradio Design Center	100.0
AKG Acoustics Gmbh	Harman Professional Denmark ApS	100.0
AKG Acoustics Gmbh	Studer Professional Audio GmbH	100.0
Harman Professional Denmark ApS	Martin Professional Japan Ltd.	40.0

Investor	Investee	Ownership
Harman Professional Denmark ApS	Harman International s.r.o	100.0
Harman Becker Automotive Systems GmbH	Harman International Romania SRL	0.0
Harman Holding Gmbh & Co. KG	Harman Becker Automotive Systems GmbH	100.0
Harman Holding Gmbh & Co. KG	Harman Deutschland GmbH	100.0
Harman Holding Gmbh & Co. KG	Harman Becker Automotive Systems Manufacturing Kft	100.0
Harman Holding Gmbh & Co. KG	Harman RUS CIS LLC	100.0
Harman Inc. & Co. KG	Harman Holding Gmbh & Co. KG	100.0
Harman Inc. & Co. KG	Harman Management Gmbh	100.0
Harman Inc. & Co. KG	Harman Hungary Financing Ltd.	100.0
Harman Connected Services GmbH	Harman Connected Services OOO	100.0
Harman KG Holding, LLC	Harman Inc. & Co. KG	34.0
Harman Becker Automotive Systems Manufacturing Kft	Harman Professional Kft	100.0
Harman Becker Automotive Systems Manufacturing Kft	Harman Consumer Nederland B.V.	100.0
Harman Becker Automotive Systems Manufacturing Kft	Harman International Romania SRL	100.0
Harman Becker Automotive Systems Manufacturing Kft	Red Bend Ltd.	100.0
Harman Becker Automotive Systems Manufacturing Kft	Harman do Brasil Industria Eletronica e Participacoes Ltda.	100.0
Harman Hungary Financing Ltd.	Harman International Industries Limited	100.0
Harman Finance International GP S.a.r.l	Harman Finance International, SCA	0.0
Harman Consumer Nederland B.V.	AKG Acoustics Gmbh	100.0
Harman Consumer Nederland B.V.	Harman Audio Iberia Espana Sociedad Limitada	100.0
Harman Consumer Nederland B.V.	Harman Holding Limited	100.0
Harman Audio Iberia Espana Sociedad Limitada	Harman France SNC	0.0
Harman Connected Services AB.	Harman Finland Oy	100.0
Harman Connected Services AB.	Harman Connected Services GmbH	100.0
Harman Connected Services AB.	Harman Connected Services Poland Sp.zoo	100.0
Harman Connected Services AB.	Harman Connected Services Solutions (Chengdu) Co., Ltd.	100.0
Harman International Industries Limited	Harman Automotive UK Limited	100.0
Harman International Industries Limited	Martin Manufacturing (UK) Ltd	100.0
Harman International Industries Limited	Harman Connected Services Limited	100.0
Harman International Industries Limited	Arcam Limited	100.0
Harman International Industries Limited	Harman International Industries PTY Ltd.	100.0
Harman International Industries Limited	Harman de Mexico, S. de R.L. de C.V.	100.0
Harman Connected Services UK Ltd.	Harman Connected Services Morocco	100.0
Arcam Limited	A&R Cambridge Limited	100.0
Samsung Electronics Austria GmbH	Samsung Electronics Switzerland GmbH	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Czech and Slovak s.r.o.	68.6
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Romania LLC	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Zhilabs, S.L.	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Porta Nuova Varesine Building 2 S.r.l.	49.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Poland Manufacturing SP.Zo.o	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Greece S.M.S.A	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Air Conditioner Europe B.V.	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	FOODIENT LTD.	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Denmark Research Center ApS	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Cambridge Solution Centre Limited	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Novaled GmbH	40.0
Samsung Asia Private Ltd.	Samsung Electronics Japan Co., Ltd.	100.0
Samsung Asia Private Ltd.	Samsung Electronics Display (M) Sdn. Bhd.	25.0
Samsung Asia Private Ltd.	Samsung Electronics Singapore Pte. Ltd.	100.0
Samsung Asia Private Ltd.	Samsung Electronics New Zealand Limited	100.0
Samsung Asia Private Ltd.	Samsung Electronics Philippines Corporation	100.0
Samsung Asia Private Ltd.	Samsung R&D Institute BanglaDesh Limited	100.0
Samsung Asia Private Ltd.	Samsung Electronics Vietnam Co., Ltd.	100.0
Samsung Asia Private Ltd.	Samsung Electronics Vietnam THAINGUYEN Co., Ltd.	100.0
Samsung Asia Private Ltd.	Samsung Electronics HCMC CE Complex Co., Ltd.	100.0

Investor	Investee	Ownership
Samsung Asia Private Ltd.	Samsung Electro-Mechanics(Thailand) Co., Ltd.	25.0
Samsung Asia Private Ltd.	iMarket Asia Co., Ltd.	11.4
Samsung India Electronics Private Ltd.	Samsung Nepal Services Pvt, Ltd	100.0
PT Samsung Electronics Indonesia	PT Samsung Telecommunications Indonesia	100.0
Thai Samsung Electronics Co., Ltd.	Laos Samsung Electronics Sole Co., Ltd	100.0
Samsung Electronics Hong Kong Co., Ltd.	iMarket Asia Co., Ltd.	11.3
Suzhou Samsung Electronics Co., Ltd.	Samsung Suzhou Electronics Export Co., Ltd.	100.0
Samsung (CHINA) Investment Co., Ltd.	Suzhou Samsung Electronics Co., Ltd.	19.2
Samsung (CHINA) Investment Co., Ltd.	Samsung Mobile R&D Center China-Guangzhou	100.0
Samsung (CHINA) Investment Co., Ltd.	Samsung R&D Institute China-Shenzhen	100.0
Samsung (CHINA) Investment Co., Ltd.	Samsung Electronics Huizhou Co., Ltd.	10.4
Samsung (CHINA) Investment Co., Ltd.	Tianjin Samsung Electronics Co., Ltd.	43.1
Samsung (CHINA) Investment Co., Ltd.	Beijing Samsung Telecom R&D Center	100.0
Samsung (CHINA) Investment Co., Ltd.	Samsung Electronics Suzhou Computer Co., Ltd.	26.3
Samsung (CHINA) Investment Co., Ltd.	Samsung Electronics China R&D Center	100.0
Harman International (China) Holdings Co., Ltd.	Harman (Suzhou) Audio and Infotainment Systems Co., Ltd.	100.0
Harman International (China) Holdings Co., Ltd.	Harman Technology (Shenzhen) Co., Ltd.	100.0
Harman International (China) Holdings Co., Ltd.	Harman (China) Technologies Co., Ltd.	100.0
Harman Holding Limited	Harman Commercial (Shanghai) Co., Ltd.	100.0
Harman Holding Limited	Harman International (China) Holdings Co., Ltd.	100.0
Harman Holding Limited	Harman Automotive Electronic Systems (Suzhou) Co., Ltd.	100.0
Samsung Gulf Electronics Co., Ltd.	Samsung Electronics Egypt S.A.E	0.1
Samsung Electronics Maghreb Arab	Samsung Electronics Tunisia S.A.R.L	1.0
Harman Industries Holdings Mauritius Ltd.	Harman International (India) Private Limited	100.0
Global Symphony Technology Group Private Ltd.	Harman Connected Services Corp. India Pvt. Ltd.	98.4
Red Bend Ltd.	Red Bend Software Ltd.	100.0
Samsung Electronics Latinoamerica(Zona Libre), S. A.	Samsung Electronics Latinoamerica Miami, Inc.	100.0
Samsung Electronics Latinoamerica(Zona Libre), S. A.	Samsung Electronica Colombia S.A.	100.0
Samsung Electronics Latinoamerica(Zona Libre), S. A.	Samsung Electronics Panama. S.A.	100.0
Samsung Eletronica da Amazonia Ltda.	Samsung Electronics Argentina S.A.	2.0
Harman do Brasil Industria Eletronica e Participacoes Ltda.	Harman da Amazonia Industria Eletronica e Participacoes Ltda.	100.0
Samsung Electronics Central Eurasia LLP	Samsung Electronics Caucasus Co. Ltd	0.0
Samsung SDI	Intellectual Keystone Technology LLC	41.0
Samsung SDI	Samsung SDI Japan Co., Ltd.	89.2
Samsung SDI	Samsung SDI America, Inc.	91.7
Samsung SDI	Samsung SDI Hungary., Zrt.	100.0
Samsung SDI	Samsung SDI Europe GmbH	100.0
Samsung SDI	Samsung SDI Battery Systems GmbH	100.0
Samsung SDI	Samsung SDI Vietnam Co., Ltd.	100.0
Samsung SDI	Samsung SDI Energy Malaysia Sdn, Bhd.	100.0
Samsung SDI	Samsung SDI India Private Limited	100.0
Samsung SDI	Samsung SDI(Hong Kong) Ltd.	97.6
Samsung SDI	Samsung SDI China Co., Ltd.	100.0
Samsung SDI	Samsung SDI-ARN (Xi'An) Power Battery Co., Ltd.	65.0
Samsung SDI	Samsung SDI (Changchun) Power Battery Co., Ltd.	50.0
Samsung SDI	Samsung SDI (Tianjin) Battery Co., Ltd	80.0
Samsung SDI	Novaled GmbH	50.1
Samsung SDI	SAMSUNG SDI WUXI CO.,LTD.	100.0
Samsung SDI	Samsung SDI(Wuxi) Battery Systems Co., Ltd.	50.0
Samsung SDI	iMarket Asia Co., Ltd.	8.7
Samsung SDI(Hong Kong) Ltd.	Samsung SDI India Private Limited	0.0
Samsung SDI(Hong Kong) Ltd.	Tianjin Samsung SDI Co., Ltd.	80.0
Samsung Electro-Mechanics	Samsung Electro-Machanics Japan Co., Ltd.	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics America, Inc.	100.0

Investor	Investee	Ownership
Samsung Electro-Mechanics	Samsung Electro-Mechanics GmbH	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics(Thailand) Co., Ltd.	75.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics Philippines, Corp.	100.0
Samsung Electro-Mechanics	Calamba Premier Realty Corporation	39.8
Samsung Electro-Mechanics	Samsung Electro-Mechanics Pte Ltd.	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics Vietnam Co., Ltd.	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics Software India Bangalore Private Limited	99.9
Samsung Electro-Mechanics	Dongguan Samsung Electro-Mechanics Co., Ltd.	100.0
Samsung Electro-Mechanics	Tianjin Samsung Electro-Mechanics Co., Ltd.	81.8
Samsung Electro-Mechanics	Samsung High-Tech Electro-Mechanics(Tianjin) Co., Ltd.	95.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics (Shenzhen) Co., Ltd.	100.0
Samsung Electro-Mechanics	Kunshan Samsung Electro-Mechanics Co., Ltd.	100.0
Samsung Electro-Mechanics	iMarket Asia Co., Ltd.	8.7
Calamba Premier Realty Corporation	Batino Realty Corporation	100.0
Samsung Electro-Mechanics Pte Ltd.	Samsung Electro-Mechanics Software India Bangalore Private Limited	0.1
Samsung Fire & Marine Insurance	Samsung Fire & Marine Management Corporation	100.0
Samsung Fire & Marine Insurance	SAMSUNG FIRE & MARINE INSURANCE COMPANY OF EUROPE LTD.	100.0
Samsung Fire & Marine Insurance	PT. Asuransi Samsung Tugu	70.0
Samsung Fire & Marine Insurance	SAMSUNG VINA INSURANCE COMPANY LIMITED	75.0
Samsung Fire & Marine Insurance	Samsung Reinsurance Pte. Ltd.	100.0
Samsung Fire & Marine Insurance	Samsung Property & Casualty Insurance Company(China), Ltd	100.0
Samsung Fire & Marine Insurance	Samsung Fire & Marine Insurance Management Middle East Limited	100.0
Samsung Heavy Industries Co.,Ltd.	Camellia Consulting Corporation	100.0
Samsung Heavy Industries Co.,Ltd.	Samsung Heavy Industries India Pvt.Ltd.	100.0
Samsung Heavy Industries Co.,Ltd.	SAMSUNG HEAVY INDUSTRIES (M) SDN.BHD	100.0
Samsung Heavy Industries Co.,Ltd.	Samsung Heavy Industries(Ningbo) Co., Ltd	100.0
Samsung Heavy Industries Co.,Ltd.	Samsung Heavy Industries(Rongcheng) Co., Ltd	100.0
Samsung Heavy Industries Co.,Ltd.	Rongcheng Gaya Heavy Industries Co., Ltd	100.0
Samsung Heavy Industries Co.,Ltd.	SAMSUNG HEAVY INDUSTRIES NIGERIA LIMITED	100.0
Samsung Heavy Industries Co.,Ltd.	Samsung Heavy Industries Mozambique LDA	100.0
SAMSUNG HEAVY INDUSTRIES NIGERIA LIMITED	SHI - MCI FZE	70.0
Samsung Life Insurance	Porta Nuova Varesine Building 2 S.r.l.	51.0
Samsung Life Insurance	THAI SAMSUNG LIFE INSURANCE CO., LTD.	48.9
Samsung Life Insurance	Beijing Samsung Real Estate Co.. Ltd	90.0
Samsung Asset Management	Samsung Asset Management (New York), Inc.	100.0
Samsung Asset Management	Samsung Global SME Private Equity Manager Fund Co., Ltd.	100.0
Samsung Asset Management	Samsung Asset Management(London) Ltd.	100.0
Samsung Asset Management	Samsung Private Equity Manager I Co., Ltd.	100.0
Samsung Asset Management	Samsung Asset Management (Hong Kong) Ltd.	100.0
Samsung Asset Management (Hong Kong) Ltd.	Samsung Asset Management (Beijing) Ltd.	100.0
CHEIL INDUSTRIES ITALY SRL	COLOMBO VIA DELLA SPIGA S.R.L	100.0
Samsung C&T Corporation	MYODO METAL CO., LTD.	100.0
Samsung C&T Corporation	Samsung C&T Japan Corporation	100.0
Samsung C&T Corporation	Samsung C&T America Inc.	100.0
Samsung C&T Corporation	Samsung E&C America, INC.	100.0
Samsung C&T Corporation	Samsung Renewable Energy Inc.	100.0
Samsung C&T Corporation	QSSC, S.A. de C.V.	60.0
Samsung C&T Corporation	Samsung C&T Oil & Gas Parallel Corp.	100.0
Samsung C&T Corporation	Samsung C&T Lima S.A.C.	100.0
Samsung C&T Corporation	Samsung C&T Deutschland GmbH	100.0
Samsung C&T Corporation	Samsung C&T U.K. Ltd.	100.0
Samsung C&T Corporation	Samsung C&T ECUK Limited	100.0
Samsung C&T Corporation	Whessoe engineering Limited	100.0
Samsung C&T Corporation	POSS-SLPC, S.R.O	50.0
Samsung C&T Corporation	Solluce Romania 1 B.V.	80.0

Investor	Investee	Ownership
Samsung C&T Corporation	SAM investment Manzanilo.B.V	53.3
Samsung C&T Corporation	Samsung C&T (KL) Sdn.,Bhd.	100.0
Samsung C&T Corporation	Samsung C&T Malaysia SDN. BHD	100.0
Samsung C&T Corporation	Erdsam Co., Ltd.	100.0
Samsung C&T Corporation	Samsung Chemtech Vina LLC	51.7
Samsung C&T Corporation	S-print Inc	40.0
Samsung C&T Corporation	Samsung C&T Thailand Co., Ltd	93.0
Samsung C&T Corporation	PT. INSAM BATUBARA ENERGY	90.0
Samsung C&T Corporation	Samsung E&C India Private Limited	100.0
Samsung C&T Corporation	Samsung C&T Corporation India Private Limited	100.0
Samsung C&T Corporation	Malaysia Samsung Steel Center Sdn.Bhd	70.0
Samsung C&T Corporation	Samsung C&T Singapore Pte., Ltd.	100.0
Samsung C&T Corporation	S&G Biofuel PTE.LTD	50.5
Samsung C&T Corporation	SAMSUNG C&T Mongolia LLC.	70.0
Samsung C&T Corporation	Samsung C&T Eng.&Const. Mongolia LLC.	100.0
Samsung C&T Corporation	S&WOO CONSTRUCTION PHILIPPINES,INC.	100.0
Samsung C&T Corporation	Samsung C&T Hongkong Ltd.	100.0
Samsung C&T Corporation	Samsung C&T Taiwan Co., Ltd.	100.0
Samsung C&T Corporation	Samsung Precision Stainless Steel(pinghu) Co.,Ltd.	55.0
Samsung C&T Corporation	SAMSUNG C&T (SHANGHAI) CO., LTD.	100.0
Samsung C&T Corporation	Samsung C&T (Xi'an) Co., Ltd.	100.0
Samsung C&T Corporation	WARIS GIGIH ENGINEERING AND TECHNOLOGY SDN. BHD.	30.0
Samsung C&T Corporation	SAMSUNG C&T CORPORATION SAUDI ARABIA	100.0
Samsung C&T Corporation	SAM Gulf Investment Limited	100.0
Samsung C&T Corporation	Samsung C&T Chile Copper SpA	100.0
Samsung C&T Corporation	SCNT Power Kelar Inversiones Limitada	100.0
Samsung C&T Corporation	Samsung C&T Corporation Rus LLC	100.0
Samsung C&T Corporation	Samsung SDI America, Inc.	8.3
Samsung C&T Corporation	Samsung SDI(Hong Kong) Ltd.	2.4
Samsung C&T Corporation	Beijing Samsung Real Estate Co.. Ltd	10.0
Samsung C&T Corporation	Cheil Industries Corp., USA	100.0
Samsung C&T Corporation	CHEIL INDUSTRIES ITALY SRL	100.0
Samsung C&T Corporation	Samsung Fashion Trading Co. ,Ltd	100.0
Samsung C&T Corporation	SAMSUNG C&T CORPORATION VIETNAM CO., LTD	100.0
Samsung C&T Corporation	Samsung C&T Corporation UEM Construction JV Sdn Bhd	60.0
Samsung C&T Corporation	iMarket Asia Co., Ltd.	19.3
Samsung Welstory	WELSTORY VIETNAM COMPANY LIMITED	100.0
Samsung Welstory	Shanghai Ever-Hongjun Business Mgt Service Co.,LTD	85.0
Samsung Welstory	Shanghai Welstory Food Company Limited	81.6
MULTICAMPUS	LANGUAGE TESTING INTERNATIONAL, INC.	82.4
Pengtai Greater China Company Limited	PENGTAI CHINA CO.,LTD.	100.0
Pengtai Greater China Company Limited	PengTai Taiwan Co., Ltd.	100.0
PENGTAI CHINA CO.,LTD.	PENGTAI E-COMMERCE CO.,LTD	100.0
PENGTAI CHINA CO.,LTD.	PENGTAI MARKETING SERVICE CO.,LTD.	100.0
PENGTAI INTERACTIVE ADVERTISING CO.,LTD	Medialytics Inc.	100.0
PENGTAI INTERACTIVE ADVERTISING CO.,LTD	Beijing Pengtai Baozun E-commerce Co., Ltd.	51.0
iMarket Asia Co., Ltd.	iMarket China Co., Ltd.	80.0
Samsung Securities	Samsung Securities (America), Inc.	100.0
Samsung Securities	Samsung Securities (Europe) Limited.	100.0
Samsung Securities	Samsung Securities (Asia) Limited.	100.0
Samsung SDS	iMarket Asia Co., Ltd.	40.6
Samsung SDS	Samsung SDS Global SCL America, Inc.	100.0
Samsung SDS	SAMSUNG SDS GSCL Canada., Ltd.	100.0
Samsung SDS	Samsung SDS America, Inc.	100.0
Samsung SDS	Neo EXpress Transportation (NEXT), Inc.	51.0

Investor	Investee	Ownership
Samsung SDS	Samsung SDS Europe, Ltd.	100.0
Samsung SDS	Samsung SDS Global SCL Hungary, Kft.	100.0
Samsung SDS	Samsung SDS Global SCL Slovakia, S.R.O.	100.0
Samsung SDS	Samsung SDS Global SCL Poland Sp. Z.o.o.	100.0
Samsung SDS	Samsung GSCL Sweden AB	100.0
Samsung SDS	Samsung SDS Global SCL France SAS	100.0
Samsung SDS	Samsung SDS Global SCL Greece Societe Anonyme	100.0
Samsung SDS	Samsung SDS Global SCL Baltics, SIA	100.0
Samsung SDS	Samsung SDS Global SCL Italy S.R.L. A Socio Unico	100.0
Samsung SDS	Samsung SDS Global Supply Chain Logistics Spain S.L.U	100.0
Samsung SDS	Samsung SDS Global SCL Netherlands Cooperatief U.A.	100.0
Samsung SDS	Samsung SDS Global SCL Germany GmbH	100.0
Samsung SDS	Samsung SDS Global SCL Austria GmbH	100.0
Samsung SDS	Samsung SDS Global SCL Romania S.R.L	100.0
Samsung SDS	Samsung SDS Asia Pacific Pte, Ltd.	100.0
Samsung SDS	Samsung Data Systems India Private Limited	100.0
Samsung SDS	Samsung SDS India Private Limited	100.0
Samsung SDS	VASCO Supply Chain Solutions Private Limited	51.0
Samsung SDS	Samsung SDS Vietnam Co., Ltd.	100.0
Samsung SDS	PT. Samsung SDS Global SCL Indonesia	100.0
Samsung SDS	Samsung SDS Global SCL Philippines Co., Ltd.Inc.	100.0
Samsung SDS	Samsung SDS Global SCL Thailand Co.,Ltd	100.0
Samsung SDS	Samsung SDS Global SCL Malaysia SDN.BHD.	100.0
Samsung SDS	SAMSUNG SDS Global SCL Austraila Pty.,Ltd.	100.0
Samsung SDS	SDS-ACUTECH CO., Ltd.	50.0
Samsung SDS	ALS SDS Joint Stock Company	51.0
Samsung SDS	SDS-MP Logistics Joint Stock Company	51.0
Samsung SDS	Samsung SDS China Co., Ltd.	100.0
Samsung SDS	Samsung IT Services (Beijing) Co., Ltd.	100.0
Samsung SDS	Samsung SDS Global SCL Hong Kong Co., Ltd.	100.0
Samsung SDS	SAMSUNG SDS Global SCL Egypt	100.0
Samsung SDS	Samsung SDS Global SCL South Africa (PTY) Ltd.	100.0
Samsung SDS	Samsung SDS Global SCL Nakliyat ve Lojistik Anonim Sirketi	100.0
Samsung SDS	Samsung SDS Global Supply Chain Logistics Middle East DWC-LLC	100.0
Samsung SDS	Samsung SDS Latin America Solucoes Em Tecnologia Ltda.	99.7
Samsung SDS	SAMSUNG SDS Glogal SCL Latin America Logistica Ltda	99.7
Samsung SDS	INTE-SDS Logistics S.A. de C.V.	51.0
Samsung SDS	Samsung SDS Global SCL Rus Limited Liability Company	100.0
Miracom	MIRACOM INC ASIA PACIFIC LIMITED	100.0
Samsung SDS Global SCL America, Inc.	Samsung SDS Latin America Solucoes Em Tecnologia Ltda.	0.3
Samsung SDS Global SCL America, Inc.	Samsung SDS Mexico, S.A. DE C.V.	99.0
Samsung SDS Global SCL America, Inc.	Samsung SDS Global SCL Panama S. A.	100.0
Samsung SDS Global SCL America, Inc.	Samsung SDS Global SCL Chile Limitada	100.0
Samsung SDS Global SCL America, Inc.	Samsung SDS Global SCL Peru S.A.C.	100.0
Samsung SDS Global SCL America, Inc.	Samsung SDS Global SCL Colombia S.A.S.	100.0
Samsung SDS Global SCL America, Inc.	SAMSUNG SDS Glogal SCL Latin America Logistica Ltda	0.3
Samsung SDS Europe, Ltd.	Samsung SDS Global SCL Netherlands Cooperatief U.A.	0.0
Samsung SDS Global SCL Netherlands Cooperatief U.A.	Samsung SDS Global SCL Poland Sp. Z.o.o.	0.0
Samsung SDS Global SCL Netherlands Cooperatief U.A.	Samsung SDS Global SCL Greece Societe Anonyme	0.0
Samsung SDS Global SCL Netherlands Cooperatief U.A.	Samsung SDS Global SCL Romania S.R.L	0.0
Samsung SDS Global SCL Netherlands Cooperatief U.A.	Samsung SDS Global SCL Rus Limited Liability Company	0.0
Samsung SDS China Co., Ltd.	Samsung SDS Global SCL Beijing Co., Ltd	100.0

Investor	Investee	Ownership
Samsung IT Services (Beijing) Co., Ltd.	Samsung SDS Global Development Center Xi'an	100.0
Samsung Engineering	Samsung Engineering America Inc.	100.0
Samsung Engineering	Samsung Engineering Hungary Ltd.	100.0
Samsung Engineering	Samsung Engineering Italy S.R.L.	100.0
Samsung Engineering	Samsung Engineering (Malaysia) SDN. BHD.	100.0
Samsung Engineering	PT Samsung Engineering Indonesia Co., Ltd.	100.0
Samsung Engineering	Samsung Engineering (Thailand) Co., Ltd.	81.0
Samsung Engineering	Samsung Engineering India Private Limited	100.0
Samsung Engineering	Samsung Engineering Vietnam Co., Ltd.	100.0
Samsung Engineering	Samsung Engineering Construction(Shanghai) Co., Ltd	100.0
Samsung Engineering	Samsung Engineering Construction Xi' an Co., Ltd.	100.0
Samsung Engineering	Samsung Saudi Arabia Co., Ltd.	100.0
Samsung Engineering	Muharraq Wastewater Services Company W.L.L.	99.8
Samsung Engineering	Muharraq STP Company B.S.C.	6.6
Samsung Engineering	Muharraq Holding Company 1 Ltd.	65.0
Samsung Engineering	Samsung Ingenieria Mexico Construccion Y Operacion S.A. De C.V.	99.9
Samsung Engineering	Samsung Engineering Trinidad Co., Ltd.	100.0
Samsung Engineering	Samsung Ingenieria Manzanillo, S.A. De C.V.	99.9
Samsung Engineering	Grupo Samsung Ingenieria Mexico, S.A. De C.V.	100.0
Samsung Engineering	Samsung Ingenieria Energia S.A. De C.V.	100.0
Samsung Engineering	Samsung Engineering Bolivia S.A	100.0
Samsung Engineering	Samsung Ingenieria DUBA S.A. de C.V.	100.0
Samsung Engineering	Samsung Engineering Kazakhstan L.L.P.	100.0
Samsung Engineering America Inc.	SEA Construction, LLC	100.0
Samsung Engineering America Inc.	SEA Louisiana Construction, L.L.C.	100.0
Samsung Engineering (Malaysia) SDN. BHD.	Muharraq Wastewater Services Company W.L.L.	0.3
Samsung Engineering India Private Limited	Samsung Saudi Arabia Co., Ltd.	0.0
Samsung Saudi Arabia Co., Ltd.	Samsung EPC Company Ltd.	75.0
Muharraq Holding Company 1 Ltd.	Muharraq Holding Company 2 Ltd.	100.0
Muharraq Holding Company 2 Ltd.	Muharraq STP Company B.S.C.	89.9
Samsung Ingenieria Manzanillo, S.A. De C.V.	Asociados Constructores DBNR, S.A. de C.V.	49.0
S1 Corporation	S-1 CORPORATION HUNGARY LLC	100.0
S1 Corporation	SOCM LLC	100.0
S1 Corporation	S-1 CORPORATION VIETNAM CO., LTD	100.0
S1 Corporation	Samsung Beijing Security Systems	100.0
Cheil Worldwide	PENGTAI INTERACTIVE ADVERTISING CO.,LTD	100.0
Cheil Worldwide	Cheil USA Inc.	100.0
Cheil Worldwide	Cheil Central America Inc.	100.0
Cheil Worldwide	Iris Worldwide Holdings Limited	100.0
Cheil Worldwide	CHEIL EUROPE LIMITED	100.0
Cheil Worldwide	Cheil Germany GmbH	100.0
Cheil Worldwide	Cheil France SAS	100.0
Cheil Worldwide	CHEIL SPAIN S.L	100.0
Cheil Worldwide	Cheil Benelux B.V.	100.0
Cheil Worldwide	Cheil Nordic AB	100.0
Cheil Worldwide	Cheil India Private Limited	100.0
Cheil Worldwide	Cheil (Thailand) Ltd.	100.0
Cheil Worldwide	Cheil Singapore Pte. Ltd.	100.0
Cheil Worldwide	CHEIL VIETNAM COMPANY LIMITED	99.0
Cheil Worldwide	Cheil Integrated Marketing Philippines, Inc.	100.0
Cheil Worldwide	CHEIL MALAYSIA SDN. BHD.	100.0
Cheil Worldwide	Cheil New Zealand Limited	100.0
Cheil Worldwide	CHEIL CHINA	100.0
Cheil Worldwide	Cheil Hong Kong Ltd.	100.0
Cheil Worldwide	Caishu (Shanghai) Business Consulting Co., Ltd	100.0

Investor	Investee	Ownership
Cheil Worldwide	Cheil MEA FZ-LLC	100.0
Cheil Worldwide	Cheil South Africa (Pty) Ltd	100.0
Cheil Worldwide	CHEIL KENYA LIMITED	99.0
Cheil Worldwide	Cheil Communications Nigeria Ltd.	99.0
Cheil Worldwide	Cheil Worldwide Inc./Jordan LLC.	100.0
Cheil Worldwide	Cheil Ghana Limited	100.0
Cheil Worldwide	Cheil Egypt LLC	99.9
Cheil Worldwide	Cheil Brasil Comunicacoes Ltda.	100.0
Cheil Worldwide	Cheil Mexico, S.A. de C.V.	98.0
Cheil Worldwide	Cheil Chile SpA.	100.0
Cheil Worldwide	Cheil Peru S.A.C.	100.0
Cheil Worldwide	CHEIL ARGENTINA S.A.	98.0
Cheil Worldwide	Cheil Rus LLC	100.0
Cheil Worldwide	Cheil Ukraine LLC	100.0
Cheil Worldwide	Cheil Kazakhstan LLC	100.0
Hotel Shilla	Samsung Hospitality America Inc.	100.0
Hotel Shilla	Shilla Travel Retail Pte. Ltd.	100.0
Hotel Shilla	Samsung Shilla Business Service Beijing Co., Ltd.	100.0
Hotel Shilla	Shilla Travel Retail Hong Kong Limited	100.0
Hotel Shilla	Shilla Travel Retail Taiwan Limited	64.0
HDC Shilla Duty Free LTD	HDC SHILLA (SHANGHAI) CO., LTD	100.0
SBTM	Samsung Hospitality U.K. Inc.	100.0
SBTM	Samsung Hospitality Europe GmbH	100.0
SBTM	SAMSUNG HOSPITALITY ROMANIA SRL	100.0
SBTM	Samsung Hospitality Vietnam Co., Ltd.	99.0
SBTM	Samsung Hospitality Philippines Inc.	100.0
SBTM	Samsung Hospitality India Private Limited	100.0
Iris Americas, Inc.	Iris (USA) Inc.	100.0
Iris Americas, Inc.	Iris Atlanta, Inc.	100.0
Iris Americas, Inc.	Iris Experience, Inc.	100.0
Iris Americas, Inc.	Iris Latin America, Inc.	100.0
Iris Americas, Inc.	Iris Worldwide San Diego, Inc.	100.0
Iris Americas, Inc.	89 Degrees, Inc.	100.0
Iris Latin America, Inc.	Irisnation Latina No.2, S. de R.L. de C.V.	0.0
Iris Latin America, Inc.	Irisnation Latina, S. de R.L. de C.V.	0.0
Iris Canada Holdings Ltd	Pricing Solutions Ltd	100.0
Cheil USA Inc.	The Barbarian Group LLC	100.0
Cheil USA Inc.	McKinney Ventures LLC	100.0
Cheil USA Inc.	Cheil India Private Limited	0.0
Cheil USA Inc.	Cheil Mexico, S.A. de C.V.	2.0
Iris Worldwide Holdings Limited	Iris Nation Worldwide Limited	100.0
Iris Nation Worldwide Limited	Iris Americas, Inc.	100.0
Iris Nation Worldwide Limited	Irisnation Latina No.2, S. de R.L. de C.V.	100.0
Iris Nation Worldwide Limited	Irisnation Latina, S. de R.L. de C.V.	100.0
Iris Nation Worldwide Limited	Iris Canada Holdings Ltd	100.0
Iris Nation Worldwide Limited	Iris London Limited	100.0
Iris Nation Worldwide Limited	Iris Promotional Marketing Ltd	100.0
Iris Nation Worldwide Limited	Iris Ventures 1 Limited	98.6
Iris Nation Worldwide Limited	Founded Partners Limited	100.0
Iris Nation Worldwide Limited	Iris Products (Worldwide) Limited	100.0
Iris Nation Worldwide Limited	Iris Korea Limited	100.0
Iris Nation Worldwide Limited	Iris Digital Limited	100.0
Iris Nation Worldwide Limited	Iris Amsterdam B.V.	100.0
Iris Nation Worldwide Limited	Datalytics Limited	100.0
Iris Nation Worldwide Limited	Iris Ventures (Worldwide) Limited	100.0

Investor	Investee	Ownership
Iris Nation Worldwide Limited	Iris Culture Limited	100.0
Iris Nation Worldwide Limited	Concise Consultants Limited	100.0
Iris Nation Worldwide Limited	Atom42 Ltd	100.0
Iris Nation Worldwide Limited	WDMP Limited	49.0
Iris Nation Worldwide Limited	Pricing Solutions (UK) Limited	100.0
Iris Nation Worldwide Limited	Iris Services Limited Dooel Skopje	100.0
Iris Nation Worldwide Limited	Irisnation Singapore Pte. ltd.	100.0
Iris Nation Worldwide Limited	Iris Worldwide Integrated Marketing Private Limited	100.0
Iris Nation Worldwide Limited	Iris Sydney PTY Ltd	100.0
Iris Nation Worldwide Limited	Iris Worldwide (Thailand) Limited	100.0
Iris Nation Worldwide Limited	Iris Beijing Advertising Company Limited	100.0
Iris Nation Worldwide Limited	Irisnation Hong Kong Limited	100.0
Iris London Limited	Iris Partners LLP	100.0
Iris Promotional Marketing Ltd	Holdings BR185 Limited	100.0
Iris Ventures 1 Limited	Iris Germany GmbH	100.0
Founded Partners Limited	Founded, Inc.	100.0
Iris Germany GmbH	Pepper NA, Inc.	100.0
Iris Germany GmbH	Pepper Technologies Pte. Ltd.	100.0
CHEIL EUROPE LIMITED	Beattie McGuinness Bungay Limited	100.0
CHEIL EUROPE LIMITED	Cheil Italia S.r.l	100.0
Cheil Germany GmbH	Cheil Austria GmbH	100.0
Cheil Germany GmbH	Centrade Integrated SRL	80.0
Centrade Integrated SRL	Centrade Cheil HU Kft.	100.0
Centrade Integrated SRL	Centrade Cheil Adriatic D.O.O.	100.0
Cheil India Private Limited	Experience Commerce Software Private Limited	100.0
Cheil Singapore Pte. Ltd.	Pengtai Greater China Company Limited	95.7
Cheil Singapore Pte. Ltd.	PT. CHEIL WORLDWIDE INDONESIA	100.0
Cheil Integrated Marketing Philippines, Inc.	Cheil Philippines Inc.	30.0
Cheil Hong Kong Ltd.	Pengtai Greater China Company Limited	3.1
Samsung Shilla Business Service Beijing Co., Ltd.	Tianjin Samsung International Travel Service Co., Ltd	100.0
Shilla Travel Retail Hong Kong Limited	Shilla Retail Limited	100.0
Shilla Travel Retail Hong Kong Limited	Shilla Travel Retail Duty Free HK Limited	100.0
Cheil MEA FZ-LLC	One Agency FZ-LLC	100.0
Cheil MEA FZ-LLC	One RX Project Management Design and Production Limited Company	0.0
Cheil MEA FZ-LLC	Cheil Egypt LLC	0.1
Cheil South Africa (Pty) Ltd	CHEIL KENYA LIMITED	1.0
Cheil South Africa (Pty) Ltd	Cheil Communications Nigeria Ltd.	1.0
One Agency FZ-LLC	One RX India Private Limited	100.0
One Agency FZ-LLC	One RX Project Management Design and Production Limited Company	100.0
One Agency FZ-LLC	ONE RX INTERIOR DECORATION L.L.C	100.0
One Agency FZ-LLC	ONE AGENCY PRINTING L.L.C	100.0
One Agency FZ-LLC	One Agency South Africa (Pty) Ltd	100.0
ONE RX INTERIOR DECORATION L.L.C	One RX India Private Limited	0.0
Holdings BR185 Limited	Brazil 185 Participacoes Ltda	100.0
Brazil 185 Participacoes Ltda	Iris Router Marketing Ltda	100.0
Cheil Brasil Comunicacoes Ltda.	CHEIL ARGENTINA S.A.	2.0

Percent of ownership as of December 31, 2020 based on common shares.

C. Related statute & regulation

Restrictions on cross-holdings within Samsung Group in accordance with the Monopoly Regulation and Fair Trade Act

(1) Date of announcement by authorities of companies deemed Samsung Group companies for the current year:
May 1, 2020

(2) Summary of Regulation

- Restriction on cross-holdings
- Restriction on debt guarantee between affiliates
- Restriction on affiliate voting rights of financial & insurance companies
- Decision making of board committee and public disclosure of large-scale inter-affiliate transactions
- Public disclosure of important matters of unlisted companies
- Other public disclosures related to Group status

D. Concurrent position with other affiliates

[As of December 31, 2020]

		Concurrent position		
Name	Position	Name of company	Position	Full/part time
Hark-kyu Park	President	Samsung Display	Non-Executive director	Part time
Yong-kwan Kim	Executive VP	Samsung Medison	Representative Director	Full time
Yeon-sung Kim	Senior VP	Samsung Electronics Sales	Auditor	Part time
		Samsung Electronics Logitech	Auditor	Part time
		Samsung Electronics Service	Auditor	Part time
Sung-won Son	Senior VP	Samsung Medison	Auditor	Part time
Khi-jae Cho	Senior VP	Samsung Display	Auditor	Part time
Sung-woo Shin	Senior VP	STECO	Auditor	Part time
Chong-hoon Oh	Senior VP	SEMES	Auditor	Part time
Won-joon Lee	Senior VP	SERI	Auditor	Part time
Hong-sig Kim	VP	SEMES	Non-Executive director	Part time
Hyun-jung Park	VP	SEMES	Non-Executive director	Part time
Hyung-joon Moon	VP	STECO	Non-Executive director	Part time
Sung-wuk Kang	VP	Samsung Venture Investment	Auditor	Part time

E. Equity investments in other corporations

(1) The total book value of equity investments in other corporations as of December 31, 2020 is KRW 58,130 billion (for the purpose of business operations, etc.)

[As of December 31, 2020] (1,000 shares, KRW million, %)

Account	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Listed	Samsung Electro-Mechanics	1977.01	Business	250	17,693	23.7	445,244	-	-	-	17,693	23.7	445,244	9,225,498	623,811
Listed	Samsung SDI	1977.01	Business	304	13,463	19.6	1,242,605	-	-	-	13,463	19.6	1,242,605	21,534,232	630,966
Listed	Samsung Heavy Industries	1977.09	Business	125	100,693	16.0	732,041	-	-	-23,159	100,693	16.0	708,882	12,924,319	-1,202,857
Listed	Hotel Shilla	1979.12	Business	252	2,005	5.1	182,028	-	-	-17,040	2,005	5.1	164,988	2,893,842	-283,346
Listed	Cheil Worldwide	1988.09	Business	185	29,038	25.2	491,599	-	-	-	29,038	25.2	491,599	2,242,464	158,280
Listed	Samsung SDS	1992.07	Business	6,160	17,472	22.6	560,827	-	-	-	17,472	22.6	560,827	9,154,919	452,909
Listed	Samsung BioLogics	2011.04	Business	30,000	20,837	31.5	443,193	-	-	-	20,837	31.5	443,193	6,424,201	240,975
Unlisted	Samsung Display	2012.04	Business	16,009,547	221,969	84.8	18,509,307	-	-	-	221,969	84.8	18,509,307	50,039,755	1,798,100
Unlisted	STECO	1995.06	Business	24,000	2,590	70.0	35,861	-	-	-	2,590	70.0	35,861	164,027	9,295
Unlisted	SEMES	1992.12	Business	1,000	2,173	91.5	71,906	-	-	-	2,173	91.5	71,906	1,596,649	201,985
Unlisted	Samsung Electronics Service	1998.01	Business	30,000	6,000	99.3	48,121	-	-	-	6,000	99.3	48,121	514,221	-7,959
Unlisted	Samsung Electronics Sales	2000.12	Business	3,100	1,767	100.0	247,523	-	-	-	1,767	100.0	247,523	1,135,295	21,995
Unlisted	Samsung Electronics Logitech	1999.04	Business	76	1,011	100.0	46,669	-	-	-	1,011	100.0	46,669	349,516	21,068
Unlisted	Samsung Medison	2011.02	Business	286,384	87,350	68.5	326,785	-	-	-24,502	87,350	68.5	302,283	370,529	1,538
Unlisted	SERI	1991.05	Business	320	3,576	29.8	24,942	-	-	-	3,576	29.8	24,942	144,091	286
Unlisted	Samsung Venture Investment	1999.11	Business	4,900	980	16.3	12,754	-	-	9,306	980	16.3	22,060	132,460	10,175
Unlisted	SVIC #21	2011.11	Business	19,800	1	99.0	75,982	0	4,906	-	1	99.0	80,888	100,891	861
Unlisted	SVIC #22	2011.11	Business	19,800	1	99.0	114,216	-0	-20,592	-	1	99.0	93,624	81,530	-17,022
Unlisted	SVIC #26	2014.11	Business	19,800	2	99.0	164,211	-	-	-65,634	2	99.0	98,577	83,941	-50,147
Unlisted	SVIC #27	2014.09	Business	5,940	0	99.0	37,600	0	6,185	-	0	99.0	43,785	42,249	-6,528

Account	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	SVIC #28	2015.02	Business	7,425	2	99.0	157,992	0	10,988	-	2	99.0	168,980	366,921	33,542
Unlisted	SVIC #32	2016.08	Business	19,800	2	99.0	183,477	-0	-871	-	2	99.0	182,606	291,176	64,353
Unlisted	SVIC #33	2016.11	Business	4,950	2	99.0	155,299	0	18,008	-	2	99.0	173,307	342,053	135,637
Unlisted	SVIC #42	2018.11	Business	4,950	0	99.0	5,900	0	5,148	-	0	99.0	11,048	8,558	-1,583
Unlisted	SVIC #45	2019.05	Business	19,800	0	99.0	20,790	1	92,627	-	1	99.0	113,417	101,781	-10,873
Unlisted	Semiconductor Growth Fund	2017.03	Business	500	50,000,000	66.7	50,000	-	-	-	50,000,000	66.7	50,000	75,082	-316
Unlisted	System LSI Mutual benefit private equity trust	2020.04	Business	25,000	-	-	-	25,000,000	25,000	-	25,000,000	62.5	25,000	40,036	-407
Listed	iMarket Korea	2000.12	Business	1,900	647	1.8	6,732	-	-	-1,074	647	1.8	5,658	1,110,574	28,799
Listed	KT Skylife	2001.12	Business	3,344	240	0.5	2,093	-	-	21	240	0.5	2,114	919,476	58,190
Listed	Yongpyong Resort	2007.05	Business	1,869	400	0.8	2,400	-	-	-698	400	0.8	1,702	849,936	-13,792
Listed	ATech Solution	2009.11	Business	26,348	1,592	15.9	11,733	-	-	7,530	1,592	15.9	19,263	182,295	2,911
Listed	Wonik Holdings	2013.12	Business	15,411	1,759	2.3	9,605	-	-	1,548	1,759	2.3	11,153	1,608,247	95,853
Listed	Wonik IPS	2016.04	Business	16,214	1,851	3.8	66,356	-	-	15,548	1,851	3.8	81,904	1,099,641	97,819
Listed	Dongjin Semichem	2017.11	Business	48,277	2,468	4.8	41,337	-	-	48,741	2,468	4.8	90,078	791,789	66,240
Listed	Soulbrain Holdings	2017.11	Business	30,752	835	4.8	70,400	-373	-35,806	-13,769	462	2.2	20,825	1,159,460	119,291
Listed	Soulbrain	2020.07	Business	24,866	-	-	-	373	35,806	65,862	373	4.8	101,668	679,923	38,088
Listed	S&S Tech	2020.08	Business	65,933	-	-	-	1,716	65,933	8,718	1,716	8.0	74,651	185,991	10,996
Listed	YIK Corp	2020.08	Business	47,336	-	-	-	9,602	47,336	12,674	9,602	11.9	60,010	290,873	20,625
Listed	KCTech	2020.11	Business	20,720	-	-	-	1,022	20,720	10,713	1,022	4.9	31,433	406,666	41,961
Listed	Iotvacuum	2020.11	Business	18,990	-	-	-	1,268	18,990	5,096	1,268	7.7	24,086	229,011	4,517
Listed	NEW POWER PLASMA	2020.11	Business	12,739	-	-	-	2,141	12,739	1,370	2,141	4.9	14,109	479,836	23,891
Unlisted	The Korea Economic Daily	1987.05	Business	150	72	0.4	365	-	-	-	72	0.4	365	521,964	34,258
Unlisted	Korea Business Banking	1995.01	Business	5,000	1,000	17.2	3,331	-	-	-291	1,000	17.2	3,040	85,905	1,365

Account	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	Cyber Bank	2000.12	Business	8,000	1,083	7.5	0	-	-	-	1,083	7.5	0	0	0
Unlisted	FineChips	2001.12	Business	10	2	3.2	10	-	-	-	2	3.2	10	10,682	1,667
Unlisted	Inkel	2006.11	Business	130	0	0.0	0	-	-	-	0	0.0	0	93,491	-4,098
Unlisted	Icube #1	2009.12	Business	4,000	0	0.0	0	-	-	-	-	-	-	-	-
Unlisted	Intellectual Discovery	2011.05	Business	5,000	357	10.7	1,922	-	-	-	357	10.7	1,922	51,031	3,243
Unlisted	Maltani Corp.	2012.04	Business	16,544	45	15.0	9,551	-	-	-430	45	15.0	9,121	72,091	1,739
Unlisted	Pantech	2013.06	Business	53,000	53,000	10.0	0	-	-	-	53,000	10.0	0	58,926	-254
Unlisted	AI Research Institute	2016.07	Business	3,000	600	14.3	3,000	-	-	-	600	14.3	3,000	12,439	-2,692
Unlisted	Mico Ceramics	2020.11	Business	21,667	-	-	-	747	21,667	-	747	15.7	21,667	124,000	9,900
Unlisted	Shinsung Eng & Construction	2010.07	Debt Collection	1	0	0.0	0	-	-	-	0	0.0	0	211,352	5,297
Unlisted	Woobang	2010.07	Debt Collection	0	1	0.0	0	-	-	-	1	0.0	0	675,502	53,869
Unlisted	Sambo Computer	2012.09	Debt Collection	0	0	0.0	0	-	-	-	0	0.0	0	44,918	5,265
Unlisted	Daewoo Development	2012.12	Debt Collection	0	0	0.0	0	-	-	-	0	0.0	0	293,304	12,300
Unlisted	Daewoo Songdo Development	2012.12	Debt Collection	0	9	0.0	0	-	-	-	9	0.0	0	19,369	-350
Unlisted	Zyle Motor Sales	2012.12	Debt Collection	0	1	0.0	0	-	-	-	1	0.0	0	316,041	20,038
Unlisted	Sungwon Construction	2014.04	Debt Collection	0	1	0.0	0	-	-	-	1	0.0	0	27,744	-627
Unlisted	Inhee	2014.04	Debt Collection	0	0	0.1	0	-	-	-	0	0.1	0	2,684	585
Unlisted	Point Anybeam	2019.12	Debt Collection	61	12	3.5	61	-	-	-	12	3.5	61	1,727	-209
Unlisted	JNT	2011.02	Business	1,800	0	24.0	1,758	-	-	-	0	24.0	1,758	3,503	-1,336
Unlisted	Daishin Aju IB	2011.08	Business	258	0	3.0	681	-	-	-	0	3.0	681	12,980	-171
Unlisted	TS	2011.11	Business	1,700	0	20.5	0	-	-	-	0	20.5	0	385	-345
Unlisted	L&S	2012.07	Business	848	0	7.5	384	-0	-75	-	0	7.5	309	14,200	19,441
Unlisted	KTCNP-GC	2013.12	Business	960	0	3.6	1,816	-	-	-	0	3.6	1,816	97,660	-22,314

Account	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	POSCO Social Enterprise Fund	2013.12	Business	600	0	10.0	240	-	-	-	0	10.0	240	2,242	-94
Unlisted	SEA	1978.07	Overseas Base, etc.	59,362	492	100.0	17,166,557	-	-	-	492	100.0	17,166,557	36,765,070	1,623,555
Unlisted	SECA	1992.08	Overseas Base, etc.	3,823	0	100.0	90,922	-	-	-	0	100.0	90,922	1,539,360	24,835
Unlisted	SEDA	1994.01	Overseas Base, etc.	13,224	77,205,709	87.0	647,620	-	-	-	77,205,709	87.0	647,620	6,280,131	819,561
Unlisted	SEM	1995.07	Overseas Base, etc.	3,032	3,837	63.6	165,638	-	-	-	3,837	63.6	165,638	1,166,317	61,216
Unlisted	SELA	1989.04	Overseas Base, etc.	319	40	100.0	86,962	-	-	-	40	100.0	86,962	481,023	25,369
Unlisted	SEASA	1996.06	Overseas Base, etc.	4,696	21,854	98.0	6,779	-	-	-	21,854	98.0	6,779	45,396	4,851
Unlisted	SECH	2002.12	Overseas Base, etc.	597	0	4.1	597	-	-	-	0	4.1	597	623,743	19,563
Unlisted	SEUK	1995.07	Overseas Base, etc.	33,908	109,546	100.0	433,202	-	-	-	109,546	100.0	433,202	2,767,563	133,016
Unlisted	SEL	1998.12	Overseas Base, etc.	8,280	4,393	100.0	0	-	-	-	4,393	100.0	0	6,512	0
Unlisted	SEHG	1982.02	Overseas Base, etc.	28,042	0	100.0	354,846	-	-	-	0	100.0	354,846	993,490	106,190
Unlisted	SEF	1991.08	Overseas Base, etc.	230	2,700	100.0	234,115	-	-	-	2,700	100.0	234,115	1,688,580	61,596
Unlisted	SEI	1993.05	Overseas Base, etc.	862	677	100.0	143,181	-	-	-	677	100.0	143,181	1,287,050	46,819
Unlisted	SESA	1989.01	Overseas Base, etc.	3,276	8,021	100.0	142,091	-	-	-	8,021	100.0	142,091	1,094,002	28,742
Unlisted	SEP	1982.09	Overseas Base, etc.	204	1,751	100.0	37,616	-	-	-	1,751	100.0	37,616	222,273	6,413
Unlisted	SEH	1991.05	Overseas Base, etc.	1,954	753	100.0	650,157	-	-	-	753	100.0	650,157	2,230,457	148,056
Unlisted	SELS	1991.05	Overseas Base, etc.	18,314	1,306	100.0	24,288	-	-	-	1,306	100.0	24,288	1,700,033	20,623
Unlisted	SEBN	1995.07	Overseas Base, etc.	236	539,138	100.0	914,751	-	-	-	539,138	100.0	914,751	2,145,488	58,579
Unlisted	SEEH	2008.01	Overseas Base, etc.	4,214	0	100.0	1,369,992	-	-	-	0	100.0	1,369,992	11,495,430	16,150
Unlisted	SENA	1992.03	Overseas Base, etc.	392	1,000	100.0	69,372	-	-	-	1,000	100.0	69,372	1,315,256	43,423
Unlisted	SESK	2002.06	Overseas Base, etc.	8,976	0	55.7	263,767	-	-	-	0	55.7	263,767	1,428,228	62,271
Unlisted	SEPOL	1996.04	Overseas Base, etc.	5,462	106	100.0	78,267	-	-	-	106	100.0	78,267	979,474	56,998

Account	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	SEAG	2002.01	Overseas Base, etc.	40	0	100.0	32,162	-	-	-	0	100.0	32,162	455,973	19,341
Unlisted	SERC	2006.01	Overseas Base, etc.	24,877	0	100.0	188,290	-	-	-	0	100.0	188,290	1,244,802	119,980
Unlisted	SERK	2007.07	Overseas Base, etc.	4,600	0	100.0	204,555	-	-	-	0	100.0	204,555	1,124,492	93,207
Unlisted	SEO	1997.01	Overseas Base, etc.	120	0	100.0	△10,043	-	-	-	0	100.0	△10,043	93,508	777
Unlisted	SGE	1995.05	Overseas Base, etc.	827	0	100.0	32,836	-	-	-	0	100.0	32,836	1,092,268	2,200
Unlisted	SEEG	2012.07	Overseas Base, etc.	23	0	0.1	39	-	-	-	0	0.1	39	751,563	136,950
Unlisted	SSA	1998.12	Overseas Base, etc.	263	2,000	100.0	32,622	-	-	-	2,000	100.0	32,622	434,304	18,322
Unlisted	SAPL	2006.07	Overseas Base, etc.	793	877,133	100.0	981,483	-	-	-	877,133	100.0	981,483	9,552,755	968,504
Unlisted	SME	2003.05	Overseas Base, etc.	4,796	17,100	100.0	7,644	-	-	-	17,100	100.0	7,644	397,704	13,099
Unlisted	SDMA	1995.03	Overseas Base, etc.	21,876	71,400	75.0	18,741	-	-	-	71,400	75.0	18,741	23,975	△741
Unlisted	SEMA	1989.09	Overseas Base, etc.	4,378	16,247	100.0	103,402	-	-	-	16,247	100.0	103,402	213,160	22,402
Unlisted	SAVINA	1995.01	Overseas Base, etc.	5,839	0	100.0	28,365	-	-	-	0	100.0	28,365	299,818	27,986
Unlisted	SEIN	1991.08	Overseas Base, etc.	7,463	46	100.0	118,909	-	-	-	46	100.0	118,909	966,723	54,763
Unlisted	TSE	1988.01	Overseas Base, etc.	1,390	11,020	91.8	279,163	-	-	-	11,020	91.8	279,163	2,920,299	160,264
Unlisted	SEAU	1987.11	Overseas Base, etc.	392	53,200	100.0	111,964	-	-	-	53,200	100.0	111,964	596,587	34,804
Unlisted	SIEL	1995.08	Overseas Base, etc.	5,414	216,787	100.0	75,263	-	-	-	216,787	100.0	75,263	6,250,492	611,571
Unlisted	SRI-B	2005.05	Overseas Base, etc.	7,358	17	100.0	31,787	-	-	-	17	100.0	31,787	399,137	48,399
Unlisted	SJC	1975.12	Overseas Base, etc.	273	1,560	100.0	253,108	-	-	-	1,560	100.0	253,108	1,668,902	7,684
Unlisted	SRJ	1992.08	Overseas Base, etc.	3,120	122	100.0	117,257	-	-	-	122	100.0	117,257	162,609	3,634
Unlisted	SCIC	1996.03	Overseas Base, etc.	23,253	0	100.0	640,452	-	-	-	0	100.0	640,452	15,438,819	127,051
Unlisted	SEHK	1988.09	Overseas Base, etc.	349	274,250	100.0	79,033	-	-	-	274,250	100.0	79,033	1,377,388	17,584
Unlisted	SET	1994.11	Overseas Base, etc.	456	27,270	100.0	112,949	-	-	-	27,270	100.0	112,949	1,580,003	22,910

Account	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	SEHZ	1992.12	Overseas Base, etc.	792	0	89.6	255,535	-	-	-	0	89.6	255,535	1,428,868	10,177
Unlisted	TSEC	1993.04	Overseas Base, etc.	15,064	0	48.2	138,101	-	-	△34,967	0	48.2	103,134	417,423	△154,881
Unlisted	SSEC	1995.04	Overseas Base, etc.	32,128	0	69.1	130,551	-	-	-	0	69.1	130,551	570,871	70,569
Unlisted	SESC	2002.09	Overseas Base, etc.	5,471	0	73.7	34,028	-	-	-	0	73.7	34,028	830,015	△2,717
Unlisted	TSTC	2001.03	Overseas Base, etc.	10,813	0	90.0	260,092	-	-	-	0	90.0	260,092	581,611	6,440
Unlisted	SSET	2002.02	Overseas Base, etc.	6,009	0	100.0	41,182	-	-	-	0	100.0	41,182	42,469	1,144
Unlisted	SSS	2001.01	Overseas Base, etc.	1,200	0	100.0	19,189	-	-	-	0	100.0	19,189	7,678,989	271,691
Unlisted	SCS	2012.09	Overseas Base, etc.	111,770	0	100.0	5,275,760	-	-	-	0	100.0	5,275,760	14,348,735	1,100,619
Unlisted	SSCX	2016.04	Overseas Base, etc.	1,141	0	100.0	1,141	-	-	-	0	100.0	1,141	779,561	35,288
Unlisted	SESS	1994.12	Overseas Base, etc.	18,875	0	100.0	504,313	-	-	-	0	100.0	504,313	1,197,268	81,762
Unlisted	TSLED	2012.04	Overseas Base, etc.	119,519	0	100.0	119,519	-	-	-	0	100.0	119,519	536,956	36,630
Unlisted	SSCR	2006.09	Overseas Base, etc.	3,405	0	100.0	9,332	-	-	-	0	100.0	9,332	56,016	5,752
Unlisted	TSST Japan	2004.03	Business	1,639	30	49.0	0	-	-	-	30	49.0	0	237	△33
Unlisted	STE	1996.01	Overseas Base, etc.	4,206	2	49.0	0	-	-	-	2	49.0	0	6,189	0
Unlisted	Semiconductor Portal	2002.12	Business	38	0	1.2	10	-	-	-	0	1.2	10	2,142	59
Unlisted	Nanosys	2010.08	Business	4,774	1,747	1.3	2,387	-	-	-	1,747	1.3	2,387	27,733	△9,709
Unlisted	One-Blue	2011.07	Business	1,766	0	16.7	1,766	-	-	-	0	16.7	1,766	30,238	650
Unlisted	TidalScale	2013.08	Business	1,112	2,882	4.3	1,112	-	-	-	2,882	4.3	1,112	6,173	△7,641
Unlisted	Sentiance	2012.12	Business	3,422	7	7.2	3,422	-	-	-	7	7.2	3,422	6,457	△4,566
Unlisted	Mantis Vision	2014.01	Business	1,594	355	2.1	1,980	-	-	-	355	2.1	1,980	31,758	△20,478
Unlisted	Leman	2014.08	Business	1,019	17	3.4	1,019	-	-	-	17	3.4	1,019	3,584	△3,919
Unlisted	Keyssa	2016.01	Business	3,332	1,235	1.9	3,332	-	-	-	1,235	1.9	3,332	6,371	△16,193

Account	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	Zyomed	2016.01	Business	2,044	1,464	2.9	2,044	-	-	△2,044	-	-	-	-	-
Unlisted	SensiFree	2016.01	Business	2,111	666	9.5	2,111	-	-	-	666	9.5	2,111	1,610	△2,173
Unlisted	Unispectral	2016.02	Business	1,112	2,308	7.9	2,130	-	-	-	2,308	7.9	2,130	1,273	△2,521
Unlisted	Quobyte	2016.04	Business	2,865	729	11.8	2,865	-	-	-	729	11.8	2,865	2,483	△650
Unlisted	Afero	2016.05	Business	5,685	723	5.5	5,685	-	-	-	723	5.5	5,685	4,926	△4,101
Unlisted	Graphcore	2016.06	Business	3,494	12,000	3.7	3,494	-	-	-	12,000	3.3	3,494	279,496	△148,852
Unlisted	Soundhound	2016.12	Business	7,059	306	1.1	7,059	-	-	-	306	1.1	7,059	119,637	△38,507
Unlisted	Aimotive	2017.12	Business	3,302	2	3.2	3,302	-	-	-	2	3.2	3,302	47,351	△8,200
Unlisted	Fasetto	2019.01	Business	6,701	338	3.5	6,701	137	5,853	-	475	5.2	12,554	5,436	△12,689
Unlisted	Innovium	2020.09	Business	11,705	-	-	-	987	11,705	-	987	0.9	11,705	195,883	△56,116

Based on separate financial statements
Ownership percentage is calculated based on the number of common shares issued
The Company measures fairvalue of financial instruments (equity shares) in accordance with K-IFRS. The Company annually evaluates if there is indication of impairment that investment in subsidiaries or affiliates may be impaired, and estimates the recoverable amount of assets with indication of impairment. Discounted cash flow method and the net asset evaluation method are used to estimate recoverable amount of Samsung Medison, SVIC #26, and TSEC shares, and book value exceeding the recoverable amount was recognized as impairment loss of 125,103 million won
Financial stats of Sungwon Construction is as of December 31 2016, financial stats of Daewoo Songdo Development and Mantis Vision are as of December 31 2017,
financial stats of Mantis Vision, Soundhound are as of Decebmer 31 2018, financial stats of Yongpyong Resort, Soulbrain Holdings, Pantech are as of Decebmer 31 2019,
financial stats of Soulbrain is as of September 30 2020, due to difficulties of obtaining the most recent financial data.

X. Related Party Transactions

1. Credit offerings for affiliates and subsidiaries

As of December 31, 2020, SEC provides a debt guarantee for financing of subsidiaries, including Samsung Electronics America, Inc. (SEA).

(USD thousand)

Company	Relationship	Creditor	Type	Purpose	Guarantee start date	Guarantee expiry date	Limit of Guarantee		Transactions			Interest Rate (%)
							Beginning of period	End of period	Beginning of period	Increase/ decrease	End of period	
SEA	Subsidiary	BOA etc.	Payment guarantee	Operating fund	Apr 17, 2020	Dec 16, 2021	1,328,000	1,328,000	-	-	-	
SEM	Subsidiary	BBVA etc.	Payment guarantee	Operating fund	Mar 28, 2020	Dec 16, 2021	485,000	485,000	-	-	-	
SAMCOL	Subsidiary	Citibank etc.	Payment guarantee	Operating fund	Jun 14, 2020	Dec 16, 2021	180,000	310,000	89,718	27,391	117,109	3.1
SEDA	Subsidiary	BRADESCO etc.	Payment guarantee	Operating fund	Oct 26, 2020	Dec 16, 2021	639,000	559,000	-	-	-	
SECH	Subsidiary	Santander etc.	Payment guarantee	Operating fund	Jun 14, 2020	Dec 16, 2021	142,000	142,000	17,256	-17,256	-	
SEPR	Subsidiary	BBVA etc.	Payment guarantee	Operating fund	Jun 01, 2020	Dec 16, 2021	230,000	230,000	90,587	-90,587	-	
SSA	Subsidiary	SCB etc.	Payment guarantee	Operating fund	Jun 14, 2020	Dec 16, 2021	318,000	318,000	-	-	-	
SEMAG	Subsidiary	SocGen etc.	Payment guarantee	Operating fund	Nov 09, 2020	Dec 16, 2021	110,000	110,000	-	-	-	
SETK	Subsidiary	BNP etc.	Payment guarantee	Operating fund	Jun 14, 2020	Dec 16, 2021	787,000	837,000	64,752	104,528	169,280	12.5
SECE	Subsidiary	Citibank etc.	Payment guarantee	Operating fund	Jul 19, 2020	Dec 16, 2021	75,698	74,434	-	-	-	
SEEG	Subsidiary	HSBC	Payment guarantee	Operating fund	Jun 14, 2020	Jun 13, 2021	85,000	85,000	-	-	-	
SEIN	Subsidiary	BNP etc.	Payment guarantee	Operating fund	Jun 14, 2020	Nov 08, 2021	145,000	145,000	-	-	-	
SJC	Subsidiary	Mizuho Bank etc.	Payment guarantee	Operating fund	Apr 30, 2020	Dec 16, 2021	896,633	916,062	-	-	-	
SEUC	Subsidiary	Credit Agricole etc.	Payment guarantee	Operating fund	Jun 14, 2020	Dec 16, 2021	150,000	150,000	-	-	-	
SEDAM	Subsidiary	Citibank etc.	Payment guarantee	Operating fund	Jun 14, 2020	Dec 16, 2021	322,000	222,000	-	-	-	
SECA	Subsidiary	BoA	Payment guarantee	Operating fund	Nov 09, 2020	Nov 08, 2021	70,000	70,000	-	-	-	
SELA	Subsidiary	Citibank	Payment guarantee	Operating fund	Dec 17, 2020	Dec 16, 2021	70,000	120,000	-	-	-	
SEEH	Subsidiary	HSBC etc.	Payment guarantee	Operating fund	Jun 14, 2020	Dec 16, 2021	703,000	653,000	-	-	-	
SERK	Subsidiary	SocGen etc.	Payment guarantee	Operating fund	Jun 14, 2020	Dec 16, 2021	220,000	269,800	-	-	-	
SELV	Subsidiary	Citibank	Payment guarantee	Operating fund	Dec 17, 2020	Dec 16, 2021	10,000	10,000	-	-	-	
SAPL	Subsidiary	BOA etc.	Payment guarantee	Operating fund	Jun 14, 2020	Dec 16, 2021	395,000	395,000	-	-	-	
SEV	Subsidiary	SCB	Payment guarantee	Operating fund	Nov 09, 2020	Nov 08, 2021	15,000	15,000	-	-	-	
SAVINA	Subsidiary	HSBC etc.	Payment guarantee	Operating fund	Jun 14, 2020	Nov 08, 2021	71,000	71,000	-	-	-	
SET	Subsidiary	SCB	Payment guarantee	Operating fund	Nov 09, 2020	Nov 08, 2021	30,000	30,000	-	-	-	
SCIC	Subsidiary	HSBC etc.	Payment guarantee	Operating fund	Jun 14, 2020	Dec 16, 2021	350,000	300,000	-	-	-	
SME	Subsidiary	SCB	Payment guarantee	Operating fund	Nov 09, 2020	Nov 08, 2021	110,000	110,000	-	-	-	
SAMEX	Subsidiary	Citibank	Payment guarantee	Operating fund	Dec 17, 2020	Dec 16, 2021	5,000	5,000	-	-	-	
SEASA	Subsidiary	Citibank	Payment guarantee	Operating fund	Dec 17, 2020	Dec 16, 2021	2,000	2,000	-	-	-	
SSAP	Subsidiary	SCB	Payment guarantee	Operating fund	Nov 09, 2020	Nov 08, 2021	30,000	30,000	-	-	-	
SEPM	Subsidiary	HSBC	Payment guarantee	Operating fund	Jun 14, 2020	Jun 13, 2021	35,000	35,000	-	-	-	
SESAR	Subsidiary	HSBC	Payment guarantee	Operating fund	Jun 14, 2020	Jun 13, 2021	50,000	50,000	-	-	-	
AdGear Technologies Inc.	Subsidiary	BOA	Payment guarantee	Operating fund	Nov 09, 2020	Nov 08, 2021	2,000	2,000	-	-	-	

Harman International Industries, Inc.	Subsidiary	JP Morgan	Payment guarantee	Operating fund	Jun 14, 2020	Jun 13, 2021	100,000	100,000	-	-	-	
Harman International Japan Co., Ltd.	Subsidiary	MUFG	Payment guarantee	Operating fund	Nov 09, 2020	Nov 08, 2021	25,000	25,000	-	-	-	
Harman RUS CIS LLC	Subsidiary	SocGen	Payment guarantee	Operating fund	Nov 09, 2020	Nov 08, 2021	15,000	15,000	-	-	-	
Harman Holding Limited	Subsidiary	HSBC	Payment guarantee	Operating fund	Jun 14, 2020	Jun 13, 2021	30,000	30,000	-	-	-	
Harman do Brasil Industria Eletronica e Participacoes Ltda.	Subsidiary	SocGen	Payment guarantee	Operating fund	Nov 09, 2020	Nov 08, 2021	15,000	15,000	-	-	-	
Harman da Amazonia Industria Eletronica e Participacoes Ltda.												
Total							8,246,331	8,264,296	262,313	24,076	286,389	

Standalone basis.
See G. Subsidiaries subject to consolidated financial statements in 『I. Corporate Overview』 for names of subsidiaries.
The approval decision is resolved by the Management Committee when the guarantee amount per transaction is between 0.1% and/or less than 2.5%, and by the Board of Directors when the guarantee amount per transaction is 2.5% and above.
SEC receives fees on the debt it guarantees depending on the maturity date of each debt guarantee, general loan interest rate, etc.
In 2020, the Company claimed approximately USD 345 thousand in guarantee fees and has not received the total amount as of December 31, 2020.

2. Acquisitions and disposals of assets with affiliates and subsidiaries

In 2020, the Company sold assets to affiliates including Samsung China Semiconductor LLC. (SCS) to increase production capacity of such affiliates. Also, the Company acquired assets including facility equipment from affiliates to improve efficiency of domestic production.

(KRW mil)

Company	Relationship	Transaction type	Transaction date[1)]	Asset	Purpose of transaction	Amount[2)]	Gain or loss on disposal
SCS	Affiliates	Asset sale/purchase	Dec 24, 2020	Machinery, etc.	Enhance capacity and production efficiency	272,582	164,522
SAS	Affiliates	Asset sale/purchase	Aug 28, 2020	Machinery, etc	Enhance capacity and production efficiency	64,286	62,423
SESS	Affiliates	Asset sale/purchase	Nov 16, 2020	Machinery, etc.	Enhance capacity and production efficiency	26,102	1,167
SEV	Affiliates	Asset sale/purchase	Nov 25, 2020	Machinery, etc	Enhance capacity and production efficiency	4,005	917
SEVT	Affiliates	Asset sale/purchase	Dec 03, 2020	Machinery, etc	Enhance capacity and production efficiency	1,826	(7)
SEHZ	Affiliates	Asset purchase	May 27, 2020	Machinery, etc.	Enhance capacity and production efficiency	1,133	-
SSI	Affiliates	Asset purchase	Nov 19, 2020	Machinery, etc.	Enhance capacity and production efficiency	330	-
TSEC	Affiliates	Asset purchase	Aug 19, 2020	Machinery, etc.	Enhance capacity and production efficiency	308	-
Samsung SDI	Affiliates	Asset sale	Feb 19, 2020	Machinery, etc.	Enhance capacity and production efficiency	272	194
SSEC	Affiliates	Asset purchase	Nov 18, 2020	Machinery, etc.	Enhance capacity and production efficiency	268	-
SEDA	Affiliates	Asset sale	Oct 21, 2020	Machinery, etc.	Enhance capacity and production efficiency	243	235

Standalone basis; acquisitions and disposals of assets listed above are not subject to a resolution of the Board
See G. Subsidiaries subject to consolidated financial statements in 『I. Corporate Overview』 for names of subsidiaries.
1) Most recent transaction.
2) Properly calculated by an appropriate method based upon market value assessment. Transaction was made under normal conditions (eg, terms of cash payment within the 15th, 30th of the following month of transaction).

3. Business Transactions with Affiliates and Subsidiaries

In 2020, SEC conducted business transactions including sales and purchases with its subsidiaries, including Samsung Electronics America, Inc. (SEA).

(KRW mil)

Company	Relationship	Type of transaction	Date	Details	Amount
SEA	Affiliates	Sales, purchases, etc.	Jan–Dec 2020	HHPs and home appliances	27,126,715
SEVT	Affiliates	Sales, purchases, etc.	Jan–Dec 2020	HHPs	23,167,152
SSI	Affiliates	Sales, purchases, etc.	Jan–Dec 2020	Semiconductors	21,249,827
SSS	Affiliates	Sales, purchases, etc.	Jan–Dec 2020	Semiconductors	19,744,013
SEV	Affiliates	Sales, purchases, etc.	Jan–Dec 2020	HHPs	17,730,967

Standalone basis; transactions worth 5% and above of revenue of the previous business year are subject to public disclosure
See G. Subsidiaries subject to consolidated financial statements in 『I. Corporate Overview』 for names of affiliates and subsidiaries.

4. Transactions with Stakeholders other than Affiliates and Subsidiaries

As of December 31, 2020, the Company's outstanding loan amount is KRW 114.101 billion related to support for supplier companies for product competitiveness and mutual development as well as home loan and educational expenses for employee welfare.

(KRW mil)

Company	Relationship	Loans			
		Account title	Transaction		
			Beginning of period (Jan 1, 2020)	Change	End of period (Dec 31, 2020)
Elentec Co., Ltd., etc.	Partner company and employee	Short-term loans	33,733	(915)	32,818
Bumjin I&D, etc.	Partner company and employee	Long-term loans	86,294	(5,011)	81,283
Total			120,027	(5,926)	114,101

Standalone basis; amounts reflect the discounted present value of debts before accounting for impaired debts (impairment losses).

XI. Other information

1. Changes in public disclosure

- N/A

2. Results of shareholder meetings

[As of Dec 31, 2020]

Date	Agenda	Results
The 51st AGM (Mar 18, 2020)	1. Approval of Balance Sheet, Income Statement, and Statement of Appropriation of Retained Earnings (draft), etc. for 2019	Approved
	2. Appointment of Executive Directors	
	2.1: Jong-hee Han	Approved
	2.2: Yoon-ho Choi	Approved
	3. Approval of remuneration limit for Directors	Approved
The 50th AGM (Mar 20, 2019)	1. Approval of Balance Sheet, Income Statement, and Statement of Appropriation of Retained Earnings (draft), etc. for 2018	Approved
	2. Appointment of Directors/Committee Members	
	2.1: Independent Directors	
	2.1.1: Jae-wan Bahk	Approved
	2.1.2: Han-jo Kim	Approved
	2.1.3: Curie Ahn	Approved
	2.2: Audit Committee	
	2.2.1: Jae-wan Bahk	Approved
	2.2.2: Han-jo Kim	Approved
	3. Approval of remuneration limit for Directors	Approved
The 49th AGM (Mar 23, 2018)	1. Approval of Balance Sheet, Income Statement, and Statement of Appropriation of Retained Earnings (draft), etc. for 2017	Approved
	2. Appointment of Directors/Committee Members	
	2.1: Independent Directors	
	2.1.1: Jeong Kim	Approved
	2.1.2: Sun-uk Kim	Approved
	2.1.3: Byung-gook Park	Approved
	2.2: Executive Directors	
	2.2.1: Sang-hoon Lee	Approved
	2.2.2: Ki-nam Kim	Approved
	2.2.3: Hyun-suk Kim	Approved
	2.2.4: Dong-jin Koh	Approved
	2.3: Audit Committee (Sun-uk Kim)	Approved
	3. Approval of remuneration limit for Directors	Approved
	4. Approval of a stock split and amendments to relevant Articles of Incorporation	Approved

An extraordinary meeting of shareholders was not held during the reporting period.

3. Litigation

The Company is involved in various claims, disputes, and investigations conducted by regulatory bodies, which arose during the normal course of business with numerous entities. Although the outflow of resources and timing of these matters are uncertain, as of the reporting date, the Company believes the outcome will not have a material impact on the financial position of the Company.

4. Guarantees

- Domestic: Not applicable

- Overseas:

(USD thousand)

Company	Relationship	Creditor	Guarantee	Transactions				Limit of guarantee
			Expiry date	Beginning of period	Increase	Decrease	End of period	
SEA	Subsidiary	BOA etc.	16-Dec-21	-	-	-	-	1,328,000
SEM	Subsidiary	BBVA etc.	16-Dec-21	-	-	-	-	485,000
SAMCOL	Subsidiary	Citibank etc.	16-Dec-21	89,718	27,391	-	117,109	310,000
SEDA	Subsidiary	BRADESCO etc.	16-Dec-21	-	-	-	-	559,000
SECH	Subsidiary	Santander etc.	16-Dec-21	17,256	-	-17,256	-	142,000
SEPR	Subsidiary	BBVA etc.	16-Dec-21	90,587	-	-90,587	-	230,000
SSA	Subsidiary	SCB etc.	16-Dec-21	-	-	-	-	318,000
SEMAG	Subsidiary	SocGen etc.	16-Dec-21	-	-	-	-	110,000
SETK	Subsidiary	BNP etc.	16-Dec-21	64,752	104,528	-	169,280	837,000
SECE	Subsidiary	Citibank etc.	16-Dec-21	-	-	-	-	74,434
SEEG	Subsidiary	HSBC	13-Jun-21	-	-	-	-	85,000
SEIN	Subsidiary	BNP etc.	08-Nov-21	-	-	-	-	145,000
SJC	Subsidiary	Mizuho Bank etc.	16-Dec-21	-	-	-	-	916,062
SEUC	Subsidiary	Credit Agricole etc.	16-Dec-21	-	-	-	-	150,000
SEDAM	Subsidiary	Citibank etc.	16-Dec-21	-	-	-	-	222,000
SECA	Subsidiary	BoA	08-Nov-21	-	-	-	-	70,000
SELA	Subsidiary	Citibank	16-Dec-21	-	-	-	-	120,000
SEEH	Subsidiary	HSBC etc.	16-Dec-21	-	-	-	-	653,000
SERK	Subsidiary	SOCGEN etc.	16-Dec-21	-	-	-	-	269,800
SELV	Subsidiary	Citibank	16-Dec-21	-	-	-	-	10,000
SAPL	Subsidiary	BOA etc.	16-Dec-21	-	-	-	-	395,000
SEV	Subsidiary	SCB	08-Nov-21	-	-	-	-	15,000
SAVINA	Subsidiary	HSBC etc.	08-Nov-21	-	-	-	-	71,000
SET	Subsidiary	SCB	08-Nov-21	-	-	-	-	30,000
SCIC	Subsidiary	HSBC etc.	16-Dec-21	-	-	-	-	300,000
SME	Subsidiary	SCB	08-Nov-21	-	-	-	-	110,000
SAMEX	Subsidiary	Citibank	16-Dec-21	-	-	-	-	5,000
SEASA	Subsidiary	Citibank	16-Dec-21	-	-	-	-	2,000
SSAP	Subsidiary	SCB	08-Nov-21	-	-	-	-	30,000
SEPM	Subsidiary	HSBC	13-Jun-21	-	-	-	-	35,000
SESAR	Subsidiary	HSBC	13-Jun-21	-	-	-	-	50,000
AdGear Technologies Inc.	Subsidiary	BOA	08-Nov-21	-	-	-	-	2,000
Harman International Industries, Inc.	Subsidiary	JP Morgan	13-Jun-21	-	-	-	-	100,000
Harman International Japan Co., Ltd.	Subsidiary	MUFG	08-Nov-21	-	-	-	-	25,000
Harman RUS CIS LLC	Subsidiary	SocGen	08-Nov-21	-	-	-	-	15,000
Harman Holding Limited	Subsidiary	HSBC	13-Jun-21	-	-	-	-	30,000
Harman do Brasil IndustriaEletronica e Participacoes Ltda. Harman da Amazonia Industria Eletronica e Participacoes Ltda.	Subsidiary	SocGen	08-Nov-21	-	-	-	-	15,000
Total				262,313	131,919	-107,843	286,389	8,264,296

Information above are prepared in separate financial statement basis.
SEC requires Board approval for individual guarantees exceeding 2.5% of total equity. When the guarantee amount is between 0.1% and/or less than 2.5%, the approval decision is delegated to the Management Committee.
SEC claims fees on the debt guarantees depending on the maturity date of each debt guarantee, general loan interest rate, etc.
In 2020, the Company claimed approximately USD 345,000 as guarantee fee and, as of the reporting date, has not received the amount.

5. Sanctions and others

Pursuant to the results of a Process Safety Management (PSM) inspection on the Pyeongtaek site by the Ministry of Employment and Labor conducted from June 20 through June 22, 2018, the Company was ordered to pay a fine of KRW 6 million for violating Article 49-2 (Submitting, etc. Process-Safety Reports) paragraph 7 of the former Occupational Safety and Health Act on June 25, 2018 and has subsequently paid the fine.

Pursuant to the results of the 2nd PSM inspection on the Pyeongtaek site (P1-2) by the Ministry of Employment and Labor over September 10 through September 13, 2018, the Company was ordered to pay a fine of KRW 10 million for violating Article 48 (Submission, etc. of Plans for Prevention of Harm and Dangers) paragraph 1 of the former Occupational Safety and Health Act on January 3, 2019 and has subsequently paid the fine.

Pursuant to the results of a PSM inspection on the Onyang site by the Ministry of Employment and Labor on February 19, 2020, the Company was ordered to pay a fine of KRW 200 thousand for violating Article 46 (Implementation etc. Process-Safety Reports) paragraph 1 of the Occupational Safety and Health Act on February 25, 2020 and has subsequently paid the fine.

Pursuant to the results of a PSM inspection on the Cheonan site by the Ministry of Employment and Labor from May 26–28, 2020, the Company was ordered to pay a fine of KRW 900 thousand for violating Article 46 (Implementation etc. Process-Safety Reports) paragraph 1 of the Occupational Safety and Health Act on June 29, 2020 and has subsequently paid the fine.

Pursuant to the results of a PSM inspection on the Pyeongtaek site by the Ministry of Employment and Labor from November 16–18, 2020, the Company was ordered to pay a fine of KRW 2.1 million for violating Article 46 (Implementation etc. Process-Safety Reports) paragraph 1 of the Occupational Safety and Health Act on November 26, 2020 and has subsequently paid the fine.

Pursuant to the results of a PSM inspection on the Giheung·Hwaseong site by the Ministry of Employment and Labor from December 7–11, 2020, the Company was ordered to pay a fine of KRW 900 thousand for violating Article 46 (Implementation etc. Process-Safety Reports) paragraph 1 of the Occupational Safety and Health Act on December 14, 2020 and has subsequently paid the fine.

The Company took measures regarding the violations above and submitted a report on improvements to the Ministry of Employment and Labor. We also established a PSM Innovation Organization and a PSM Management System which manages activities related to approval, design, 12 key tasks, expertise improvement, etc. We also foster development of on-site process safety experts and conduct voluntary process safety evaluation.

With regards to a CO_2 leak accident at the Giheung plant on September 4, 2018, pursuant to the results of a special investigation by the Ministry of Employment and Labor conducted from October 10 through November 9, 2018, the Company was ordered to pay a fine of KRW 515 million for violating Article 36-1 and 36-4 of the former Occupational Safety and Health Act on November 16, 2018 and has subsequently paid the fine. On February 14, 2020, the Company was ordered to pay a fine of KRW 7 million and an executive (Executive Vice President P, health & safety chief officer; 27 years of service) was ordered to pay a fine of KRW 5 million for violating Article 23 (Safety Measures), 24 (Health Measures), 29 (Safety and Health Measures When Conducting Contracted Projects), etc. The fines were subsequently paid.

The Company was also fined KRW 2 million by the Yongin Fire Station for violating Article 20-7 of the Act On Fire Prevention And Installation, Maintenance, And Safety Control Of Fire-Fighting Systems on November 28, 2018 and a fine of KRW 2 million for violating Article 25-2 of the same act on December 12, 2018, and has subsequently paid the fines.

Pursuant to the results of a special investigation by the Yongin Fire Station conducted from November 27 through December 6, 2018, the Company was ordered to pay a fine of KRW 0.5 million for violating Article 20-6 of the Occupational Safety and Health Act on January 18, 2019 and has subsequently paid the fine.

The Company was fined KRW 1 million on October 23, 2018, as two of our paramedics (years of service: 11, 5) violated Article 49 of the Emergency Medical Service Act and has subsequently paid the fine. The Company was also fined KRW 0.5 million on the same date as one of our employees (years of service: 6) violated Article 20-6 of the Act on Fire Prevention and Installation, Maintenance, And Safety Control Of Fire-Fighting Systems, and has subsequently paid the fine.

To prevent recurrence and strengthen compliance, the Company has built a legal safety assessment evaluation system and conducts regular assessment.

On November 28, 2019, following the investigation on MSDS warning signs compliance at Gwangju office by the Ministry of Employment and Labor, the Company was ordered to pay a fine of KRW 1.4 million for violating Article 41 (Preparation, Keeping, etc. of Material Safety Data Sheets) Paragraph 3 of the Occupational Safety and Health Act, and has subsequently paid the fine. (Paragraph 3 has since been deleted.) We conducted a company-wide investigation on the handling space of chemical substances and implemented relevant improvement measures. In addition, we are improving the prior evaluation process on new G-EHS chemical substances and providing education for supervisors in departments handling chemical substances.

Regarding the industrial incident at Gwangju site on May 19, 2020, the Company delayed the submission of industrial accident questionnaire to the Gwangju Regional Employment and Labor Administration and as a result was ordered to pay a fine of KRW 7 million for violating Article 57 (Prohibition of Concealment; Reporting of Incidents) Paragraph 3 of Occupational Safety and Health Act on June 26, 2020, and has subsequently paid the fine.
To prevent the recurrence and strengthen compliance, the Company has provided special education for the on-site environment and safety managers and supervisors.

With regards to the investigation that started August 18, 2020 by the Gwangju Regional Employment and Labor Administration on the Gwangju operation, the Company was ordered to pay the following fines regarding industrial incidents that have taken place since 2015: KRW 6 million for violating Article 10 (Recording and Reporting of Industrial Accidents) Paragraph 2 of the Occupational Safety and Health Act on September 1, 2020 (Paragraph 2 has since been deleted); KRW 60.4 million and 11.5 million, respectively, for violating Article 57 (Prohibition of Concealment; Reporting of Incidents) Paragraph 3 and Article 164 (Preservation of Documents) Paragraph 1 of the Occupational Safety and Health Act on September 10 and 23. The Company has subsequently paid the fines. Other fines include: KRW 20 million for violating Article 57 (Prohibition of Concealment; Reporting of Incidents) Paragraph 3 of Occupational Safety and Health Act on October 19, 2020; and KRW 280 million for violating Article 10 (Prohibition of Concealment; Reporting of Incidents) Paragraph 2 of the former Occupational Safety and Health Act on December 28, 2020. The Company subsequently paid the fines in February 2021.

To prevent the recurrence and strengthen compliance, the Company has provided special education for the on-site environment and safety managers and supervisors.

With regards to an optic cable auction by SK Broadband on May 2009 and November 2010, the Company was subject to a correction order and ordered to pay a fine of KRW 520 million for violating Restrictions on Improper Concerted Acts in accordance with Article 19 (Paragraph 1.3 and 1.8) of Monopoly Regulation and Fair Trade Act on February 6, 2018 and has subsequently paid the fine.

On October 4, 2018 the Company was subject to a correction order and ordered to pay a fine of KRW 488 million for violating the Prohibition, etc. against Unfair Labeling or Advertising in accordance with Article 3 (Paragraph 1.2) of Act on Fair Labeling and Advertising and Article 3 (Paragraph 2) of the Enforcement Decree Of The Act On Fair Labeling And Advertising and has subsequently paid the fine. The Company is currently in litigation to cancel the order.

The Fair Trade Commission filed a complaint against Chairman Kun-hee Lee on November 21, 2018 for omitting Samoo Architects & Engineers and Seoyoung Engineering from Samsung affiliates when submitting required materials in 2014 under Article 14-4 of the Monopoly Regulation and Fair Trade Act. The prosecution filed a summary indictment and Chairman Kun-hee Lee was ordered to pay a fine of KRW 100 million by the Seoul Central District Court on April 18, 2019, and the fine was subsequently paid.

Regarding matters related to Milk Music, on August 23, 2019, the Company was subject to correction measures and ordered to pay a fine of KRW 0.5 million by the Fair Trade Commission for violating Duty to Provide Online Completion Service in accordance to Article 5 Paragraph 4 and Cybermall Operators' Indication Duty in accordance to Article 10 Paragraph 1 of the Act on the Consumer Protection in Electronic Commerce, etc.; and the Company subsequently paid the fine. To ensure compliance with relevant regulations, the Company has strengthened internal management standard and provides preventive education to employees to prevent unfair trade practices and advertising.

Regarding an influence-peddling scandal involving South Korea's president and indictment of five of the Company's executives (Vice Chairman Jae-yong Lee, former Vice Chairman Gee-sung Choi, former President Choong-ki Chang, former President Sang-jin Park, and former Senior Vice President Seong-soo Hwang) on allegations of violating the Act on the Aggravated Punishment, etc. of Specific Economic Crimes (embezzlement), the Supreme Court on August 29,

2019 rejected part of the lower court's ruling and ordered a retrial to the Seoul High Court. On January 18, 2021, the Seoul High Court at a retrial sentenced Jae-yong Lee, Gee-sung Choi, and Choong-ki Chang each to two and a half years in jail, and Sang-jin Park and Seong-soo Hwang each to two and a half years in jail and a four-year suspended sentence. The ruling was finalized on January 25, 2021.

To prevent any reoccurrences, we have strengthened the process regarding external contributions and established Samsung Compliance Committee, an external independent body.

Regarding violations of Article 81 and 90, etc., of the Trade Union and Labor Relations Adjustment Act by employees of SEC and Samsung Electronics Service, the Supreme Court dismissed an appeal on February 4, 2021. As a result, the following prison terms that the Seoul High Court ordered on August 10, 2020 were finalized: 1 year and 4 months for Executive Vice President A (29 service years); 1 year and 2 months and a 2-year suspended sentence for former Executive Vice President B; 10 months and a 2-year suspended sentence for Executive Vice President C (34 service years); 1 year and a 2-year suspended sentence for former Executive Vice President D; 1 year for Senior Vice President E (32 service years); 1 year and 2 months and a 2-year suspended sentence for Senior Vice President F (24 service years); 10 months and a 2-year suspended sentence for Vice President G (27 service years); and 10 months and a 2-year suspended sentence for Vice President H (18 service years). Samsung Electronics Service was ordered to pay a fine of KRW 50 million and the following prison terms were issued: 1 year and 4 months for former CEO (4 service years); 1 year for Senior Vice president I (11 service years); and 10 months and a 2-year suspended sentence for Vice President J (21 service years). SEC and former SEC Chairman of the Board (39 service years) were pronounced not guilty.

We are working to prevent any reoccurrences, such as including a section on the three basic labor rights and conducting education on prevention of unfair labor practices for all employees.

On December 9, 2019, the Seoul Central District Court ruled on allegations that an SEC executive ordered executives and employees of Samsung Biologics and Samsung Bioepis to hide/destroy evidence related to the alleged fraudulent accounting. For violating Article 30, 31-1, and 155-1 of the Criminal Act, Executive Vice President K (27 service years) was sentenced to 1 years and 6 months in prison; Executive Vice President L (31 service years) was sentenced to 1 year and 6 months in prison and a 3-year suspended sentence; Executive Vice President M (9 service years) was sentenced to 2 years in prison; Vice President N (16 service years) was sentenced to 1 year and 6 months in prison and a 3-year suspended sentence; Vice President O (10 service years) was sentenced to 1 year and 6 months in prison and a 3-year suspended sentence.

The appeal against the decision has been filed. The Company will check on future developments of the court proceedings and relevant matters.

Korea Communications Commission ordered Samsung Electronics Sales to implement corrective measures and to pay a fine of KRW 36 million for violating Article 3 (Prohibition of Discriminative Subsidy Payment) Paragraph 1 and Article 4 (Restriction on Payment of Excessive Subsidies and Public Announcement) Paragraph 5 of the Mobile Device Distribution Improvement Act on July 8, 2020 and have subsequently paid the fine.
In order to prevent reoccurrences and comply with the relevant law, Samsung Electronics Sales strengthened its internal management standard, provided education for executives and employees.

Regarding a fatal accident on September 16, 2020 during the construction of an elevator wall structure, part of the construction process of newly-opening Hongdae branch of Samsung Digital Plaza, a site inspection was conducted on September 17, 2020 and Seoul West District Office of Seoul Regional Employment and Labor Administration on September 18, 2020 ordered Samsung Electronics Sales to suspend construction in pursuant to Article 55 (Suspension, etc. of Work on Occurrence of Serious Accidents) of Occupational Safety and Health Act. In addition, Samsung Electronics Sales was ordered to pay a fine of KRW 5 million for violating Article 68 (Safety and Health Coordinator) Paragraph 1 of Occupational Safety and Health Act and has subsequently paid the fine, and the Company appointed a safety and health coordinator.

To prevent reoccurrences and comply with the relevant law, Samsung Electronics Sales provided a special training for on-site safety managers and supervisors.

The Company (including Samsung Display) has joint responsibility for reimbursement of liabilities that Samsung Display accrued before the separation.

For information on the Company's commitments and contingencies, refer to. 'notes on consolidated financial statements and notes on financial statements of III. Financial Affairs.

6. Return of short-swing profits

In 4Q20, The Company has not received any notification of short-swing profits from the Securities & Futures Commission.

7. Use of Direct Financing Fund

N/A

8. External Contributions

Contribution	Amount	Details	Date of Board approval
Management plans for the Social Contribution Fund for 2018	KRW 12.21 billion	·The Social Contribution Fund consists of voluntary contributions of employees and matching funds raised by SEC. SEC plans to contribute KRW 12.21 billion in matching funds in 2018. ·The contribution will be used for domestic and overseas volunteer programs as well as and local social contribution activities.	January 31, 2018
Samsung Dream Scholarship Foundation	KRW 1.12 billion	·The contribution was made to support education of low-income high school students.	
Donation to Chung-nam Samsung Institute	KRW 2.742 billion	·The contribution was made to improve education of the region.	February 23, 2018
Donation of Electronics to celebrate Samsung's 80th anniversary	Approximately KRW 7.5 billion	·Electronics were donated to about 1,500 social welfare centers to celebrate the 80th anniversary of Samsung.	March 23, 2018
Foundation of Samsung Welfare, etc	KRW 80.0 billion	·The contribution was made to support education of low-income middle school students. (Samsung Welfare Foundation, KRW 19.5 billion) ·The contribution was made to support the Samsung Medical Center. (Samsung Life Public Welfare Foundation, KRW 41.5 billion) ·The contribution was made to support the Foundation's activities such as the Ho-Am Award. (Ho-Am Foundation, KRW 4.0 billion) ·The contribution was made to support Samsung Scholarship. (Sungkyunkwan University, KRW 15.0 billion)	April 26, 2018
Smart Factory	KRW 60.0 billion	·The contribution was made to support small- and mid-sized enterprises strengthen manufacturing competitiveness, foster talent, and achieve sustainable growth.	July 31, 2018
Samsung Software Academy For Youth	KRW 499.6 billion	·The contribution was made to provide quality software education and support job seekers foster capabilities expected by companies. (Date: Dec 2018–Jun 2024)	October 31, 2018
Donation to Heemang 2019 Nanum Campaign	KRW 25.2 billion	·The contribution was made to Community Chest of Korea to fulfill corporate social responsibilities and help the marginalized.	November 30, 2018
Performance incentive to secondary suppliers of the DS division	Approximately KRW 4.32 billion	·The contribution was provided to 89 suppliers of the DS division to prevent work accidents, improve productivity, and promote co-prosperity of the Company and its partner companies.	
Management plans for Social Contribution Fund for 2019	KRW 11.73 billion	·The Social Contribution Fund consists of voluntary contributions of employees and matching funds raised by SEC. SEC plans to contribute KRW 11.73 billion in matching funds for 2019. ·The contribution will be used for domestic and overseas volunteer programs as well as and local social contribution activities.	January 31, 2019
Samsung Dream Scholarship Foundation	KRW 1.12 billion	·The contribution was made to support education of low-income high school students.	
Sponsoring the WorldSkills Competition	EUR 1.5 million (approximately KRW 1.95 billion)	·The contribution was made to support the Organizing Committee of WorldSkills International in WordSkills Kazan 2019 as the top sponsor.	February 26, 2019
Donation to Chung-nam Samsung Institute	KRW 2.991 billion	·The contribution was made to improve education of the region.	
Foundation of Samsung	KRW 73.0 billion	·The contribution was made to support Dream Class, a program to support	April 30, 2019

Contribution	Amount	Details	Date of Board approval
Welfare, etc		learning for underprivileged middle school students (Samsung Welfare Foundation, KRW 19.5 billion) · The contribution was made to improve facilities and research infrastructure at Samsung Medical Center and support research for MERS vaccine development (Samsung Life Public Welfare Foundation, KRW 31.0 billion) · The contribution was made for the Ho-Am Prize (Ho-Am Foundation, KRW 5.0 billion) · The contribution was made to provide funds for legal expenses for faculty members and Samsung scholarships for students (Sungkyunkwan University, KRW 17.5 billion)	
Contribution to the Korea Occupational Safety & Health Agency	KRW 31.0 billion	· The fund is for building an electronics industry health and safety center and establishing health and safety infrastructure.	
Performance incentive to suppliers of the DS division	KRW 77.45 billion	· The contribution was provided to 296 primary and secondary suppliers of the DS division to prevent work accidents, improve productivity, and promote co-prosperity of the Company and its partner companies.	
Financial support for startup program at Daegu, Gyeongbuk Creative Innovation Center	KRW 12.0 billion	· Vitalize startup ecosystem and contribute to job creation to nurture startups in Korea · Donation to Daegu Gyeongbuk University Start-up ※ Daegu Gyeongbuk University Start-up established a fund with the donation from Samsung Electronics.	July 31, 2019
Donation to Heemang 2020 Nanum Campaign	KRW 31.0 billion	· The contribution was made to Community Chest of Korea to fulfill corporate social responsibilities and help the marginalized.	November 29, 2019
Samsung Dream Scholarship Foundation	KRW 1.12 billion	· The contribution was made to support education of low-income high school students.	January 30, 2020
Management plans for Social Contribution Fund for 2020	KRW 11.89 billion	· The Social Contribution Fund consists of voluntary contributions of employees and matching funds raised by SEC. SEC plans to contribute KRW 11.89 billion in matching funds for 2020. · The contribution was made to support adolescent education.	February 21, 2020
Donation to Chung-nam Samsung Institute	KRW 2.576 billion	· The contribution was made to improve education of the region.	
Donation to support emergency relief related to COVID-19	KRW 23.0 billion	· The contribution was made to support emergency relief measures for persons and communities impacted by COVID-19.	February 26, 2020
Donation to Samsung Welfare Foundation, etc.	KRW 51.8 billion	· The contribution was made to support Dream Class, a program to support learning for underprivileged middle school students (Samsung Welfare Foundation, KRW 10.6 billion) · The contribution was made to improve facilities and research infrastructure at Samsung Medical Center and support research for MERS vaccine development (Samsung Life Public Welfare Foundation, KRW 26.5 billion) · The contribution was made for the Ho-Am Prize (Ho-Am Foundation) · The contribution was made to provide funds for legal expenses for faculty members and Samsung scholarships for students (Sungkyunkwan University, KRW 14.7 billion)	April 29, 2020
Performance incentive to suppliers of the DS division	Approximately KRW 62.0 billion	· The incentive was provided to prevent safety incidents at sites, enhance productivity, and promote co-growth with suppliers · For the first and secondary suppliers of the DS division stationed at the sites	
Ho-Am Foundation	KRW 4.1 billion	· The contribution was made to help award those with significant contributions in the field of academia, art, and human welfare	May 27, 2020
Donation to Heemang 2021 Nanum Campaign	KRW 33.8 billion	· The contribution was made to Community Chest of Korea to fulfill corporate social responsibilities and help the marginalized.	Nov 30, 2020
Contribution to the United Nations Development Programme (Samsung Global Goals)	USD 1,421,154 (approximately KRW 1.57 billion)	· The contribution was made to the UNDP (United Nations Development Programme) for relief activities in different countries.	

External contributions are based on a resolution of the Board.

9. Subsequent events

N/A

10. Acquisition and divestments

The major divestment and transfer of business transactions in the past three business years on a standalone basis (separate basis) are as follows. For information on the business combinations and divestitures of subsidiaries, please refer to the notes on the business combination and assets held for sale (assets of disposal group) of the consolidated financial statements.

[PLP Business]

(1) Details of acquisition

In accordance to the resolution of the Board of Directors on April 30, 2019, the Company acquired PLP business from Samsung Electro-Mechanics Co., Ltd.(location: South Korea; CEO: Kyehyun Kyung) at a price of KRW 785,000 million on June 1, 2019 to strengthen its semiconductor competitiveness through securing next-generation packaging technology.

Details of the above statement can be found in the "Business Acquisition from Related Parties", published in DART (http://dart.fss.or.kr/) on April 30, 2019.

(KRW 100 mil)

	Account	Forecast		Actual			
		1st Year	2nd Year	1st Year		2nd Year	
				Actual	Difference	Actual	Difference
PLP Business	Sales	101	219	-	-	-	-
	Operating Income	-1,273	-2,155	-1,095	14%	-44	98%
	Net Income	-1,273	-2,155	-1,095	14%	-2,146	0%

No third-party sales is recognized from PLP business as its products are internally transferred within the Company's manufacturing process.
Actual operating income and net income for the first year of acquisition differs by 14% from the forecast due to several factors such as reduction in wages.
Actual operating income for the first year of acquisition differs by 98% from the forecast due to several factors such as reduction in wages.

11. Green management

The Company is actively securing "Designation of Green Enterprise" and "Green Technology Certifications" to follow the Low Carbon Green Growth policy of the Korean government. In particular, greenhouse gas emission and energy consumption generated at our operations are reported to the government, required by relevant law. Also, relevant information are provided transparently to stakeholders through the Sustainability Report, etc.

(Designation of Green Enterprise)

The Company strives to fulfill its responsibility as an eco-friendly enterprise by reducing pollutants, conserving resources and energy, establishing/utilizing a green management system, etc. Our business sites in Suwon, Giheung・Hwaseong, and Pyeongtaek have been designated as green enterprises in accordance with Article 16-2 (Designation, etc., of Green Enterprise) of the Support for Environmental Technology and Environmental Industry Act.

(Green Technology Certification)

The Company is acquiring Green Technology Certifications in accordance with Article 32 (Standardization and Certification and Green Technology Green Industries) Paragraph 2 of the Framework Act on Low Carbon Green Growth. Green technology development is a part of our "Planet First" strategy, which strives to conduct business activities in a manner that respect people and nature. Since the certification system was introduced in 2010, the Company has secured 10 valid Green Technology Certifications as of December 31, 2020. In addition, the Company has acquired 'Green Technology' product certificates for 202 models of commercialized products.

Certified Green Technologies as of December 31, 2020 are as follows:

Division	Certified Green Technologies	No.
CE	Technology to: 1) enhance energy efficiency of dryers using high-efficiency heat pump and heat exchanger; and 2) reduce stand-by power use by monitors etc.	9
IM	Power reduction technology for wireless LAN based on user patterns, etc.	1
Total		10

Standalone basis.

(Greenhouse gas emission and energy consumption management)

The Company is a "controlled entity" according to Article 42 (Coping with Climate Change and Management of Targets for Energy), Paragraph 6 of Korea's "Framework Act on Low Carbon, Green Growth." Thus, the Company has been reporting the amount of greenhouse gas emission and energy consumption, verified by a third-party, to the authorities and disclosing it to stakeholders according to Article 44 (Reporting on Quantity of Greenhouse Gases Emitted and Quantity of Energy Consumed) of the same Act since May 2011.

The reported amount of greenhouse gas emission and energy use on a standalone basis are provided below:

(Unit: tCO_2-eq, TJ)

	2020	2019	2018
Greenhouse gas (tCO_2-eq)	13,608,258	11,143,405	10,752,832
Energy (TJ)	197,007	161,123	154,344

Standalone basis.
Domestic manufacturing facilities, office buildings, buildings owned by the Company, leased buildings, etc.
Reported Greenhouse gas emission excludes ozone depletion substances (ODS).
Amounts may differ by third-party organization verification results.
Data for 2018 and 2017 are restated as per revision of『Guideline for Emission Reporting and Certification in Greenhouse Gas Emission Trading Scheme』.

From 2015, in accordance with the Article 8 (Designation of Business Entities Eligible for Allocation) of the Act on the Allocation and Trading of Greenhouse-Gas Emission Permits, the Company is an eligible business entity under the Act.

SAMSUNG ELECTRONICS Co., Ltd.

2021 Business Report

For the year ended December 31, 2021

Certain statements in the document, other than purely historical information, including estimates, projections, statements relating to our business plans, objectives and expected operating results, and the assumptions upon which those statements are based, are "forward-looking statements." Forward-looking statements are based on current expectations and assumptions that are subject to risks and uncertainties which may cause actual results to differ materially from the forward-looking statements. A detailed discussion of risks and uncertainties that could cause actual results and events to differ materially from such forward-looking statements is included in our financial reports available on our website.

See, also, 『Note on Forward-Looking Statements』 in preamble of 『IV. Management Discussion and Analysis 』.

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Certification

Letter of Certification

We, Jong-hee Han and Hark-kyu Park, as a CEO and the executive in charge of reporting, respectively, certify that we have thoroughly reviewed the annual business report of Samsung Electronics Co., Ltd. for the year ended December 31, 2021.

Based on our knowledge, this report does not contain any untrue statements of material facts or omit any material facts; and it does not contain any statements that are intentionally misleading for the users of the information in the report.

We confirm that Samsung Electronics operates the Internal Controls over Financial Reporting, as defined in Article 8 of the Act on External Audit of Stock Companies.

Date: March 8, 2022

Jong-hee Han

Vice Chairman and CEO
Samsung Electronics Co., Ltd.

Executive responsible for reporting: Hark-kyu Park

President and CFO
Samsung Electronics Co., Ltd.

I. Corporate Overview

1. Overview

A. Legal, commercial name:

- Samsung Electronics Co., Ltd.

B. Date of establishment:

- Samsung Electronics Co., Ltd. ("SEC" or "the Company") was established as Samsung Electronics Industry Co., Ltd. on January 13, 1969, and held an initial public offering on June 11, 1975.
- SEC changed its name from Samsung Electronics Industry Co., Ltd. to Samsung Electronics Co., Ltd. following a resolution passed at the Annual General Meeting (AGM) of shareholders on February 28, 1984.

C. Address, phone number, and English language website of the corporate headquarters

- Address: 129, Samsung-ro, Yeongtong-gu, Suwon, Gyeonggi-do, Korea
- Phone Number: +82-31-200-1114
- Website: https://www.samsung.com/sec

D. Core businesses

- The Company (defined below) consists of business divisions that operate independently: CE (Consumer Electronics); IM (Information Technology & Mobile Communications); DS (Device Solutions); and Harman (Harman International Industries, Inc. and its subsidiaries), which produces automotive electronics components.

SEC is a global electronics firm consisting of headquarters in Korea and 228 subsidiaries (collectively, "Samsung Electronics" or the "Company") across the world, including 9 regional headquarters for the CE and IM Divisions, 5 regional headquarters for the DS Division, and the Harman Division's subsidiaries.

Key products in each Division are presented below:

Division	Key products
CE	TVs, monitors, refrigerators, washing machines, air conditioners, etc.
IM	HHPs, network systems, computers, etc.
DS	DRAM, NAND flash, mobile APs, OLED panels for smartphones, etc.
Harman	Digital cockpits, telematics, speakers, etc.

In December 2021, the Company merged the CE and IM Divisions to create the DX Division.

[CE Division]

The CE Division manufactures TVs, monitors, refrigerators, washing machines and air conditioners, leading the global digital market with its differentiated technology, designs, and products, including premium TVs based on leading technologies such as Neo QLED; Lifestyle TVs that align with the lifestyles of customers who value experiences; and Bespoke products, which are customized to satisfy various needs of our customers.

TV is the core product of the CE Division and Samsung has maintained its position as the market leader in this category for 16 straight years. We will continue to strengthen our reputation as a global brand and add to our market power by continually releasing new products that satisfy the needs of our customers and reflect the current trends. At the same time, Samsung will continue to innovate in the premium and Lifestyle TV markets while strengthening global sales of Bespoke products.

[IM Division]

The IM Division manufactures and sells smart mobile devices, network systems, and computers. For smartphones, a key product of the business, we have developed a broad lineup ranging from low-end right through to premium models with the Galaxy series. Through the Galaxy Ecosystem, we will deliver top-notch Multi-Device experiences, allowing customers to conveniently and seamlessly use not just the mobile products but also the TV and home appliance products. At the same time, we will lead the global 5G market based on our end-to-end solutions, which encompass handsets, chipsets, as well as our commercialization experience in initial 5G markets.

[DS Division]

The Memory Business, System LSI Business, Foundry Business, and Display Panel ("DP") Business make up the DS Division. The Memory Business manufactures and sells DRAM and NAND products; the System LSI Business designs and sells mobile application processors ("mobile APs" or "APs") and camera sensor chips; the Foundry Business is in charge of consignment production of semiconductors; and the DP Business manufactures and sells display panels.

The Memory Business continues to maintain its position at the top of the global memory market by focusing on qualitative growth, including by applying advanced process technology in DRAM and NAND Flash products; differentiating our products via centering our business portfolio on high-value solutions; and enhancing cost competitiveness.

The System LSI Business has not been complacent, extending its focus from mobile to include automotive chips, and it is expanding its market power through actions such as satisfying demand with differentiated products—such as APs and CISs—based on its advanced manufacturing process technology, and by diversifying foundry suppliers. The Foundry Business is expanding by securing competitiveness via adopting core technologies and new structures in advanced processes, securing supply continuity of semiconductors amid global supply shortage and actively addressing continued strong demand for legacy processes.

In Display Panel Business, the mobile panel business's differentiated technology is a key factor behind the increased adoption of OLED panels, while our release of products in new applications—such as foldable devices, rollable devices, and automotives—has expanded the overall market. Meanwhile, the large panel business is focusing on premium products such as high-definition, ultra-large, QD TVs and is enhancing its competitiveness through continuous improvements in technology and productivity.

[Harman Division]

The Harman Division consists of the automotive component business, which designs and develops connected products and solutions for automakers; and the lifestyle audio business, which provides consumer audio products and professional audio solutions. Harman, as a leader in the automotive component market, supplies car manufacturers with products that apply innovative technologies. And in the audio market, it has been firmly establishing the brand reputation among consumers and audiophiles. Harman has established an internationally renowned brand and offers diverse product lines, using internal development as well as strategic acquisitions to strengthen its competitiveness in each business area.

☞ See 『II. Businesses Overview』 for more details about each Division.

E. Subsidiaries subject to consolidated accounting (summary)

As of December 31, 2021, and in accordance with Korean International Financial Reporting Standards (K-IFRS) 1110, *Consolidated Financial Statements*, Samsung Electronics, the controlling company, had 228 consolidated subsidiaries, with the addition of 5 subsidiaries and reduction of 18 subsidiaries when compared to totals as of December 31, 2020.

Classification	Number of subsidiaries subject to consolidated accounting				Number of major subsidiaries
	As of January 1, 2021	Added	Removed	As of December 31, 2021	
Listed	-	-	-	-	-
Unlisted	241	5	18	228	141
Total	241	5	18	228	141

See 『Appendix-1. Subsidiaries subject to consolidated accounting (detailed)』 for details.

[2021: Changes in subsidiaries subject to consolidated accounting]

Classification	Subsidiary	Reason
Newly consolidated	Samsung Electronics Industry and Commerce Ltd. (SETK-P)	Establishment
	Samsung Semiconductor Investment L.P. Ⅰ	Establishment
	SVIC 52 New Technology Investment Association	Establishment
	SVIC 55 New Technology Investment Association	Establishment
	SVIC 56 New Technology Investment Association	Establishment
No longer consolidated	Viv Labs, Inc.	Merger
	Prismview, LLC	Merger
	Samsung Suzhou Module Co., Ltd. (SSM)	Sale
	Samsung Suzhou LCD Co., Ltd. (SSL)	Sale
	Stellus Technologies, Inc.	Liquidation
	SigMast Communications Inc.	Liquidation
	Arcam Limited	Liquidation
	A&R Cambridge Limited	Liquidation
	Harman Connected Services Limited	Liquidation
	Martin Manufacturing (UK) Ltd	Liquidation

Classification	Subsidiary	Reason
	Samsung Electronics Huizhou Co., Ltd.(SEHZ)	Liquidation
	Shenzhen Samsung Electronics Telecommunication Co., Ltd.(SSET)	Liquidation
	Zhilabs Inc.	Liquidation
	TWS LATAM B, LLC	Liquidation
	TWS LATAM S, LLC	Liquidation
	SNB Technologies, Inc. Mexico, S.A. de C.V	Liquidation
	RT SV CO-INVEST, LP	Liquidation
	SVIC 27 New Technology Investment Association	Liquidation

F. Whether the Company is an SME

The Company is not subject to Article 2 of the Framework Act on Small and Medium Enterprises.

Small and medium enterprise	No
Venture company	No
Medium-sized enterprise	No

G. Credit rating

SEC's credit rating is assessed by two external credit ratings agencies. As of December 31, 2021, SEC's credit ratings were Aa3 with a stable investment outlook as rated by Moody's (US); and AA- with a stable investment outlook as rated by S&P (US).

Securities	Date	Ratings	Credit rating agency	Note
Corporate bond (USD denominated; issued in 1997 and expire in 2027)	May 2019	Aa3	Moody's	Annual review
	Jul 2019	AA-	S&P	
	Aug 2019	Aa3	Moody's	
	Jul 2020	AA-	S&P	
	Sep 2020	Aa3	Moody's	
	Jul 2021	AA-	S&P	
	Aug 2021	Aa3	Moody's	

Credit rating range: Moody's (Aaa-C), S&P (AAA-D)

[Credit ratings definitions]

	Moody's	Definition	S&P	Definition
Investment grade	Aaa	Superior ability to repay debt obligations; lowest level of credit risk	AAA	Extremely strong ability to meet financial commitments; highest rating
	Aa1/Aa2/Aa3	High ability to repay debt obligations; very low credit risk	AA+/AA/AA-	Very strong capacity to meet financial commitments
	A1/A2/A3	Upper-medium ability to repay debt obligations; low credit risk	A+/A/A-	Strong capacity to meet financial commitments; susceptible to adverse effects of changes in economic conditions
	Baa1/Baa2/Baa3	Medium ability to repay debt obligations; moderate credit risk, speculative factors	BBB+/BBB/BBB-	Adequate capacity to meet financial commitments; relatively more susceptible to adverse economic conditions
Speculative grade	Ba1/Ba2/Ba3	Speculative; substantial credit risk	BB+/BB/BB-	Major ongoing uncertainties; exposure to adverse business, financial, or economic conditions can impair ability to meet financial commitments
	B1/B2/B3	Speculative; high credit risk	B+/B/B-	More vulnerable to nonpayment than those rated BB; has capacity to meet financial commitments but adverse financial or economic conditions are likely to impair ability to continue doing so
	Caa	Speculative; very high credit risk	CCC	Vulnerable to nonpayment; dependent upon favorable business, financial, and economic conditions
	Ca	Highly speculative; likelihood of being in or near default; some prospect for recovery of principal and interest	CC	Highly vulnerable to nonpayment; default has not yet occurred but expected to be a virtual certainty
	C	Typically in default; little prospect for recovery of principal or interest	C	Highly vulnerable to nonpayment; obligation is expected to have lower ultimate recovery vis-à-vis higher rated obligations

			D	In default or in breach of imputed promises, upon the filing of a bankruptcy petition or the taking of a similar action

Please refer to『III. Financial Affairs-7. Matters about financing through the issuance of securities』for credit ratings on corporate bonds and commercial paper issued by the Company's subsidiaries.

H. Whether the Company is listed (or registered or designated) and matters related to special listed companies

The Company listed on the Korea Stock Exchange on June 11, 1975.

Listed (or registered or designated)	Date listed (or registered or designated)	Special listed company	Subject to regulations for special exception companies
Stock market (KOSPI)	June 11, 1975	No	No

2. Company history

A. Company history

Jan 13, 1969 Samsung Electronics Manufacturing Incorporated
Jun 11, 1975 Listed on the Korea Stock Exchange
Feb 28, 1984 Renamed as Samsung Electronics
Nov 1, 1988 Merged with Samsung Semiconductor and Communications
Apr 1, 2012 Spun off the LCD division (established Samsung Display)
Mar 5, 2017 Released advanced Quantum dot-based QLED TV
Mar 10, 2017 SEA acquired shares of Harman International Industries, Inc. (100%)
Jul 4, 2017 Started operations at semiconductor production fab in Pyeongtaek, the largest such facility in the world
Nov 1, 2017 Sold Printing Solution business
Aug 30, 2018 Launched QLED 8K TVs with Quantum Dot technology
Apr 3, 2019 Launched Galaxy S10 5G, a 5G smartphone
Jun 4, 2019 Released Bespoke, a refrigerator customized to customers' lifestyles
Sep 4, 2019 Unveiled Exynos 980, 5G mobile processor
Sep 6, 2019 Unveiled Galaxy Fold, a foldable phone with a new form factor
Jan 29, 2020 Launched AI-technology-based Grande AI washer/dryer
Feb 4, 2020 Launched world's first ultra-high speed DRAM for AI and next-generation super computers
Feb 11, 2020 Unveiled Galaxy Z Flip, a foldable model with a new form factor
Aug 30, 2020 Started operation of Pyeongtaek Line 2, the world's largest semiconductor line
Jan 7, 2021 Unveiled Neo QLED TV
May 11, 2021 Announced expansion to the global market for Bespoke Home
Jun 3, 2021 Received certification for reducing carbon emissions, water use, and waste discharge for all of our semiconductor worksites, a first in the global semiconductor industry
Aug 11, 2021 Unveiled Galaxy Z Fold 3 and Galaxy Z Flip 3
Oct 12, 2021 Started mass producing the industry's most advanced 14-nano EUV DDR5 DRAM
Nov 9, 2021 Developed industry's first LPDDR5X DRAM
Nov 24, 2021 Announced investment in a new foundry production site in Taylor, Texas, USA

B. Company location and changes

The Company's head office is located at 129, Samsung-ro, Yeongtong-gu, Suwon, Gyeonggi-do. There were no changes in the Company's head office location over the past five fiscal years.

C. Important changes in management executives

As of December 31, 2021, SEC's Board consisted of five Executive Directors (Ki-nam Kim, Hyun-suk Kim, Dong-jin Koh, Jong-hee Han, and Yoon-ho Choi) and six Independent Directors (Jae-wan Bahk, Sun-uk Kim, Byung-gook Park, Jeong Kim, Curie Ahn, and Han-jo Kim).

Date of change	Type of shareholder meeting	Appointed		Terms expired or dismissed
		Newly appointed	Reappointed	
Mar 23, 2018	AGM	Executive Director Sang-hoon Lee Executive Director Ki-nam Kim Executive Director Hyun-suk Kim Executive Director Dong-jin Koh Independent Director Jeong Kim Independent Director Sun-uk Kim Independent Director Byung-gook Park	-	Executive Director Oh-hyun Kwon Executive Director Boo-keun Yoon (resigned) Executive Director Jong-kyun Shin (resigned) Independent Director Han-joong Kim Independent Director Byeong-gi Lee
Mar 23, 2018	-	CEO Ki-nam Kim CEO Hyun-suk Kim CEO Dong-jin Koh	-	-
Mar 20, 2019	AGM	Independent Director Han-jo Kim Independent Director Curie Ahn	Independent Director Jae-wan Bahk	Independent Director In-ho Lee Independent Director Kwang-soo Song
Oct 26, 2019	-	-	-	Executive Director Jae-yong Lee
Feb 14, 2020	-	-	-	Executive Director Sang-hoon Lee (resigned)
Mar 18, 2020	AGM	Executive Director Jong-hee Han Executive Director Yoon-ho Choi	-	-
Mar 17, 2021	AGM	-	Executive Director Ki-nam Kim Executive Director Hyun-suk Kim Executive Director Dong-jin Koh Independent Director Byung-gook Park Independent Director Jeong Kim Independent Director Sun-uk Kim	-
Mar 17, 2021	-	-	CEO Ki-nam Kim CEO Hyun-suk Kim CEO Dong-jin Koh	-
Dec 31, 2021	-	-	-	Executive Director Yoon-ho Choi (resigned)
Feb 15, 2022	-	CEO Jong-hee Han	-	CEO Ki-nam Kim (resigned) CEO Hyun-suk Kim (resigned) CEO Dong-jin Koh (resigned)

D. Changes in the major shareholder

The major shareholder changed to Samsung Life Insurance as the shares of the previous major shareholder were inherited by beneficiaries on April 29, 2021.

(As of December 31, 2021)

Date of Change	Name of major shareholder	Number of shares owned	Share ratio	Reason for change	Note
Apr 29, 2021	Samsung Life Insurance	1,263,050,053	21.16%	Shares of the previous major shareholder were inherited by beneficiaries	-

Number of shares owned and share ratio are the sum of those of major shareholder and its related parties, and the number of shares is based on shares with voting rights (including those with limited voting rights in accordance with relevant laws).

☞ Please refer to 『VII. Information on Shareholders』 for details on the major shareholder.

E. Company name changes

In 2017, Quietside LLC, New Net Communication Technologies (Canada), Inc., and Martin Professional ApS changed their names to Samsung HVAC America, LLC, SigMast Communications Inc., and Harman Professional Denmark ApS, respectively.

In 2018, Harman Connected Services Finland OY, and Harman Professional Singapore Pte. Ltd changed their names to Harman Finland Oy, and Harman Singapore Pte. Ltd., respectively.

In 2019, Samsung Electronics Greece S.A. (SEGR) changed its name to Samsung Electronics Greece S.M.S.A. (SEGR).

In 2021, Samsung Electronics Portuguesa S.A. (SEP) changed its name to Samsung Electronics Portuguesa, Unipessoal, Lda. (SEP).

☞ Details are for SEC and major subsidiaries of SEC. See 『1. Subsidiaries subject to consolidated accounting (detailed)』 in 『XII. Appendix』 for details.

F. Mergers and acquisitions

In 2017, Samsung Electronics America, Inc. (SEA) acquired full ownership of Harman International Industries, Inc.

In 2018, Samsung Electronics America, Inc. merged with Samsung Pay, Inc.; and Harman Connected Services, Inc. merged with Harman Connected Services Holding Corp. In the same year, SEA sold its full stake in NexusDX, Inc.

In 2019, Samsung Electronics Benelux B.V. (SEBN) acquired shares of Corephotonics Ltd. In the same year, SEC acquired a PLP business from affiliate Samsung Electro-Mechanics. In addition, Harman Becker Automotive Systems Manufacturing Kft merged with Duran Audio B.V.; and Samsung (China) Investment Co., Ltd. (SCIC) merged with Samsung Electronics (Beijing) Service Company Limited (SBSC).

In 2021, Samsung Research America, Inc. (SRA) merged with Viv Labs, Inc. Furthermore, Samsung Electronics America, Inc. (SEA) merged with Prismview, LLC.

☞ Details are for SEC and major subsidiaries of SEC. See 『1. Subsidiaries subject to consolidated accounting (detailed)』 in 『XII. Appendix』 for details.

G. Important changes in the Company's business

There were no changes over the past five fiscal years.

H. Changes in organizational structure

In March 2017, the Company acquired shares of Harman International Industries, Inc. and added the Harman Division. In June 2017, the System LSI business was divided into Foundry and System LSI businesses.

[As of June 2017]

	Before	After
Business organization	CE Division (Visual Display, Digital Appliances, Medical Devices)	CE Division (Visual Display, Digital Appliances, Medical Devices)
	IM Division (Mobile, Network)	IM Division (Mobile, Network)
	DS Division (Memory, System LSI, DP)	DS Division (Memory, System LSI, Foundry, DP)
	-	Harman Division
Regional headquarters	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa
	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)

Health & Medical Equipment Business was excluded from the CE Division in 1Q18, but it was included again in 1Q20.

In December 2021, the Company merged its CE Division and IM Division to create the DX Division; the Mobile Communications Business was renamed the Mobile eXperience (MX) Business.

This report was written based on previous divisions, and the changed corporate structure will be reflected starting from the 1Q22 Interim Report.

[As of December 2021]

	Before	After
Business organization	CE Division (Visual Display, Digital Appliances, Medical Devices)	DX Division (Visual Display, Digital Appliances, Medical Devices, Mobile eXperience, Network)
	IM Division (Mobile, Network)	
	DS Division (Memory, System LSI, Foundry, DP)	DS Division (Memory, System LSI, Foundry, DP)
	Harman Division	Harman Division
Regional headquarters	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa
	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)

3. Changes in paid-in capital

There were no changes in paid-in capital over the past five fiscal years.

Due to the retirement of shares, the total par value of the shares issued is KRW 679,267 million (KRW 596,978 million in common stock and KRW 82,289 million in preferred stock), which is not equivalent to paid-in capital of KRW 897,514 million.

(KRW, shares)

Type of stock	Classification	December 31, 2021
Common	Number of issued shares	5,969,782,550
	Par value	100
	Paid-in capital	596,978,255,000
Preferred	Number of issued shares	822,886,700
	Par value	100
	Paid-in capital	82,288,670,000
Total	Paid-in capital	679,266,925,000

4. Stock information

A. Total number of shares

As of December 31, 2021, SEC's issued shares on a cumulative basis totaled 7,780,466,850 registered common shares and 1,194,671,350 registered, non-voting preferred shares; and the Company had canceled 1,810,684,300 common shares and 371,784,650 preferred shares in accordance with resolutions of the Board of Directors (the Board). As of the same date, issued shares and shares outstanding totaled 5,969,782,550 for common shares and 822,886,700 for preferred shares.

[As of Dec 31, 2021] (Shares)

Classification	Type of stocks			Note
	Common	Preferred	Total	
I. Authorized shares	20,000,000,000	5,000,000,000	25,000,000,000	-
II. Issued shares (cumulative)	7,780,466,850	1,194,671,350	8,975,138,200	-
III. Decrease in number of shares (cumulative)	1,810,684,300	371,784,650	2,182,468,950	-
1. Capital reduction	-	-	-	-
2. Cancellation	1,810,684,300	371,784,650	2,182,468,950	Treasury shares
3. Redemption	-	-	-	-
4. Other	-	-	-	-
IV. Issued shares (II-III)	5,969,782,550	822,886,700	6,792,669,250	-

V. Treasury shares	-	-	-	-
VI. Outstanding shares	5,969,782,550	822,886,700	6,792,669,250	-

Post-split basis; SEC conducted a 50:1 stock split effective from May 3, 2018, lowering par value of every common and preferred share from KRW 5,000 to KRW 100.

B. Treasury shares

In 2018, SEC completed the cancellation of all shares held in treasury as a part of its shareholder return policy, and no acquisition/disposal transaction of treasury shares was made during the reporting period.

[As of Dec 31, 2021] (Shares)

Acquisition method	Share type	Period-start	Change			Period-end
			Acquisition (+)	Disposal (-)	Cancellation (-)	
Intra-market direct acquisition (within dividend related capital gains limit)	Common	-	-	-	-	-
	Preferred	-	-	-	-	-
Acquisition from a trust agreement (within dividend related capital gains limit)	Common	-	-	-	-	-
	Preferred	-	-	-	-	-
Total	Common	-	-	-	-	-
	Preferred	-	-	-	-	-

C. Types of registered stock

SEC has two types of registered equity securities: 1) common stock; 2) non-voting and non-cumulative preferred stock.

The shareholders of preferred stock are entitled to dividend payments of an additional 1% of par value compared to shareholders of common stock.

As of December 31, 2021, the number of issued non-cumulative and non-voting preferred stock totaled 822,886,700.

[Current status of issued preferred stock] (KRW, Shares)

Classification		Contents	
Issued date		Aug 25, 1989 (first issued date)	
Par value per share		100	
Total amount issued (based on par value) / total number of shares issued to date		119,467,000,000	1,194,671,350
Amount to date / number of shares to date		82,289,000,000	822,886,700
Details on stock	Matters on dividend	Entitled to dividend payments of an additional 1% of par value compared to common shares	
	Matters on residuary distribution	-	

Classification			Contents
	Matters on redemption	Redemption conditions	-
		Redemption method	-
		Redemption period	-
		Redemption value per share	-
		Redemption expected within a year	-
	Matters on conversion	Conversion conditions (including changes in conversion ratio)	-
		Conversion period	-
		Types of shares to be issued with the conversion	-
		Number of shares to be issued after the conversion	-
	Matters on voting rights		No voting rights
Other factors to consider when making investment decisions (matters on shareholders' agreement and financial covenants, etc.)			-

Due to the cancellation of shares, the total par value of issued stocks is KRW 82,289 million and is thus different from the paid-in capital (KRW 119,467 million).
The total number of shares issued to date and the number of shares to date above reflect the changes in the number of shares due to the stock split in 2018.

[Preferred stock, by issued date] (KRW, Shares)

Date	Change	Details of increase/decrease					
		Type	Number of shares	Par value per share	Total par value	Issue price per share	Total issue price
Aug 25, 1989	Rights issue	Preferred	3,400,000	5,000	17,000,000,000	28,800	97,920,000,000
Aug 25, 1989	Bonus issue	Preferred	340,000	5,000	1,700,000,000	5,000	1,700,000,000
Oct 29, 1990	Exercise of conversion rights	Preferred	371,620	5,000	1,858,100,000	29,600	10,999,952,000
Mar 19, 1991	Exercise of conversion rights	Preferred	40,898	5,000	204,490,000	29,341	1,199,988,218
Mar 30, 1991	Exercise of conversion rights	Preferred	5,112	5,000	25,560,000	29,341	149,991,192
Apr 8, 1991	Exercise of conversion rights	Preferred	1,704	5,000	8,520,000	29,341	49,997,064
May 17, 1991	DR issuance	Preferred	1,907,671	5,000	9,538,355,000	37,973	72,439,990,883
Jul 24, 1991	Exercise of conversion rights	Preferred	34,081	5,000	170,405,000	29,341	999,970,621
Jul 30, 1991	Exercise of conversion rights	Preferred	20,449	5,000	102,245,000	29,341	599,994,109
Jul 31, 1991	Exercise of conversion rights	Preferred	64,754	5,000	323,770,000	29,341	1,899,947,114
Aug 30, 1991	Exercise of	Preferred	214,716	5,000	1,073,580,000	29,341	6,299,982,156

Date	Change	Details of increase/decrease					
		Type	Number of shares	Par value per share	Total par value	Issue price per share	Total issue price
	conversion rights						
Sep 30, 1991	Exercise of conversion rights	Preferred	20,448	5,000	102,240,000	29,341	599,964,768
Jun 17, 1993	DR issuance	Preferred	2,542,372	5,000	12,711,860,000	47,312	120,284,704,064
Oct 29, 1993	Exercise of conversion rights	Preferred	105,999	5,000	529,995,000	28,302	2,999,983,698
Nov 12, 1993	DR issuance	Preferred	2,158,273	5,000	10,791,365,000	55,975	120,809,331,175
Nov 29, 1993	Exercise of conversion rights	Preferred	58,295	5,000	291,475,000	28,302	1,649,865,090
Nov 30, 1993	Exercise of conversion rights	Preferred	19,079	5,000	95,395,000	28,302	539,973,858
Apr 6, 1994	DR issuance	Preferred	1,086,956	5,000	5,434,780,000	74,502	80,980,395,912
Jun 3, 1994	Exercise of conversion rights	Preferred	16,027	5,000	80,135,000	25,809	413,640,843
Jun 6, 1994	Exercise of conversion rights	Preferred	9,072	5,000	45,360,000	25,809	234,139,248
Jun 13, 1994	Exercise of conversion rights	Preferred	17,236	5,000	86,180,000	25,809	444,843,924
Jun 22, 1994	Exercise of	Preferred	1,209	5,000	6,045,000	25,809	31,203,081

Date	Change	Details of increase/decrease					
		Type	Number of shares	Par value per share	Total par value	Issue price per share	Total issue price
	conversion rights						
Jun 27, 1994	Exercise of conversion rights	Preferred	16,632	5,000	83,160,000	25,809	429,255,288
Jun 28, 1994	Exercise of conversion rights	Preferred	54,131	5,000	270,655,000	25,809	1,397,066,979
Jun 29, 1994	Exercise of conversion rights	Preferred	292,127	5,000	1,460,635,000	25,809	7,539,505,743
Jun 30, 1994	Exercise of conversion rights	Preferred	52,922	5,000	264,610,000	25,809	1,365,863,898
Jul 1, 1994	Exercise of conversion rights	Preferred	232,854	5,000	1,164,270,000	25,809	6,009,728,886
Jul 4, 1994	Exercise of conversion rights	Preferred	116,426	5,000	582,130,000	25,809	3,004,838,634
Jul 5, 1994	Exercise of conversion rights	Preferred	188,401	5,000	942,005,000	25,809	4,862,441,409
Jul 6, 1994	Exercise of conversion rights	Preferred	686,164	5,000	3,430,820,000	25,809	17,709,206,676
Jul 7, 1994	Exercise of conversion rights	Preferred	270,349	5,000	1,351,745,000	25,809	6,977,437,341

Date	Change	Details of increase/decrease					
		Type	Number of shares	Par value per share	Total par value	Issue price per share	Total issue price
Jul 8, 1994	Exercise of conversion rights	Preferred	977,068	5,000	4,885,340,000	25,809	25,217,148,012
Jul 12, 1994	Exercise of conversion rights	Preferred	6,048	5,000	30,240,000	25,809	156,092,832
Jul 19, 1994	Exercise of conversion rights	Preferred	68,040	5,000	340,200,000	25,809	1,756,044,360
Jul 20, 1994	Exercise of conversion rights	Preferred	4,232	5,000	21,160,000	25,809	109,223,688
Aug 12, 1994	Exercise of conversion rights	Preferred	944	5,000	4,720,000	25,502	24,073,888
Mar 13, 1995	Bonus issue	Preferred	3,028,525	5,000	15,142,625,000	5,000	15,142,625,000
Mar 13, 1996	Bonus issue	Preferred	5,462,593	5,000	27,312,965,000	5,000	27,312,965,000
Apr 14, 2003	Share cancellation	Preferred	-470,000	5,000	-2,350,000,000	-	-
Jan 15, 2004	Share cancellation	Preferred	-330,000	5,000	-1,650,000,000	-	-
May 4, 2004	Share cancellation	Preferred	-260,000	5,000	-1,300,000,000	-	-
Jan 15, 2016	Share cancellation	Preferred	-1,240,000	5,000	-6,200,000,000	-	-
Apr 20, 2016	Share cancellation	Preferred	-530,000	5,000	-2,650,000,000	-	-
Jul 19, 2016	Share cancellation	Preferred	-320,000	5,000	-1,600,000,000	-	-

Date	Change	Details of increase/decrease					
		Type	Number of shares	Par value per share	Total par value	Issue price per share	Total issue price
Sep 28, 2016	Share cancellation	Preferred	-230,000	5,000	-1,150,000,000	-	-
Apr 12, 2017	Share cancellation	Preferred	-255,000	5,000	-1,275,000,000	-	-
May 2, 2017	Share cancellation	Preferred	-1,614,847	5,000	-8,074,235,000	-	-
Jul 24, 2017	Share cancellation	Preferred	-225,000	5,000	-1,125,000,000	-	-
Oct 25, 2017	Share cancellation	Preferred	-168,000	5,000	-840,000,000	-	-
Jan 30, 2018	Share cancellation	Preferred	-178,000	5,000	-890,000,000	-	-
May 3, 2018	Stock split	Preferred	885,556,420	100	-	-	-
Dec 4, 2018	Share cancellation	Preferred	-80,742,300	100	-8,074,230,000	-	-
Preferred stock total			822,886,700		82,288,670,000		642,261,376,652

5. Changes to Articles of Incorporation

The most recent changes to the Articles of Incorporation took place on March 23, 2018. There were no other changes in the Articles of Incorporation in the past three fiscal years or in 2021 as of the disclosure date of the Korean version of this report. Moreover, the agenda for the 2022 AGM, which was held after the disclosure date of the Korean version of this report, did not include any items on changes to the Articles of Incorporation.

For details of the agenda items for the 2022 AGM, please refer to the "Announcement of Shareholders' Meeting" disclosed on Financial Supervisory Service's DART (http://dart.fss.or.kr) on February 15, 2022.

II. Businesses Overview

1. Overview

In addition to our headquarters in Korea, Samsung Electronics consists of 228 subsidiaries across the world responsible for sales and production. There are 9 regional headquarters for CE and IM Divisions, 5 regional headquarters for the DS Division, and Harman Division's subsidiaries.

The Company's business divisions are organized in a two-pronged framework consisting of finished products and component businesses. The finished product business consists of the CE and IM Divisions, and the component business consists of the Semiconductor and DP Business Units. The CE Division is responsible for the production and sales of TVs, monitors, refrigerators, washing machines, and air conditioners; and the IM Division focuses on the production and sales of HHPs, which includes smartphones, as well as network systems, and computers. The DS Division consists of the Semiconductor business which manufactures and sells DRAM, NAND flash, mobile APs, and other semiconductor-related products, and the DP Business, which manufactures and sells display panels, including mobile OLED panels and LCD panels for TVs and monitors. The Harman Division (acquired in 2017) manufactures and sells products such as Digital cockpit, telematics, and speakers.

☞ See C. Current status of each division and D. Financial summary by division in 『7. Other information』 for more details about each Division.

The Company's corporate headquarters—which oversees the CE and IM Divisions and the semiconductor business—as well as 31 consolidated subsidiaries are located in Korea.

The Company's corporate headquarters is divided along Divisions and/or Businesses, which are located in Suwon, Gumi, Gwangju, Giheung, Hwaseong, Pyeongtaek, etc. The Company's unlisted domestic subsidiaries include Samsung Display for display panel production, Samsung Electronics Sales for domestic retail sales, Samsung Electronics Service for after-sales services, and Samsung Electronics Logitech for logistics.

We have 197 unlisted overseas subsidiaries for product manufacturing, sales, and R&D, with locations in the US, Europe/CIS, Middle East/Africa, and Asia, etc.

We have 46 subsidiaries in North America, including SEA (New Jersey; responsible for the sales of finished products including TV and HHPs), SII (California; manufacturing of TVs), SSI (California; sales of semiconductors and DPs), SAS (Texas; manufacturing of semiconductor products), SEDA (Brazil; manufacturing of multiple finished products) and Harman (Connecticut; automotive components) in the US.

In Europe and CIS, we operate 71 subsidiaries. These include SEUK (UK), SEG (Germany), SEF (France), SEI (Italy), SERC (Russia) for sales of finished products; SEH (Hungary) and SERK (Russia) for manufacturing TVs, and SEPM (Poland) for manufacturing home appliances.

We have 20 subsidiaries in Middle East and Africa, including SGE (UAE) and SSA (South Africa) for sales of finished products and SEEG (Egypt) and SSAP (South Africa) for manufacturing TVs.

We have 30 subsidiaries in Asia (ex China), including SESP (Singapore), SEAU (Australia), SEPCO (Philippines), and SME (Malaysia), which are responsible for regional sales. In addition, we operate numerous production sites including SEV and SEVT (Vietnam) for HHPs, SEHC (Vietnam) for TVs, SDV (Vietnam) for DPs, and SIEL (India) for multiple products.

We operate 30 subsidiaries in China, including SCIC (Beijing) and SEHK (Hong Kong) for the sales of finished products in those regions; and SSS (Shanghai) and SSCX (Xian) for semiconductors and DPs sales. Production sites for finished products include SSEC (Suzhou) and semiconductor production facilities are located in SCS (Xian) among others.

☞ See 『1. Subsidiaries subject to consolidated accounting (detailed)』 in 『XII. Appendix』 for more details about subsidiaries.

The Company recorded total revenue of KRW 279,604.8 billion as of end year, an increase of 18.1% year-on-year. Major customers (listed in alphabetical order) included Apple, Best Buy, Deutsche Telekom, Supreme Electronics and Verizon.

2. Key products and services

A. Revenue

SEC is involved in the production and sales of finished products, including TVs, refrigerators, washers, air conditioners, HHPs and components such as semiconductors (DRAM, NAND Flash, mobile APs) and display panels. Through Harman, the Company also produces and sells products such as digital cockpits and telematics.

In 2021, CE reported revenue of KRW 55,832.4 billion (20% of total net sales) and IM reported revenue of KRW 109,251.4 billion (39.1%). DS contributed approximately 44.7% of revenue, reporting KRW 94,158.6 billion (33.7%) by Semiconductor business and 31,712.5 billion (11.3%) by DP business. The Harman Division reported net sales of KRW 10,039.9 billion (3.6%).

(KRW 100 mil)

Division		Major products	Revenue	Portion
CE		TVs, monitors, refrigerators, washing machines, air conditioners, etc.	558,324	20.0%
IM		HHPs, network systems, computers, etc.	1,092,514	39.1%
DS	Semiconductor	DRAM, NAND flash, mobile APs, etc.	941,586	33.7%
	DP	OLED smartphone panels, LCD TV panels, LCD monitor panels, etc.	317,125	11.3%
	Others	Overlapping internal transactions within Division	-7,821	-0.3%
	DS total		1,250,890	44.7%
Harman		Digital cockpit, telematics, speakers, etc.	100,399	3.6%
Others		Overlapping internal transactions between Divisions	-206,079	-7.4%
Total			2,796,048	100.0%

Includes inter-divisional transactions.

☞ See 『4. Sales and long-term contracts』 for sales by each product.

B. Average selling price changes

In 2021, the ASP of TVs increased approximately 32% and that of HHPs increased approximately 6% year-on-year. The ASP of memory products fell by approximately 3% year-on-year, and display panel (OLED panels for smartphones) ASP decreased approximately 4%. The ASP of digital cockpits declined approximately 7% year-on-year.

3. Production materials and production facilities

A. Key production materials

For the CE Division, key materials include display panels, which are supplied by CSOT and other companies. For the IM Division, key materials include camera modules and mobile AP, which are supplied by Semco, Qualcomm and others. For the DS Division, key materials include Wafer, chemicals, FPCAs, windows with suppliers including SK Siltron, Soulbrain, BH, Apple, etc. For the Harman division, key materials include SoC (system-on-chip) products and memory products for in-vehicle solutions, which are supplied by Nvidia, Avnet, etc.

(KRW 100 mil)

Division		Type of purchase	Item	Specific usage	Purchase price	Portion[1)]	Main supplier(s)
CE		Production materials	Display panel	Color picture signaler for TV, monitor	105,823	33.5%	CSOT, AUO, BOE, etc.
		Production materials	Steel	Digital appliance outer-case	16,671	5.3%	Posco, Dongkuk Steel Mill, etc.
		Production materials	Others	-	193,437	66.5%	
		Division total			315,931	100.0%	
IM		Production materials	Camera module	Camera for mobile	58,496	15.1%	Semco, Partron, etc.
		Production materials	Mobile AP	CPU	62,116	16.0%	Qualcomm, MediaTek, etc.
		Production materials	Display panel	Color picture signaler for mobile	25,136	6.5%	BOE, CSOT, etc.
		Production materials	Others	-	241,576	62.4%	
		Division total			387,324	100.0%	
DS	Semiconductor	Production materials	Wafer	Semiconductor disk	23,132	8.4%	SK Siltron, Sumco etc.
		Production materials	Chemical	Disk processing	17,605	6.4%	Soulbrain, DongWoo Fine-Chem, etc.
		Production materials	Others	-	107,074	39.1%	
		Business total			147,811	53.9%	
	DP	Production materials	FPCA	Circuit	28,311	10.3%	BH, Apple, etc.
		Production materials	Window	Tempered glass	22,008	8.0%	Apple, Lens, etc.
		Production materials	Others	-	73,435	26.8%	
		Business total			123,754	45.2%	
	Others	Production materials	-	-	2,450	0.9%	
		Division total			274,015	100.0%	
Harman		Production materials	SoC	Chips for vehicles	4,886	8.2%	Nvidia, Renesas, etc.
		Production materials	Automotive memory chip	Chips for vehicles	4,564	7.7%	Avnet, Microchip, etc.
		Production materials	Others	-	49,870	84.1%	
		Division total			59,320	100.0%	
Others		Production materials	-	-	597	-	
Total					1,037,187	-	

Purchase price does not include sales between Divisions.
Semco is a subsidiary.
1) Portion of purchase price of each item compared to total purchase price for each Division's raw materials.

B. Production material price trends

The price of TV and monitor display panels, which are the major production materials for the CE Division, increased approximately 39% year-on-year. For the IM Division, compared to last year, the price of camera modules and display panels for mobile decreased approximately 44% and 9% respectively. The price of mobile APs increased approximately 19%. For the DS Division, the price of wafers for semiconductor disks and FPCAs increased approximately 1% and 8% year-on-year respectively. Prices of tempered glass windows decreased approximately 16% year-on-year. For the Harman division, the prices of SoCs and memory for vehicles decreased approximately 1% and 2% respectively.

C. Production capacity, output, utilization rate

(Capacity)

(1,000 units)

Division	Item	Capacity		
		2021	2020	2019
CE	Image devices	54,235	51,538	51,418
IM	HHP	319,550	321,600	346,960
DS	Memory	1,756,009,941	1,230,287,321	988,104,491
	Display panel	3,604	7,274	8,236
Harman	Digital cockpit	9,066	9,362	7,921

Production capacity for major product categories on a consolidated basis.

The CE and IM Divisions' production capacity, by major product, is calculated as follows:

- the average number of lines (x) the average output per hour (x) the average operation hours per day (x) standard days of operation

Memory production capacity for the DS Division is calculated as follows:

- converted output (after packaging, 1Gb equivalent) ÷ the utilization rate

Display panel production capacity is calculated as follows:

- the total producible panel surface area ÷ the dimensions of eighth generation glass (2200x2500mm)

Harman's production capacity for Digital cockpit is calculated as follows:

- the number of production (assembly and test) cells for each customer/product (x) the production capacity per hour by production cell (x) the standard operation hours per day (x) standard days of operation

(Output)

In 2021, the CE Division's output of image devices was 44,133 thousand units (major production sites: Mexico, Vietnam, Brazil, and Hungary). The IM Division's HHP output was 260,501 thousand units (major production sites: Korea [Gumi], Vietnam, India, and Brazil). The DS Division's memory output (1Gb equivalent) was 1,756,010 million (major production sites: Korea [Hwaseong, Pyeongtaek] and China). The DP Division's output of display panels was 2,849 thousand units (major production sites: Korea [Cheonan, Asan]). The Harman Division's Digital cockpit output was 6,928 thousand units.

(1,000 units)

Division	Item	Output		
		2021	2020	2019
CE	Image devices	44,133	48,244	43,964
IM	HHP	260,501	249,218	318,635
DS	Memory	1,756,009,941	1,230,287,321	988,104,491
	Display panel	2,849	5,977	6,567
Harman	Digital cockpit	6,928	6,116	6,459

Output for major product categories on a consolidated basis.

(Utilization rate)

In 2021, CE and IM utilization rates were calculated as actual output relative to production capacity. The utilization rates were 81.4% for Image devices and 81.5% for HHPs.

(1,000 units)

Division	Item	2021		
		Production capacity	Output	Utilization rate
CE	Image devices	54,235	44,133	81.4%
IM	HHP	319,550	260,501	81.5%

The DS Division operates memory and display panel production in three shifts (24 hours a day). Cumulative operating days including holidays were 365 days in 2021. The utilization rate was calculated as the actual production time relative to the potential production capacity [operating days (x) number of production lines (x) 24 hours].

(Hours)

Division	Item	2021		
		Potential production time	Actual production time	Utilization rate
DS	Memory	78,840	78,840	100.0%
	Display Panel	48,864	48,864	100.0%

In 2021, Harman's utilization rate was 76.4% and was calculated as actual output relative to production capacity.

(1,000 units)

Division	Item	2021		
		Production capacity	Output	Utilization rate
Harman	Digital cockpit	9,066	6,928	76.4%

D. Production facilities and investment

(Key facilities for production and operation)

The Company's operational activities include production, development, marketing, and sales. In Korea, operations are located in Suwon, Gumi, Gwangju, Hwaseong, Pyeongtaek, and Asan. Overseas operations in North America, Europe, and China include a total of nine regional headquarters under the CE and IM Divisions, five regional headquarters under the DS Division, and Harman Division and its subsidiaries.

[Operations]

Region	Operations	Location
Korea (12)	Suwon	Suwon
	Seocho	Seoul
	Woomyeon	Seoul
	Giheung	Yongin
	Hwaseong	Hwaseong
	Pyeongtaek	Pyeongtaek
	Cheonan	Cheonan
	Onyang	Onyang
	Asan	Asan
	Gumi1	Gumi
	Gumi2	Gumi
	Gwangju	Gwangju
Overseas (CE and IM Divisions - nine regional headquarters)	North America	New Jersey, US
	Europe	Surrey, UK
	China	Beijing, China
	Southeast Asia	Singapore, Singapore
	Southwest Asia	Haryana, India
	CIS	Moscow, Russia
	Middle East	Dubai, UAE
	Africa	Johannesburg, South Africa
	Latin America	Sao Paolo, Brazil
Overseas (DS Division - five regional headquarters)	Americas	San Jose, US
	Europe	Eschborn, Germany
	China	Shanghai, China
	Southeast Asia	Singapore, Singapore
	Japan	Tokyo, Japan
Harman	North America HQ	Connecticut, US

Harman's automotive business is mainly based in the US (Novi, MI) and in Germany (Garching), and its Lifestyle business is located in the US (Northridge, CA)

The Company's property, plant and equipment include land, buildings and structures, machinery and equipment, and construction in progress. As of December 31, 2021, the total book value was KRW 149,928.5 billion, which is an increase of KRW 20,975.6 billion from year-end 2020.

(KRW 100 mil)

Classification		Land	Buildings and structures	Machinery and equipment	Under construction	Other tangible assets	Total
Dec 31, 2020	Book value	97,722	345,520	609,941	201,759	34,587	1,289,529
	- Acquisition cost	98,509	550,264	2,330,565	201,759	104,966	3,286,063
	- Accumulated depreciation (including impairment loss)	-787	-204,744	-1,720,624	-	-70,379	-1,996,534
Change	General acquisition and capital expenditure	1,179	66,086	438,628	-23,205	16,964	499,652
	Depreciation[1)]	-475	-31,747	-265,530	-	-15,100	-312,852
	Disposal/discard/impairment	-497	-1,041	-1,503	-5	-132	-3,178
	Others[2)]	373	9,876	13,727	1,544	614	26,134
Dec 31, 2021	Book value	98,302	388,694	795,263	180,093	36,933	1,499,285
	- Acquisition cost	99,436	626,515	2,749,096	180,093	119,580	3,774,720
	- Accumulated depreciation (including impairment loss)	-1,134	-237,821	-1,953,833	-	-82,647	-2,275,435

Market value of major tangible assets is omitted as objective assessment is difficult.
1) Land-depreciation is depreciation expense of right-of-use asset as per K-IFRS 1116 (Lease).
2) Includes effects of FX rates and government subsidies.

(Capex)

The Company's capex in 2021 was KRW 48.2 trillion, with investments concentrating on capacity expansions and migration of advanced nodes as well as on infrastructure for the semiconductor and DP businesses. In 2022, the Company will continue to execute capex considering its efficiency to secure stable growth and to respond flexibly to changes in market conditions, aiming enhance competitiveness of our major businesses and address growing future demand.

[Capex, by division]

(KRW 100 mil)

Business	Purpose	Period	Assets	Investment
Semiconductor	Establishment, addition, upgrade	January–December 2021	Buildings, facilities, etc.	435,670
DP	Establishment, addition, upgrade	January– December 2021	Buildings, facilities, etc.	26,133
Other	Establishment, addition, upgrade	January– December 2021	Buildings, facilities, etc.	20,419
Total				482,222

4. Sales and long-term contracts

A. Sales

In 2021, the Company recorded total revenue of KRW 279,604.8 billion, an increase of 18.1% year-on-year. By Division, when compared to the same period last year, revenue of the CE Division, IM Division, DS Division, and Harman Division increased by 15.9%, 9.7%, 21.4% and 9.3%, respectively.

(KRW 100 mil)

Division		Sales types	Product categories	2021	2020	2019
CE		Goods, products, services, other	TVs, monitors, refrigerators, washing machines, air conditioners, etc.	558,324	481,733	453,228
IM		Goods, products, services, other	HHPs, Network systems, computers, etc.	1,092,514	995,875	1,072,662
DS	Semiconductor	Goods, products, services, other	DRAM, NAND flash, mobile APs, etc.	941,586	728,578	649,391
	DP	Goods, products, services, other	OLED panels for smartphones, LCD panels for TVs and monitors	317,125	305,857	310,539
	Others	Overlapping internal transactions within Division		-7,821	-4,074	-4,750
	DS total			1,250,890	1,030,361	955,180
Harman		Goods, products, services, other	Digital cockpit, telematics, speakers, etc.	100,399	91,837	100,771
Others		Overlapping internal transactions between Divisions		-206,079	-231,736	-277,832
Total				2,796,048	2,368,070	2,304,009

Includes inter-divisional transactions.

(1) Sales, by major product (on a consolidated basis)

(KRW 100 mil)

Classification	2021	2020	2019
Image devices	314,974	277,118	261,775
Mobile devices	1,046,806	960,217	1,023,318
Memory	726,022	555,442	502,163
Display panels	317,125	305,857	310,539

Includes inter-divisional transactions.

(2) Sales, by type

(KRW 100 mil)

Classification	2021	2020	2019
Products	2,658,785	2,235,963	2,188,604
Services and other sales	137,263	132,107	115,405
Total	2,796,048	2,368,070	2,304,009

Other sales consists of royalty income, etc.

(3) Sales, by region (on a separate basis)

(KRW 100 mil)

Classification		2021	2020	2019
Domestic		221,497	198,331	203,009
Export	Americas	583,805	476,768	437,434
	Europe	258,227	235,012	191,970
	Asia and Africa	336,671	315,598	329,705
	China	597,247	437,403	385,611
Total		1,997,447	1,663,112	1,547,729

Domestic consumption and exports on a separate basis.

B. Sales channels

(1) Domestic

Seller	Sales channel	Consumer
Manufacturer and buyer	Exclusive agencies	Consumer
	Distributor (general merchandise stores, discount stores, department stores, home-shopping, online, etc.)	
	Telecommunication service provider (SKT Co., Ltd., KT Corp., LG Uplus Corp.)	
	Direct Sales (B2B and online channels)	

(2) Overseas

Seller	Sales channel					Consumer
Production subsidiaries	Regional sales office	Retailer				Consumer
		Dealer		Retailer		
		Distributor	Dealer	Retailer		
		Telecommunication service provider, automotive OEM				
		Direct sales (B2B and online channels)				
	Regional distribution office	Regional sales office	Retailer			
			Dealer	Retailer		
			Distributor	Dealer	Retailer	

(3) Sales ratio (global), by Channel

Channel	Wholesale	Retail	Special/direct sales	Others
Ratio	17%	28%	51%	4%

C. Sales methods and conditions

(1) Domestic

Classification	Channel	Collection	Incidental expense sharing
Exclusive	Retailer	Credit specific	Case specific cost sharing as determined by mutual agreement
Distributor	General merchandise store, discount store, department store, home shopping, online, etc.	Case specific and contract specific	Case specific cost sharing as determined by mutual agreement
Telecommunication service provider	SKT Co., Ltd., KT Corp. LG Uplus Corp.	Case specific and contract specific	Case specific cost sharing as determined by mutual agreement (joint marketing)
B2B and online channels	Corporate clients, etc.	Case specific and contract specific	N/A

(2) Overseas

Classification	Channel	Collection	Incidental expense sharing
Retailer	Retail store	Case specific and contract specific	Case specific cost sharing as determined by mutual agreement
Dealer	General merchandise store, discount store, department store	Case specific and contract specific	Case specific cost sharing as determined by mutual agreement
Distributor	Direct sales to local distributors	Case specific and contract specific	Case specific cost sharing as determined by mutual agreement
B2B and online channels	Corporate clients, etc.	Case specific and contract specific	N/A

D. Sales strategy

- Expand market leadership based on premium products
- Provide differentiated value to customers through brand, products, and services
- Strengthen marketing activities to boost demand from customer/market

E. Major customers

In 2021, major customers (listed alphabetically) included Apple, Best Buy, Deutsche Telekom, Supreme Electronics and Verizon. Sales to the five major customers accounted for approximately 16% of total sales.

F. Long-term contracts

As of December 31, 2021, there were no long-term contracts that have a significant impact on the Company's financial statement.

5. Risk management and derivative trading

A. Financial risk management policy

The Company's financial risk management focuses on minimizing market risk, credit risk, and liquidity risk arising from operating activities. To mitigate these risks, the Company closely monitors each risk factor and operates corresponding financial risk management policies and program. The Company's use of derivative instruments for hedging risks are included in this program.

The finance team mainly carries out the Company's financial risk management. After implementing the global financial risk management policies, the finance team periodically measures, evaluates, and hedges financial risks.

Meanwhile, the Company manages exchange rate risk via monitoring exchange rates and conducting transactions through local finance centers in each major region (United States, United Kingdom, Singapore, China, Brazil, and Russia). Liquidity risk is managed by managing capital as a whole by each region.

The Company's assets that are under financial risk management consist of cash and cash equivalents, short-term financial instruments, financial assets at amortized cost, trade receivables and others. The Company's liabilities under financial risk management consist of trade payables, borrowings, and others.

B. Major financial risks

(1) Market risk

(Foreign exchange risk)

The Company operates internationally and is exposed to foreign exchange risks as it conducts transactions in currencies other than the functional currency. Major currencies that are exposed to foreign exchange risk include USD, EUR, INR, and others.

The Company focuses on minimizing the impact of foreign exchange fluctuation by maintaining the equal amount of assets and liabilities denominated in each foreign currency, irrespective of foreign exchange fluctuation considerations. To prevent exchange position, the Company's foreign exchange management policy requires normal business transactions, including import and export, as well as financing transactions such as depositing and borrowing, to be in local currency or for the cash-in currency to be matched up with the cash-out currency.

In order to effectively manage foreign exchange risk, the Company periodically monitors and evaluates exchange rate risk and strictly prohibits speculative foreign exchange transactions.

When currency rates change by 5%, its impact on the profits or losses (before income tax effects) arising from financial assets and liabilities denominated in foreign currencies other than functional currency as of the reporting date are as follows:

(KRW mil)

Classification	December 31, 2021		December 31, 2020	
	Increase	Decrease	Increase	Decrease
USD	250,489	-250,489	174,400	-174,400
EUR	107,519	-107,519	112,244	-112,244
INR	24,216	-24,216	21,959	-21,959

(Interest rate risk)

Risk of changes in interest rates for floating interest rate financial instruments is defined as the risk that the fair value of components of the consolidated statement of financial position, and future cash flows of interest income (expenses) of a financial instrument, will fluctuate because of changes in market interest rates. The Company's position with regard to interest rate risk exposure is mainly driven by its floating interest rate debt obligations and interest-bearing deposits. The Company implemented policies and operates to minimize uncertainty arising from changes in interest rates and financial expenses.

When interest rates change by 1%p, the impacts on profit or loss (before income tax effects) arising from floating-rate financial assets and liabilities as of the reporting date are as follows:

(KRW mil)

Classification	December 31, 2021		December 31, 2020	
	Increase	Decrease	Increase	Increase
Financial assets	71,131	-71,131	81,013	-81,013
Financial liabilities	-18,779	18,779	-2,195	2,195
Net effect	52,352	-52,352	78,818	-78,818

(Price risk)

The Company's investment portfolio consists of direct and indirect investments in equity securities classified as financial assets at fair value through other comprehensive income and financial assets at fair value through profit or loss, which is in line with the Company's strategy.

As of December 31, 2021, a price fluctuation of marketable equity securities (listed stocks) of 1% changes 'other comprehensive income' (before income tax) by KRW 116,087 million and 'profit before tax' by KRW 4,784 million. The figures as of the same date in 2020 were KRW 69,101 million and KRW 4,316 million, respectively.

(2) Credit risk

Credit risk arises during the normal course of transactions and investing activities where clients or other parties fail to discharge an obligation. The Company sets and manages the client's and counterparty's credit limit, and evaluates their financial credit rating on a periodic basis based on the client's and counterparty's financial conditions, default history and other important factors. Adequate insurance coverage is maintained for trade receivables related to trading partners situated in higher risk countries.

Credit risk can arise from transactions with financial institutions which include financial instrument transactions such as cash and cash equivalents, savings, and derivative instruments. To minimize such risk, the Company transacts only with banks which have strong international credit rating (S&P A and above), and all new transactions with financial institutions with no prior transaction history are approved, managed and monitored by the Company's finance team and the local finance center. The Company generally enters into a financial agreement with no restrictions, such as debt ratio covenants, provision of collateral, and loans or borrowings repayment. The Company requires separate approval for contracts with restrictions.

The Company estimates that its maximum exposure to credit risk is the carrying amount of its financial assets, net of impairment losses.

(3) Liquidity risk

Due to the nature of the Company's business that requires making large investments, maintaining adequate level of liquidity risk is crucial. The Company maintains and manages adequate level of liquidity by periodically forecasting its capital balances, estimating required cash, managing income and expenses, and others.

The Company efficiently manages its liquidity risk by periodically forecasting projected cash flows and by utilizing regional cash pooling, which allows for the use of internal funds when there is a shortage of cash in a region. The cash pooling program allows sharing of surplus funds among entities and contributes to minimizing liquidity risk and strengthening the Company's competitive position by reducing capital operation expenses and financial expenses.

In addition, the Company's headquarters provides payment guarantees to overseas subsidiaries to secure credit limit to brace for a potential large-scale liquidity need.

The following table is an undiscounted cash flow analysis for financial liabilities according to their remaining contractual maturity from the end of the reporting date to the contractual maturity date.

(1) As of December 31, 2021

(KRW mil)

	Less than 3 months	~6 months	~12 months	1—5 years	More than 5 years
Financial liabilities	55,185,809	1,814,271	1,674,980	5,462,057	944,232

(2) As of December 31, 2020

(KRW mil)

	Less than 3 months	~6 months	~12 months	1—5 years	More than 5 years
Financial liabilities	44,988,792	733,776	1,651,951	3,945,429	578,346

(4) Capital risk

The purpose of capital management is to protect our capability of continuously providing profit to our shareholders and stakeholders and to maintain a sound capital structure. To this end, the Company monitors capital on the basis of credit rating and the ratio of total liabilities to total equity.

As of December 31, 2021, the Company has an AA- and Aa3 credit rating from S&P and Moody's, respectively, and the figures for total liabilities and total equity are as follows:

(KRW mil)

	Dec 31, 2021	Dec 31, 2020
Total liabilities	121,721,227	102,287,702
Total equity	304,899,931	275,948,016
Total liabilities to equity ratio	39.9%	37.1%

C. Derivative instruments and put options

The Company hedges foreign currency positions by trading currency forward contracts of currencies other than won for the purpose of managing foreign exchange risk. Currency forwards are bought through a bank in the purpose of trade and hedging.

As of December 31, 2021, the Company had 2,508 currency forward contracts involving 35 foreign currencies including USD/EUR/JPY, and the book value of assets and liabilities as well as valuation gain and loss were as follows:

(KRW mil)

	Assets	Liabilities	Valuation gain	Valuation loss
Currency forwards	94,500	125,099	694,737	779,624

Samsung Display (a subsidiary of the Company) may exercise its put option to sell part of its shares of Corning Incorporated back to Corning, according to the stock trade contract with Corning on April 8, 2021.

Furthermore, Samsung Display may exercise its put option to sell all or part of its shares of TCL China Star Optoelectronics Technology Co. Ltd. (CSOT) to TCL Technology Group Corporation (TCL), if CSOT remains unlisted within the listing period, according to the shareholders' agreement executed with TCL and CSOT on April 1, 2021.

Fair value of the above put option as of December 31, 2021 was evaluated by Earnest & Young Global Limited.

6. Major contracts and research and development activities

A. Major contracts

Account	Contract information	Contents
Cisco	Type	Patent cross-license agreement
	Date	Jan 23, 2014
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing
Google	Type	Patent cross-license agreement
	Date	Jan 25, 2014 / indefinite term
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing
	Other	Permanent license contract (including patent applications in the next 10 years)
GlobalFoundries Inc.	Type	Process technology license agreement
	Date	Feb 28, 2014
	Purpose and contents	Expand customer base of 14nm process
InterDigital	Type	Patent license agreement
	Date	Jun 3, 2014
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through patent licensing
Qualcomm	Type	Patent cross-license agreement
	Date	Jan 1, 2018–Dec 31, 2023
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing and signing of covenant not to sue
Apple	Type	Withdrawal of lawsuit agreement
	Date	Jun 26, 2018
	Purpose and contents	Withdraw from all lawsuits in the United States
Nokia	Type	Patent license agreement
	Date	Oct 19, 2018
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through patent licensing
Microsoft	Type	Patent cross-license agreement
	Date	Feb 11, 2019
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing
Google	Type	EMADA

Account	Contract information	Contents
	Date	Feb 27, 2019–Dec 31, 2022 (extended)
	Purpose and contents	Licensing agreement for using Google apps (Play Store, YouTube, etc.) in 31 European countries (EEA)
Huawei	Type	Patent cross-license agreement
	Date	Feb 28, 2019
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing
AMD	Type	Technology licensing agreement
	Date	May 30, 2019
	Purpose and contents	Secure mobile graphics design for mobile products and other applications
Sharp	Type	Patent cross-license agreement
	Date	July 30, 2019
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing
Ericsson	Type	Patent cross-license agreement
	Date	May 7, 2021
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing

Information that may be referenced or used in other IP disputes, including contract amount, is excluded.

B. Summary of R&D activities and expenditures

The Company is leading the global market by continuously developing creative and innovative products and the future technology through shifting its way of thinking and understanding customer demand. The Company is doing its utmost to cement its position in the global IT industry and become a worldwide leader in industrial technology by creating and securing next-generation technology.

As of December 31, 2021, the Company's R&D expenses in 2021 were KRW 22,596.5 billion. Among this, KRW 22,401.7 billion was recognized as expenditures, excluding government subsidies and capitalized expenses.

(R&D expenses)

(KRW mil)

		2021	2020	2019
Total R&D expenditures		22,596,487	21,229,200	20,207,612
(Government subsidies)		-1,053	-8,228	-14,677
R&D expenditures		22,595,434	21,220,972	20,192,935
Accounting	Capitalization of development expenses (intangible asset)	-193,708	-109,482	-285,699
	R&D costs (expenses)	22,401,726	21,111,490	19,907,236
R&D expenses/sales ratio[1)]		8.1%	9.0%	8.8%

On a consolidated basis.
1) Calculated using total R&D expenditures, which includes government subsidies.

C. R&D organization and operations

(Domestic)

The Company operates three levels of R&D organizations; a business unit development team under each Division that develops market-ready technologies with a 1–2 year outlook, a research institute under each business unit that develops mid- to long-term technology with a 3–5 year outlook, and the Samsung Advanced Institute of Technology that develops core technology as seeds for future growth engines.

Samsung Advanced Institute of Technology is the central research institute of Samsung Electronics that has been established to lead the Company into the future and serve as an incubator of cutting-edge technology. It has a creative R&D system and provides R&D direction for promising growth sectors at the Company level, exploring future growth engines and strengthening technological competitiveness of core businesses.

(Overseas)

The Company operates R&D organizations in the US (SRA), China (SSCR, SRC-Beijing, SRC-Nanjing, SRC-Guangzhou, SRC-Shenzen), India (SRI-Bangalore and SRI-Delhi), Bangladesh (SRBD), Israel (SRIL and SIRC), Russia (SRR), and Japan (SRJ), to carry out research activities for product development and basic technological research.

The Company has established AI centers in Cambridge (United Kingdom), Moscow (Russia), Toronto (Canada), Montreal (Canada), and New York (United States), so our global team of researchers can collaborate with international experts to strengthen capabilities in AI technology.

As of December 31, 2021.
Refer to 『1. Subsidiaries subject to consolidated accounting (detailed)』 in 『XII. Appendix』 for more details about overseas R&D organizations.

D. R&D results

The Company's key R&D results by division in 2021 are as follows:

CE Division	
Research project	**Details**
Neo QLED 8K	• Release of ultra-high-definition, slim 8K TV based on mini LED
Neo QLED 4K	• Rollout of three series and seven sizes based on mini LED
Clothing care machine	• Launch of Shoe Dresser
IM Division	
Research project	**Details**
Galaxy Foldable	• Rollout of Galaxy Z Fold 3 • Launch of Galaxy Z Flip 3
Galaxy S21	• Rollout of Galaxy S21 5G ・ S21+ 5G ・ S21 Ultra 5G
Galaxy Tab	• Release of Galaxy Tab S7 FE • Launch of Galaxy Tab A8
Galaxy A	• Rollout of Galaxy A52 LTE ・ 5G • Launch of Galaxy A72 • Release of Galaxy A32 LTE ・ 5G • Rollout of Galaxy Quantum2 A82
Galaxy Book	• Launch of Galaxy Book Go
Wearable	• Rollout of Galaxy Watch 4 • Launch of Galaxy Buds Pro • Release of Galaxy Buds 2
Network	• Development of RAN (SVR21B NR vDU) S/W Package
DS Division	
Research project	**Details**
DRAM for mobile	• Developed industry's first LPDDR5X DRAM
DRAM for server	• Development of the industry's first high-capacity DDR5 memory applying HKMG process
HBM DRAM	• Development of the world's first HBM-PIM with an AI engine
SSD for server	• Mass production of high-performing OCP SSD exclusive for data centers • Mass production of SAS 24Gbps SSD for server—highest performance in the industry • Industry's first mass production of the next-generation ZNS SSD for business servers
Brand SSD	• Global launch of SATA SSD 870 EVO for customers • Release of high-performing NVMe SSD 980 which satisfies needs for both performance and economic efficiency • Development of high-performance PCIe 5.0 SSD PM1743
EUV	• Mass production of 14-nano EUV DDR5 DRAM
CXL	• Development of the industry's first CXL-based DRAM memory technology
Multi-chip	• Mass production of uMCP5 multi-chip package—highest performance in the industry
Image sensor	• Release of 108MP premium image sensor ISOCELL HM3 • Rollout of image sensor ISOCELL GN2, which has become more similar to the human eye • Release of ISOCELL JN1 with 0.64um pixel—the industry's first • Launch of automotive image sensor ISOCELL Auto 4AC • Unveiling of ISOCELL HP1, industry's first 200 million pixel image sensor • Rollout of ISOCELL GN5, dual pixel image cell of industry's smallest size
Exynos	• Rollout of 5G-integrated premium mobile AP Exynos 2100 • Release of Exynos W920, a processor applying EUV process for wearables • Launch of Exynos Auto T5123, industry's first 5G connectivity solution for automobiles • Rollout of Exynos Auto V7, processor for in-vehicle infotainment systems

LSI	• Development of power management IC for DDR5 DRAM modules • Development of power management chip (S2VPS01) for in-vehicle infotainment systems
Foundry	• Development of 2.5D semiconductor packaging technology I-Cube4 • Development of Radio Frequency (RF) process for 8-nano 5G communication • Development of 2.5D integration H-Cube solution
Low power consumption OLED	• Mass production of low power consumption, high-luminance innovation OLED Display for Galaxy S21 • Development of OLED display for Galaxy Z Fold 3

Please refer to 『Appendix-4. R&D results (detailed)』 for more details.

7. Other information

A. Intellectual property

Intellectual property activities are an integral part of our R&D strategies—SEC registered its first US patent in 1984 and currently holds 216,404 patents around the world. The Company holds the highest number of its patents in the US and aims to address conflicts in the US more effectively.

(Number of patents registered in each country)

[As of Dec 31, 2021] (Unit: No. of patents)

	Korea	US	Europe	China	Japan	Others	Total
Number	47,900	84,202	40,827	20,061	9,624	13,790	216,404

In 2021, the Company invested KRW 22.6 trillion in R&D and registered 8,437 domestic and 8,565 US patents.

(Number of patent registrations per year)

(Unit: No. of patents)

	2021	2020	2019
Korea	8,437	6,648	5,075
US	8,565	8,520	8,729

These patents are mostly related to smartphones, smart TVs, memory, and system LSI products for the Company's strategic business products or for future use. These patents not only protect the Company's business but also play a role in keeping similar technology and patents, as well as competitors, in check. Additionally, the Company is focusing on securing early patents in new technologies ahead of others, in order to protect opportunities and have the freedom to operate when entering new businesses.

The Company has signed licensing agreements with Cisco (signed in January 2014), Google (January 2014), Qualcomm (January 2018), Nokia (October 2018), Microsoft (February 2019), Sharp (July 2019), and Ericsson (May 2021) through which the Company has secured an extensive patent protection in mainstay businesses as well as in the fields of new business.

The Company has also been focusing on securing design patents to protect its original design applied to smartphones and smart TVs. In 2021, the Company acquired 533 US design patents, in part for the aforementioned purposes.

B. Environmental regulations

The Company strictly abides by environmental regulations on products and in the workplace, as prescribed by law. In addition, in accordance with "the low carbon green growth policy" of the Korean government, the Company reports "the amount of greenhouse gas emission and energy use" to the government and provides related information to stakeholders by providing various reports, including the Samsung Sustainability Report.

☞ See 『4-D. Green Management』 of 『XI. Other Information』 for more details about Green Technology Certification.

(Environmental regulation of products)

Environmental regulation of products are becoming stricter, reflecting the concerns of governments and regulators about potential direct and indirect impact of products to consumers' health and safety as consumers. Accordingly, the Company is working to minimize the environmental impact throughout the entire life cycle of products from the development stage of components and products to manufacturing, distribution, use, and disposal. The Company offers "Eco-Partner Certification" to suppliers for components free of harmful substances, and runs an "eco-design evaluation" system to reflect eco-friendly elements on products (reduced use of resources, energy and harmful substances, and the use of eco-friendly materials) at the development stage, and operates a "waste electronics collection recycle system" in Europe, North America, Korea, and India for collecting and recycling waste electronics. These activities are in line with domestic and foreign environmental laws on electronics and are a differentiation factor for the Company and its products.

Relevant laws are as follows:

1. law on collection and· recycle of waste electronics (eg, EU WEEE Directive)
2. limit on the use of harmful substances (eg, EU RoHS Directive, REACH Regulation)
3. regulation on energy efficiency (eg, EU ErP Directive)

(Environmental Regulations in the Workplace)

The Company operates environmental pollution prevention facilities to reduce air pollution, water pollution, and waste disposal, and to minimize the discharge of pollutants, thereby minimizing impact on the surrounding environment.

Environmental management of workplace is supervised by the relevant government authorities. All production facilities, domestic and overseas, have acquired the International Occupational Health and Safety Management System Certification (ISO 14001, ISO 45001) to strengthen compliance.

Major Relevant Domestic and International Laws are as follows:

1. Regulations related to emission of pollutants: Water Quality and Ecosystem Conservation Act, Clean Air Conservation Act, Wastes Control Act, Noise and Vibration Control Act, Environmental Impact Assessment Act
2. Management of greenhouse gas emission: Act on Allocation and Trading of Greenhouse Gas Emission, Framework Act on Low Carbon, Green Growth
3. Others: Toxic Chemicals Control Act, Act on the Registration and Evaluation, etc. of Chemical Substances, Odor Control Law, Soil Environment Conservation Act

(Greenhouse gas emission and energy consumption management)

The Company is a "controlled entity" according to Article 42 (Coping with Climate Change and Management of Targets for Energy) Paragraph 6 of Korea's "Framework Act on Low Carbon, Green Growth". Thus, the Company has been reporting the amount of greenhouse gas emission and energy consumption, verified by a third-party, to the authorities and disclosing it to stakeholders according to Article 44 (Reporting on Quantity of Greenhouse Gases Emitted and Quantity of Energy Consumed) of the same Act since May 2011.

The reported amount of greenhouse gas emission and energy use are provided below:

(Unit: tCO_2-eq, TJ)

	2021	2020	2019
Greenhouse gas (tCO_2-eq)	19,199,754	17,234,522	15,998,397
Energy (TJ)	259,377	255,990	242,345

On a consolidated basis. See『4-D. Green Management』of『XI. Other Information』for results on a separate basis.
Domestic manufacturing facilities, office buildings, buildings owned by the Company, leased buildings, etc.
Reported Greenhouse gas emission excludes ozone depletion substances (ODS).
Amounts may differ based on results of governmental evaluations on emissions.

From 2015, in accordance with the Article 8 (Designation of Business Entities Eligible for Allocation) of the Act on the Allocation and Trading of Greenhouse-Gas Emission Permits, the Company is an eligible business entity under the Act.

C. Current status of each division

[CE Division]

☐ Industry overview

Since the first public demonstration of a true television system in 1926 and later mass production of color TVs, technological developments have led to the creation of products such as the Trinitron CRT (1967) and flat CRT (1996). As the penetration rate in major countries reached over 90%, the growth of the CRT TV industry stagnated. The industry regained strong growth momentum following the launch of flat panel TVs ("FPTVs") like LCDs and PDPs, especially with the expansion of digital broadcasting. FPTVs replaced CRT sets on the back of their enhanced design, picture quality, etc., combined with a sharp decline in prices.

The year 2010 saw the launch of 3D TVs, and the rise of internet video services along with increased consumer interest in smart devices from 2011 to 2012 led to the birth of the smart TV market. The evolution continued with the launches of Quantum Dot QLED TVs in 2017, boasting significantly enhanced resolution and picture quality, and with commercialization of 8K and MicroLED TVs.

☐ Market condition

In 2020, market players continued to strive for innovations in picture quality, sound, and form factor to create demand for premium TVs. In addition, TV demand in 2020 increased slightly to 225.47 million, despite the global spread of COVID-19, due to the stay-at-home trend and 2H release of pent-up demand. In 2021, TV demand decreased year-on-year to approximately 213.54 million units (*Omdia*; February 2022).

< Market share of the CE Division's key product >

Product	2021	2020	2019
TV	29.5%	31.9%	30.9%

Global market share in revenue; data from research firm *Omdia*.

☐ Business condition

We have maintained the top position in the overall TV market for sixteen straight years since claiming the number one spot in 2006.

In 2018, we released world's first 8K TV in the global market, once again leading the premium segment in the TV industry. Our QLED lineup includes sizes ranging from mid-sized to ultra-large screens, giving customers a variety of choices. In addition, the significantly improved picture quality was well received by consumers and experts alike. We achieved solid results by introducing ultra-large screens in the UHD lineup as well as in the QLED lineup.

In 2020, we enhanced our leadership and dominance in the market with 4K and 8K QLED TVs and new Lifestyle TVs such as The Terrace, The Premiere and The Sero despite a global economic crisis due to COVID-19.

In 2021, we expanded our premium product lineup by launching Neo QLED TVs featuring significantly upgraded contrast and picture quality. Moreover, the sales portion of Lifestyle products and sound bars is increasing, and a rising number of companies are participating in various smart ecosystems, including TV plus, home training, and games. Since 2021, we have been particularly strengthening our efforts toward becoming a more eco-friendly business, from raw materials to packaging, and we are enhancing accessibility to help the visually impaired and hard of hearing to conveniently use our products.

[IM Division]

☐ Industry overview

Mobile phones are the key product of the IM Division, and the mobile phone industry started with first generation analogue devices in the early 1980s and evolved to second generation digital ones, using technology such as CDMA and GSM, where users could send voice and text messages. Third generation mobile communication standards such as WCDMA allowed users to send photos and videos. Today, fourth generation LTE mobile communication technology with ultra-high-speed data transmission is becoming commonplace and was used in 59% of phones sold in 2020 (*Strategy Analytics*, December 2021).

Fifth generation mobile communication services, which will lead innovation alongside the fourth industrial revolution, were successfully commercialized in Korea and the US and are expanding to Europe and India. As a result, sales of 5G smart phones were estimated to have increased sharply to 620 million units in 2021 from 270 million units in 2020 (*Strategy Analytics*, December 2021).

The smartphone industry has grown significantly since 2007. In 2021, the smartphone portion of total HHP sales volume is estimated to have been approximately 76%, and the feature phone portion of the total to have been approximately 24%, with the latter related to demand in developing nations (*Strategy Analytics*, December 2021). For 2021, the penetration rate of smartphones is estimated to reach 52%, rising slightly from 50% in 2020 (*Strategy Analytics*, December 2021).

Also, as the smartphone market shows high saturation, the importance of competitive software—such as applications, UX, games, media, advertisements, mobile payments, AI, and AR—is rising alongside that of competitive hardware, which includes high-performance APs, AMOLED displays, foldable form factors, multiple cameras, sensors, waterproof & dustproof features, biometric recognition, and more.

☐ Market Condition

With the acceleration of 5G expansion, the smartphone market is projected to have grown from 1.30 billion units in 2020 to 1.36 billion units in 2021 (*Strategy Analytics*; January 2022). Meanwhile, the tablet market, which experienced a contraction due to weak replacement demand, increased from 160 million units in 2019 to 190 million in 2020 due to an increase of contactless demand triggered by COVID-19, but it is expected to have slightly decreased to approximately 180 million units in 2021 (*Strategy Analytics*; January 2022).

< Market share of the IM Division's key product >

Product	2021	2020	2019
Smartphone	20.0%	19.6%	20.9%

Global market share in sales volume; data from research firm Strategy Analytics.
Market share for 2019 and 2020 changed as key product of the IM Division changed from HHP to smartphone in 2021.

☐ Business condition

SEC has always been at forefront of the HHP market, and for smartphones in particular, we have maintained leadership in the global market for eleven consecutive years since 2011. To solidify our status in the overall mobile market, we are striving to improve our current products—including tablets, wearables, and accessories—while growing businesses in areas with high potential, such as the service, online, and B2B sectors.

For smartphones, we are establishing optimal portfolios for each region, accounting for varying market conditions and the competitive environment, offering a wide smartphone lineup ranging from mass-market to premium devices. We have been providing premium smartphones and delivering differentiated user experiences that can meet customer needs via our cutting-edge technology, which includes Dynamic AMOLED 2X (120Hz) displays and innovative Contour Cut designs as well as large-screen Infinity Displays, digital key and content sharing using UWB (ultra wideband), water- and dust-proofing, high-speed cable and wireless charging, ultrasonic fingerprint-on-display (FoD), high-resolution and optical zoom camera with AI technology, 8k video recording, among others. In 2019, we secured early leadership in the 5G market with the release of the world's first 5G smartphone while also creating a new market with Galaxy Fold, enabled by foldable displays. In 2020, we continued to lead the mainstreaming of foldable phones with the launch of Galaxy Z Flip, a new form factor that folds from top down, and a further evolved edition Galaxy Z Fold 2.

In 2021, we released the third generation Galaxy Z Series with significantly enhanced durability based on unrivaled craftsmanship. Galaxy Z Fold 3 and Galaxy Z Flip 3 provide the ultimate user experience by offering increased convenience and more innovative technologies, including IPX8 water resistance—a first for a foldable smartphone—enhanced display durability of up to 80% compared to the previous generation, verified folding durability to withstand folding 200,000 times, an under display camera, multitasking, Multi Active Window, auto framing, and Dual Preview.

To respond to an ever-changing market as well as customer needs, we are strengthening product competitiveness by introducing innovative features such as 5G, quad cameras, large infinity displays, and high-capacity batteries even to mid-range-and-below products.

We provide our smartphone users with a wider and more convenient experience via our other products, which include premium tablets that feature multitasking of large-screen display, wearable devices, including smart watches equipped with numerous innovative fitness and wellness functions, wireless earphones that provide rich and quality sound, and other various Galaxy Eco products, including wireless quick charging stands.

Not content to dwell on our achievements in hardware, we have been focusing on delivering new and helpful services like Samsung Pay, Samsung Health, and SmartThings. To deliver a consistent and high-quality Multi-Device Experience, we are adding Bixby features to a suite of products in addition to smartphones, including TVs, refrigerators, air conditioners, etc.

Moreover, we are strengthening strategic partnerships to expand our ecosystem. As always, we will continue to invest in any field that has growth potential, with current targets including but not limited to 5G, AI, IoT, cloud, AR, blockchain, and mobile B2B, while also leveraging our superior R&D capabilities to keep delivering new value to customers.

[DS Division]

- Semiconductor

☐ Industry overview

In general, our Semiconductor business is divided into Memory (storage) and System LSI (logical processing). Memory semiconductor is divided into RAM products (random access memory, ones that can be both written on and read) and ROM products (read only memory).

RAM is called volatile memory as the information is deleted when the power is turned off. It is used for temporary loading and storage of application programs. ROM is nonvolatile and holds memory even when power is removed; it is used in input/output system, IC cards, and more.

For System LSI products, there are many categories for various applications. SoCs for mobile devices that are equipped with CPUs, GPUs, ISPs (image signal processors), and modems are our major products. The Company manufactures mobile SoCs for smartphones and tablets, image sensors, and DDIs (display driver ICs) for OLED.

The Foundry Business makes customized semiconductors for other companies based on customer designs. The business resembles OEMs in the traditional manufacturing industry in the sense that companies consign the manufacturing of their products to fabrication plants, also called foundries or fabs. Due to increasing difficulty in semiconductor process and growing investment cost, the number of fabless semiconductor companies is growing, and the Foundry Business is in charge of consignment semiconductor production for such fabless companies.

☐ Market condition

The memory market is showing solid demand across overall applications thanks to growth in all aspects of contactless industry—including production, distribution, and consumption—amid an accelerated digital transformation; and also to increased use of IT devices and data in an era of a "new normal."

While server demand is strong, backed by increased investments mainly by datacenters and memory content-per-box is growing following the release of new CPUs, enterprise is replacing PCs as employees return to the office and mobile-product shipments are recovering thanks to rising penetration of 5G in emerging markets, thus driving demand growth. However, market conditions are marked by persisting uncertainties due to a limited supply of key IC (integrated circuit) components combined with effects of global supply chain disruptions.

The Company is endeavoring to bolster market competitiveness by leveraging its dominant position in product competitiveness via releases of differentiated, high-capacity products; and to preemptively identify various issues, including supply chain disruptions that may affect customer demand, to respond to uncertain market conditions.

< Market share of the Semiconductor Business's key product >

Product	2021	2020	2019
DRAM	43.0%	42.7%	43.7%

Global market share in revenue; data from research firm *DRAMeXchange.*

☐ Business condition

In the memory business, we continue to maintain cost competitiveness via our leadership in technology and strengthen product competitiveness and our capabilities to supply products that customers want in a timely manner.

We will solidify our leadership position in next-generation growth sectors, such as 5G and AI, by preemptively establishing the mass-production system for next-generation DRAM featuring the world's first full-fledged application of multi-step EUV; and by strengthening product and cost competitiveness by establishing a lineup of advanced products, including SSDs with 7th-generation V-NAND. We will expand our differentiated product line featuring technology from our advanced nodes and utilize a wide range of products to optimize responses for each application area and continue to lead the market as the top memory company.
System LSI currently has limited foundry supply compared to component demand from customers due to the aggravated

global shortage of semiconductors. Under these conditions, the Company is growing revenue by increasing ASP, and it is addressing rising demand by expanding supply via strengthening the supply chain and diversifying suppliers. Furthermore, Samsung is identifying new business opportunities by expanding customer base via bolstering our lineup of flagship products, securing the production capabilities and diversity of our fabs, and developing and converging new technologies with existing technologies to enhance product competitiveness.

In the Foundry business, we are sustaining our efforts to expand supply amid the global supply crunch for chips. In particular, we reinforced our organization to secure supply continuity and improve the quality of our business. Through this, we will not only strengthen our customer-focused operation but also secure profitability.

For advanced nodes, as we are competing with Taiwan's TSMC as the two strongest players in the industry, Samsung is narrowing the technology gap with mass production of 4-nano products that began in 4Q21, and in 2022, we will solidify our technology leadership by aiming to mass produce 3-nano products that apply gate all around (GAA) technology, which is a world's first. Furthermore, we are helping our customers secure product competitiveness with the timely establishment of competitive infrastructure that is linked with process development; and we are expanding revenue and profits of the Foundry business.

As demand for legacy processes is also projected to stay strong, we are reviewing capacity expansion in the mid- to long-term, and we are pushing to increase the number of our customers of high-value-added products by preparing derivative process technology in a timely manner and by providing them with customized solutions. We are aiming to strengthen pricing policies and product competitiveness based on overall process supply and demand in line with market conditions; and we are monitoring opportunities to expand new fabs via timely investments. Furthermore, we will strive to expand business opportunities by securing global customers and strengthening our response to high-growth markets, such as HPC and automotives.

- DP

☐ Industry overview

Display refers to screens in electronic devices. Active matrix technology is most commonly used in displays, including OLED (organic light emitting diode) panels and TFT-LCD (thin film transistor liquid crystal display).

OLED panels use organic materials, which offer sharp contrast and color, high color gamut, and fast response rates. Such differentiating features provide advantages for use in smartphones where display features (multimedia contents, online experience, etc.) are important, and as a result, OLED adoption in the smartphone market is growing rapidly.

The market had raised concerns over the production of high-resolution, durable panels, but we overcame various technological challenges and advanced the business. OLED panels make up for the shortcomings of LCD panels, and they can be adopted in other applications such as foldable, rollable, and automotive. Growth of the OLED market is widely expected to keep accelerating.

A TFT-LCD panel is a liquid crystal based display that features a thinner and lighter profile while offering high resolution. It has a wide range of potential applications in devices of all sizes and functionality, from portable mobile devices to large-size TVs featuring bright, high-resolution images. The market for large-panel TFT-LCD grew rapidly as their use moved from laptops initially to monitors and then to TVs. Recently however, high saturation has caused growth to slow.

☐ Market condition

In 2021, the smartphone display panel market is expected to be approximately 1.74 billion units (1.13 billion LCD and 0.61 billion OLED), an increase year-on-year from the base effect of weak demand in 2020 caused by COVID-19 as well as rising replacement demand induced by 5G models. The OLED portion of smartphone panels is expected to have increased from 30% in 2020 to 35% in 2021. (*Omdia*, January 2022).

In the large display market, there was prominent demand growth for ultra-large, ultra-high resolution TVs as contactless services expanded due to COVID-19, and demand for IT products slightly increased year-on-year.

< Market share of the DP Business's key product >

Product	2021	2020	2019
Smartphone panels	51.1%	44.8%	43.6%

Global market share in revenue; data for 2021 is estimate from research firm *Omdia.*

☐ Business condition

The Company has continued to stay atop the mobile OLED market in terms of market share since it successfully commercialized OLED products in 2007, marking a world's first. We diversified our product group to include displays for foldable products, tablets, watches, laptops, and automotive applications, solidifying our position as the top player in the OLED display market.

With both flexible and rigid OLED, our optimal smartphone product portfolio ranges from mass-market to premium devices as we proactively address customers' specific needs; and we are recognized as having best-in-class technology through our introduction of foldable and OLED IT products with differentiated technologies and designs.

In 2022, growth of smartphone market is projected to be limited amid changes in the macro environment. We will expand the application of new technologies, such as UPC (under panel camera), high refresh rate, and tech related to energy efficiency and performance, in line with the needs of our customers while also enhancing cost competitiveness to continue to increase adoption of OLED panels. In addition, we will diversify our mobile panel business, which is currently concentrated on smartphones, by expanding our product portfolio to include IT, gaming, and automotive products, and fortify our business leadership.

In the large panel business, we will begin full-fledged mass production of QD display with differentiated technology and secure a strong foothold in the premium product group.

[Harman Division]

☐ Industry overview

The Harman Division competes in the automotive and lifestyle audio industries.

As consumers want cutting-edge technologies for automotive components (digital cockpit, telematics, car audio, etc.), car makers demand latest technologies in areas such as car sharing and autonomous driving. As a result, competition is particularly fierce in the connectivity and entertainment solution markets between dominant players (eg, Alpine, Aptiv, Continental, Mitsubishi, and Panasonic).

The car audio business provides not only system solutions but also audio components (including speakers and amplifiers), and it is another segment where fierce competition between several major players (eg, Bose, Pioneer, and Panasonic) is expected to drive technological advances as each firm introduces unique sound-management solutions. Competition is expected to remain intense.

Lifestyle audio business has two segments: consumer audio and professional audio solutions. Consumer audio (portable speakers, headphones, connected audio solutions, etc.) is fragmented and a handful of companies (Amazon, Beats, Bose, Ultimate Ears, etc.) are showing early signs of dominance. We expect competition to remain intense as new players try to make inroads, given the saturated market for connected homes and smart speakers. In particular, for True Wireless headphones, for which smartphone manufacturers dominate market share, is expected to grow explosively.

The professional audio solution industry (commercial audio, audio for large venues, etc., special lighting, video control solutions, etc.), led by QSC and Yamaha, is segmented by product and has seen the entrance of numerous companies offering a wide range of products and applications.

☐ Market condition

In 2021, global automobile production, which directly influences the automotive component business, increased by 1% compared to 2020. (*LMC Global Production Forecast*, 2022)

Short supply of semiconductors disrupted automobile production in 2021, and as a result, Harman saw its revenue decrease and inventory increase. Limits to production stemming from the Covid-19 pandemic are expected to fade

gradually, and the supply shortage of components is also projected to ease in 2022. (*LMC Global Production Forecast*, 2022)

Automobile production in 2022 is forecast to increase by 12% year-on-year (*2022 LMC Global Production Forecast*). With the supply imbalance of semiconductors changing by month and uncertainties remaining high, revenue growth is likely to be limited despite high demand.

< Market share of Harman Business's key product >

Product	2021	2020	2019
Digital cockpits	25.3%	27.5%	24.8%

Digital cockpits refer to the digital automotive component which enables safe driving environment via infotainment system, etc.
Company estimates based on I.H.S and LMC data (by unit).

☐ Business condition

Harman is positioned to stay atop the automotive market and plans to continue to leverage its wide variety of brands to outfit vehicles ranging from mass-market thorough to luxury models, while also maintaining the quality that is synonymous with Harman brands. Additionally, Harman's relentless pursuit of innovation in the audio and connectivity spaces will help ensure the development of thriving relationships with automakers.
Additionally, Harman has continued to develop its Connected Services business with industry leading OTA (Over the Air) and software servicing products.

The same factors that Harman relies on within the automotive market will also be used in the consumer audio and professional audio solution market. Having won three Grammy Awards and two Academy Awards, Harman's brands have earned a strong reputation amongst everyday consumers and audiophiles alike. New offerings in up-and-coming segments such as connected wireless and smart audio continue to help bring in new consumers and further enhance brand reputation.

In 2020, the COVID-19 pandemic created a challenging business environment, marked by halt in automobile production, a decline in daily travel and thus potential consumers, the closing of retailers, etc. The professional audio solution business, in particular, has felt adverse impacts of a reduction in the number of large-scale gatherings and events. We have adopted various ways to reduce costs from the onset of the COVID-19 pandemic, and we will redirect savings to other investments to compete more effectively in the market.

The results of the Harman Division are affected by factors outside of the Company's control, such as the prolonged Covid-19 pandemic and the pace of normalization of economic activities. Moreover, further restrictions by governments around the world may add negatives, and even if effects of the pandemic dissipate, headwinds such as a global economic slowdown may continue to deteriorate Harman's results.

D. Financial summary, by Division

In 2021 by Division, CE reported net sales of KRW 55,832.4 billion (20.0% of total net sales) and IM reported net sales of KRW 109,251.4 billion (39.1%). DS contributed approximately 44.7% of net sales: KRW 94,158.6 billion (33.7%) by the semiconductor sub-division and KRW 31,712.5 billion (11.3%) by the DP Business Unit. The Harman Division reported net sales of KRW 10,039.9 billion (3.6%).

In 2021, the CE Division accounted for 7.1% of total operating profit with an operating profit of KRW 3,645.7 billion; the IM Division accounted for 26.4% with KRW 13,647.6 billion; and the DS Division accounted for 65.3% with KRW 33,734.2 billion. The Harman Division posted an operating profit of KRW 599.1 billion.

(KRW 100 mil)

Division		Classification	2021		2020		2019	
			Amount	Portion of corresponding total	Amount	Portion of corresponding total	Amount	Portion of corresponding total
CE		Sales	558,324	20.0%	481,733	20.3%	453,228	19.7%
		Operating profit	36,457	7.1%	35,615	9.9%	25,090	9.0%
		Total asset	867,118	14.7%	602,487	11.4%	680,244	13.5%
IM		Sales	1,092,514	39.1%	995,875	42.1%	1,072,662	46.6%
		Operating profit	136,476	26.4%	114,727	31.9%	92,725	33.4%
		Total asset	1,590,843	27.0%	1,682,692	31.8%	1,432,804	28.5%
DS	Semi-conductor	Sales	941,586	33.7%	728,578	30.8%	649,391	28.2%
		Operating profit	291,993	56.6%	188,050	52.2%	140,163	50.5%
		Total asset	2,231,785	37.8%	1,863,977	35.3%	1,791,177	35.6%
	DP	Sales	317,125	11.3%	305,857	12.9%	310,539	13.5%
		Operating profit	44,574	8.6%	22,369	6.2%	15,813	5.7%
		Total asset	668,836	11.3%	661,929	12.5%	642,264	12.8%
	Total	Sales	1,250,890	44.7%	1,030,361	43.5%	955,180	41.5%
		Operating profit	337,342	65.3%	211,202	58.7%	155,817	56.1%
		Total asset	3,158,270	53.6%	2,741,270	51.9%	2,451,438	48.8%
Harman		Sales	100,399	3.6%	91,837	3.9%	100,771	4.4%
		Operating profit	5,991	1.2%	555	0.2%	3,223	1.2%
		Total asset	158,874	2.7%	147,020	2.8%	156,091	3.1%

Sales for each business unit includes intersegment sales.

☐ Reasonable allocation of common SG&A (selling general & administrative) expenses and assets

(1) For common SG&A expenses, specific expenses that are allocable to a specific product/model are allocated to such product/model. However, common expenses that cannot be attributed to a specific product/model category are reasonably allocated throughout the Company based on an allocation standard (expense-to-sales ratio, number of personnel, etc.).

(2) For common assets, assets that can be directly allocated (inventory assets, fixed assets, investment assets, etc.) are allocated to the corresponding organizational unit. Assets that are commonly managed and cannot be directly allocated are allocated to each Division based on an allocation standard (expense-to-sales ratio, pre-tax profit, etc.)

III. Financial Affairs

1. Financial statements

A. Consolidated financial statements

(KRW mil)

Classification	53rd	52nd	51st
	December 31, 2021	December 31, 2020	December 31, 2019
Current assets	218,163,185	198,215,579	181,385,260
- Cash and cash equivalents	39,031,415	29,382,578	26,885,999
- Short-term financial instruments	81,708,986	92,441,703	76,252,052
- Other current financial assets	3,409,791	2,828,562	5,641,652
- Trade receivables	40,713,415	30,965,058	35,131,343
- Inventories	41,384,404	32,043,145	26,766,464
- Others	11,915,174	10,554,533	10,707,750
Non-current assets	208,457,973	180,020,139	171,179,237
- Other non-current financial assets	15,491,183	13,778,185	9,969,716
- Investment in associates and joint ventures	8,932,251	8,076,779	7,591,612
- Property, plant, and equipment	149,928,539	128,952,892	119,825,474
- Intangible assets	20,236,244	18,468,502	20,703,504
- Others	13,869,756	10,743,781	13,088,931
Total assets	426,621,158	378,235,718	352,564,497
Current liabilities	88,117,133	75,604,351	63,782,764
Non-current liabilities	33,604,094	26,683,351	25,901,312
Total liabilities	121,721,227	102,287,702	89,684,076
Equity attributable to owners of the parent company	296,237,697	267,670,331	254,915,472
- Capital stock	897,514	897,514	897,514
- Share premium	4,403,893	4,403,893	4,403,893
- Retained earnings	293,064,763	271,068,211	254,582,894
- Others	-2,128,473	-8,699,287	-4,968,829
Non-controlling interests	8,662,234	8,277,685	7,964,949
Total Equity	304,899,931	275,948,016	262,880,421
	Jan–Dec 2021	Jan–Dec 2020	Jan–Dec 2019
Revenue	279,604,799	236,806,988	230,400,881
Operating profit	51,633,856	35,993,876	27,768,509
Profit for the period	39,907,450	26,407,832	21,738,865
- Owners of the parent company	39,243,791	26,090,846	21,505,054
- Non-controlling interests	663,659	316,986	233,811
Basic earnings per share (KRW)	5,777	3,841	3,166
Diluted earnings per share (KRW)	5,777	3,841	3,166
Number of companies subject to consolidation accounting	229	242	241

Data shown in conformity with K-IFRS.
Please refer to the footnotes of the 51st–53rd Consolidated Audit Report for the calculation of basic earnings per share (ordinary shares).

B. Separate financial statements

(KRW mil)

Classification	53rd	52nd	51st
	December 31, 2021	December 31, 2020	December 31, 2019
Current assets	73,553,416	73,798,549	72,659,080
- Cash and cash equivalents	3,918,872	989,045	2,081,917
- Short-term financial instruments	15,000,576	29,101,284	26,501,392
- Trade receivables	33,088,247	24,736,740	26,255,438
- Inventories	15,973,053	13,831,372	12,201,712
- Others	5,572,668	5,140,108	5,618,621
Non-current assets	177,558,768	155,865,878	143,521,840
- Other non-current financial assets	1,664,667	1,542,766	1,209,261
- Subsidiary, associate, and joint venture investments	56,225,599	56,587,548	56,571,252
- Property, plant and equipment	103,667,025	86,166,924	74,090,275
- Intangible assets	8,657,456	7,002,648	8,008,653
- Others	7,344,021	4,565,992	3,642,399
Total assets	251,112,184	229,664,427	216,180,920
Current liabilities	53,067,303	44,412,904	36,237,164
Non-current liabilities	4,851,149	1,934,799	2,073,509
Total liabilities	57,918,452	46,347,703	38,310,673
- Capital stock	897,514	897,514	897,514
- Share premium	4,403,893	4,403,893	4,403,893
- Retained earnings	188,774,335	178,284,102	172,288,326
- Others	-882,010	-268,785	280,514
Total Equity	193,193,732	183,316,724	177,870,247
Evaluation method of subsidiary, associate, and joint venture investment securities	Cost methods	Cost methods	Cost methods
	Jan–Dec 2021	Jan–Dec 2020	Jan–Dec 2019
Revenue	199,744,705	166,311,191	154,772,859
Operating profit	31,993,162	20,518,974	14,115,067
Profit for the period	30,970,954	15,615,018	15,353,323
Basic earnings per share (KRW)	4,559	2,299	2,260
Diluted earnings per share (KRW)	4,559	2,299	2,260

Data shown in conformity with K-IFRS.
Please refer to the footnotes of the 51st–53rd Consolidated Audit Report for the calculation of basic earnings per share (ordinary shares).

2. Consolidated financial statements

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

(In millions of Korean won, in thousands of US dollars (Note 2.29))

	Notes	December 31, 2021	December 31, 2020	December 31, 2021	December 31, 2020
		KRW	KRW	USD	USD
Assets					
Current assets					
Cash and cash equivalents	4, 28	39,031,415	29,382,578	34,115,412	25,681,845
Short-term financial instruments	4, 28	81,708,986	92,441,703	71,417,748	80,798,680
Short-term financial assets at amortized cost	4, 28	3,369,034	2,757,111	2,944,705	2,409,853
Short-term financial assets at fair value through profit or loss	4, 6, 28	40,757	71,451	35,624	62,452
Trade receivables	4, 5, 7, 28	40,713,415	30,965,058	35,585,565	27,065,012
Non-trade receivables	4, 7, 28	4,497,257	3,604,539	3,930,828	3,150,548
Prepaid expenses		2,336,252	2,266,100	2,042,001	1,980,685
Inventories	8	41,384,404	32,043,145	36,172,043	28,007,314
Other current assets	4, 28	5,081,665	3,754,462	4,441,629	3,281,589
Assets held-for-sale	32	-	929,432	-	812,370
		218,163,185	**198,215,579**	**190,685,555**	**173,250,348**
Non-current assets					
Financial assets at fair value through other comprehensive income	4, 6, 28	13,965,839	12,575,216	12,206,843	10,991,369
Financial assets at fair value through profit or loss	4, 6, 28	1,525,344	1,202,969	1,333,227	1,051,455
Investment in associates and joint ventures	9	8,932,251	8,076,779	7,807,235	7,059,510
Property, plant and equipment	10	149,928,539	128,952,892	131,045,055	112,711,289
Intangible assets	11	20,236,244	18,468,502	17,687,491	16,142,396
Net defined benefit assets	14	2,809,590	1,355,502	2,455,722	1,184,777
Deferred income tax assets	25	4,261,214	4,275,000	3,724,515	3,736,564
Other non-current assets	4, 7, 28	6,798,952	5,113,279	5,942,625	4,469,261
		208,457,973	**180,020,139**	**182,202,713**	**157,346,621**
Total assets		**426,621,158**	**378,235,718**	**372,888,268**	**330,596,969**

The above consolidated statements of financial position should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

(In millions of Korean won, in thousands of US dollars (Note 2.29))

	Notes	December 31, 2021	December 31, 2020	December 31, 2021	December 31, 2020
		KRW	KRW	USD	USD
Liabilities and Equity					
Current liabilities					
Trade payables	4, 28	13,453,351	9,739,222	11,758,903	8,512,568
Short-term borrowings	4, 5, 12, 28	13,687,793	16,553,429	11,963,817	14,468,526
Other payables	4, 28	15,584,866	11,899,022	13,621,954	10,400,341
Advances received	17	1,224,812	1,145,423	1,070,547	1,001,157
Withholdings	4, 28	1,294,052	974,521	1,131,066	851,780
Accrued expenses	4, 17, 28	27,928,031	24,330,339	24,410,498	21,265,935
Current income tax liabilities		6,749,149	4,430,272	5,899,094	3,872,280
Current portion of long-term liabilities	4, 12, 13, 28	1,329,968	716,099	1,162,459	625,906
Provisions	15	5,372,872	4,349,563	4,696,159	3,801,736
Other current liabilities	4, 17, 28	1,492,239	1,127,719	1,304,292	985,685
Liabilities held-for-sale	32	-	338,742	-	296,077
		88,117,133	**75,604,351**	**77,018,789**	**66,081,991**
Non-current liabilities					
Debentures	4, 13, 28	508,232	948,137	444,220	828,719
Long-term borrowings	4, 12, 28	2,866,156	1,999,716	2,505,164	1,747,852
Long-term other payables	4, 28	2,991,440	1,682,910	2,614,668	1,470,948
Net defined benefit liabilities	14	465,884	464,458	407,206	405,960
Deferred income tax liabilities	25	23,198,205	18,810,845	20,276,394	16,441,621
Long-term provisions	15	2,306,994	1,051,428	2,016,428	919,001
Other non-current liabilities	4, 17, 28	1,267,183	1,725,857	1,107,582	1,508,485
		33,604,094	**26,683,351**	**29,371,662**	**23,322,586**
Total liabilities		**121,721,227**	**102,287,702**	**106,390,451**	**89,404,577**

The above consolidated statements of financial position should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

(In millions of Korean won, in thousands of US dollars (Note 2.29))

	Notes	December 31, 2021	December 31, 2020	December 31, 2021	December 31, 2020
		KRW	KRW	USD	USD
Equity attributable to owners of the Company					
Preference shares	18	119,467	119,467	104,420	104,420
Ordinary shares	18	778,047	778,047	680,052	680,052
Share premium		4,403,893	4,403,893	3,849,223	3,849,223
Retained earnings	19	293,064,763	271,068,211	256,153,287	236,927,198
Other components of equity	20	(2,128,473)	(8,687,155)	(1,860,392)	(7,593,008)
Accumulated other comprehensive income attributable to assets held-for-sale	32	-	(12,132)	-	(10,604)
		296,237,697	**267,670,331**	**258,926,590**	**233,957,281**
Non-controlling interests	31	8,662,234	8,277,685	7,571,227	7,235,111
Total equity		**304,899,931**	**275,948,016**	**266,497,817**	**241,192,392**
Total liabilities and equity		**426,621,158**	**378,235,718**	**372,888,268**	**330,596,969**

The above consolidated statements of financial position should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF PROFIT OR LOSS

(In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	**2021**	**2020**	**2021**	**2020**
		KRW	KRW	USD	USD
Revenue	29	279,604,799	236,806,988	244,388,604	206,981,172
Cost of sales	21	166,411,342	144,488,296	145,451,851	126,290,010
Gross profit		**113,193,457**	**92,318,692**	**98,936,753**	**80,691,162**
Selling and administrative expenses	21, 22	61,559,601	56,324,816	53,806,176	49,230,711
Operating profit	29	**51,633,856**	**35,993,876**	**45,130,577**	**31,460,451**
Other non-operating income	23	2,205,695	1,384,068	1,927,888	1,209,745
Other non-operating expense	23	2,055,971	2,488,902	1,797,022	2,175,425
Share of net profit of associates and joint ventures	9	729,614	506,530	637,719	442,733
Financial income	24	8,543,187	12,267,600	7,467,173	10,722,497
Financial expense	24	7,704,554	11,318,055	6,734,165	9,892,548
Profit before income tax		**53,351,827**	**36,345,117**	**46,632,170**	**31,767,453**
Income tax expense	25	13,444,377	9,937,285	11,751,059	8,685,685
Profit for the year		**39,907,450**	**26,407,832**	**34,881,111**	**23,081,768**
Profit attributable to					
Owners of the Company		39,243,791	26,090,846	34,301,040	22,804,707
Non-controlling interests		663,659	316,986	580,071	277,061
Earnings per share (in Korean won, in US dollars)	26				
- Basic		5,777	3,841	5.05	3.36
- Diluted		5,777	3,841	5.05	3.36

The above consolidated statements of profit or loss should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	**2021**	**2020**	**2021**	**2020**
		KRW	KRW	USD	USD
Profit for the year		**39,907,450**	**26,407,832**	**34,881,111**	**23,081,768**
Other comprehensive income (loss)					
Items that will not be reclassified subsequently to profit or loss:					
Gain on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	2,980,896	2,502,733	2,605,452	2,187,514
Share of other comprehensive income of associates and joint ventures, net of tax	9, 20	51,816	5,591	45,290	4,887
Remeasurement of net defined benefit assets, net of tax	14, 20	(524,606)	(719,560)	(458,532)	(628,931)
Items that may be reclassified subsequently to profit or loss:					
Share of other comprehensive income (loss) of associates and joint ventures, net of tax	9, 20	160,163	(48,888)	139,990	(42,731)
Gain (loss) on overseas business translation, net of tax	20	7,283,620	(5,380,375)	6,366,250	(4,702,717)
Gain (loss) on valuation of cash flow hedge derivatives	20	50,410	(33,406)	44,060	(29,199)
Other comprehensive income (loss) for the year, net of tax		**10,002,299**	**(3,673,905)**	**8,742,510**	**(3,211,177)**
Total comprehensive income for the year		**49,909,749**	**22,733,927**	**43,623,621**	**19,870,591**
Comprehensive income attributable to:					
Owners of the Company		49,037,912	22,374,398	42,861,591	19,556,345
Non-controlling interests		871,837	359,529	762,030	314,246

The above consolidated statements of comprehensive income should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

(In millions of Korean won)

2020 KRW	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Accumulated other comprehensive income attributable to assets held-for-sale	Equity attributable to owners of the parent company	Non-controlling interests	Total
Balance as of January 1, 2020		**119,467**	**778,047**	**4,403,893**	**254,582,894**	**(4,968,829)**	**-**	**254,915,472**	**7,964,949**	**262,880,421**
Profit for the year		-	-	-	26,090,846	-	-	26,090,846	316,986	26,407,832
Gain on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	13,713	2,402,226	-	2,415,939	86,794	2,502,733
Share of other comprehensive income of associates and joint ventures, net of tax	9, 20	-	-	-	-	(45,894)	-	(45,894)	2,597	(43,297)
Loss on overseas business translation, net of tax	20	-	-	-	-	(5,343,946)	-	(5,343,946)	(36,429)	(5,380,375)
Remeasurement of net defined benefit liabilities (assets), net of tax	14, 20	-	-	-	-	(709,141)	-	(709,141)	(10,419)	(719,560)
Loss on valuation of derivatives	20	-	-	-	-	(33,406)	-	(33,406)	-	(33,406)
Reclassification as held-for-sale	32	-	-	-	-	12,132	(12,132)	-	-	-
Total comprehensive income for the year		**-**	**-**	**-**	**26,104,559**	**(3,718,029)**	**(12,132)**	**22,374,398**	**359,529**	**22,733,927**
Dividends	19	-	-	-	(9,619,242)	-	-	(9,619,242)	(59,028)	(9,678,270)
Capital transaction under common control		-	-	-	-	(830)	-	(830)	(701)	(1,531)
Changes in consolidated entities		-	-	-	-	-	-	-	17,838	17,838
Other		-	-	-	-	533	-	533	(4,902)	(4,369)
Total transactions with owners		**-**	**-**	**-**	**(9,619,242)**	**(297)**	**-**	**(9,619,539)**	**(46,793)**	**(9,666,332)**
Balance as of December 31, 2020		**119,467**	**778,047**	**4,403,893**	**271,068,211**	**(8,687,155)**	**(12,132)**	**267,670,331**	**8,277,685**	**275,948,016**

The above consolidated statements of changes in equity should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

(In thousands of US dollars (Note 2.29))

2020 USD	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Accumulated other comprehensive income attributable to assets held-for-sale	Equity attributable to owners of the parent company	Non-controlling interests	Total
Balance as of January 1, 2020		**104,420**	**680,052**	**3,849,223**	**222,518,205**	**(4,343,005)**	**-**	**222,808,895**	**6,961,765**	**229,770,660**
Profit for the year		-	-	-	22,804,707	-	-	22,804,707	277,061	23,081,768
Gain on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	11,986	2,099,666	-	2,111,652	75,862	2,187,514
Share of other comprehensive income of associates and joint ventures, net of tax	9, 20	-	-	-	-	(40,114)	-	(40,114)	2,270	(37,844)
Loss on overseas business translation, net of tax	20	-	-	-	-	(4,670,876)	-	(4,670,876)	(31,841)	(4,702,717)
Remeasurement of net defined benefit liabilities (assets), net of tax	14, 20	-	-	-	-	(619,825)	-	(619,825)	(9,106)	(628,931)
Loss on valuation of derivatives	20	-	-	-	-	(29,199)	-	(29,199)	-	(29,199)
Reclassification as held-for-sale	32	-	-	-	-	10,604	(10,604)	-	-	-
Total comprehensive income for the year		**-**	**-**	**-**	**22,816,693**	**(3,249,744)**	**(10,604)**	**19,556,345**	**314,246**	**19,870,591**
Dividends	19	-	-	-	(8,407,700)	-	-	(8,407,700)	(51,593)	(8,459,293)
Capital transaction under common control		-	-	-	-	(725)	-	(725)	(613)	(1,338)
Changes in consolidated entities		-	-	-	-	-	-	-	15,591	15,591
Other		-	-	-	-	466	-	466	(4,285)	(3,819)
Total transactions with owners		**-**	**-**	**-**	**(8,407,700)**	**(259)**	**-**	**(8,407,959)**	**(40,900)**	**(8,448,859)**
Balance as of December 31, 2020		**104,420**	**680,052**	**3,849,223**	**236,927,198**	**(7,593,008)**	**(10,604)**	**233,957,281**	**7,235,111**	**241,192,392**

The above consolidated statements of changes in equity should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

(In millions of Korean won)

2021 KRW	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Accumulated other comprehensive income attributable to assets held-for-sale	Equity attributable to owners of the parent company	Non-controlling interests	Total
Balance as of January 1, 2021		**119,467**	**778,047**	**4,403,893**	**271,068,211**	**(8,687,155)**	**(12,132)**	**267,670,331**	**8,277,685**	**275,948,016**
Profit for the year		-	-	-	39,243,791	-	-	39,243,791	663,659	39,907,450
Gain(loss) on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	3,232,934	(359,117)	-	2,873,817	107,079	2,980,896
Share of other comprehensive income (loss) of associates and joint ventures, net of tax	9, 20	-	-	-	-	225,464	-	225,464	(13,485)	211,979
Gain on overseas business translation, net of tax	20	-	-	-	-	7,164,982	-	7,164,982	118,638	7,283,620
Remeasurement of net defined benefit assets, net of tax	14, 20	-	-	-	-	(520,552)	-	(520,552)	(4,054)	(524,606)
Gain on valuation of cash flow hedge derivatives	20	-	-	-	-	50,410	-	50,410	-	50,410
Reclassification to assets held-for-sale	32	-	-	-	-	(12,132)	12,132	-	-	-
Total comprehensive income for the year		**-**	**-**	**-**	**42,476,725**	**6,549,055**	**12,132**	**49,037,912**	**871,837**	**49,909,749**
Dividends	19	-	-	-	(20,480,721)	-	-	(20,480,721)	(32,005)	(20,512,726)
Capital transactions under common control		-	-	-	-	-	-	-	12,553	12,553
Changes in consolidated entities		-	-	-	-	-	-	-	(477,617)	(477,617)
Others		-	-	-	548	9,627	-	10,175	9,781	19,956
Total transactions with owners		**-**	**-**	**-**	**(20,480,173)**	**9,627**	**-**	**(20,470,546)**	**(487,288)**	**(20,957,834)**
Balance as of December 31, 2021		**119,467**	**778,047**	**4,403,893**	**293,064,763**	**(2,128,473)**	**-**	**296,237,697**	**8,662,234**	**304,899,931**

The above consolidated statements of changes in equity should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

(In thousands of US dollars (Note 2.29))

2021 USD	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Accumulated other comprehensive income attributable to assets held-for-sale	Equity attributable to owners of the parent company	Non-controlling interests	Total
Balance as of January 1, 2021		**104,420**	**680,052**	**3,849,223**	**236,927,198**	**(7,593,008)**	**(10,604)**	**233,957,281**	**7,235,111**	**241,192,392**
Profit for the year		-	-	-	34,301,040	-	-	34,301,040	580,071	34,881,111
Gain(loss) on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	2,825,746	(313,886)	-	2,511,860	93,592	2,605,452
Share of other comprehensive income (loss) of associates and joint ventures, net of tax	9, 20	-	-	-	-	197,067	-	197,067	(11,787)	185,280
Gain on overseas business translation, net of tax	20	-	-	-	-	6,262,553	-	6,262,553	103,697	6,366,250
Remeasurement of net defined benefit assets, net of tax	14, 20	-	-	-	-	(454,989)	-	(454,989)	(3,543)	(458,532)
Gain on valuation of cash flow hedge derivatives	20	-	-	-	-	44,060	-	44,060	-	44,060
Reclassification to assets held-for-sale	32	-	-	-	-	(10,604)	10,604	-	-	-
Total comprehensive income for the year		**-**	**-**	**-**	**37,126,786**	**5,724,201**	**10,604**	**42,861,591**	**762,030**	**43,623,621**
Dividends	19	-	-	-	(17,901,176)	-	-	(17,901,176)	(27,974)	(17,929,150)
Capital transactions under common control		-	-	-	-	-	-	-	10,972	10,972
Changes in consolidated entities		-	-	-	-	-	-	-	(417,461)	(417,461)
Others		-	-	-	479	8,415	-	8,894	8,549	17,443
Total transactions with owners		**-**	**-**	**-**	**(17,900,697)**	**8,415**	**-**	**(17,892,282)**	**(425,914)**	**(18,318,196)**
Balance as of December 31, 2021		**104,420**	**680,052**	**3,849,223**	**256,153,287**	**(1,860,392)**	**-**	**258,926,590**	**7,571,227**	**266,497,817**

The above consolidated statements of changes in equity should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF CASH FLOWS

(In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	2021	2020	2021	2020
		KRW	KRW	USD	USD
Operating activities					
Profit for the year		39,907,450	26,407,832	34,881,111	23,081,768
Adjustments	27	49,055,633	41,618,554	42,877,081	36,376,702
Changes in assets and liabilities arising from operating activities	27	(16,286,884)	122,424	(14,235,553)	107,005
Cash generated from operations		**72,676,199**	**68,148,810**	**63,522,639**	**59,565,475**
Interest received		1,406,706	2,220,209	1,229,532	1,940,574
Interest paid		(434,441)	(555,321)	(379,723)	(485,378)
Dividends received		299,033	243,666	261,370	212,976
Income tax paid		(8,842,049)	(4,770,355)	(7,728,394)	(4,169,530)
Net cash from operating activities		**65,105,448**	**65,287,009**	**56,905,424**	**57,064,117**
Investing activities					
Net decrease (increase) in short-term financial instruments		10,917,128	(20,369,616)	9,542,117	(17,804,065)
Net decrease (increase) in short-term financial assets at amortized cost		(336,959)	184,104	(294,519)	160,916
Net decrease in short-term financial assets at fair value through profit or loss		30,694	1,704,512	26,828	1,489,829
Disposal of long-term financial instruments		10,216,082	12,184,301	8,929,368	10,649,690
Acquisition of long-term financial instruments		(6,981,810)	(8,019,263)	(6,102,452)	(7,009,238)
Disposal of financial assets at amortized cost		-	1,023,117	-	894,256
Disposal of financial assets at fair value through other comprehensive income		2,919,888	32,128	2,552,128	28,081
Acquisition of financial assets at fair value through other comprehensive income		(1,121,201)	(245,497)	(979,986)	(214,577)
Disposal of financial assets at fair value through profit or loss		350,212	39,746	306,103	34,740
Acquisition of financial assets at fair value through profit or loss		(208,262)	(84,184)	(182,031)	(73,581)
Disposal of investment in associates and joint ventures		19,169	-	16,755	-
Acquisition of investment in associates and joint ventures		(47,090)	(83,280)	(41,159)	(72,791)
Disposal of property, plant and equipment		358,284	376,744	313,158	329,293
Acquisition of property, plant and equipment		(47,122,106)	(37,592,034)	(41,187,082)	(32,857,321)
Disposal of intangible assets		1,752	7,027	1,531	6,142
Acquisition of intangible assets		(2,706,915)	(2,679,779)	(2,365,979)	(2,342,261)
Cash outflow from business combinations		(5,926)	(49,420)	(5,180)	(43,196)
Cash inflow from sale of assets-held-for-sale		661,168	-	577,894	-
Cash inflow (outflow) from other investing activities		8,129	(57,197)	7,105	(49,993)
Net cash used in investing activities		**(33,047,763)**	**(53,628,591)**	**(28,885,401)**	**(46,874,076)**

The above consolidated statements of cash flows should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF CASH FLOWS

(In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	**2021**	**2020**	**2021**	**2020**
		KRW	KRW	USD	USD
Financing activities					
Net increase(decrease) in short-term borrowings	27	(2,616,943)	2,191,186	(2,287,339)	1,915,206
Increase in long-term borrowings	27	58,279	14,495	50,939	12,669
Repayment of debentures and long-term borrowings	27	(894,749)	(864,947)	(782,055)	(756,007)
Dividends paid		(20,510,350)	(9,676,760)	(17,927,074)	(8,457,973)
Net decrease (increase) in non-controlling interests		(27,270)	8,187	(23,835)	7,156
Net cash used in financing activities		**(23,991,033)**	**(8,327,839)**	**(20,969,364)**	**(7,278,949)**
Reclassification to assets held-for-sale	32	139	(139)	121	(121)
Effect of foreign exchange rate changes		1,582,046	(833,861)	1,382,787	(728,836)
Net increase (decrease) in cash and cash equivalents		**9,648,837**	**2,496,579**	**8,433,567**	**2,182,135**
Cash and cash equivalents					
Beginning of the year		29,382,578	26,885,999	25,681,845	23,499,710
End of the year		**39,031,415**	**29,382,578**	**34,115,412**	**25,681,845**

The above consolidated statements of cash flows should be read in conjunction with the accompanying notes.

3. Notes to consolidated financial statements

1. General Information

1.1 Company Overview

Samsung Electronics Co., Ltd. ("SEC") was incorporated under the laws of the Republic of Korea in 1969 and listed its shares on the Korea Stock Exchange in 1975. SEC and its subsidiaries (collectively referred to as the "Company") operate four business divisions: Consumer Electronics ("CE"), Information technology & Mobile communications ("IM"), Device Solutions ("DS") and Harman. CE division includes digital TVs, monitors, air conditioners and refrigerators and IM division includes mobile phones, communication systems, and computers. DS division includes semiconductor products such as memory, foundry, and system LSI ("Semiconductor"), and display products such as LCD and OLED panels ("DP"). Harman division includes connected car systems, audio and visual products, enterprise automation solutions and connected services. The Company is domiciled in the Republic of Korea and is located in Suwon, the Republic of Korea.

These consolidated financial statements have been prepared in accordance with Korean International Financial Reporting Standards ("*Korean IFRS*") 1110, *Consolidated Financial Statements*. SEC, as the controlling Company, consolidates its 228 subsidiaries, including Samsung Display and Samsung Electronics America. The Company also applies the equity method of accounting for its 41 associates and joint ventures, including Samsung Electro-Mechanics Co., Ltd.

1.2 Consolidated Subsidiaries

The consolidated subsidiaries as of December 31, 2021 are as follows:

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
America	Samsung Electronics America, Inc. (SEA)	Sale of electronic devices	100.0
	Samsung International, Inc. (SII)	Manufacture of electronic devices	100.0
	Samsung Mexicana S.A. de C.V (SAMEX)	Manufacture of electronic devices	100.0
	Samsung Electronics Home Appliances America, LLC (SEHA)	Manufacture of home appliances	100.0
	Samsung Research America, Inc. (SRA)	R&D	100.0
	Samsung Next LLC (SNX)	Management of overseas subsidiaries	100.0
	Samsung Next Fund LLC (SNXF)	Technology business, venture capital investments	100.0
	NeuroLogica Corp.	Manufacture and sale of medical equipment	100.0
	Samsung HVAC America, LLC	Sale of air conditioning products	100.0
	Joyent, Inc.	Cloud services	100.0
	Dacor Holdings, Inc.	Management of overseas subsidiaries	100.0
	Dacor, Inc.	Manufacture and sale of home appliances	100.0
	Dacor Canada Co.	Sale of home appliances	100.0
	SmartThings, Inc.	Sale of smart home electronics	100.0
	TeleWorld Solutions, Inc. (TWS)	Installation & optimization of network devices	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
	Samsung Semiconductor, Inc. (SSI)	Sale of semiconductor and display panels	100.0
	Samsung Austin Semiconductor LLC (SAS)	Manufacture of semiconductors	100.0
	Samsung Oak Holdings, Inc. (SHI)	Management of overseas subsidiaries	100.0
	SEMES America, Inc.	Semiconductor equipment services	100.0
	Samsung Electronics Canada, Inc. (SECA)	Sale of electronic devices	100.0
	AdGear Technologies Inc.	Digital advertising platforms	100.0
	Samsung Eletronica da Amazonia Ltda. (SEDA)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Mexico S.A. de C.V. (SEM)	Sale of electronic devices	100.0
	Samsung Electronics Digital Appliance Mexico, S.A. de C.V. (SEDAM)	Manufacture of home appliances	100.0
	Samsung Electronics Latinoamerica(Zona Libre), S. A. (SELA)	Sale of electronic devices	100.0
	Samsung Electronics Latinoamerica Miami, Inc. (SEMI)	Sale of electronic devices	100.0
	Samsung Electronica Colombia S.A. (SAMCOL)	Sale of electronic devices	100.0
	Samsung Electronics Argentina S.A. (SEASA)	Marketing and services	100.0
	Samsung Electronics Chile Limitada (SECH)	Sale of electronic devices	100.0
	Samsung Electronics Peru S.A.C. (SEPR)	Sale of electronic devices	100.0
America	Samsung Electronics Venezuela, C.A. (SEVEN)	Marketing and services	100.0
	Samsung Electronics Panama. S.A. (SEPA)	Consulting	100.0
	Harman International Industries, Inc.	Holding company	100.0
	Harman Becker Automotive Systems, Inc.	Manufacture and sale of audio products, R&D	100.0
	Harman Connected Services, Inc.	Connected service provider	100.0
	Harman Connected Services Engineering Corp.	Connected service provider	100.0
	Harman da Amazonia Industria Eletronica e Participacoes Ltda.	Manufacture and sale of audio products	100.0
	Harman de Mexico, S. de R.L. de C.V.	Manufacture of audio products	100.0
	Harman do Brasil Industria Eletronica e Participacoes Ltda.	Sale of audio products, R&D	100.0
	Harman Financial Group LLC	Management company	100.0
	Harman International Industries Canada Ltd.	Sale of audio products	100.0
	Harman International Mexico, S. de R.L. de C.V.	Sale of audio products	100.0
	Harman KG Holding, LLC	Management of overseas subsidiaries	100.0
	Harman Professional, Inc.	Sale of audio products, R&D	100.0
	Beijing Integrated Circuit Industry International Fund, L.P	Venture capital investments	61.4
	China Materialia New Materials 2016 Limited Partnership	Venture capital investments	99.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Europe/CIS	Samsung Electronics (UK) Ltd. (SEUK)	Sale of electronic devices	100.0
	Samsung Electronics Ltd. (SEL)	Management of overseas subsidiaries	100.0
	Samsung Semiconductor Europe Limited (SSEL)	Sale of semiconductor and display panels	100.0
	Samsung Electronics GmbH (SEG)	Sale of electronic devices	100.0
	Samsung Electronics Holding GmbH (SEHG)	Management of overseas subsidiaries	100.0
	Samsung Semiconductor Europe GmbH (SSEG)	Sale of semiconductor and display panels	100.0
	Samsung Electronics France S.A.S (SEF)	Sale of electronic devices	100.0
	Samsung Electronics Italia S.P.A. (SEI)	Sale of electronic devices	100.0
	Samsung Electronics Iberia, S.A. (SESA)	Sale of electronic devices	100.0
	Samsung Electronics Portuguesa, Unipessoal, Lda. (SEP)	Sale of electronic devices	100.0
	Samsung Electronics Hungarian Private Co., Ltd. (SEH)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Europe Logistics B.V. (SELS)	Logistics	100.0
	Samsung Electronics Benelux B.V. (SEBN)	Sale of electronic devices	100.0
	Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	Management of overseas subsidiaries	100.0
	Samsung Electronics Nordic Aktiebolag (SENA)	Sale of electronic devices	100.0
	Samsung Electronics Slovakia s.r.o. (SESK)	Manufacture of TV and monitors	100.0
	Samsung Display Slovakia s.r.o. (SDSK)	Toll processing of display panels	100.0
	Samsung Electronics Polska, SP.Zo.o (SEPOL)	Sale of electronic devices	100.0
	Samsung Electronics Poland Manufacturing SP.Zo.o (SEPM)	Manufacture of home appliances	100.0
	Samsung Electronics Romania LLC (SEROM)	Sale of electronic devices	100.0
	Samsung Electronics Austria GmbH (SEAG)	Sale of electronic devices	100.0
	Samsung Electronics Switzerland GmbH (SESG)	Sale of electronic devices	100.0
	Samsung Electronics Czech and Slovak s.r.o. (SECZ)	Sale of electronic devices	100.0
	Samsung Electronics Baltics SIA (SEB)	Sale of electronic devices	100.0
	Samsung Electronics Greece S.M.S.A (SEGR)	Sale of electronic devices	100.0
	Samsung Electronics Air Conditioner Europe B.V. (SEACE)	Sale of air conditioning products	100.0
	Samsung Nanoradio Design Center (SNDC)	R&D	100.0
	Samsung Denmark Research Center ApS (SDRC)	R&D	100.0
	Samsung Cambridge Solution Centre Limited (SCSC)	R&D	100.0
	Zhilabs, S.L.	Development and sale of network solutions	100.0
	Foodient Ltd.	R&D	100.0
	Samsung Electronics Rus Company LLC (SERC)	Sale of electronic devices	100.0
	Samsung Electronics Rus Kaluga LLC (SERK)	Manufacture of TV	100.0
	Samsung Electronics Ukraine Company LLC (SEUC)	Sale of electronic devices	100.0
	Samsung Electronics Central Eurasia LLP (SECE)	Sale of electronic devices	100.0
	Samsung Electronics Overseas B.V. (SEO)	Sale of electronic devices	100.0
	Samsung R&D Institute Rus LLC (SRR)	R&D	100.0
	Samsung Electronics Caucasus Co., Ltd. (SECC)	Marketing	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
	AKG Acoustics GmbH	Manufacture and sale of audio products	100.0
	AMX UK Limited	Sale of audio products	100.0
	Harman Audio Iberia Espana Sociedad Limitada	Sale of audio products	100.0
	Harman Automotive UK Limited	Manufacture of audio products	100.0
	Harman Becker Automotive Systems GmbH	Manufacture and sale of audio products, R&D	100.0
	Harman Becker Automotive Systems Italy S.R.L.	Sale of audio products	100.0
	Harman Becker Automotive Systems Manufacturing Kft	Manufacture of audio products, R&D	100.0
	Harman Belgium SA	Sale of audio products	100.0
	Harman Connected Services AB.	Connected service provider	100.0
	Harman Finland Oy	Connected service provider	100.0
	Harman Connected Services GmbH	Connected service provider	100.0
	Harman Connected Services Poland Sp.Zo.o	Connected service provider	100.0
	Harman Connected Services UK Ltd.	Connected service provider	100.0
	Harman Consumer Nederland B.V.	Sale of audio products	100.0
	Harman Deutschland GmbH	Sale of audio products	100.0
	Harman Finance International GP S.a.r.l	Management of overseas subsidiaries	100.0
Europe/CIS	Harman France SNC	Sale of audio products	100.0
	Harman Holding GmbH & Co. KG	Management company	100.0
	Harman Hungary Financing Ltd.	Financing company	100.0
	Harman Inc. & Co. KG	Management of overseas subsidiaries	100.0
	Harman International Estonia OU	R&D	100.0
	Harman International Industries Limited	Sale of audio products, R&D	100.0
	Harman International Romania SRL	R&D	100.0
	Harman Finance International, SCA	Financing company	100.0
	Harman International s.r.o.	Manufacture of audio products	100.0
	Harman Management GmbH	Management of overseas subsidiaries	100.0
	Harman Professional Kft	Manufacture of audio products, R&D	100.0
	Harman Professional Denmark ApS	Sale of audio products, R&D	100.0
	Red Bend Software Ltd.	Software design	100.0
	Red Bend Software S.A.S	Software design	100.0
	Studer Professional Audio GmbH	Sale of audio products, R&D	100.0
	Harman Connected Services OOO	Connected service provider	100.0
	Harman RUS CIS LLC	Sale of audio products	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Middle East & Africa	Samsung Gulf Electronics Co., Ltd. (SGE)	Sale of electronic devices	100.0
	Samsung Electronics Turkey (SETK)	Sale of electronic devices	100.0
	Samsung Electronics Industry and Commerce Ltd. (SETK-P)	Manufacture of electronic devices	100.0
	Samsung Electronics Levant Co.,Ltd. (SELV)	Sale of electronic devices	100.0
	Samsung Electronics Maghreb Arab (SEMAG)	Sale of electronic devices	100.0
	Samsung Electronics Egypt S.A.E (SEEG)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Israel Ltd. (SEIL)	Marketing	100.0
	Samsung Electronics Tunisia S.A.R.L (SETN)	Marketing	100.0
	Samsung Electronics Pakistan (Private) Ltd. (SEPAK)	Marketing	100.0
	Samsung Electronics Saudi Arabia Ltd. (SESAR)	Sale of electronic devices	100.0
	Samsung Semiconductor Israel R&D Center, Ltd. (SIRC)	R&D	100.0
	Corephotonics Ltd.	R&D	100.0
	Samsung Electronics South Africa (Pty) Ltd. (SSA)	Sale of electronic devices	100.0
	Samsung Electronics South Africa Production (Pty) Ltd. (SSAP)	Manufacture of TV and monitors	100.0
	Samsung Electronics West Africa Ltd. (SEWA)	Marketing	100.0
	Samsung Electronics East Africa Ltd. (SEEA)	Marketing	100.0
	Global Symphony Technology Group Private Ltd.	Management of overseas subsidiaries	100.0
	Harman Connected Services Morocco	Connected service provider	100.0
	Harman Industries Holdings Mauritius Ltd.	Management of overseas subsidiaries	100.0
	Red Bend Ltd.	Manufacture of audio products	100.0
Asia (Excluding China)	Samsung Asia Pte. Ltd. (SAPL)	Management of overseas subsidiaries	100.0
	Samsung Electronics Singapore Pte. Ltd. (SESP)	Sale of electronic devices	100.0
	Samsung Malaysia Electronics (SME) Sdn. Bhd. (SME)	Sale of electronic devices	100.0
	Samsung Electronics Display (M) Sdn. Bhd. (SDMA)	Manufacture of electronic devices	100.0
	Samsung Electronics (M) Sdn. Bhd. (SEMA)	Manufacture of home appliances	100.0
	Samsung Vina Electronics Co., Ltd. (SAVINA)	Sale of electronic devices	100.0
	Samsung Electronics Vietnam Co., Ltd. (SEV)	Manufacture of electronic devices	100.0
	Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	Manufacture of communication equipment	100.0
	Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	Manufacture and sale of electronic devices	100.0
	Samsung Display Vietnam Co., Ltd. (SDV)	Manufacture of display panels	100.0
	PT Samsung Electronics Indonesia (SEIN)	Manufacture and sale of electronic devices	100.0
	PT Samsung Telecommunications Indonesia (STIN)	Sale of electronic devices and services	100.0
	Thai Samsung Electronics Co., Ltd. (TSE)	Manufacture and sale of electronic devices	91.8
	Laos Samsung Electronics Sole Co., Ltd. (LSE)	Marketing	100.0
	Samsung Electronics Philippines Corporation (SEPCO)	Sale of electronic devices	100.0
	Samsung Electronics Australia Pty. Ltd. (SEAU)	Sale of electronic devices	100.0
	Samsung Electronics New Zealand Limited (SENZ)	Sale of electronic devices	100.0
	Samsung India Electronics Private Ltd. (SIEL)	Manufacture and sale of electronic devices	100.0
	Samsung Display Noida Private Limited (SDN)	Manufacture of display panels	100.0
	Samsung R&D Institute India-Bangalore Private Limited (SRI-B)	R&D	100.0
	Samsung R&D Institute BanglaDesh Limited (SRBD)	R&D	100.0
	Samsung Nepal Services Pvt, Ltd. (SNSL)	Service	100.0
	Samsung Japan Corporation (SJC)	Sale of semiconductor and display panels	100.0
	Samsung R&D Institute Japan Co., Ltd. (SRJ)	R&D	100.0
	Samsung Electronics Japan Co., Ltd. (SEJ)	Sale of electronic devices	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Asia (Excluding China)	Harman Connected Services Corp. India Pvt. Ltd.	Connected service provider	100.0
	Harman International (India) Private Limited	Sale of audio products, R&D	100.0
	Harman International Industries Pty Ltd.	Management of overseas subsidiaries	100.0
	Harman International Japan Co., Ltd.	Sale of audio products, R&D	100.0
	Harman Singapore Pte. Ltd.	Sale of audio products	100.0
China	Samsung (CHINA) Investment Co., Ltd. (SCIC)	Sale of electronic devices	100.0
	Samsung Electronics Hong Kong Co., Ltd. (SEHK)	Sale of electronic devices	100.0
	Samsung Electronics Taiwan Co., Ltd. (SET)	Sale of electronic devices	100.0
	Tianjin Samsung Electronics Co., Ltd. (TSEC)	Manufacture of TV and monitors	91.2
	Suzhou Samsung Electronics Co., Ltd. (SSEC)	Manufacture of home appliances	88.3
	Samsung Suzhou Electronics Export Co., Ltd. (SSEC-E)	Manufacture of home appliances	100.0
	Samsung Electronics Suzhou Computer Co., Ltd. (SESC)	Manufacture of electronic devices, R&D	100.0
	Tianjin Samsung Telecom Technology Co., Ltd. (TSTC)	Manufacture of communication equipment	90.0
	Beijing Samsung Telecom R&D Center (SRC-Beijing)	R&D	100.0
	Samsung Electronics China R&D Center (SRC-Nanjing)	R&D	100.0
	Samsung Mobile R&D Center China-Guangzhou (SRC-Guangzhou)	R&D	100.0
	Samsung R&D Institute China-Shenzhen (SRC-Shenzhen)	R&D	100.0
	Shanghai Samsung Semiconductor Co., Ltd. (SSS)	Sale of semiconductor and display panels	100.0
	Samsung (China) Semiconductor Co., Ltd. (SCS)	Manufacture of semiconductors	100.0
	Samsung SemiConductor Xian Co., Ltd. (SSCX)	Sale of semiconductor and display panels	100.0
	Samsung Electronics Suzhou Semiconductor Co., Ltd. (SESS)	Toll processing of semiconductors	100.0
	Tianjin Samsung LED Co., Ltd. (TSLED)	Manufacture of LED	100.0
	Samsung Semiconductor (China) R&D Co., Ltd. (SSCR)	R&D	100.0
	Samsung Display Dongguan Co., Ltd. (SDD)	Manufacture of display panels	100.0
	Samsung Display Tianjin Co., Ltd. (SDT)	Manufacture of display panels	95.0
	SEMES (XIAN) Co., Ltd.	Semiconductor equipment services	100.0
	Samsung Semiconductor Investment L.P. I	Technology business, Venture capital investments	99.0
	Harman (China) Technologies Co., Ltd.	Manufacture of audio products	100.0
	Harman (Suzhou) Audio and Infotainment Systems Co., Ltd.	Sale of audio products	100.0
	Harman Automotive Electronic Systems (Suzhou) Co., Ltd.	Manufacture of audio products, R&D	100.0
	Harman Commercial (Shanghai) Co., Ltd.	Sale of audio products	100.0
	Harman Connected Services Solutions (Chengdu) Co., Ltd.	Connected service provider	100.0
	Harman Holding Limited	Sale of audio products	100.0
	Harman International (China) Holdings Co., Ltd.	Sale of audio products, R&D	100.0
	Harman Technology (Shenzhen) Co., Ltd.	Sale of audio products, R&D	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Domestic	Samsung Display Co., Ltd.	Manufacture and sale of display panels	84.8
	SU Materials	Manufacture of display components	50.0
	STECO Co., Ltd.	Manufacture of semiconductor components	70.0
	SEMES Co., Ltd.	Manufacture and sale of semiconductor/FPD	91.5
	Samsung Electronics Service Co., Ltd.	Repair services for electronic devices	99.3
	Samsung Electronics Service Customer Satisfaction Co., Ltd.	Call center for repair services for electronic devices	100.0
	Samsung Electronics Sales Co., Ltd.	Sale of electronic devices	100.0
	Samsung Electronics Logitech Co., Ltd.	General logistics agency	100.0
	Samsung Medison Co., Ltd.	Manufacture and sale of medical equipment	68.5
	Mirero System Co., Ltd.	Development and supply of semiconductor process defect and quality control software	99.9
	Dowooinssys Co., Ltd.	Manufacture of display components	69.0
	Gf-System Co., Ltd.	Manufacture of display components	100.0
	Harman International Korea	Software development and supply, etc.	100.0
	Samsung Venture Capital Union #21	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #22	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #26	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #28	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #29	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #32	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #33	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #37	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #40	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #42	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #43	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #45	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #48	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #52	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #55	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #56	Technology business, Venture capital investments	99.0
	Growth type private equity trust specialized in semiconductors	Investment on semiconductor industry	66.7
	System LSI Mutual benefit private equity trust	Investment on semiconductor industry	62.5

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

1.3 Summary of Financial Data of Major Consolidated Subsidiaries

Summary of financial data of major consolidated subsidiaries is as follows:

(1) 2021

(In millions of Korean won)	As of December 31, 2021		For the year ended December 31, 2021	
Major subsidiaries[1]	**Assets**	**Liabilities**	**Sales**	**Profit (loss) for the year**
Samsung Display	54,967,156	9,081,737	28,755,975	2,770,060
Samsung Electronics America, Inc. (SEA)	42,982,054	19,246,751	42,325,524	823,914
Samsung (China) Semiconductor Co., Ltd. (SCS)	19,049,536	5,168,738	7,341,018	1,708,832
Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	17,521,446	3,425,127	32,184,024	2,298,273
Harman and its subsidiaries[2]	15,887,380	6,104,012	10,015,092	357,612
Samsung Asia Pte. Ltd. (SAPL)	14,683,789	58,381	-	4,668,478
Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	14,651,496	8,998,502	-	24,527
Samsung Semiconductor, Inc. (SSI)	13,744,799	7,955,060	33,895,805	74,531
Samsung (CHINA) Investment Co., Ltd. (SCIC)	13,599,093	9,685,278	2,615,685	451,062
Samsung Electronics Vietnam Co., Ltd. (SEV)	13,023,272	2,085,411	21,583,038	1,455,704
Samsung Austin Semiconductor LLC (SAS)	8,705,085	958,537	3,703,472	759,206
Shanghai Samsung Semiconductor Co., Ltd. (SSS)	7,765,126	5,799,690	31,326,186	325,397
Samsung India Electronics Private Ltd. (SIEL)	7,765,019	3,236,745	12,222,643	522,672
Samsung Display Vietnam Co., Ltd. (SDV)	6,821,066	2,486,703	21,722,446	981,311
Samsung Eletronica da Amazonia Ltda. (SEDA)	4,589,505	1,671,097	6,020,523	490,202
Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	3,129,104	919,721	6,551,242	472,666
Thai Samsung Electronics Co., Ltd. (TSE)	3,018,358	474,223	4,443,031	142,191
Samsung Electronics (UK) Ltd. (SEUK)	2,925,062	1,992,367	5,621,922	241,403
Samsung Electronics Benelux B.V. (SEBN)	2,612,357	766,034	2,569,603	284,816
Samsung Electronics Hungarian Private Co., Ltd. (SEH)	2,504,075	641,004	4,357,137	157,616
Samsung Electronics Europe Logistics B.V. (SELS)	2,305,275	2,144,805	14,700,517	13,943
Samsung Electronics GmbH (SEG)	2,289,391	2,228,650	6,385,080	2,158
Samsung Display Dongguan Co., Ltd. (SDD)	2,149,277	339,425	3,987,674	163,637
Samsung International, Inc. (SII)	2,125,719	1,041,168	7,948,982	105,444
Samsung Electronics Taiwan Co., Ltd. (SET)	2,033,992	1,459,353	5,638,204	50,966

[1] Summary of condensed financial information is based on separate financial statements of each subsidiary.
[2] Consolidated financial data of an intermediate company that includes Harman International Industries, Inc. and its subsidiaries.

(2) 2020

(In millions of Korean won)	As of December 31, 2020		For the year ended December 31, 2020	
Major subsidiaries[1]	**Assets**	**Liabilities**	**Sales**	**Profit (loss) for the year**
Samsung Display	50,039,755	7,612,332	27,149,102	1,798,100
Samsung Electronics America, Inc. (SEA)	36,765,070	15,828,083	35,237,365	1,623,555
Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	15,500,024	2,574,442	28,284,397	2,066,842
Samsung (CHINA) Investment Co., Ltd. (SCIC)	15,438,819	12,358,881	2,475,454	127,051
Harman and its subsidiaries[2]	14,702,005	5,776,884	9,161,142	(735,426)
Samsung (China) Semiconductor Co., Ltd. (SCS)	14,348,735	3,511,003	5,321,312	1,100,619
Samsung Electronics Vietnam Co., Ltd. (SEV)	12,623,956	1,805,326	19,952,957	1,408,088
Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	11,495,430	7,641,709	-	16,150
Samsung Semiconductor, Inc. (SSI)	9,669,349	4,427,701	23,562,962	182,290
Samsung Asia Pte. Ltd. (SAPL)	9,552,755	523,402	1,634,692	968,504
Shanghai Samsung Semiconductor Co., Ltd. (SSS)	7,678,989	5,010,041	25,829,119	271,691
Samsung Display Vietnam Co., Ltd. (SDV)	7,400,563	4,354,887	19,209,100	559,006
Samsung Austin Semiconductor LLC. (SAS)	6,912,610	538,288	3,913,100	922,007
Samsung Eletronica da Amazonia Ltda. (SEDA)	6,280,131	1,556,057	6,390,696	819,561
Samsung India Electronics Private Ltd. (SIEL)	6,250,492	2,523,027	10,943,343	611,571
Thai Samsung Electronics Co., Ltd. (TSE)	2,920,299	451,055	3,744,080	160,264
Samsung Electronics (UK) Ltd. (SEUK)	2,767,563	1,886,447	4,987,522	133,016
Samsung Electronics GmbH (SEG)	2,687,535	2,626,979	6,306,675	605
Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	2,609,150	1,026,901	6,273,162	419,313
Samsung Electronics Hungarian Private Co., Ltd. (SEH)	2,230,457	504,952	3,665,360	148,056
Samsung Electronics Benelux B.V. (SEBN)	2,145,488	736,480	2,324,308	58,579
Samsung Display Dongguan Co., Ltd. (SDD)	1,767,663	300,080	2,947,506	110,194
Samsung Electronics Europe Logistics B.V. (SELS)	1,700,033	1,550,350	13,444,960	20,623
Samsung Electronics France S.A.S (SEF)	1,688,580	1,207,359	3,464,937	61,596
Samsung Japan Corporation (SJC)	1,668,902	1,381,443	3,317,644	7,684

[1] Summary of condensed financial information is based on separate financial statements of each subsidiary.
[2] Consolidated financial data of an intermediate company that includes Harman International Industries, Inc. and its subsidiaries.

1.4 Changes in Consolidation Scope

Changes in consolidation scope during the year ended December 31, 2021 are as follows:

Change	Area	Subsidiary	Description
Included	Middle East & Africa	Samsung Electronics Industry and Commerce Ltd. (SETK-P)	Establishment
	China	Samsung Semiconductor Investment L.P. I	Establishment
	Domestic	Samsung Venture Capital Union #52	Establishment
		Samsung Venture Capital Union #55	Establishment
		Samsung Venture Capital Union #56	Establishment
Excluded	America	Viv Labs, Inc.	Merger
		Prismview, LLC	Merger
		Stellus Technologies, Inc.	Liquidation
		SigMast Communications Inc.	Liquidation
		Zhilabs Inc.	Liquidation
		TWS LATAM B, LLC	Liquidation
		TWS LATAM S, LLC	Liquidation
		SNB Technologies, Inc. Mexico, S.A. de C.V	Liquidation
		RT SV CO-INVEST, LP	Liquidation
	Europe / CIS	Arcam Limited	Liquidation
		A&R Cambridge Limited	Liquidation
		Harman Connected Services Limited	Liquidation
		Martin Manufacturing (UK) Ltd	Liquidation
	China	Samsung Suzhou Module Co., Ltd. (SSM)	Sale of business
		Samsung Suzhou LCD Co., Ltd. (SSL)	Sale of business
		Samsung Electronics Huizhou Co., Ltd.(SEHZ)	Liquidation
		Shenzhen Samsung Electronics Telecommunication Co., Ltd.(SSET)	Liquidation
	Domestic	Samsung Venture Capital Union #27	Liquidation

2. Significant Accounting Policies

2.1 Basis of Presentation

The principal accounting policies used to prepare the consolidated financial statements are set out below. Except for the effect of the amendments to the Korean IFRS and new interpretations set out below, the principal accounting policies used to prepare the consolidated financial statements as of and for the year ended December 31, 2021 are consistent with those used to prepare the consolidated financial statements as of and for the year ended December 31, 2020.

The Company maintains its accounting records in Korean won and prepares the statutory financial statements in Korean language (Hangul) in accordance with International Financial Reporting Standards as adopted by the Republic of Korea ("Korean IFRS"). The accompanying consolidated financial statements have been condensed, restructured, and translated into English from the Korean language financial statements.

Certain information attached to the Korean language financial statements that are not required for a fair presentation of the Company's financial position, financial performance or cash flows, are not presented in the accompanying consolidated financial statements.

The consolidated financial statements of the Company have been prepared in accordance with Korean IFRS. These are the standards, subsequent amendments and related interpretations issued by the International Accounting Standards Board (IASB) that have been adopted by the Republic of Korea.

Korean IFRS permits the use of critical accounting estimates in the preparation of the consolidated financial statements and requires management judgments in applying the accounting policies. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements, are disclosed in Note 3.

2.2 Changes in Accounting Policies and Disclosures

(A) New and amended standards adopted by the Company

The Company applied the following amended and/or enacted standards for the first time for their annual reporting period commencing on January 1, 2021:

Amendments to Korean IFRS 1116, Lease

The amendments introduced a practical expedient that simplifies the lessee's accounting treatments for COVID-19 related rent concessions, and through such expedient a lessee may elect not to assess whether the rent concessions granted as a direct consequence of the COVID-19 pandemic are lease modifications. A lessee that makes this election shall account for any changes in lease payments resulting from the rent concessions the same way as prescribed by this standard if the changes were not considered as lease modifications. The application of amendments does not have a significant impact on the year-end consolidated financial statements.

(B) New and amended standards not yet adopted by the Company

The amended accounting standard issued that is not mandatory for the annual reporting period commencing on January 1, 2021 and has not been early adopted by the Company is as follows:

Amendments to Korean IFRS 1116, Lease

During the year ended December 31, 2020, the amendments to Korean IFRS 1116 introduced a practical expedient that provided practical relief to lessees in accounting for rent concessions occurring as a direct consequence of COVID-19. The amendments extend the practical expedient to apply to reduction in lease payments originally due on or before 30 June 2022.
The amendments are effective for annual reporting periods beginning on or after April 1, 2021, with early application permitted.

Amendments to Korean IFRS 1103, Business Combinations

The amendments add to Korean IFRS 1103 a requirement that, for obligations within the scope of IAS 37, an acquirer applies Korean IFRS 1037 or Korean IFRS 2121 Levies to determine whether at the acquisition date a present obligation exists as a result of the past events. The amendments also add an explicit statement that an acquirer does not recognize contingent assets acquired in a business combination. The amendments are effective for business combinations for which the date of acquisition is on or after the beginning of the first annual period beginning on or after January 1, 2022, with early application permitted
.

Amendments to Korean IFRS 1016 Property, Plant and Equipment

The amendments prohibit deducting from the cost of an item of property, plant and equipment any proceeds from selling items produced while bringing that asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Instead, an entity recognizes the proceeds from selling such items, and the cost of producing those items, in profit or loss. The amendments are effective for annual reporting periods beginning on or after January 1, 2022, with early application permitted.

Amendments to Korean IFRS 1037 Provisions, Contingent Liabilities and Contingent Assets

The amendments specify that the 'cost of fulfilling' a contract comprises the 'costs that relate directly to the contract'. Costs that relate directly to a contract consist of both the incremental costs of fulfilling that contract and an allocation of other costs that relate directly to fulfilling the contract. The amendments are effective for annual periods beginning on or after January 1, 2022, with early application permitted.

Amendments to Korean IFRS 1001 Presentation of Financial Statements

The amendments clarify that the classification of liabilities as current or non-current is based on rights that are in existence at the end of the reporting period, specify that classification is unaffected by expectations about whether an entity will exercise its right to defer settlement of a liability, and elucidate that settlement refers to the transfer to the counterparty of cash, equity instruments, other assets or services. The amendments are applied retrospectively for annual periods beginning on or after January 1, 2023, with early application permitted.

Amendments to Korean IFRS 1001 Presentation of Financial Statements

The amendments define the term 'material accounting policy information', and develop guidance and examples in IFRS Practice Statement 2 to explain and demonstrate the application of 'materiality'. The amendments are effective for annual periods beginning on or after January 1, 2023, with earlier application permitted and are applied prospectively.

Amendments to Korean IFRS 1008 Accounting Policies, Changes in Accounting Estimates and Errors

The amendments define accounting estimates, and clarify that it is different from changes in accounting policies. The amendments are effective for annual periods beginning on or after January 1, 2023, to changes in accounting policies and changes in accounting estimates that occur on or after the beginning of the same period, with earlier application permitted.

Amendments to Korean IFRS 1012, Income Taxes

The amendments introduce a further exception to the initial recognition exemption. Under the amendments, an entity does not apply the initial recognition exemption for transactions that give rise to equal taxable and deductible temporary differences.
The amendments are effective for annual reporting periods beginning on or after January 1, 2023, with earlier application permitted.

2.3 Consolidation

The Company prepares the consolidated financial statements in accordance with Korean IFRS 1110 *Consolidated Financial Statements.*

(A) Subsidiaries

Subsidiaries are all entities (including the special purpose entities) over which the Company has control. The Company controls the corresponding investee when it is exposed, or has rights, to variable returns from its involvement with the investee and has the ability to affect those returns through its power over the investee. Consolidation of a subsidiary begins from the date the Company obtains control of a subsidiary and ceases when the Company loses control of the subsidiary.

The Company applies the acquisition method to account for business combinations. The consideration transferred is measured at the fair values of the assets transferred, and identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are initially measured at their fair values at the acquisition date. The Company recognizes any non-controlling interest in the acquiree on an acquisition-by-acquisition basis in the event of liquidation at the non-controlling interest's proportionate share of the recognized amounts of acquiree's identifiable net assets. Acquisition-related costs are expensed as incurred.

The excess of consideration transferred, of any non-controlling interest in the acquired entity, and acquisition-date fair value of any previous equity interest in the acquired entity over the fair value of the net identifiable assets acquired is recorded as goodwill. If those amounts are less than the fair value of the net identifiable assets of the business acquired, the difference is recognized directly in the profit or loss as a bargain purchase.

Balances of receivables and payables, income and expenses and unrealized gains or losses on transactions between the entities within the Company are eliminated. Accounting policies of subsidiaries are changed where necessary to ensure consistency with the policies adopted by the Company.

(B) Changes in ownership interests in subsidiaries without change of control

Transactions with non-controlling interests that do not result in loss of control are accounted for as equity transactions – that is, as transactions with the owners in their capacity as owners. The difference between the fair value of any consideration paid and the relevant share acquired of the carrying value of net assets of the subsidiary is recorded in equity. Gains or losses on disposals of non-controlling interests are also recorded in equity.

(C) Disposal of subsidiaries

If the Company loses control of a subsidiary, any investment continuously retained in the subsidiary is re-measured at its fair value at the date when control is lost and any resulting differences are recognized in profit or loss. Such fair value becomes the initial carrying amount for the subsequent measurement of the retained interest accounted for as an associate, joint venture, or financial asset. In addition, any amounts previously recognized in other comprehensive income in respect of such entity are accounted as if the Company had directly disposed of the related assets or liabilities. As a result, the previously recognized other comprehensive income are reclassified into profit or loss or equity.

(D) Non-controlling interests

Each component of profit or loss and other comprehensive income is attributed to owners of the parent and to non-controlling interests. Total comprehensive income is attributed to owners of the parent and to non-controlling interests even if this results in a negative balance of non-controlling interests.

(E) Associates

Associates are all entities over which the Company has significant influence but does not have control, generally investees of which from 20% to 50% voting shares are owned by the Company. Investments in associates are accounted for using the equity method of accounting, after initially being recognized at cost. Unrealized gains on transactions between the Company and its associates are eliminated to the extent of the Company's interest in the associates. If the Company's share of losses of an associate equals or exceeds its interest in the associate (including long-term interests that, in substance, form part of the Company's net investment in the associate), the Company discontinues recognizing its share of further losses. After the Company's interest is reduced to zero, additional losses are provided for, and a liability is recognized, only to the extent that the Company has incurred legal or constructive obligations or made payments on behalf of the associate. If there is objective evidence of impairment for the investment in the associate, the Company recognizes the difference between the recoverable amount of the associate and its carrying amount as an impairment loss. If an associate uses accounting policies other than those of the Company for like transactions and events in similar circumstances, adjustments shall be made, if necessary, to make the associate's accounting policies conform to those of the Company when the associate's financial statements are used by the entity in applying the equity method.

(F) Joint arrangements

A joint arrangement of which two or more parties have joint control is classified as either a joint operation or a joint venture. A joint operator has rights to the assets, and obligations for the liabilities, relating to the joint operation and recognizes the assets, liabilities, revenues and expenses relating to its interest in a joint operation. A joint venturer has rights to the net assets relating to the joint venture and accounts for that investment using the equity method.

2.4 Foreign Currency Translation

(A) Functional and presentation currency

Items included in the consolidated financial statements of each of the Company's entities are measured using the currency of the primary economic environment in which each entity operates (the "functional currency"). The consolidated financial statements are presented in Korean won, which is the parent company's functional and presentation currency.

(B) Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions or valuation where items are re-measured. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognized in profit or loss. Exchange differences arising on non-monetary financial assets and liabilities such as equity instruments at fair value through profit or loss and equity instruments at fair value through other comprehensive income are recognized in profit or loss and other comprehensive income, respectively, as part of the fair value gain or loss.

(C) Translation into the presentation currency

The results and financial position of all the foreign entities that have a functional currency different from the presentation currency of the Company are translated into the presentation currency as follows:

- Assets and liabilities for each consolidated statement of financial position presented are translated at the closing rate at the end of the reporting date.
- Income and expenses for each consolidated statement of profit or loss are translated at average exchange rates, unless this average is not a reasonable approximation of the cumulative effect of the rates prevailing on the transaction dates, in which case income and expenses are translated at the as-of rate on the dates of the transactions.
- All resulting exchange differences are recognized in other comprehensive income.

2.5 Cash and Cash Equivalents

Cash and cash equivalents include cash on hand, deposits held at call with banks, and other short-term investment assets with high liquidity that are readily convertible to a known amount of cash and are subject to an insignificant risk of change in value.

2.6 Financial Assets

(A) Classification

From January 1, 2018, the initial application date for Korean IFRS 1109 *Financial Instruments,* the Company classifies its financial assets in the following measurement categories:

- Financial assets measured at fair value (changes in fair value recognized in either other comprehensive income, or profit or loss)
- Financial assets measured at amortized cost.

The classification depends on the Company's business model for managing the financial assets and the contractual terms of the cash flows.

For financial assets measured at fair value, gains and losses will either be recorded in profit or loss or other comprehensive income. For investments in debt instruments, this will depend on the business model in which the investment is held. The Company reclassifies debt investments only when its business model for managing those assets changes.

For investments in equity instruments that are not held for trading, classification will depend on whether the Company has made an irrevocable election at the time of initial recognition to account for the equity investment at fair value through other comprehensive income. Changes in fair value of the investments in equity instruments that are not elected to be accounted for as other comprehensive income are recognized in profit or loss.

(B) Measurement

At initial recognition, the Company measures a financial asset at its fair value. In the case of financial asset not measured at fair value through profit or loss, transaction costs that are directly attributable to the acquisition of the financial asset or the issuance of the financial liabilities are added to its fair value. Transaction costs of financial assets carried at fair value through profit or loss are expensed in profit or loss.

Hybrid (combined) contracts with embedded derivatives are considered in their entirety when determining whether their cash flows solely consist of the payments of principal and interest.

a) Debt instruments

Subsequent measurement of debt instruments depends on the Company's business model for managing the asset and the cash flow characteristics of the asset. The Company classifies its debt instruments into one of the following three measurement categories:

① Financial assets measured at amortized cost

Assets that are held for collection of contractual cash flows where those cash flows represent solely the payments of principal and interest are measured at amortized cost. A gain or loss on a debt investment that is subsequently measured at amortized cost and is not part of a hedging relationship is recognized in profit or loss when the asset is derecognized or impaired. Interest income from these financial assets is included in 'financial income' using the effective interest rate method.

② Financial assets measured at fair value through other comprehensive income

Assets that are held for collection of contractual cash flows and for selling the financial assets, where the assets' cash flows represent solely the payments of principal and interest, are measured at fair value through other comprehensive income. Movements in the carrying amount are taken through other comprehensive income, except for the recognition of impairment loss (reversal of impairment loss), interest income and foreign exchange gains and losses which are recognized in profit or loss. When the financial assets are derecognized, the cumulative gain or loss previously recognized in other comprehensive income is reclassified from equity to profit or loss. Interest income from these financial assets is included in 'financial income' using the effective interest rate method. Foreign exchange gains and losses are presented in 'financial income' or 'financial expenses' and impairment losses are presented in 'other non-operating expenses'.

③ Financial assets measured at fair value through profit or loss

Assets that do not meet the criteria for amortized cost or fair value through other comprehensive income are measured at fair value through profit or loss. A gain or loss on a debt investment that is subsequently measured at fair value through profit or loss and is not part of a hedging relationship is recognized in profit or loss and presented in the consolidated statement of profit or loss within 'other non-operating income' or 'other non-operating expenses' in the year in which it arises.

b) Equity instruments

The Company subsequently measures all equity investments at fair value. Where the Company's management has elected to present fair value gains and losses on equity investments in other comprehensive income, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. When the financial asset is derecognized, the cumulative gain or loss on valuation of financial assets at fair value through other comprehensive income recognized in equity is reclassified to retained earnings. Dividend income from such investments continue to be recognized in profit or loss as 'other non-operating income' when the right to receive the payments is established.

Changes in the fair value of financial assets at fair value through profit or loss are recognized in 'other non-operating income' or 'other non-operating expenses' in the consolidated statements of profit or loss as applicable.

(C) Impairment

The Company assesses on a forward-looking basis the expected credit losses associated with its debt instruments carried at amortized cost and fair value through other comprehensive income. The impairment methodology applied depends on whether there has been a significant increase in credit risk. For trade receivables, the Company applies the simplified approach, which requires expected lifetime losses to be recognized from initial recognition of the receivables.

(D) Recognition and derecognition

Regular way purchases and sales of financial assets are recognized or derecognized on a trade date basis. Financial assets are derecognized when the rights to receive cash flows from the financial assets have expired or have been transferred and the Company has transferred substantially all the risks and rewards of ownership. If a transfer does not result in derecognition because the Company has retained substantially all the risks and rewards of ownership of the transferred asset, the Company continues to recognize the transferred asset in its entirety and recognizes a financial liability for the consideration received. The Company classifies the financial liability as 'borrowings' in the consolidated statement of financial position.

(E) Offsetting of financial instruments

Financial assets and liabilities are offset and the net amount is reported in the statements of financial position when there is a legally enforceable right to offset the recognized amounts and there is an intention to settle on a net basis or realize the assets and settle the liability simultaneously. The legally enforceable right must not be contingent on future events and must be enforceable in the normal course of business, even in the event of default, insolvency or bankruptcy of the Company or the counterparty.

2.7 Trade Receivables

Trade receivables are amounts due from customers for inventories sold or services performed in the ordinary course of business. If collection is expected within one year or less, they are classified as current assets. If collection is expected beyond one year, they are presented as non-current assets. Trade receivables are recognized initially at transaction price and subsequently measured at amortized cost using the effective interest method, less loss allowance, unless the trade receivables bear significant financial component.

2.8 Inventories

Inventories are stated at the lower of cost and net realizable value. Cost is determined using the average cost method, except for materials in transit. The cost of finished goods and work in progress comprises raw materials, direct labor, other direct costs and related production overheads (based on normal operating capacity). It excludes costs of idle plant and abnormal waste. Net realizable value is the estimated selling price in the ordinary course of business, less applicable variable selling expenses.

The Company regularly estimates the changes in future customer demand in the products that may cause a significant change in the valuation allowance and recognizes the valuation allowance if there is any case such as excess, obsolescence and decline in market value. Loss on valuation of inventories is recorded as cost of sales.

2.9 Property, Plant and Equipment

Property, plant and equipment are stated at cost less accumulated depreciation and accumulated impairment losses. Historical cost includes expenditures that are directly attributable to the acquisition. Subsequent costs are included in the asset's carrying amount or recognized as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the cost will flow to the Company and the cost can be measured reliably. The carrying amount of the replaced parts are derecognized and the repairs and maintenance expenses are recognized in profit or loss in the period they are incurred.

Depreciation on tangible assets is calculated using the straight-line method to allocate the difference between their cost and their residual values over their estimated useful lives. Land is not depreciated. Costs that are directly attributable to the acquisition, construction or production of a qualifying asset, including capitalized interest costs, form part of the cost of that asset and are amortized over the estimated useful lives.

The Company's policy is that property, plant and equipment should be depreciated over the following estimated useful lives:

	Estimated useful lives
Buildings and structures	15, 30 years
Machinery and equipment	5 years
Other	5 years

The depreciation method, residual values and useful lives of property, plant and equipment are reviewed, and adjusted if appropriate, at the end of each reporting period. An asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount. Gains and losses on disposals are determined by comparing the proceeds with the carrying amount and are recognized within the consolidated statement of profit or loss as 'other non-operating income' or 'other non-operating expenses'.

2.10 Borrowing Costs

General and specific borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset are capitalized during the period of time that is required to complete and prepare the asset for its intended use. Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalization. Other borrowing costs are expensed in the period in which they are incurred.

2.11 Intangible Assets

Goodwill represents the excess of the cost of acquisition over the fair value of the Company's share of the net identifiable assets of the acquired subsidiaries, associates, joint ventures and businesses at the date of acquisition. Goodwill on an acquisition of subsidiaries' businesses is included in intangible assets and goodwill on an acquisition of associates and joint ventures' shares is included in the investments in associates and joint ventures.

Intangible assets, except for goodwill, are initially recognized at their historical cost and carried at cost less accumulated amortization and accumulated impairment losses.

Internally generated development costs are the aggregate costs recognized after meeting the asset recognition criteria, including technical feasibility, and determined to have future economic benefits. Membership rights and certain trademarks are regarded as intangible assets with an indefinite useful life and not amortized because there is no foreseeable limit to the period over which the assets are expected to be utilized. However, the Company records impairment based on its reasonable estimation of the benefits associated with the membership rights and assessment of impairment indicators, such as a decline in the market value. Intangible assets with definite useful lives such as trademarks, licenses, and other intangible assets, are amortized using the straight-line method over their estimated useful lives.

The Company's policy is that intangible assets should be amortized over the following estimated useful lives:

	Estimated useful lives
Development costs	2 years
Trademarks, licenses and other intangible assets	3 - 25 years

2.12 Impairment of Non-Financial Assets

Goodwill or intangible assets with indefinite useful lives are not subject to amortization and are tested annually for impairment. Assets that are subject to amortization are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and value in use. For the purposes of assessing impairment, assets are grouped at the lowest level for which there are separately identifiable cash flows (cash-generating units). Non-financial assets other than goodwill that suffered an impairment are reviewed for possible reversal of the impairment at the end of each reporting period.

2.13 Assets Held-for-Sale (Disposal Group)

Non-current assets (or disposal groups) are classified as assets held-for-sale when their carrying amount is to be recovered principally through a sale transaction and the sale is considered highly probable. The assets are measured at the lower of their carrying amount and the fair value less costs to sell. Gain or loss on disposal is determined by comparing the proceeds with the carrying amount of relevant assets, and is recognized in the statements of profit or loss as 'other non-operating income' or 'other non-operating expenses'.

2.14 Financial Liabilities

(A) Classification and measurement

The Company shall classify all financial liabilities as financial liabilities measured subsequently at amortized cost, except for the following:

- Financial liabilities at fair value through profit or loss. Such liabilities, including derivatives that are liabilities, shall be subsequently measured at fair value.
- Financial liabilities that arise when a transfer of a financial asset does not qualify for derecognition or when the continuing involvement approach applies. Such financial liabilities are measured based on the methodology described in Note 2.6 Financial Assets.
- Financial guarantee contracts. After the initial recognition, an issuer of such a contract shall subsequently measure it at the higher of:
  (a) The amount of the loss allowance determined based on the expected credit losses.
  (b) The amount initially recognized less the cumulative amount of income recognized in accordance with the principles of Korean IFRS 1115 *Revenue from Contracts with Customers,* when appropriate.
- Commitments to provide loan at below-market interest rate. An issuer of such a commitment shall subsequently measure it at the higher of:
  (a) The amount of the loss allowance determined based on the expected credit losses.
  (b) The amount initially recognized less the cumulative amount of income recognized in accordance with the principles of Korean IFRS 1115 *Revenue from Contracts with Customers*, when appropriate.
- Contingent consideration recognized by an acquirer in a business combination to which Korean IFRS 1103 *Business Combinations* applies. Such contingent consideration shall subsequently be measured at fair value with changes recognized in profit or loss.

(B) Derecognition

Financial liabilities are removed from the consolidated statements of financial position when it is extinguished; for example, when the obligation specified in the contract is discharged or cancelled or expired or when the terms of an existing financial liability are substantially modified. The difference between the carrying amount of a financial liability extinguished or transferred to another party and the consideration paid (including any non-cash assets transferred or liabilities assumed) is recognized in profit or loss.

2.15 Trade Payables

Trade payables are amounts due to suppliers for inventories purchased or services received in the ordinary course of business. If payment is expected to be made within 12 months, they are classified as current liabilities. If not, they are presented as non-current liabilities. Non-current trade payables are recognized initially at fair value and subsequently measured at amortized cost using the effective interest method.

2.16 Borrowings

Borrowings are recognized initially at fair value, net of transaction costs, and are subsequently measured at amortized cost. Any difference between cost and the redemption value is recognized in the consolidated statement of profit or loss over the period of the borrowings using the effective interest method. If the Company has an indefinite right to defer payment for a period longer than 12 months after the end of the reporting date, such liabilities are recorded as non-current liabilities, otherwise, they are recorded as current liabilities.

2.17 Provisions and Contingent Liabilities

A provision is recognized when the Company has a present legal or constructive obligation as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation. Provisions are not recognized for future operating losses.

Provisions are measured at present value of the expenditures expected to be required to settle the obligation using a pre-tax rate that reflects the current market assessments of the time value of money and the risks specific to the obligation. The increase in the provision due to the passage of time is recognized as interest expense.

The Company discloses a contingent liability if there is a possible obligation from past events in which the existence may only be identified through the occurrence of uncertain future events; or there is a present obligations that the possibility on the outflow of economic resources is uncertain; or the amount of economic resources required to settle the present obligation cannot be reasonably estimated.

2.18 Employee Benefits

The Company has a variety of retirement pension plans including a defined benefit plan and a defined contribution plans.

A defined contribution plan is a pension plan under which the Company pays fixed contributions into a separate fund. The Company has no legal or constructive obligation to pay further contributions if the fund does not hold sufficient assets to pay all employees the benefits relating to employee service received in the current and prior periods. For a defined contribution plans, the Company pays contributions to annuity plans that are managed either publicly or privately on a mandatory, contractual or voluntary basis. The Company has no further future payment obligations once the contributions have been paid. The contributions are recognized as employee benefit expense when they are due. Prepaid contributions are recognized as an asset to the extent that a cash refund or a reduction in the future payments is available.

A defined benefit plan is a pension plan that is not a defined contribution plan. Typically, a defined benefit plan establishes an amount of pension benefit that an employee will receive upon retirement, usually dependent on one or more factors such as age, years of service and compensation. The liability (asset) recognized in the consolidated statement of financial position with respect to the defined benefit pension plan is the present value of the defined benefit obligation at the end of the reporting period less the fair value of plan assets. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using the interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid and that have the terms to maturity approximating to the terms of the related pension obligation.

Actuarial gains and losses resulting from the changes in actuarial assumptions, and the differences between the previous actuarial assumptions and what has actually occurred, are recognized in other comprehensive income in the period in which they were incurred. When plan amendments, curtailments and settlements occur, past service costs or gain or loss from settlements are immediately recognized in profit or loss.

2.19 Financial Guarantee Contract

Financial guarantee contracts are contracts that require the issuer to make specified payments to reimburse the holder for a loss it incurs because a specified debtor fails to make payments when due.

The liability is initially measured at fair value and then subsequently measured at the higher of the following, and is recognized in the consolidated statements of financial position within 'other financial liabilities':

- the amount determined in accordance with the expected credit loss model under Korean IFRS 1109 *Financial Instruments* and
- the amount initially recognized less the cumulative amount of income recognized in accordance with Korean IFRS 1115 *Revenue from Contracts with Customers*, where appropriate.

2.20 Current and Deferred Tax

The tax expense for the year comprises current and deferred tax. Current and deferred tax is recognized in profit or loss, except to the extent that it relates to the items recognized in other comprehensive income or directly in equity. The tax expense is calculated on the basis of the tax laws enacted or substantively enacted at the end of the reporting period.

Deferred tax is recognized for temporary differences arising between the tax bases of assets and liabilities and their carrying amounts as expected tax consequences at the recovery or settlement of the carrying amounts of those assets and liabilities. However, deferred tax assets and liabilities are not recognized if they arise from initial recognition of an asset or liability in a transaction other than a business combination that, at the time of the transaction, affects neither the accounting nor taxable profit. Deferred tax assets are recognized only to the extent that it is probable that a future taxable profit will be available against which the temporary differences can be utilized.

A deferred tax liability is recognized for taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint ventures, except to the extent that the Company is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. In addition, a deferred tax asset is recognized for deductible temporary differences arising from such investments to the extent that it is probable the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset the current tax assets against the current tax liabilities and when the deferred income tax assets and liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities with an intention to settle the balances on a net basis.

2.21 Derivative Instruments

The Company initially recognizes rights and obligations from derivative contracts as assets and liabilities at fair value. Gain or loss arising from these contracts are recognized in profit or loss. Qualified hedged amount from cash flow hedge and hedge of a net investment in a foreign operation is deferred in equity.

The Company applies cash flow hedge accounting to hedge the price risk associated with inventory purchase and other. The effective portion of changes in fair value of derivatives that are designated and qualify as cash flow hedges is recognized in other comprehensive income, and the ineffective portion is recognized in financial income or expenses.

2.22 Dividend

Dividend is recognized as a liability when approved by the Company's shareholders.

2.23 Share Capital

Ordinary shares and preference shares with no repayment obligations are classified as equity. When the Company or a subsidiary acquires the Company's ordinary shares, the acquisition costs, including direct transaction costs, are deducted from equity until the redemption or reissuance as treasury shares. Consideration received on the reissuance of treasury shares is credited to equity attributable to owners of the parent company.

2.24 Revenue Recognition

Revenue mainly comprises the fair value of the consideration received or receivable for the sale of goods in the ordinary course of the Company's activities. Revenue is shown net of value-added tax, returns, sales incentives and discounts and after eliminating intercompany transactions.

The Company applied Korean IFRS 1115 *Revenue from Contracts with Customers* to the annual period beginning January 1, 2018. The Company shall recognize revenue in accordance with Korean IFRS 1115 *Revenue from Contracts with Customers* by applying the following 5 steps: ① Identify the contracts with the customers, ② Identify the separate performance obligations, ③ Determine the transaction price of the contract, ④ Allocate the transaction price to each of the separate performance obligations, and ⑤ Recognize the revenue as each performance obligation is satisfied.

(A) Identification of performance obligations

The Company exports various products and merchandise in accordance with Incoterms Group C trading conditions (Incoterms CIF and other). According to Korean IFRS 1115 *Revenue from Contracts with Customers* since the seller provides the shipping service after the control of the product or merchandise has been transferred to the customer, the shipping service (including insurance) is recognized as a separate performance obligation.

(B) Performance obligations satisfied over time

The Company delivers products to customers and installs them in accordance with the system air conditioner contracts awarded by the Public Procurement Service. According to Korean IFRS 1115 *Revenue from Contracts with Customers* the Company should recognize revenue over time if the Company creates or enhances an asset (for example, work in progress) that the customer controls as the asset is created or enhanced. The Company recognizes the revenue from system air conditioner installation over time as the customer controls the outcome of the service.

(C) Variable consideration

The Company estimates amount of variable consideration by using the 'expected value method' or the 'most likely amount method', depending on which method the Company expects to better predict the amount of consideration. The Company recognizes revenue only to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognized will not occur, and classifies the amount which the Company does not expect to be entitled as contract liabilities.

The Company measures refund liability at the amount of consideration received for which the Company does not expect to be entitled. The Company has a right to recover the product from the customer when the customer exercises his right of return and recognizes an asset and a corresponding adjustment to cost of sales. The asset is measured with reference to the former carrying amount of the product less the costs to recover the products.

(D) Allocation of the transaction price

The transaction price in an arrangement must be allocated to each separate performance obligation based on the relative standalone selling prices of the goods or services being provided to a customer. The Company determines the standalone selling price for each separate performance obligation by using methods such as the 'adjusted market assessment approach'.

2.25 Leases

A lease is a contract, whereby the lessor conveys to the lessee, the right to control the use of an identified asset for a period of time in exchange for consideration.

At inception of a contract, the Company assesses whether the contract is, or contains, a lease. However, the Company did not reassess all contracts at initial application of Korean IFRS 1116 *Leases* because the Company applied the practical expedient to contracts entered into before January 1, 2019.

For a contract that is, or contains, a lease, both lessee and lessor account for each lease component within the contract as a lease separately from the non-lease components of the contract. In lessee accounting, however, the Company does not account for them separately but instead applies the practical expedient to account for each lease component and any associated non-lease components as a single lease component.

(A) Lessee accounting

The Company recognizes a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments at the commencement date of the lease.

The right-of-use asset is initially measured at cost and subsequently measured at cost less accumulated depreciation and accumulated impairment losses, adjusted for the remeasurement of lease liability. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term from the commencement date of the lease and is classified as 'property, plant and equipment' in the consolidated financial statements.

At the commencement date, the lease liability is measured at the present value of the lease payments that are not paid at that date. When measuring the present value, the lease payments are discounted using the interest rate implicit in the lease. If such implicit rate cannot be readily determined, the Company uses the Company's incremental borrowing rate. The lease liability is subsequently increased by the amount of interest expenses recognized on the lease liability and reduced by the lease payments made. Lease liabilities are remeasured when the future lease payments are changed due to the following:

- Changes in an index or rate
- Changes in amounts expected to be payable by the lessee under the residual value guarantees
- Changes in the assessment of whether a purchase option or an option to renew is reasonably certain to be exercised, or
- Changes in the assessment of whether it is reasonably certain that an option to terminate the lease will not be exercised.

Lease liabilities are classified as 'current portion of long-term liabilities' and/or 'long-term borrowings' in the consolidated financial statements.

The Company elected the practical expedient for short-term leases (leases that have a lease term of 12 months or less at the commencement date) and leases of low-value assets (leases for which the underlying asset is valued at USD 5,000 or less), for which the lease payments are recognized as an expense on a straight-line basis over the lease term.

(B) Lessor accounting

The accounting treatment as a lessor did not change significantly from the Korean IFRS 1116 *Leases* initially applied on January 1, 2019.

The Company classifies a lease as a finance lease if it transfers substantially all the risks and rewards incidental to ownership at the inception of the lease. A lease other than a finance lease is classified as an operating lease. Lease income from operating leases is recognized in income on a straight-line basis over the lease term. Initial direct costs incurred by the lessor in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognized as an expense over the lease term on the same basis as the lease income.

2.26 Government Grants

Government grants are recognized at their fair values when there is reasonable assurance that the grant will be received and the Company will comply with the conditions attached to it. Government grants relating to costs are deferred and recognized in the consolidated statements of profit or loss over the period necessary to match the costs they are intended to compensate. Government grants relating to assets are recognized in liabilities as deferred income government grants, and depreciated over the expected lives of the related assets, and are credited to the consolidated statements of profit or loss.

2.27 Earnings per Share

Basic earnings per share is calculated by dividing the net profit for the period available to the ordinary shareholders by the weighted-average number of ordinary shares outstanding during the year.

Diluted earnings per share is calculated by dividing the profit for the year attributable to owners of the parent company from the consolidated statements of profit or loss by the weighted-average number of ordinary shares outstanding and potential dilutive shares. Potential dilutive shares are used in the calculation of dilutive earnings per share only when they have dilutive effects.

2.28 Reportable Segments

Reportable segments are disclosed in a manner consistent with the reporting provided to the chief operating decision-maker. The chief operating decision-maker is responsible for making strategic decisions on resource allocation and assessing performance of the reportable segments. The Management Committee, which makes strategic decisions, is regarded as the chief operating decision-maker.

2.29 Convenience Translation into United States Dollar Amounts

The Company operates primarily in Korean won and its official accounting records are maintained in Korean won. The US dollar amounts provided in the consolidated financial statements represent supplementary information solely for the convenience of the reader. All Korean won amounts are expressed in US dollar at the rate of ₩ 1,144.1 to USD 1, the average exchange rate for the year ended December 31, 2021. Such presentation is not in accordance with generally accepted accounting principles, and should not be construed as a representation that the Korean won amounts shown could be readily converted, realized or settled in US dollar at this or at any other rate.

2.30 Approval of the Consolidated Financial Statements

These consolidated financial statements were approved by the Board of Directors on January 27, 2022, and may be modified and approved at the Annual General Shareholders' Meetings.

3. Critical Accounting Estimates and Assumptions

The Company makes estimates and assumptions concerning the future. The estimates and assumptions are continuously assessed, considering historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. The resulting accounting estimates will, by definition, seldom equal the related actual results. In particular, the recent spread of COVID-19 during the year ended December 31, 2021 may result in changes to the Company's assumptions and estimates but its potential financial impact cannot be reasonably estimated as of the reporting date.

The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are addressed below.

(A) Revenue recognition

A refund liability and a right to the returned goods are recognized for the products expected to be returned at the time of sale. Accumulative experience is used to estimate such returns at the time of sale at a portfolio level (through expected value method), and the Company's revenue is affected by the changes in expected return rate.

Sales of goods are recognized based on the considerations specified in the contract, net of sales incentives, when control of the products has transferred. The sales deduction, which affects the Company's revenue, is reasonably estimated based on the historical experience and past contracts.

(B) Provision for warranty

The Company recognizes provision for warranty on products sold. The Company accrues provision for warranty based on the best estimate of amounts necessary to settle future and existing claims at the end of each reporting period. The amounts are estimated based on the past experience.

(C) Fair value of financial instruments

The fair value of financial instruments that are not traded in an active market is determined by using a variety of methods and assumptions that are mainly based on market conditions existing at the end of each reporting period.

(D) Impairment of financial assets

The loss allowance for financial assets are based on assumptions about risk of default and expected loss rates. The Company uses judgement in making these assumptions and selecting the inputs to the impairment calculation based on the Company's past history, existing market conditions as well as forward looking estimates at the end of each reporting period.

(E) Lease

In determining the lease term, the Company considers all facts and circumstances that create an economic incentive to exercise an extension option, or not to exercise a termination option. Extension options (or periods after termination options) are only included in the lease term if the lease is reasonably certain to be extended (or not terminated).

The lease term is reassessed if an option is actually exercised (or not exercised) or the Company becomes obliged to exercise (or not exercise) it. The Company reassesses whether it is reasonably certain to exercise an extension option (or not to exercise such option) upon the occurrence of either a significant event or a significant change in circumstances that is within the control of the lessee.

(F) Net defined benefit liabilities (assets)

The net defined benefit liabilities (assets) depend on a number of factors that are determined on an actuarial basis using a number of assumptions including the discount rate. Any changes in these assumptions will impact the carrying amount of the net defined benefit liability. The Company, in consideration of the interest rates of high-quality corporate bonds, determines the appropriate discount rate at the end of each year. This is the interest rate that is used to determine the present value of estimated future cash outflows expected to be required to settle the net defined benefit liabilities (assets). The principal actuarial assumptions associated with the net defined benefit liabilities (assets) are based on the current market expectations.

(G) Impairment of goodwill and intangible assets that have an indefinite useful life

At the end of each reporting period, the Company tests whether goodwill and intangible assets that have an indefinite useful life have become impaired by comparing the carrying amounts of assets or cash-generating units to the recoverable amounts. The recoverable amounts of assets or cash-generating units have been determined based on value-in-use calculations, and these calculations are based on estimates.

(H) Income taxes

Income taxes on the Company's taxable income from operating activities are subject to various tax laws and determinations of each tax authority across various countries throughout the world. There is uncertainty in determining the eventual tax effects on the taxable income from operating activities. The Company has recognized current tax and deferred tax at the end of the fiscal year based on the best estimate of future taxes payable as a result of operating activities. However, the resulting deferred income tax assets and liabilities may not equal the actual future taxes payable and such difference may impact the current tax and deferred income tax assets and liabilities upon the determination of eventual tax effects.

Regarding taxes payable in Korea, if a certain portion of taxable income is not used for investments or for increases in wages or dividends, in accordance with the *Tax System For Recirculation of Corporate Income*, the Company is liable to pay additional income tax calculated based on the Korean tax law. The current and deferred tax at the end of the fiscal year are based on the best estimate of future taxes payable, which can differ from the actual future taxes payable as a result of changes in investments, wages and dividends; this results in an additional uncertainty in measuring the final tax effects.

The Company assesses uncertainty over a tax treatment. When the Company concludes it is not probable that the taxation authority will accept an uncertain tax treatment, the Company will reflect the effect of uncertainty for each uncertain tax treatment by using either of the following methods, depending on which method the Company expects to better predict the resolution of the uncertainty:

- The most likely amount: the single most likely amount in a range of possible outcomes.
- The expected value: the sum of the probability-weighted amounts in a range of possible outcomes.

4. Financial Instruments by Category

(A) Categorizations of financial assets and liabilities as of December 31, 2021 and 2020 are as follows:

(1) As of December 31, 2021

(In millions of Korean won)	Financial assets measured at amortized cost	Financial assets measured at fair value through other comprehensive income	Financial assets measured at fair value through profit or loss	Other financial assets[1]	Total
Financial assets					
Cash and cash equivalents	39,031,415	-	-	-	39,031,415
Short-term financial instruments	81,708,986	-	-	-	81,708,986
Short-term financial assets at amortized cost	3,369,034	-	-	-	3,369,034
Short-term financial assets at fair value through profit or loss	-	-	40,757	-	40,757
Trade receivables	40,713,415	-	-	-	40,713,415
Financial assets at fair value through other comprehensive income	-	13,965,839	-	-	13,965,839
Financial assets at fair value through profit or loss	-	-	1,525,344	-	1,525,344
Other	8,711,973	-	279,127	49,089	9,040,189
Total	173,534,823	13,965,839	1,845,228	49,089	189,394,979

[1] Other financial assets include derivatives designated as hedging instruments which are not subject to categorizations.

(In millions of Korean won)	Financial liabilities measured at amortized cost	Financial liabilities measured at fair value through profit or loss	Other financial liabilities[1]	Total
Financial liabilities				
Trade payables	13,453,351	-	-	13,453,351
Short-term borrowings	2,131,692	-	11,556,101	13,687,793
Other payables	14,126,970	-	-	14,126,970
Current portion of long-term liabilities	518,065	-	811,903	1,329,968
Debentures	508,232	-	-	508,232
Long-term borrowings	1,500	-	2,864,656	2,866,156
Long-term other payables	2,562,158	-	-	2,562,158
Other	10,444,290	323,526	13,868	10,781,684
Total	43,746,258	323,526	15,246,528	59,316,312

[1] Other financial liabilities include collateralized borrowings, lease liabilities and derivatives designated as hedging instruments, which are not subject to categorizations.

(2) As of December 31, 2020

(In millions of Korean won)	**Financial assets measured at amortized cost**	**Financial assets measured at fair value through other comprehensive income**	**Financial assets measured at fair value through profit or loss**	**Other financial assets[1]**	**Total**
Financial assets					
Cash and cash equivalents	29,382,578	-	-	-	29,382,578
Short-term financial instruments	92,441,703	-	-	-	92,441,703
Short-term financial assets at amortized cost	2,757,111	-	-	-	2,757,111
Short-term financial assets at fair value through profit or loss	-	-	71,451	-	71,451
Trade receivables	30,965,058	-	-	-	30,965,058
Financial assets at fair value through other comprehensive income	-	12,575,216	-	-	12,575,216
Financial assets at fair value through profit or loss	-	-	1,202,969	-	1,202,969
Other	6,395,766	-	215,797	23,310	6,634,873
Total	161,942,216	12,575,216	1,490,217	23,310	176,030,959

[1] Other financial assets include derivatives designated as hedging instruments which are not subject to categorizations.

(In millions of Korean won)	**Financial liabilities measured at amortized cost**	**Financial liabilities measured at fair value through profit or loss**	**Other financial liabilities[1]**	**Total**
Financial liabilities				
Trade payables	9,739,222	-	-	9,739,222
Short-term borrowings	2,278,386	-	14,275,043	16,553,429
Other payables	10,645,637	-	-	10,645,637
Current portion of long-term liabilities	5,318	-	710,781	716,099
Debentures	948,137	-	-	948,137
Long-term borrowings	-	-	1,999,716	1,999,716
Long-term other payables	1,272,128	2,176	-	1,274,304
Others	9,354,624	242,698	41,930	9,639,252
Total	34,243,452	244,874	17,027,470	51,515,796

[1] Other financial liabilities include collateralized borrowings, lease liabilities, and derivatives designated as hedging instruments, which are not subject to categorizations.

(B) Net gains or losses on each category of financial assets and liabilities for the years ended December 31, 2021 and 2020 are as follows:

(1) 2021

(In millions of Korean won)	**Financial assets measured at amortized cost**	**Financial assets measured at fair value through other comprehensive income**	**Financial assets measured at fair value through profit or loss**	**Other financial assets[1]**	**Total**
Financial assets					
Gain (loss) on valuation (other comprehensive income)	-	2,980,896	-	27,715	3,008,611
Gain (loss) on valuation/disposal (profit or loss)	(1,969)	-	420,100	437	418,568
Reclassification from other comprehensive income to profit or loss	-	-	-	(148)	(148)
Interest income	1,278,051	-	227	-	1,278,278
Foreign exchange differences (profit or loss)	29,834	-	-	-	29,834
Dividend income	-	133,532	2,308	-	135,840
Impairment/reversal (profit or loss)	(27,194)	-	-	-	(27,194)

[1] Other financial assets include derivatives designated as hedging instruments which are not subject to categorizations.

(In millions of Korean won)	**Financial liabilities measured at amortized cost**	**Financial liabilities measured at fair value through profit or loss**	**Other financial liabilities[1]**	**Total**
Financial liabilities				
Gain (loss) on valuation (other comprehensive income)	-	-	22,695	22,695
Gain (loss) on valuation/disposal (profit or loss)	-	(65,368)	-	(65,368)
Reclassification from other comprehensive income to profit or loss	-	-	(121)	(121)
Interest expense	(213,477)	-	(218,063)	(431,540)
Foreign exchange differences (profit or loss)	362,820	-	3,447	366,267

[1] Other financial liabilities include collateralized borrowings, lease liabilities, and derivatives designated as hedging instruments, which are not subject to categorizations.

(2) 2020

(In millions of Korean won)	**Financial assets measured at amortized cost**	**Financial assets measured at fair value through other comprehensive income**	**Financial assets measured at fair value through profit or loss**	**Other financial assets[1]**	**Total**
Financial assets					
Gain (loss) on valuation (other comprehensive income)	-	2,502,733	-	(1,823)	2,500,910
Gain (loss) on valuation/disposal (profit or loss)	(6,725)	-	206,850	126	200,251
Reclassification from other comprehensive income to profit or loss	-	-	-	981	981
Interest income	1,974,141	-	317	-	1,974,458
Foreign exchange differences (profit or loss)	(886,631)	-	-	-	(886,631)
Dividend income	-	149,617	2,823	-	152,440
Impairment/reversal (profit or loss)	(42,824)	-	-	-	(42,824)

[1] Other financial assets include derivatives designated as hedging instruments which are not subject to categorizations.

(In millions of Korean won)	**Financial liabilities measured at amortized cost**	**Financial liabilities measured at fair value through profit or loss**	**Other financial liabilities[1]**	**Total**
Financial liabilities				
Gain on valuation (other comprehensive loss)	-	-	(22,995)	(22,995)
Gain (loss) on valuation/disposal (profit or loss)	-	86,371	(154)	86,217
Reclassification from other comprehensive income to profit or loss	-	-	12,368	12,368
Interest expense	(302,782)	-	(280,231)	(583,013)
Foreign exchange differences (profit or loss)	180,110	-	9,730	189,840

[1] Other financial liabilities include collateralized borrowings, lease liabilities, and derivatives designated as hedging instruments, which are not subject to categorizations.

5. Transfer of Financial Assets

Trade receivables of the Company have been discounted through factoring agreements with banks during the years ended December 31, 2021 and 2020. Trade receivables provided as collaterals in such factoring transactions do not meet the requirements for asset derecognition as risks and rewards are not substantially transferred in the event of a debtor default due to the recourse obligation, etc. Financial liabilities recognized in relation to these transactions are included as 'short-term borrowings' on the consolidated statements of financial position (refer to Note 12).

The following table presents a breakdown of discounted trade receivables as of December 31, 2021 and 2020:

(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Carrying amount of the discounted trade receivables[1]	11,556,101	14,275,043
Carrying amount of the related borrowings	11,556,101	14,275,043

[1] The discounted trade receivables include the intercompany balances.

6. Financial Assets at Fair Value

(A) Details of financial assets at fair value as of December 31, 2021 and 2020 are as follows:

(1) Financial assets at fair value through other comprehensive income

(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Non-current portion		
Equity instruments	13,965,839	12,575,216

(2) Financial assets at fair value through profit or loss

(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Current portion		
Debt instruments	40,757	71,451
Non-current portion		
Equity instruments	905,094	819,144
Debt instruments	620,250	383,825
Subtotal	1,525,344	1,202,969
Total	1,566,101	1,274,420

(B) Changes in financial assets at fair value for the years ended December 31, 2021 and 2020 are as follows:

(1) Financial assets at fair value through other comprehensive income

(In millions of Korean won)	**2021**	**2020**
Balance as of January 1	12,575,216	8,920,712
Acquisition	1,146,868	245,497
Disposal	(3,551,604)	(23,872)
Fair value valuation gain	3,653,253	3,423,908
Other	142,106	8,971
Balance as of December 31	13,965,839	12,575,216

(2) Financial assets at fair value through profit or loss

(In millions of Korean won)	**2021**	**2020**
Balance as of January 1	1,202,969	1,049,004
Acquisition	208,262	84,184
Disposal	(142,406)	(37,554)
Fair value valuation gain	275,447	122,042
Other	(18,928)	(14,707)
Balance as of December 31	1,525,344	1,202,969

(C) Changes in gain on valuation of financial assets at fair value through other comprehensive income for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Balance as of January 1	7,071,415	3,663,998
Fair value valuation gain	3,653,253	3,423,908
Reclassification to retained earnings due to disposals	(4,501,688)	(16,491)
Balance as of December 31	6,222,980	7,071,415
Income tax effects on equity and non-controlling interests	(1,606,341)	(2,095,659)
Total	4,616,639	4,975,756

(D) Details of listed equity securities of financial assets at fair value as of December 31, 2021 and 2020 are as follows:

	December 31, 2021				December 31, 2020
(In millions of Korean won, number of shares and percentage)	**Number of shares owned**	**Percentage of ownership[1] (%)**	**Acquisition cost**	**Carrying amount (Market value)**	**Carrying amount (Market value)**
Samsung Heavy Industries	134,027,281	15.2	932,158	759,935	708,882
Hotel Shilla	2,004,717	5.1	13,957	156,368	164,988
iMarket Korea	647,320	1.9	324	6,926	5,658
SFA	3,644,000	10.2	38,262	131,366	140,658
Wonik Holdings	3,518,342	4.6	30,821	17,521	22,306
Wonik IPS	3,701,872	7.5	32,428	156,589	163,808
ASML Holding N.V	6,297,787	1.5	363,012	5,974,280	3,350,532
Wacom Co., Ltd	8,398,400	5.0	62,013	79,256	76,589
BYD Company Limited	2,380,100	0.1	79,049	118,862	1,695,488
Corning Incorporated	80,000,000	9.4	3,980,636	3,530,893	-
Other			535,628	1,155,113	1,012,825
Total			6,068,288	12,087,109	7,341,734

[1] Ownership represents the Company's ownership of the total ordinary shares issued by each entity.

7. Trade and Non-Trade Receivables

(A) Trade and non-trade receivables as of December 31, 2021 and 2020 are as follows:

	December 31, 2021		December 31, 2020	
(In millions of Korean won)	**Trade**	**Non-trade**	**Trade**	**Non-trade**
Receivables	41,250,034	5,572,176	31,369,364	4,065,404
Less: Loss allowance	(310,880)	(72,805)	(318,731)	(59,487)
Subtotal	40,939,154	5,499,371	31,050,633	4,005,917
Less: Non-current portion	(225,739)	(1,002,114)	(85,575)	(401,378)
Current portion	40,713,415	4,497,257	30,965,058	3,604,539

(B) Movements in the loss allowance for receivables for the years ended December 31, 2021 and 2020 are as follows:

	2021		2020	
(In millions of Korean won)	**Trade**	**Non-trade**	**Trade**	**Non-trade**
Balance as of January 1	318,731	59,487	340,410	58,666
Bad debt expense (reversal)	17,990	9,009	40,006	2,869
Write-off	(19,095)	(2,424)	(40,384)	(103)
Other	(6,746)	6,733	(21,301)	(1,945)
Balance as of December 31	310,880	72,805	318,731	59,487

(C) The details of trade and non-trade receivables classified by past due date to measure expected credit losses as of December 31, 2021 and 2020 are as follows:

	December 31, 2021		December 31, 2020	
(In millions of Korean won)	**Trade**	**Non-trade**	**Trade**	**Non-trade**
Receivables not past due	39,677,264	5,125,414	29,395,528	3,585,376
Past due[1]:				
Less than 31 days overdue	1,229,479	196,783	1,269,398	129,054
31 days to 90 days overdue	36,545	51,804	137,568	42,603
Over 90 days overdue	306,746	198,175	566,870	308,371
Subtotal	1,572,770	446,762	1,973,836	480,028
Total	41,250,034	5,572,176	31,369,364	4,065,404

[1] The Company does not consider trade and non-trade receivables that are overdue for less than or equal to 31 days as impaired.

(D) The maximum exposure to current credit risk is equivalent to the carrying amount of receivables as of December 31, 2021. The Company has in place insurance contracts covering the Company's major receivables.

8. Inventories

Inventories as of December 31, 2021 and 2020 are as follows:

	December 31, 2021			December 31, 2020		
(In millions of Korean won)	**Gross amount**	**Valuation allowance**	**Carrying amount**	**Gross amount**	**Valuation allowance**	**Carrying amount**
Finished goods	13,000,200	(719,621)	12,280,579	9,711,668	(323,782)	9,387,886
Work in process	13,967,331	(493,713)	13,473,618	12,144,887	(326,797)	11,818,090
Raw materials and supplies	14,864,486	(679,645)	14,184,841	10,464,679	(673,913)	9,790,766
Materials in transit	1,445,366	-	1,445,366	1,046,403	-	1,046,403
Total	43,277,383	(1,892,979)	41,384,404	33,367,637	(1,324,492)	32,043,145

The inventories recognized as expense for the year ended December 31, 2021, amount to ₩ 164,319,031 million (2020: ₩ 143,172,743 million). The amount includes loss on valuation of inventories.

9. Investments in Associates and Joint Ventures

(A) Changes in investments in associates and joint ventures for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Balance as of January 1	8,076,779	7,591,612
Acquisition	47,090	83,280
Disposal	(34,664)	-
Share of profit	729,614	506,530
Other[1]	113,432	(104,643)
Balance as of December 31	8,932,251	8,076,779

[1] Other consists of dividends, impairment, and reclassification.

(B) Major investments in associates and joint ventures as of December 31, 2021 are as follows:

(1) Investments in associates

Investee	**Nature of relationship with associate**	**Percentage of ownership (%)[1]**	**Principal business location**	**Fiscal period-end**
Samsung Electro-Mechanics Co., Ltd.	Manufacture and supply electronic components including passive components, circuit boards, and modules	23.7	Korea	December
Samsung SDS Co., Ltd.	Provide IT services including computer programming, system integration and management and logistical services	22.6	Korea	December
Samsung Biologics Co., Ltd.	New business investment	31.5	Korea	December
Samsung SDI Co., Ltd.[2]	Manufacture and supply electronic components including secondary cell batteries	19.6	Korea	December
Cheil Worldwide, Inc.	Advertising agency	25.2	Korea	December

[1] Ownership represents the Company's ownership of the total ordinary shares issued by each entity.
[2] The Company's ownership of ordinary shares outstanding is 20.6%.

(2) Investments in joint ventures

Investee	**Nature of relationship with joint venture**	**Percentage of ownership (%)[1]**	**Principal business location**	**Fiscal period-end**
Samsung Corning Advanced Glass, LLC	Manufacture and supply industrial glass devices	50.0	Korea	December

[1] Ownership represents the Company's ownership of the total ordinary shares issued by each entity.

(C) Details of investments in associates and joint ventures as of December 31, 2021 and 2020 are as follows:

(1) Investments in associates

(In millions of Korean won)	December 31, 2021		
Investee	**Acquisition cost**	**Net asset value of equity shares[1]**	**Carrying amount**
Samsung Electro-Mechanics	359,237	1,573,570	1,556,386
Samsung SDS	147,963	1,632,847	1,652,155
Samsung Biologics	443,193	1,571,809	1,577,664
Samsung SDI	1,242,605	2,960,235	2,529,650
Cheil Worldwide	506,162	320,301	621,292
Other	644,903	578,547	793,748
Total	3,344,063	8,637,309	8,730,895

[1] The Company's portion of net asset value of associates is based on the Company's percentage of ownership.

(In millions of Korean won)	December 31, 2020		
Investee	**Acquisition cost**	**Net asset value of equity shares [1]**	**Carrying amount**
Samsung Electro-Mechanics	359,237	1,351,864	1,333,819
Samsung SDS	147,963	1,506,421	1,525,857
Samsung Biologics	443,193	1,448,259	1,453,012
Samsung SDI	1,242,605	2,612,629	2,326,037
Cheil Worldwide	506,162	288,877	586,057
Other	620,233	458,182	666,506
Total	3,319,393	7,666,232	7,891,288

[1] The Company's portion of net asset value of associates is based on the Company's percentage of ownership.

(2) Investments in joint ventures

(In millions of Korean won)	December 31, 2021		
Investee	**Acquisition cost**	**Net asset value of equity shares [1]**	**Carrying amount**
Samsung Corning Advanced Glass	215,000	135,584	135,580
Other	259,994	67,517	65,776
Total	474,994	203,101	201,356

[1] The Company's portion of net asset value of joint ventures is based on the Company's percentage of ownership.

(In millions of Korean won)	December 31, 2020		
Investee	**Acquisition cost**	**Net asset value of equity shares [1]**	**Carrying amount**
Samsung Corning Advanced Glass	215,000	123,360	123,356
Other	259,994	68,875	62,135
Total	474,994	192,235	185,491

[1] The Company's portion of net asset value of joint ventures is based on the Company's percentage of ownership.

(D) Details of the valuation of investments in associates and joint ventures using the equity method are as follows:

(1) For the year ended December 31, 2021

(In millions of Korean won)	**Balance as of January 1**	**Share of profit (loss)**	**Share of other comprehensive income**	**Other[1]**	**Balance as of December 31**
Samsung Electro-Mechanics	1,333,819	207,949	51,702	(37,084)	1,556,386
Samsung SDS	1,525,857	137,926	30,305	(41,933)	1,652,155
Samsung Biologics	1,453,012	124,979	(327)	-	1,577,664
Samsung SDI	2,326,037	128,483	88,594	(13,464)	2,529,650
Cheil Worldwide	586,057	47,619	12,008	(24,392)	621,292
Samsung Corning Advanced Glass	123,356	12,376	(129)	(23)	135,580
Other	728,641	70,282	29,826	30,775	859,524
Total	8,076,779	729,614	211,979	(86,121)	8,932,251

[1] Other consists of acquisitions, disposals, dividends, impairment and reclassification.

(2) For the year ended December 31, 2020

(In millions of Korean won)	**Balance as of January 1**	**Share of profit**	**Share of other comprehensive income**	**Other[1]**	**Balance as of December 31**
Samsung Electro-Mechanics	1,152,734	199,249	1,298	(19,462)	1,333,819
Samsung SDS	1,499,571	100,231	(36,057)	(37,888)	1,525,857
Samsung Biologics	1,377,043	73,135	2,834	-	1,453,012
Samsung SDI	2,233,516	62,106	43,878	(13,463)	2,326,037
Cheil Worldwide	570,215	44,433	(4,780)	(23,811)	586,057
Samsung Corning Advanced Glass	173,742	(51,175)	789	-	123,356
Other	584,791	78,551	(51,259)	116,558	728,641
Total	7,591,612	506,530	(43,297)	21,934	8,076,779

[1] Other consists of acquisitions, disposals, dividends, impairment, and reclassification.

(E) Summary of the condensed financial information of major associates and joint ventures

(1) Summary of condensed financial information of major associates and dividends received from associates as of December 31, 2021 and 2020, and for the years ended December 31, 2021 and 2020 are as follows:

	2021				
(In millions of Korean won)	**Samsung Electro-Mechanics**	**Samsung SDS**	**Samsung Biologics**	**Samsung SDI**	**Cheil Worldwide**
1. Condensed financial information					
Condensed statements of financial position :					
Current assets	4,598,269	7,575,968	2,823,175	7,444,907	2,018,598
Non-current assets	5,343,105	2,941,464	5,146,835	18,388,286	523,513
Current liabilities	2,234,657	2,370,290	1,107,295	6,461,286	1,224,222
Non-current liabilities	835,592	703,442	1,871,614	4,175,208	190,622
Non-controlling interests	152,177	214,980	-	492,435	10,125
Condensed statements of comprehensive income:					
Revenue	9,675,036	13,630,002	1,568,007	13,553,220	3,325,712
Profit from continuing operations, net of tax [1]	1,055,411	611,171	393,589	1,169,801	165,485
Profit from discontinued operation, net of tax[1]	(162,966)	-	-	-	-
Other comprehensive income (loss)[1]	151,809	134,163	(1,270)	623,792	32,535
Total comprehensive income[1]	1,044,254	745,334	392,319	1,793,593	198,020
Details of adjustments from the carrying amount of investments in associates					
Net assets (a)	6,718,948	7,228,720	4,991,101	14,704,264	1,117,142
Ownership percentage (b)[2]	23.4%	22.6%	31.5%	20.1%	28.7%
Net assets of equity shares (a x b)	1,573,570	1,632,847	1,571,809	2,960,235	320,301
Goodwill	7,081	26,801	3,645	-	298,779
Intercompany transactions and other[3]	(24,265)	(7,493)	2,210	(430,585)	2,212
Carrying amount of associates	1,556,386	1,652,155	1,577,664	2,529,650	621,292
2. Dividends from associates					
Dividends	24,770	41,933	-	13,463	24,392

[1] Profit (loss) attributable to owners of the investee

[2] Ownership percentage includes ordinary and preference shares.

[3] Consists of unrealized gains and losses and other differences.

(In millions of Korean won)	2020				
	Samsung Electro-Mechanics	**Samsung SDS**	**Samsung Biologics**	**Samsung SDI**	**Cheil Worldwide**
1. Condensed financial information					
Condensed statements of financial position:					
Current assets	4,150,303	6,581,153	1,751,347	5,657,405	1,742,270
Non-current assets	5,075,196	2,573,766	4,672,854	15,876,827	500,194
Current liabilities	1,914,880	1,720,757	589,301	4,983,633	1,046,224
Non-current liabilities	1,400,223	575,054	1,236,117	3,191,672	180,710
Non-controlling interests	138,107	190,081	-	381,311	7,988
Condensed statements of comprehensive income:					
Revenue	8,208,738	11,017,432	1,164,777	11,294,770	2,747,922
Profit from continuing operations, net of tax [1]	595,938	443,455	240,975	574,723	157,400
Profit from discontinued operation, net of tax[1]	8,024	-	-	-	-
Other comprehensive income (loss)[1]	(33,475)	(134,669)	3,354	144,901	(14,795)
Total comprehensive income[1]	570,487	308,786	244,329	719,624	142,605
Details of adjustments from the carrying amount of investments in associates					
Net assets (a)	5,772,289	6,669,027	4,598,783	12,977,616	1,007,542
Ownership percentage (b)[2]	23.40%	22.60%	31.50%	20.10%	28.70%
Net assets of equity shares (a x b)	1,351,864	1,506,421	1,448,259	2,612,629	288,877
Goodwill	7,081	26,801	3,645	-	298,779
Intercompany transactions and other[3]	(25,126)	(7,365)	1,108	(286,592)	(1,599)
Carrying amount of associates	1,333,819	1,525,857	1,453,012	2,326,037	586,057
2. Dividends from associates					
Dividends	19,462	41,933	-	13,463	23,811

[1] Profit (loss) attributable to owners of the investee.
[2] Ownership percentage includes ordinary and preference shares.
[3] Consists of unrealized gains and losses and other differences.

(2) Summary of condensed financial information of major joint ventures and dividends received from joint ventures as of December 31, 2021 and 2020, and for the years ended December 31, 2021 and 2020 are as follows:

	Samsung Corning Advanced Glass	
(In millions of Korean won)	**2021**	**2020**
Condensed financial information		
Condensed statements of financial position:		
Current assets	163,083	133,896
Non-current assets	141,411	153,792
Current liabilities	31,779	39,151
Non-current liabilities	1,547	1,817
Condensed statements of comprehensive income:		
Revenue	204,130	144,016
Profit (loss) from continuing operations, net of tax[1]	24,753	(12,668)
Profit (loss) from discontinued operations, net of tax[1]	-	(89,681)
Other comprehensive income[1]	(305)	1,578
Total comprehensive income[1]	24,448	(100,771)
Details of adjustments from the carrying amount of investments in joint ventures		
Net assets (a)	271,168	246,720
Ownership percentage (b)	50.00%	50.00%
Net assets of equity shares (a x b)	135,584	123,360
Intercompany transactions and other[2]	(4)	(4)
Carrying amount of joint ventures	135,580	123,356
Dividends from joint ventures		
Dividends	-	-

[1] Profit (loss) attributable to owners of the parent company.
[2] Consists of unrealized gains and losses and other differences.

(3) Profit (loss) attributable to owners of the parent company from associates and joint ventures which are not individually material for the years ended December 31, 2021 and 2020 are as follows:

	2021		2020	
(In millions of Korean won)	**Associates**	**Joint ventures**	**Associates**	**Joint ventures**
Profit from continuing operations	68,646	1,636	77,296	1,255
Other comprehensive income (loss)	29,258	568	(49,185)	(2,074)
Total comprehensive income (loss)	97,904	2,204	28,111	(819)

(F) Details of marketable investments in associates as of December 31, 2021 and 2020 are as follows:

(In millions of Korean won and number of shares)	December 31, 2021		December 31, 2020
	Number of shares held	**Market value**	**Market value**
Samsung Electro-Mechanics	17,693,084	3,494,384	3,149,369
Samsung SDS	17,472,110	2,734,385	3,118,772
Samsung Biologics	20,836,832	18,815,659	17,211,223
Samsung SDI	13,462,673	8,818,051	8,454,559
Cheil Worldwide	29,038,075	663,520	598,184

(G) Other matters

On July 12, 2018, the Korea Securities and Futures Commission determined an initial measure following an investigation relating to Samsung Biologics Co., Ltd., an associate of the Company, and its accounting for its investment in Samsung Bioepis Co., Ltd, a joint venture between Biogen Therapeutics Inc. and Samsung Biologics Co., Ltd. This measure included a recommendation to dismiss the director in charge, prosecution charges, and external auditor designation by the regulator, on the basis that the Joint Venture Agreement was not disclosed in the notes to the financial statements. On November 14, 2018, the Korea Securities and Futures Commission determined a second measure which included a penalty of ₩ 8,000 million, a recommendation to dismiss the CEO, a requirement to restate its financial statements, and further prosecution charges.

To prove justification of its accounting treatment, Samsung Biologics Co., Ltd. filed a suit for cancellation of the aforementioned measures to the Seoul Administrative Court, which is currently in progress. On September 24, 2020, the Seoul Administrative Court announced a decision to cancel the first measure charged by the Korea Securities and Futures Commission, and suspended its execution until the final rulings of the appeal. On October 16, 2020, the Korea Securities and Futures Commission appealed and the litigation is in progress at Seoul High Court. Samsung Biologics Co., Ltd. also filed for suspending the execution of the initial and second measures. On January 22, 2019 and February 19, 2019, the Seoul Administrative Court pronounced decisions to suspend the second and initial measure, respectively, until the final rulings. The Korea Securities and Futures Commission immediately appealed against the decisions but the appeals were dismissed by the Seoul High Court on May 13, 2019 and May 24, 2019, in relation to the second and first measures, respectively. On May 23, 2019 and June 10, 2019, The Korea Securities and Futures Commission re-appealed against the dismissals relating to the second and first measures, respectively. On September 6, 2019 and October 11, 2019, the Supreme Court of Korea dismissed the Korea Securities and Futures Commission's re-appeal relating to the second and first measures, respectively, and confirmed the decision to suspend the execution of these measures.

Although the future outcome of the administrative litigation cannot be estimated, should Samsung Biologics Co., Ltd. be required to restate its financial statements to amend its historical accounting treatment relating to its investment in Samsung Bioepis Co., Ltd., the Company's share of profit or loss relating to its equity method investment, the amount of investment in associates, and retained earnings, for the years ended December 31, 2015 and onwards, and the profit on disposal of investment for the year ended December 31, 2016, may be impacted. Given the timing of completion and the final result of the administrative litigation between Samsung Biologics Co., Ltd. and the Korea Securities and Futures Commission is uncertain and cannot currently be estimated, it is not possible for the Company to recognize the effects of these proceedings in the current period consolidated financial statements.

10. Property, Plant and Equipment

(A) Changes in property, plant and equipment for the years ended December 31, 2021 and 2020 are as follows:

	2021					
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Construction in progress**	**Other**	**Total**
Balance as of January 1	9,772,156	34,552,004	60,994,130	20,175,917	3,458,685	128,952,892
Acquisition cost	9,850,942	55,026,369	233,056,501	20,175,917	10,496,584	328,606,313
Accumulated depreciation and impairment	(78,786)	(20,474,365)	(172,062,371)	-	(7,037,899)	(199,653,421)
Acquisitions and capital expenditures[1]	117,933	6,608,620	43,862,769	(2,320,520)	1,696,362	49,965,164
Depreciation	(47,517)	(3,174,672)	(26,552,958)	-	(1,510,062)	(31,285,209)
Disposals/scrap	(49,683)	(91,964)	(18,307)	(469)	(6,200)	(166,623)
Impairment(reversal)	-	(12,135)	(131,985)	-	(7,082)	(151,202)
Other[2]	37,265	987,587	1,372,648	154,396	61,621	2,613,517
Balance as of December 31	9,830,154	38,869,440	79,526,297	18,009,324	3,693,324	149,928,539
Acquisition cost	9,943,570	62,651,459	274,909,571	18,009,324	11,958,070	377,471,994
Accumulated depreciation and impairment	(113,416)	(23,782,019)	(195,383,274)	-	(8,264,746)	(227,543,455)

[1] The capitalized borrowing costs are ₩ 24,908 million and interest rate used to calculate the borrowing costs eligible for capitalization is 0.3%~1.1%.
[2] Other includes effects of changes in foreign currency exchange rates and effects of the offset related to government grants.

	2020					
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Construction in progress**	**Other**	**Total**
Balance as of January 1	9,774,554	30,469,620	52,149,936	23,930,019	3,501,345	119,825,474
Acquisition cost	9,828,309	48,839,439	211,416,021	23,930,019	10,061,981	304,075,769
Accumulated depreciation and impairment	(53,755)	(18,369,819)	(159,266,085)	-	(6,560,636)	(184,250,295)
Acquisitions and capital expenditures[1]	141,197	8,524,794	32,907,696	(3,443,884)	1,281,811	39,411,614
Depreciation	(45,707)	(2,978,741)	(22,780,113)	-	(1,311,174)	(27,115,735)
Disposals, scrap	(20,308)	(276,235)	(108,935)	(618)	(104,829)	(510,925)
Impairment (reversal)	-	(3,627)	(316,723)	-	(4,806)	(325,156)
Reclassification to assets held-for-sale	(29,275)	(540,258)	(181,744)	(8,947)	(6,390)	(766,614)
Other[2]	(48,305)	(643,549)	(675,987)	(300,653)	102,728	(1,565,766)
Balance as of December 31	9,772,156	34,552,004	60,994,130	20,175,917	3,458,685	128,952,892
Acquisition cost	9,850,942	55,026,369	233,056,501	20,175,917	10,496,584	328,606,313
Accumulated depreciation and impairment	(78,786)	(20,474,365)	(172,062,371)	-	(7,037,899)	(199,653,421)

[1] The capitalized borrowing costs are ₩ 3,897 million and interest rate used to calculate the borrowing costs eligible for capitalization is 0.6%.
[2] Other includes the cumulative effect of changes in accounting policies, effects of changes in foreign currency exchange rates and effects of the offset related to government grants.

(B) Changes in the right-of-use assets included in the property, plant and equipment for the years ended December 31, 2021 and 2020 are as follows:

	2021				
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Other**	**Total**
Balance as of January 1	441,603	2,105,360	109,372	313,538	2,969,873
Acquisition	112,419	1,326,322	136,680	173,490	1,748,911
Depreciation	(57,699)	(553,324)	(54,233)	(66,868)	(732,124)
Disposals/scrap	(398)	(60,742)	(1,265)	(4,790)	(67,195)
Other[1]	30,029	24,354	505	(23,786)	31,102
Balance as of December 31	525,954	2,841,970	191,059	391,584	3,950,567

[1] Other includes effects of changes in foreign currency exchange rates.

	2020				
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Other**	**Total**
Balance as of January 1[1]	438,095	2,361,717	130,965	381,142	3,311,919
Acquisition	116,683	593,157	42,447	58,536	810,823
Depreciation	(64,078)	(715,950)	(56,618)	(97,886)	(934,532)
Disposals/scrap	(8,968)	(160,267)	(6,526)	(24,720)	(200,481)
Reclassification to assets held-for-sale	(29,275)	-	(9)	(131)	(29,415)
Other[2]	(10,854)	26,703	(887)	(3,403)	11,559
Balance as of December 31	441,603	2,105,360	109,372	313,538	2,969,873

[1] The beginning balance is the financial lease assets recognized in accordance with previous accounting standard, Korean IFRS 1017 *Lease*
[2] Other includes the cumulative effect of changes in accounting policies and effects of changes in foreign currency exchange rates.

(C) Details of depreciation of property, plant and equipment for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Cost of sales	27,868,090	23,824,208
Selling and administrative expenses, and etc.	3,417,119	3,291,527
Total	31,285,209	27,115,735

11. Intangible Assets

(A) Changes in intangible assets for the years ended December 31, 2021 and 2020 are as follows:

	2021					
(In millions of Korean won)	**Intellectual property rights**	**Development cost**	**Membership**	**Goodwill**	**Other**	**Total**
Balance as of January 1	4,033,904	371,391	229,987	5,673,642	8,159,578	18,468,502
External acquisitions	333,073	-	8,757	-	3,648,484	3,990,314
Internally generated/developed	-	193,708	-	-	-	193,708
Amortization	(278,288)	(321,608)	-	-	(2,362,256)	(2,962,152)
Disposals/scrap	(51,236)	-	(195)	-	(1,696)	(53,127)
Impairment (reversal)	(52,101)	-	(1,586)	-	-	(53,687)
Other[1]	167,884	(6,581)	4,256	170,617	316,510	652,686
Balance as of December 31	4,153,236	236,910	241,219	5,844,259	9,760,620	20,236,244

[1] Other includes the cumulative effect of changes in foreign currency exchange rates and others.

	2020					
(In millions of Korean won)	**Intellectual property rights**	**Development cost**	**Membership**	**Goodwill**	**Other**	**Total**
Balance as of January 1	4,365,510	740,774	222,499	6,250,439	9,124,282	20,703,504
External acquisitions	300,399	-	1,785	-	1,356,267	1,658,451
Internally generated/developed	-	109,482	-	-	-	109,482
Amortization	(297,465)	(455,990)	-	-	(2,466,426)	(3,219,881)
Disposals/scrap	(30,055)	-	(343)	-	(912)	(31,310)
Impairment (reversal)	(189,155)	(3,474)	7,091	(570,817)	(161,739)	(918,094)
Reclassification to assets held-for-sale	-	-	(313)	-	(1,108)	(1,421)
Other[1]	(115,330)	(19,401)	(732)	(5,980)	309,214	167,771
Balance as of December 31	4,033,904	371,391	229,987	5,673,642	8,159,578	18,468,502

[1] Other includes effects of reclassification of licenses and changes in foreign currency exchange rates.

(B) Goodwill

Goodwill is allocated to each cash-generating unit. Details of goodwill as of December 31, 2021 and 2020 are as follows:

(In millions of Korean won)		**December 31, 2021**	**December 31, 2020**
CE segment		529,979	524,383
IM segment		684,751	657,146
DS segment	Semiconductor	160,026	153,520
	Display panel	138,061	138,754
Harman segment		4,330,139	4,199,334
Other		1,303	505
Total		5,844,259	5,673,642

Goodwill impairment reviews are performed annually, and the recoverable amounts of cash-generating units have been determined based on the value-in-use calculations, etc. These calculations generally use the pre-tax cash flow projections based on the financial budgets approved by management covering a five-year period, unless it is reasonable to use long-term financial budgets longer than five years in the new technology business. Perpetual cash flows beyond the five-year period are extrapolated using a constant growth rate assumption. The growth rate applied was capped at the long-term average growth rate for the industry.

(C) Details of amortization of intangible assets for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Cost of sales	2,136,937	2,387,508
Selling and administrative expenses and other	825,215	832,373
Total	2,962,152	3,219,881

12. Borrowings

(A) Details of the carrying amounts of borrowings as of December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	Financial institutions	Interest rates (%) as of Dec 31, 2021	December 31, 2021	December 31, 2020
Short-term borrowings				
Collateralized borrowings[1]	Woori Bank and others	0.0~13.3	11,556,101	14,275,043
Non-collateralized borrowings	Citibank and others	0.0~30.0	2,131,692	2,278,386
Total			13,687,793	16,553,429
Current portion of long-term borrowings				
Bank borrowings	BNP	18.3~19.6	40,415	-
Lease liabilities[2]	CSSD and others	3.3	811,902	710,781
Total			852,317	710,781
Long-term borrowings				
Bank borrowings	Industrial Bank of Korea	1.5	1,500	-
Lease liabilities[2]	CSSD and others	3.3	2,864,656	1,999,716
Total			2,866,156	1,999,716

[1] Collateralized borrowings are secured by trade receivables.

[2] Interest expenses arising from the lease liabilities for the years ended December 31, 2021 and 2020 amount to ₩ 106,877 million and ₩ 109,040 million, respectively, which were determined using the weighted average incremental borrowing rate. The right-of-use assets are pledged as collateral to the lessor in the event of default. Short-term lease payments and low- valued asset lease payments that are not included in measurement of lease liabilities during the years ended December 31, 2021 and 2020 amount to ₩ 129,686 million and ₩ 120,151 million, respectively.

(B) Maturities of Long-term borrowings outstanding as of December 31, 2021 are as follows:

(In millions of Korean won)	Long-term borrowings
Repayment terms	
2022	40,415
2023	-
2024	-
2025	-
2026 and thereafter	1,500
Total	41,915

(C) Maturities of lease liabilities outstanding as of December 31, 2021 are as follows:

(In millions of Korean won)	Lease liabilities
Repayment terms	
2022	910,368
2023	748,573
2024	602,194
2025	471,056
2026 and thereafter	1,333,320
Total	4,065,511

13. Debentures

(A) Details of the carrying amounts of debentures as of December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**Issue date**	**Due date**	**Interest rates (%) as of Dec 31, 2021**	**December 31, 2021**	**December 31, 2020**
US dollar denominated straight bonds[1]	1997.10.2	2027.10.1	7.7	35,565 (US$ 30 million)	38,080 (US$ 35 million)
US dollar denominated debenture bonds[2]	2015.5.11	2025.5.15	4.2	474,200 (US$ 400 million)	435,200 (US$ 400 million)
EURO denominated debenture bonds[3]	2015.5.27	2022.5.27	2.0	469,819 (EUR 350 million)	468,383 (EUR 350 million)
Less: Discounts				(708)	(853)
Add: Premium				7,007	12,645
Less: Current portion				(477,651)	(5,318)
Total				508,232	948,137

[1] US dollar denominated straight bonds are repaid annually for twenty years after a ten-year grace period from the date of issuance. Interest is paid semi-annually.

[2] Harman International Industries, Inc. issued US dollar denominated debenture bonds. These debentures are repaid on the date of 10 years maturity and interest is paid semi-annually.

[3] Harman Finance International, SCA issued Euro denominated debenture bonds. These debentures are repaid on the date of 7 years maturity and interest is paid annually.

(B) Maturities of debentures outstanding as of December 31, 2021 are as follows:

(In millions of Korean won)	**Debentures**
Repayment terms	
2022	475,747
2023	5,928
2024	5,928
2025	480,128
2026 and thereafter	11,853
Total	979,584

14. Net Defined Benefit Liabilities (Assets)

(A) Details of net defined benefit liabilities (assets) recognized in the statements of financial position as of December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Present value of funded defined benefit obligations	14,391,209	12,400,964
Present value of unfunded defined benefit obligations	266,976	548,035
Subtotal	14,658,185	12,948,999
Fair value of plan assets	(17,001,891)	(13,840,043)
Total	(2,343,706)	(891,044)

(B) The components of defined benefit costs recognized in profit or loss for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Current service cost	1,247,857	1,131,355
Net interest income	(38,326)	(9,801)
Past service cost	2,718	2,377
Other	3,847	2,193
Total	1,216,096	1,126,124

The amount recognized as an expense of defined contribution plans for the years ended December 31, 2021 and 2020 are ₩ 144,248 million and ₩ 164,055 million, respectively.

(C) The expenses related to the defined benefit plans recognized in the statements of profit or loss for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Cost of sales	480,331	498,006
Selling and administrative expenses and other	735,765	628,118
Total	1,216,096	1,126,124

(D) Changes in the defined benefit obligations for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Balance as of January 1	12,948,999	11,148,069
Current service cost	1,247,857	1,131,355
Interest cost	396,730	328,919
Past service cost	2,718	2,377
Remeasurement:		
Actuarial gains or losses arising from changes in demographic assumptions	(34,014)	(19,030)
Actuarial gains or losses arising from changes in financial assumptions	126,297	622,647
Other	473,668	285,440
Benefits paid	(519,043)	(514,853)
Other[1]	14,973	(35,925)
Balance as of December 31	14,658,185	12,948,999

[1] Other includes effects of changes in foreign currency exchange rates and business combinations.

(E) Changes in the fair value of plan assets for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Balance as of January 1	13,840,043	11,267,121
Interest income on plan assets	435,056	338,720
Remeasurement of plan assets	(146,239)	(108,066)
Contributions by employer	3,263,765	2,623,122
Benefits paid	(397,678)	(295,520)
Other[1]	6,944	14,666
Balance as of December 31	17,001,891	13,840,043

[1] Other includes effects of changes in foreign currency exchange rates and business combinations.

Expected contributions to post-employment benefit plans to be paid in 2022 for the year ended December 31, 2021 are ₩ 1,749,206 million.

(F) Plan assets as of December 31, 2021 and 2020 consist of the following:

(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Principal guaranteed fixed income financial instruments and other	16,935,143	13,799,119
Other	66,748	40,924
Total	17,001,891	13,840,043

Plan assets are mostly invested in instruments which have a quoted price in active markets.

(G) The principal actuarial assumptions as of December 31, 2021 and 2020 are as follows:

(In percentage)	**December 31, 2021**	**December 31, 2020**
Discount rate	0.2~7.2	0.2 ~ 7.2
Salary growth rate (including the effects of inflation)	1.5~10.0	1.5 ~ 10.0

(H) The sensitivity analysis of the defined benefit obligations as of December 31, 2021 and 2020 to changes in the weighted principal assumptions is as follows:

(In percentage)	**December 31, 2021**	**December 31, 2020**
Discount rate		
1%p increase	91	91
1%p decrease	110	111
Salary growth rate		
1%p increase	110	111
1%p decrease	91	91

(I) The weighted average maturity of the defined benefit obligations is 9.53 years as of December 31, 2021.

15. Provisions

Changes in provisions for the year ended December 31, 2021 are as follows:

(In millions of Korean won)	Warranty (A)	Royalty expenses (B)	Long-term incentives (C)	Other (D, E)	Total
Balance as of January 1	1,765,882	1,304,091	651,298	1,679,720	5,400,991
Charged to profit or loss	1,628,023	606,265	288,712	2,562,479	5,085,479
Payment	(1,456,266)	(464,463)	(208,673)	(1,093,757)	(3,223,159)
Other[1]	40,655	115,916	2,946	257,038	416,555
Balance as of December 31	**1,978,294**	**1,561,809**	**734,283**	**3,405,480**	**7,679,866**

[1] Other includes effects of changes in foreign currency exchange rates.

(A) The Company accrues warranty reserves for estimated costs of quality assurance, exchanges, repairs, recalls, and future services based on historical experience and terms of warranty programs.

(B) The Company recognizes provisions for the estimated royalty expenses that are under negotiation with counterparties. The timing and amount of payment depend on the settlement of the negotiation.

(C) The Company has a long-term incentive plan for its executives based on a three-year management performance criteria and recognizes a provision for the estimated incentive cost for the accrued period.

(D) The Company records provisions for future expenses expected to be incurred for products that have been discontinued from manufacturing and sales.

(E) The Company makes provisions for the carrying amounts of emission rights held by the Company and the emission in excess of the emission rights for the applicable years. Details of emission rights and liabilities as of December 31, 2021 are as follows:

(1) Allocated amount of emission permits and the estimated amount of emission as of December 31, 2021 are as follows:

(In ten thousand metric tons)	December 31, 2021
Allocated emission permits	1,689
Estimated volume of emission	1,946

As of December 31, 2021, emission permits allocated to the Company for the remaining plan periods are 65,420 thousand tons.

(2) Changes in the emission permits rights for the year ended December 31, 2021 are as follows:

(In millions of Korean won)	2021
Balance as of January 1	44,865
Increase	1,422
Decrease	(213)
Balance as of December 31	46,074

(3) Changes in emissions liabilities for the year ended December 31, 2021 are as follows:

(In millions of Korean won)	2021
Balance as of January 1	31,876
Charged to profit or loss	13,374
Submission	(201)
Balance as of December 31	45,049

16. Commitments and Contingencies

(A) Litigation

The Company is involved in various claims, disputes, and investigations conducted by regulatory bodies, which arose during the normal course of business with numerous entities. Although the outflow of resources and timing of these matters are uncertain, as of the reporting date, the Company believes the outcome will not have a material impact on the financial position of the Company.

(B) Other commitments

(1) As of December 31, 2021, the Company has trade financing agreements, trade notes receivable discounting facilities, and loan facilities with accounts receivable pledged as collateral with 25 financial institutions including Woori Bank, with a combined limit of up to ₩ 20,836,952 million. In addition, the Company has a trade financing agreement (up to ₩ 14,513,419 million) with 19 financial institutions including Shinhan Bank and loan facilities with accounts receivable pledged as collateral and other financial agreements (up to ₩ 2,154,508 million).

(2) As of December 31, 2021, unfulfilled agreements relating to the acquisition of property, plant and equipment and intangible assets amount to ₩ 9,683,328 million.

17. Contract Liabilities

The Company has recognized contract liabilities related to contracts with customers as follows:

(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Contract liabilities[1]	13,235,108	11,902,130

[1] Contract liabilities include advances received, accrued expenses, other current liabilities and others.

The revenue recognized during the year ended December 31, 2021 in relation to carried-forward contract liabilities as of January 1, 2021 amounts to ₩ 969,300 million.

18. Share Capital

As of December 31, 2021, the Company's total number of authorized shares is 25,000,000,000 shares (₩ 100 per share). The Company has issued 5,969,782,550 shares of ordinary shares and 822,886,700 shares of preference shares as of December 31, 2021, excluding the retired shares. As of the December 31, 2021, the number of shares outstanding is the same as the number of shares issued above, and no changes were made to the number of shares outstanding during the years ended December 31, 2021 and 2020. Due to the retirement of shares, the total par value of the shares issued is ₩ 679,267 million (ordinary shares of ₩ 596,978 million and preference shares of ₩ 82,289 million), which does not agree with paid-in capital of ₩ 897,514 million.

19. Retained Earnings

(A) Retained earnings as of December 31, 2021 and 2020 consist of the following:

(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Discretionary reserve, etc.	170,814,107	174,739,565
Unappropriated retained earnings	122,250,656	96,328,646
Total	293,064,763	271,068,211

(B) Details of interim and year-end dividends are as follows:

(1) Interim dividends (Record date: March 31, 2021 and 2020, June 30, 2021 and 2020 and September 30, 2021 and 2020)

(In millions of Korean won and number of shares)			**2021**	**2020**
1st Quarter	Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
		Preference shares	822,886,700	822,886,700
	Dividend rate (based on par value)		361%	354%
	Dividend amount	Ordinary shares	2,155,092	2,113,303
		Preference shares	297,062	291,302
		Total	2,452,154	2,404,605
2nd Quarter	Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
		Preference shares	822,886,700	822,886,700
	Dividend rate (based on par value)		361%	354%
	Dividend amount	Ordinary shares	2,155,092	2,113,303
		Preference shares	297,062	291,302
		Total	2,452,154	2,404,605
3rd Quarter	Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
		Preference shares	822,886,700	822,886,700
	Dividend rate (based on par value)		361%	354%
	Dividend amount	Ordinary shares	2,155,092	2,113,303
		Preference shares	297,062	291,302
		Total	2,452,154	2,404,605

(2) Year-end dividends (Record date: December 31, 2021 and 2020)

(In millions of Korean won and number of shares)		**2021**	**2020**
Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
	Preference shares	822,886,700	822,886,700
Dividend rate (based on par value)	Ordinary shares	361%	1932%
	Preference shares	362%	1933%
Dividend amount	Ordinary shares	2,155,092	11,533,620
	Preference shares	297,884	1,590,640
	Total	2,452,976	13,124,260

20. Other Components of Equity

Other components of equity as of December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Gain on valuation of financial assets at fair value through other comprehensive income	4,616,639	4,975,756
Share of other comprehensive loss of associates and joint ventures	166,835	(58,629)
Loss on overseas business translation	(3,824,733)	(10,977,583)
Remeasurement of net defined benefit assets	(3,173,977)	(2,653,425)
Other	86,763	26,726
Total	(2,128,473)	(8,687,155)

21. Expenses by Nature

Expenses by nature for the years ended December 31, 2021 and 2020 consist of the following:

(In millions of Korean won)	**2021**	**2020**
Changes in finished goods, work in process, and other	(4,517,560)	(3,234,887)
Raw materials used, merchandise purchased, and other	95,625,437	81,792,130
Wages and salaries	28,207,782	25,054,684
Post-employment benefit	1,360,344	1,290,179
Depreciation	31,285,209	27,115,735
Amortization	2,962,152	3,219,881
Welfare	5,073,002	4,655,347
Utilities	4,928,929	4,717,553
Outsourcing	5,594,602	5,409,889
Advertising	5,376,015	4,269,043
Sales promotion expenses	6,286,159	5,861,954
Other	45,788,872	40,661,604
Total[1]	227,970,943	200,813,112

[1] Equal to the sum of cost of sales and selling and administrative expenses in the consolidated statements of profit or loss.

22. Selling and Administrative Expenses

Selling and administrative expenses for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Selling and administrative expenses		
Wages and salaries	7,245,981	6,763,143
Post-employment benefit	310,823	279,711
Commissions	6,192,568	5,678,703
Depreciation	1,529,507	1,593,365
Amortization	543,544	492,314
Advertising	5,376,015	4,269,043
Sales promotion expenses	6,286,159	5,861,954
Transportation	2,792,690	2,218,422
Service charges	4,039,642	3,368,401
Other	4,840,946	4,688,270
Subtotal	39,157,875	35,213,326
Research and development expenses		
Total expenses	22,595,434	21,220,972
Capitalized expenses	(193,708)	(109,482)
Subtotal	22,401,726	21,111,490
Total	61,559,601	56,324,816

23. Other Non-Operating Income and Expenses

Details of other non-operating income and expenses for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Other non-operating income		
Dividend income	135,840	152,440
Rental income	132,801	147,104
Gain on disposal of property, plant and equipment	340,400	154,249
Other	1,596,654	930,275
Total	2,205,695	1,384,068

(In millions of Korean won)	**2021**	**2020**
Other non-operating expenses		
Loss on disposal of property, plant and equipment	75,586	87,673
Donations	270,927	311,421
Other	1,709,458	2,089,808
Total	2,055,971	2,488,902

24. Financial Income and Expenses

Details of financial income and expenses for the years ended December 31, 2021 and 2020 are as follows:

(*In millions of Korean won*)	**2021**	**2020**
Financial income		
Interest income	1,278,278	1,974,458
Interest income from financial assets measured at amortized cost	1,278,051	1,974,141
Interest income from financial assets measured at fair value through profit or loss	227	317
Foreign exchange differences	6,525,676	9,270,039
Gains from derivatives	739,233	1,023,103
Total	8,543,187	12,267,600

(*In millions of Korean won*)	**2021**	**2020**
Financial expenses		
Interest expenses	431,540	583,013
Interest expenses from financial liabilities measured at amortized cost	213,477	302,782
Other financial liabilities	218,063	280,231
Foreign exchange differences	6,486,093	9,868,591
Losses from derivatives	786,921	866,451
Total	7,704,554	11,318,055

The Company recognizes foreign exchange gains and losses arising from foreign currency transactions and translation as financial income and expenses.

25. Income Tax Expense

(A) Income tax expense for the years ended December 31, 2021 and 2020 consists of the following:

(In millions of Korean won)	**2021**	**2020**
Current taxes		
Current tax on profits for the year	11,135,521	7,361,115
Adjustments recognize in the current year	(195,237)	339,673
Subtotal	10,940,284	7,700,788
Deferred taxes		
Changes in deferred taxes arising from unused tax credits	(332,975)	(325,880)
Changes in deferred taxes arising from temporary differences	2,172,312	2,312,926
Changes in deferred taxes arising from unused tax losses	507,313	264,349
Other	157,443	(14,898)
Subtotal	2,504,093	2,236,497
Items charged directly to equity	-	-
Income tax expense	13,444,377	9,937,285

(B) The tax on the Company's profit before income tax differs from the theoretical amount that would arise using the weighted-average statutory tax rate applicable to profits of the Company as follows:

(In millions of Korean won)	**2021**	**2020**
Profit before income tax	53,351,827	36,345,117
Tax calculated at weighted average of applicable tax rates[1]	15,760,775	8,972,156
Adjustments:		
Permanent differences	(464,839)	(269,002)
Temporary differences for which no deferred income tax was recognized	(80,250)	(130,892)
Tax credits and exemptions	(4,627,136)	(1,902,680)
Results of interest in subsidiaries, etc.	2,267,026	2,774,410
Impact of changes in tax rates	8,691	(5,019)
Other	580,110	498,312
Subtotal	(2,316,398)	965,129
Income tax expense	13,444,377	9,937,285

[1] The weighted average of statutory tax rates are applied to the respective profits of the Company applicable to each tax authority as of December 31, 2021 and 2020.

(C) The movement in deferred income tax assets and liabilities resulting from the tax effect of temporary differences for the years ended December 31, 2021 and 2020 are as follows:

(1) 2021

	Temporary differences			Deferred income tax assets (liabilities)		
(In millions of Korean won)	**Balance as of January 1**	**Increase (Decrease)**	**Balance as of December 31**	**Balance as of January 1**	**Increase (Decrease)**	**Balance as of December 31**
Deferred tax arising from temporary differences						
Revaluation of land	(3,420,886)	14,261	(3,406,625)	(940,744)	3,922	(936,822)
Investments in subsidiaries, associates and joint ventures[1]	(111,924,859)	(14,891,920)	(126,816,779)	(19,172,409)	(1,442,145)	(20,614,554)
Accumulated depreciation and other	(2,285,841)	(1,528,757)	(3,814,598)	(992,777)	(779,016)	(1,771,793)
Accrued income	(139,406)	117,253	(22,153)	(31,486)	38,339	6,853
Provisions, accrued expenses and other	13,121,416	2,858,039	15,979,455	3,764,808	796,066	4,560,874
Foreign currency translation	(24,683)	87,298	62,615	(10,077)	22,153	12,076
Asset impairment losses	1,855,765	(721,717)	1,134,048	453,486	(194,600)	258,886
Other	562,628	(1,054,853)	(492,225)	(21,726)	(617,031)	(638,757)
Subtotal	(102,255,866)	(15,120,396)	(117,376,262)	(16,950,925)	(2,172,312)	(19,123,237)
Deferred tax arising from tax losses						
Unused tax losses	3,618,601	(1,603,153)	2,015,448	943,794	(507,313)	436,481
Deferred tax arising from tax credits						
Unused tax credits	1,328,527	358,538	1,687,065	1,333,387	332,975	1,666,362
Deferred tax recognized in equity						
Gain (loss) on valuation of financial assets at fair value through other comprehensive income and other	(1,660,421)	(1,914,673)	(3,575,094)	(909,176)	(2,246,134)	(3,155,310)
Remeasurement of net defined benefit assets	3,735,320	712,190	4,447,510	1,047,075	191,638	1,238,713
Subtotal	2,074,899	(1,202,483)	872,416	137,899	(2,054,496)	(1,916,597)
Deferred tax assets				4,275,000	(13,786)	4,261,214
Deferred tax liabilities				(18,810,845)	(4,387,360)	(23,198,205)
Total				(14,535,845)	(4,401,146)	(18,936,991)

[1] Deferred tax assets are not recognized if it is probable that the temporary differences will not reverse in the foreseeable future for investments in subsidiaries, associates and joint ventures.

(2) 2020

(In millions of Korean won)	Temporary differences			Deferred income tax assets (liabilities)		
	Balance as of January 1	**Increase (Decrease)**	**Balance as of December 31**	**Balance as of January 1**	**Increase (Decrease)**	**Balance as of December 31**
Deferred tax arising from temporary differences						
Revaluation of land	(3,417,804)	(3,082)	(3,420,886)	(939,896)	(848)	(940,744)
Investments in subsidiaries, associates and joint ventures[1]	(96,397,199)	(15,527,660)	(111,924,859)	(16,669,138)	(2,503,271)	(19,172,409)
Accumulated depreciation and other	(4,529,334)	2,243,493	(2,285,841)	(982,556)	(10,221)	(992,777)
Accrued income	(248,662)	109,256	(139,406)	(61,332)	29,846	(31,486)
Provisions, accrued expenses and other	12,251,647	869,769	13,121,416	3,282,747	482,061	3,764,808
Foreign currency translation	(97,929)	73,246	(24,683)	(30,227)	20,150	(10,077)
Asset impairment losses	1,790,729	65,036	1,855,765	492,332	(38,846)	453,486
Other	2,252,684	(1,690,056)	562,628	270,071	(291,797)	(21,726)
Subtotal	(88,395,868)	(13,859,998)	(102,255,866)	(14,637,999)	(2,312,926)	(16,950,925)
Deferred tax arising from tax losses						
Unused tax losses	4,563,095	(944,494)	3,618,601	1,208,143	(264,349)	943,794
Deferred tax arising from tax credits						
Unused tax credits	1,311,498	17,029	1,328,527	1,007,507	325,880	1,333,387
Deferred tax recognized in equity						
Loss on valuation of financial assets at fair value through other comprehensive income and other	(2,928,550)	1,268,129	(1,660,421)	(895,922)	(13,254)	(909,176)
Remeasurement of net defined benefit assets	2,738,197	997,123	3,735,320	769,512	277,563	1,047,075
Subtotal	(190,353)	2,265,252	2,074,899	(126,410)	264,309	137,899
Deferred tax assets				4,505,049	(230,049)	4,275,000
Deferred tax liabilities				(17,053,808)	(1,757,037)	(18,810,845)
Total				(12,548,759)	(1,987,086)	(14,535,845)

[1] Deferred tax assets are not recognized if it is probable that the temporary differences will not reverse in the foreseeable future for investments in subsidiaries, associates and joint ventures.

The Company assessed that the deferred tax asset is realizable as the estimated average annual taxable income in future years exceeds the tax loss carry forwards and tax credit carry forwards to be reversed in each accounting period. Temporary differences in which deferred tax effects were not recognized due to uncertainty regarding the ultimate realizability of such assets as of December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Unused tax losses	706,512	751,255
Unused tax credits	47,929	37,816

Expected expiry dates of unused tax losses and credits for which no deferred tax asset is recognized are as follows:

(In millions of Korean won)	**2021**	**2021**	**2022**	**2023 and after**
Unused tax losses	-	1,316	-	705,196
Unused tax credits	13,302	3,145	24,364	7,118

(D) Details of the period when the deferred tax assets (liabilities) are recovered (settled) as of December 31, 2021 and 2020 are as

follows:

(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Deferred tax assets		
Deferred tax assets to be recovered within 12 months	2,999,046	2,839,030
Deferred tax assets to be recovered after more than 12 months	1,262,168	1,435,970
Subtotal	**4,261,214**	**4,275,000**
Deferred tax liabilities		
Deferred tax liabilities to be settled after more than 12 months	(23,198,205)	(18,810,845)
Total	**(18,936,991)**	**(14,535,845)**

26. Earnings per Share

(A) Basic earnings per share

Basic earnings per share for the years ended December 31, 2021 and 2020 are calculated as follows:

(1) Ordinary shares

(In millions of Korean won, thousands of number of shares)	**2021**	**2020**
Profit for the year attributable to owners of the parent company	39,243,791	26,090,846
Profit for the year available for ordinary shares	34,488,944	22,929,390
Weighted-average number of ordinary shares outstanding	5,969,783	5,969,783
Basic earnings per ordinary share *(in Korean won)*	5,777	3,841

(2) Preference shares

(In millions of Korean won, thousands of number of shares)	**2021**	**2020**
Profit for the year attributable to owners of the parent company	39,243,791	26,090,846
Profit for the year available for preference shares	4,754,847	3,161,456
Weighted-average number of preference shares outstanding	822,887	822,887
Basic earnings per preference share *(in Korean won)*	5,778	3,842

(B) Diluted earnings per share

The Company does not have dilutive potential ordinary shares and as a result, basic earnings per share and diluted earnings per share are the same for the years ended December 31, 2021 and 2020.

27. Statements of Cash Flows

(A) The Company used the indirect method to present cash flows from operating activities. Adjustments and changes in assets and liabilities arising from operating activities for the years ended December 31, 2021 and 2020 are as follows:

- Adjustments

(In millions of Korean won)	**2021**	**2020**
Adjustments:		
Income tax expense	13,444,377	9,937,285
Financial income	(2,485,679)	(3,718,841)
Financial expenses	1,917,705	2,306,770
Post-employment benefits	1,360,344	1,290,179
Depreciation	31,285,209	27,115,735
Amortization	2,962,152	3,219,881
Bad debt expenses (reversal)	17,990	40,006
Dividend income	(135,840)	(152,440)
Share of profit of associates and joint ventures	(729,614)	(506,530)
Gain on disposal of property, plant and equipment	(340,400)	(154,249)
Loss on disposal of property, plant and equipment	75,586	87,673
Loss on valuation of inventories	1,735,741	1,000,763
Others	(51,938)	1,152,322
Total	49,055,633	41,618,554

- Changes in assets and liabilities arising from operating activities

(In millions of Korean won)	**2021**	**2020**
Changes in assets and liabilities :		
Decrease (increase) in trade receivables	(7,302,604)	1,269,982
Decrease (increase) in non-trade receivables	(204,348)	471,034
Increase in prepaid expenses	(204,971)	(16,429)
Decrease (increase) in inventories	(9,712,379)	(7,540,656)
Increase (decrease) in trade payables	1,027,017	3,885,742
Increase (decrease) in other payables	1,516,076	196,710
Increase (decrease) in advances received	(24,371)	95,851
Increase (decrease) in withholdings	275,998	99,300
Increase (decrease) in accrued expenses	3,340,697	5,332,676
Increase (decrease) in provisions	1,862,320	944,417
Payment of post-employment benefits	(606,870)	(610,734)
Increase in plan assets	(2,866,087)	(2,327,602)
Other	(3,387,362)	(1,677,867)
Total	(16,286,884)	122,424

(B) Significant non-cash investing and financing transactions for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Valuation of financial assets at fair value through other comprehensive income	3,653,253	3,423,908
Valuation of investments in associates and joint ventures	211,979	43,297
Reclassification of construction in progress to property, plant and equipment	50,451,574	42,177,828
Acquisition of right-of-use assets (New lease contracts established)	1,748,911	810,823
Reclassification of current portion of debentures	477,651	5,318
Reclassification of current portion of long-term borrowings	852,317	710,781

(C) Changes in liabilities arising from financing activities for the years ended December 31, 2021 and 2020 are as follows:

(1) 2021

			Non-cash transactions		
(In millions of Korean won)	**As of January 1**	**Cash flows from financing activities**	**New lease contracts**	**Other[1]**	**As of December 31**
Short-term borrowings	16,553,429	(2,616,943)	-	(248,693)	13,687,793
Debentures and long-term borrowings	3,663,952	(836,470)	1,748,912	127,962	4,704,356
Total	20,217,381	(3,453,413)	1,748,912	(120,731)	18,392,149

[1] Other includes amortization and effects of changes in foreign currency exchange rates.

(2) 2020

			Non-cash transactions		
(In millions of Korean won)	**As of January 1**	**Cash flows from financing activities**	**New lease contracts**	**Other[1]**	**As of December 31**
Short-term borrowings	14,393,468	2,191,186	-	(31,225)	16,553,429
Debentures and long-term borrowings	4,018,569	(850,452)	810,823	(314,988)	3,663,952
Total	18,412,037	1,340,734	810,823	(346,213)	20,217,381

[1] Other includes amortization, effects of changes in foreign currency exchange rates, and the cumulative effect of changes in accounting policies.

For the years ended December 31, 2021 and 2020, cash outflows from principal repayment (financial activities) amount to ₩ 876,437 million and ₩ 823,935 million, respectively, and cash outflows due to interest expenses (operating activities) in relation to the lease liabilities amount to ₩ 106,880 million and ₩ 109,040 million, respectively.

(D) The Company reported cash receipts and payments arising from transactions occurring frequently, of large gross amounts, and with short-term maturities, such as short-term financial instruments, borrowings and other, on a net basis. As of December 31, 2021, most of the Company's cash and cash equivalents consist of bank deposits.

28. Financial Risk Management

The Company's financial risk management focuses on minimizing the market risk, credit risk, and liquidity risk arising from operating activities. To mitigate these risks, the Company implements and operates a financial risk policy and program that closely monitors and manages such risks. In addition, the Company uses derivatives to hedge certain risk exposure.

The finance team mainly carries out the Company's financial risk management. After implementing the global financial risk management policies, the finance team periodically measures, evaluates, and hedges the financial risk and also establishes and implements the global financial risk management policy.

The Company also manages the foreign exchange risk by monitoring foreign exchange rate fluctuations at local finance centers across major regions (United States, United Kingdom, Singapore, China, Brazil, and Russia) and acting as an agent of foreign exchange transactions. In addition, the Company manages the liquidity risk by utilizing a globally integrated finance structure.

The Company's financial assets that are under the financial risk management are comprised of cash and cash equivalents, short-term financial instruments, financial assets at amortized cost, trade receivables and others. The Company's financial liabilities under financial risk management are comprised of trade payables, borrowings, and others.

(A) Market risk

(1) Foreign exchange risk

The Company is exposed to the foreign exchange risk arising from its global operations performed in currencies other than its functional currency. The major currencies that are exposed to the foreign exchange risk are the US dollar, Euro, and Indian Rupee.

The Company focuses on minimizing the impact of the foreign exchange fluctuation by maintaining the equal amount of assets and liabilities denominated in each foreign currency, irrespective of the foreign exchange fluctuation considerations. To prevent the exchange position, the Company's foreign exchange management policy requires the normal business transactions, including imports and exports, as well as the financing transactions such as depositing and borrowing, to be in local currency or for the cash-in currency to be matched up with the cash-out currency. Moreover, the Company periodically evaluates and monitors the foreign exchange risk to efficiently mitigate such risk, and the speculative foreign exchange transactions are strictly prohibited.

As of December 31, 2021 and 2020, when the currency rates change by 5%, the impact on profit or loss (before income tax effects) arising from financial assets and liabilities denominated in foreign currencies other than the functional currency are as follows:

	December 31, 2021		**December 31, 2020**	
(In millions of Korean won)	**Increase**	**Decrease**	**Increase**	**Decrease**
USD	250,489	(250,489)	174,400	(174,400)
EUR	107,519	(107,519)	112,244	(112,244)
INR	24,216	(24,216)	21,959	(21,959)

(2) Interest rate risk

Risk of changes in interest rates for floating interest rate financial instruments is defined as the risk that the fair value of components of the statements of financial position, and future cash flows of interest income (expenses) of a financial instrument, will fluctuate because of the changes in market interest rates. The Company's position with regard to interest rate risk exposure is mainly driven by its floating interest rate debt obligations and interest-bearing deposits. The Company implemented policies and operates to minimize uncertainty arising from changes in interest rates and financial expenses.

As of December 31, 2021 and 2020, changes in profit or loss (before income tax effects) as a result of a 1%p change in interest rates on floating interest rate financial assets and liabilities are presented below:

	December 31, 2021		**December 31, 2020**	
(In millions of Korean won)	**Increase**	**Decrease**	**Increase**	**Decrease**
Financial assets	71,131	(71,131)	81,013	(81,013)
Financial liabilities	(18,779)	18,779	(2,195)	2,195
Net effect	52,352	(52,352)	78,818	(78,818)

(3) Price risk

The Company's investment portfolio consists of direct and indirect investments in equity instruments classified as financial assets at fair value through other comprehensive income and financial assets at fair value through profit or loss, which is in line with the Company's strategy.

As of December 31, 2021 and 2020, price fluctuation of marketable equity securities (listed stocks) by 1% would result in changes in other comprehensive income (before income tax) of ₩ 116,087 million and ₩ 69,101 million, respectively, and changes in profit before tax of ₩ 4,784 million and ₩ 4,316 million, respectively.

(B) Credit risk

Credit risk arises during the normal course of transactions and investing activities where clients or other parties fail to discharge an obligation. The Company monitors and sets the client's and the counterparty's credit limit on a periodic basis based on the client's and counterparty's financial conditions, default histories and other important factors. Adequate insurance coverage is maintained for trade receivables related to the trading partners situated in higher risk countries.

Credit risk can arise from transactions with financial institutions which include financial instrument transactions such as cash and cash equivalents, deposits, and derivative instruments. To minimize such risk, the Company transacts only with banks which have strong international credit rating (S&P A and above), and all new transactions with financial institutions with no prior transaction history are approved, managed and monitored by the Company's finance team and the local finance center. The Company generally enters into a financial agreement with no restrictions, such as debt ratio covenants, provision of collateral and/or repayment of loans/ borrowings. The Company requires separate approvals for contracts with restrictions.

As of December 31, 2021 and December 31, 2020, the Company estimates that its maximum exposure to credit risk is the carrying amount of its financial assets, net of impairment losses.

(C) Liquidity risk

Due to large investments made by the Company, maintaining adequate levels of liquidity risk is critical. The Company strives to achieve this goal by periodically forecasting its capital balance, estimating the required cash levels, and managing income and expenses.

The Company manages its liquidity risk by periodically forecasting the projected cash flows. If abnormal signs are identified, the Company works with the local finance center and provides liquidity support by utilizing a globally integrated finance structure, such as Cash Pooling. In addition, the Company maintains a liquidity management process which provides an additional financial support from the local finance center and the Company. The Cash Pooling program allows the sharing of surplus funds among the entities and contributes to minimizing the liquidity risk and strengthening the Company's competitive position by reducing capital operation expenses and financial expenses.

For the need of large scale of liquidity, the Company secures the credit limit for overseas subsidiaries through payment guarantees.

As of December 31, 2021 and 2020, the following table is an undiscounted cash flow analysis for financial liabilities according to their remaining contractual maturity.

	December 31, 2021				
(In millions of Korean won)	**Less than 3 months**	**4 - 6 months**	**7 – 12 months**	**1 - 5 years**	**More than 5 years**
Financial liabilities	55,185,809	1,814,271	1,674,980	5,462,057	944,232

	December 31, 2020				
(In millions of Korean won)	**Less than 3 months**	**4 – 6 months**	**7 - 12 months**	**1 - 5 years**	**More than 5 years**
Financial liabilities	44,988,792	733,776	1,651,951	3,945,429	578,346

The table above shows the Company's financial liabilities based on the remaining period at the consolidated statements of financial position date until the contractual maturity date. The amounts disclosed in the table are the contractual undiscounted cash flows.

The Company's derivative financial liabilities of ₩ 113,590 million (December 31, 2020: ₩ 47,704 million) has been included within the less than 3 months bucket. These are the Company's trading portfolio of derivative instruments, on a net settlement term, of which the contractual maturities are not essential for understanding its cash flows. These contracts are managed on a net fair value basis rather than by the maturity date. Net settled derivatives consist of forwards on currency rates used by the Company to manage the exchange rate profile.

Derivatives that are settled on a gross basis by the delivery of underlying items, including derivatives for hedging, will be settled within the next 60 months from the end of the reporting period. These derivative are not included in the table above.

There is no maximum liquidity risk exposure from those other than the above financial liabilities (e.g., payment and performance guarantees) as of December 31, 2021.

(D) Derivative financial instruments

The Company applies cash flow hedge accounting to hedge the foreign currency risk of forecasted transaction including hedging the price risk associated with inventory. Details of derivative financial instruments that qualify as cash flow hedges as of December 31, 2021 and 2020 are as follows:

	December 31, 2021		December 31, 2020	
(In millions of Korean won)	**Assets**	**Liabilities**	**Assets**	**Liabilities**
Currency forward exchange contracts				
Current items	34,075	11,090	11,311	22,236
Non-current items	16,790	3,280	11,999	19,694
Total	50,865	14,370	23,310	41,930

For the years ended December 31, 2021 and 2020, the Company recognizes the gains and losses relating to the effective portion of changes in fair value of derivatives that are designated and qualify as cash flow hedges in other comprehensive income, which amount to the gain of ₩ 50,410 million (after tax) and loss of ₩ 33,406 million (after tax), respectively, and recognizes the gains and losses relating to the ineffective portion in profit or loss, which amount to the gain of ₩ 451 million (before tax) and loss of ₩ 27 million (before tax), respectively. For the years ended December 31, 2021 and 2020, gains and losses reclassified directly from other comprehensive income to profit or loss amount to the gain of ₩ 1,117 million (after tax) and the gain of ₩ 4,664 million (after tax), respectively and the gains reclassified from other comprehensive income to the carrying amount of inventory amount to the gain of ₩ 1,539 million (after tax) and the gain of ₩ 3,792 million (after tax), respectively.

(E) Capital risk management

The purpose of capital management is to maintain a sound capital structure. The Company monitors capital on the basis of credit ratings and debt ratio. Debt ratio is calculated by dividing the total liabilities by total equity in the financial statements.

The Company's capital risk management policy has not changed since the prior reporting periods. The Company has maintained an AA- and Aa3 credit ratings from S&P and Moody's, respectively.

The total liabilities to equity ratios as of December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Total liabilities	121,721,227	102,287,702
Total equity	304,899,931	275,948,016
Debt ratio	39.9%	37.1%

(F) Fair value estimation

(1) Carrying amounts and fair values of financial instruments by category as of December 31, 2021 and 2020 are as follows:

	December 31, 2021		December 31, 2020	
(In millions of Korean won)	**Carrying amount**	**Fair value**	**Carrying amount**	**Fair value**
Financial assets				
Cash and cash equivalents	39,031,415	(*1)	29,382,578	(*1)
Short-term financial instruments	81,708,986	(*1)	92,441,703	(*1)
Short-term financial assets at amortized cost	3,369,034	(*1)	2,757,111	(*1)
Short-term financial assets at fair value through profit or loss	40,757	40,757	71,451	71,451
Trade receivables	40,713,415	(*1)	30,965,058	(*1)
Financial assets at fair value through other comprehensive income	13,965,839	13,965,839	12,575,216	12,575,216
Financial assets at fair value through profit or loss	1,525,344	1,525,344	1,202,969	1,202,969
Other(*2)	9,040,189	328,216	6,634,873	239,107
Total financial assets	189,394,979		176,030,959	
Financial liabilities				
Trade payables	13,453,351	(*1)	9,739,222	(*1)
Short-term borrowings	13,687,793	(*1)	16,553,429	(*1)
Other payables	14,126,970	(*1)	10,645,637	(*1)
Current portion of long-term liabilities	1,329,968	554,106	716,099	5,318
- Current portion of long-term borrowing	852,317	(*1)(*3)	710,781	(*3)
- Current portion of debentures	477,651	554,106	5,318	5,318
Debentures	508,232	546,339	948,137	997,101
Long-term borrowings	2,866,156	(*1)(*3)	1,999,716	(*3)
Long-term other payables(*2)	2,562,158	(*1)	1,274,304	2,176
Other(*2)	10,781,684	337,394	9,639,252	284,628
Total financial liabilities	59,316,312		51,515,796	

(*1) Assets and liabilities whose carrying amount is a reasonable approximation of fair value are excluded from the fair value disclosures.

(*2) Assets measured at the cost of ₩ 8,711,973 million (December 31, 2020: ₩ 6,395,766 million) and liabilities measured at the cost of ₩ 13,006,448 million (December 31, 2020: ₩ 10,626,752 million) are excluded as the carrying amount is a reasonable estimation of fair value.

(*3) Lease liabilities, classified under the current portion of long-term liabilities and long-term borrowings, are excluded from the fair value disclosures in accordance with *Korean IFRS 1107.*

(2) Fair value hierarchy classifications of the financial instruments that are measured or disclosed at fair value as of December 31, 2021 and 2020 are as follows:

	December 31, 2021			
(In millions of Korean won)	**Level 1**	**Level 2**	**Level 3**	**Total balance**
1) Assets				
Short-term financial assets at fair value through profit or loss	-	35,620	5,137	40,757
Financial assets at fair value through other comprehensive income	11,608,708	-	2,357,131	13,965,839
Financial assets at fair value through profit or loss	478,401	-	1,046,943	1,525,344
Other	-	307,213	21,003	328,216
2) Liabilities				
Current portion of debentures	-	554,106	-	554,106
Debentures	-	546,339	-	546,339
Other	-	331,956	5,438	337,394

	December 31, 2020			
(In millions of Korean won)	**Level 1**	**Level 2**	**Level 3**	**Total balance**
1) Assets				
Short-term financial assets at fair value through profit or loss	-	58,763	12,688	71,451
Financial assets at fair value through other comprehensive income	6,910,108	-	5,665,108	12,575,216
Financial assets at fair value through profit or loss	431,626	-	771,343	1,202,969
Other	-	239,107	-	239,107
2) Liabilities				
Current portion of debentures	-	5,318	-	5,318
Debentures	-	997,101	-	997,101
Long-term other payables	-	-	2,176	2,176
Other	-	277,556	7,072	284,628

The levels of the fair value hierarchy and its application to financial assets and liabilities are described below.

- Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities
- Level 2: Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly
- Level 3: Inputs for the asset or liability that are not based on observable market data (that is, unobservable inputs)

The fair value of financial instruments traded in active markets is based on quoted market prices at the statements of financial position date. A market is regarded as active if quoted prices are readily and regularly available from an exchange, dealer, broker, industry group, pricing service, or regulatory agency, and those prices represent actual and regularly occurring market transactions on an arm's length basis. The quoted market price used for financial assets held by the Company is the current bid price. These instruments are included in Level 1. The instruments included in Level 1 are listed equity investments, most of which are classified as financial assets at fair value through other comprehensive income.

The fair value of financial instruments that are not traded in an active market (for example, over-the-counter derivatives) is determined by using valuation techniques. These valuation techniques maximize the use of observable market data where it is available and rely as little as possible on the entity-specific estimates. If all significant inputs required for a fair value of an instrument are observable, the instrument is included in Level 2.

If one or more of the significant inputs are not based on observable market data, the instrument is included in Level 3.

The Company performs the fair value measurements required for financial reporting purposes, including Level 3 fair values and discusses valuation processes and results at least once every quarter in line with the Company's quarterly reporting dates. The Company's policy is to recognize transfers between levels at the end of the reporting period, if corresponding events or changes in circumstances have occurred.

Specific valuation techniques used to value financial instruments include:

- Quoted market prices or dealer quotes for similar instruments
- The fair value of forward foreign exchange contracts is determined using forward exchange rates at the statements of financial position date, with the resulting value discounted back to present value

Other techniques, such as discounted cash flow analysis, are used to determine fair value for the remaining financial instruments. For trade and other receivables that are classified as current assets, the book value approximates a reasonable estimate of fair value.

(3) Valuation technique and the inputs

The Company utilizes a present value technique to discount future cash flows using a proper interest rate for corporate bonds, government and public bonds, and bank debentures that are classified as Level 2 in the fair value hierarchy.

The following table presents the valuation technique and the inputs used for major financial instruments classified as Level 3 as of December 31, 2021.

(In millions of Korean won and percentage)

Classification	Fair value	Valuation technique	Level 3 inputs	Input range (Weighted average)
Financial assets at fair value through other comprehensive income				
Samsung Venture Investment	22,198	Discounted cash flow	Permanent growth rate	-1.0%~1.0%(0.0%)
			Weighted average cost of capital	19.7%~21.7%(20.7%)
MiCo Ceramics Co., Ltd.	24,636	Discounted cash flow	Permanent growth rate	-1.0%~1.0%(0.0%)
			Weighted average cost of capital	14.7%~16.7%(15.7%)
TCL China Star Optoelectronics Technology Co., Ltd. (CSOT)	1,309,315	Discounted cash flow	Permanent growth rate	-1.0%~1.0%(0.0%)
			Weighted average cost of capital	11.1%~13.1%(12.1%)
China Star Optoelectronics Semiconductor Display Technology Ltd. (CSOSDT)	418,040	Discounted cash flow	Permanent growth rate	-1.0%~1.0%(0.0%)
			Weighted average cost of capital	11.1%~13.1%(12.1%)
Others				
Put option on equity instruments	21,003	Binomial model	Risk-free discount rate	0.8%~1.4%, 2.6%
			Price volatility	17.7%~27.7%(22.7%)
				23.6%~33.6%(28.6%)

(4) Changes in Level 3 instruments for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Financial assets		
Balance as of January 1	6,449,139	7,407,684
Acquisitions	1,075,389	882,331
Disposals	(402,782)	(2,531,276)
Amount recognized in profit or loss	463,818	(55,103)
Amount recognized in other comprehensive income	1,543,511	829,764
Other	(5,698,861)	(84,261)
Balance as of December 31	3,430,214	6,449,139

(In millions of Korean won)	**2021**	**2020**
Financial liabilities		
Balance as of January 1	9,248	2,316
Amount recognized in profit or loss	(784)	196
Other	(3,026)	6,736
Balance as of December 31	5,438	9,248

(5) Sensitivity analysis for recurring fair value measurements categorized within Level 3

Sensitivity analysis of financial instruments is performed to measure favorable and unfavorable changes in the fair value of financial instruments which are affected by the unobservable parameters, using a statistical technique. When the fair value is affected by more than two input parameters, the amounts represent the most favorable or unfavorable.

The results of the sensitivity analysis for the effect on profit or loss (before tax amount for other comprehensive income or loss) from changes in inputs for major financial instruments which are categorized within Level 3 and subject to sensitivity analysis are as follows:

(In millions of Korean won)	**Favorable changes**		**Unfavorable changes**	
Classification	**Profit or loss**	**Equity**	**Profit or loss**	**Equity**
Financial assets at fair value through other comprehensive income[1]	-	150,377	-	(109,915)
Others[2]	2,920	-	(4,898)	-

[1] For equity securities, changes in fair value are calculated with the correlation between the growth rate (-1%~1%) and the discount rate, which are significant unobservable inputs.

[2] Changes were calculated based on the correlation between the fair value and price volatility (-5%~5%), which is a significant unobservable input.

29. Segment Information

(A) Operating segment information

The chief operating decision-maker has been identified as the Management Committee. The Company determines operating segments based on the units reported to the Management Committee. The Management Committee reviews the operating profits of each operating segment in order to assess the performance and to make strategic decisions regarding the allocation of resources to the segments.

Sales revenue consists mostly of product sales. The operating segments are product-based and are identified based on the internal organization and revenue streams. As of the reporting date, the operating segments are comprised of CE, IM, DS (Semiconductor and DP), Harman, and others.

The segment information for each reporting period is prepared after allocating the intercompany reconciliations to depreciation, amortization of intangible assets and operating profits. Total assets and liabilities of each operating segment are excluded from the disclosure as these have not been provided regularly to the Management Committee.

(1) For the year ended December 31, 2021

(In millions of Korean won)	CE	IM	DS			Harman	Total[1]
			Total[1]	Semi-conductor	DP		
Net revenue	55,832,435	109,251,383	125,089,024	94,158,569	31,712,526	10,039,922	279,604,799
Depreciation	668,356	739,774	28,353,128	22,826,329	5,504,216	311,237	31,285,209
Amortization	74,182	1,264,152	1,179,743	930,002	239,821	229,772	2,962,152
Operating profit	3,645,721	13,647,575	33,734,199	29,199,292	4,457,365	599,097	51,633,856

[1] Other operating segments are not separately disclosed.

(2) For the year ended December 31, 2020

(In millions of Korean won)	CE	IM	DS			Harman	Total[1]
			Total[1]	Semi-conductor	DP		
Net revenue	48,173,324	99,587,493	103,036,146	72,857,803	30,585,715	9,183,748	236,806,988
Depreciation	582,929	855,573	24,330,737	18,124,847	6,183,077	264,928	27,115,735
Amortization	76,270	1,394,396	1,321,305	1,053,892	257,446	233,518	3,219,881
Operating profit	3,561,536	11,472,671	21,120,231	18,804,970	2,236,919	55,518	35,993,876

[1] Other operating segments are not separately disclosed.

(B) Regional information

The regional segment information provided to the Management Committee for the reportable segments as of and for the years ended December 31, 2021 and 2020 are as follows:

(1) As of and for the year ended December 31, 2021

(In millions of Korean won)	**Korea**	**America**	**Europe**	**Asia and Africa**	**China**	**Intercompany elimination**	**Consolidated**
Net revenue	43,971,631	97,903,868	50,323,287	41,834,609	45,571,404	-	279,604,799
Non-current assets[1]	127,116,179	10,758,956	5,951,905	9,088,409	18,244,469	(995,135)	170,164,783

[1] Financial instruments, deferred tax assets, investments in associates and joint ventures, and others are excluded from non-current assets.

(2) As of and for the year ended December 31, 2020

(In millions of Korean won)	**Korea**	**America**	**Europe**	**Asia and Africa**	**China**	**Intercompany elimination**	**Consolidated**
Net revenue	37,035,377	78,305,571	45,967,097	37,692,286	37,806,657	-	236,806,988
Non-current assets[1]	110,075,478	9,035,206	6,087,436	8,972,711	13,782,478	(531,915)	147,421,394

[1] Financial instruments, deferred tax assets, investments in associates and joint ventures, and others are excluded from non-current assets.

30. Related Party Transactions

(A) Sale and purchase transactions

Sale and purchase transactions with related parties for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	Name of company[1]	2021 Sales	2021 Disposal of non-current assets	2021 Purchases	2021 Purchase of non-current assets
Associates and joint ventures	Samsung SDS	142,435	-	1,732,273	569,840
	Samsung Electro-Mechanics	47,031	-	1,525,854	-
	Samsung SDI	76,160	269	671,169	36,180
	Cheil Worldwide	27,740	-	758,877	16
	Other	1,288,094	68	12,361,130	118,099
	Total	1,581,460	337	17,049,303	724,135
Other related parties	Samsung C&T	79,183	32,705	334,386	4,045,297
	Other	352,919	-	1,608,435	633,109
	Total	432,102	32,705	1,942,821	4,678,406
Other[2]	Samsung Engineering	787	-	48,284	2,404,314
	S-1	13,819	-	469,979	35,762
	Other	129,439	2,371	496,451	261,614
	Total	144,045	2,371	1,014,714	2,701,690

[1] Transactions with separate entities that are related parties of the Company.
[2] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

(In millions of Korean won)	Name of company[1]	2020 Sales	2020 Disposal of non-current assets	2020 Purchases	2020 Purchase of non-current assets
Associates and joint ventures	Samsung SDS	108,634	77	1,752,792	469,270
	Samsung Electro-Mechanics	37,837	-	1,664,069	-
	Samsung SDI	73,561	272	601,286	91,949
	Cheil Worldwide	26,996	-	649,164	-
	Other	1,059,045	30	10,556,776	166,842
	Total	1,306,073	379	15,224,087	728,061
Other related parties	Samsung C&T	94,736	43,214	328,484	4,057,233
	Other	309,819	-	1,105,252	497,163
	Total	404,555	43,214	1,433,736	4,554,396
Other[2]	Samsung Engineering	4,104	-	70,073	1,946,409
	S-1	17,199	-	436,211	43,336
	Other	100,591	-	422,989	172,023
	Total	121,894	-	929,273	2,161,768

[1] Transactions with separate entities that are related parties of the Company.
[2] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

(B) Balances of receivables and payables

Balances of receivables and payables arising from the sales and purchases of goods and services as of December 31, 2021 and 2020 are as follows:

		December 31, 2021	
(In millions of Korean won)	**Name of company**[1]	**Receivables**	**Payables**[2]
Associates and joint ventures	Samsung SDS	64,521	616,949
	Samsung Electro-Mechanics	3,659	176,549
	Samsung SDI	130,638	100,835
	Cheil Worldwide	206	428,090
	Other	397,709	1,361,554
	Total	596,733	2,683,977
Other related parties	Samsung C&T	220,550	1,739,997
	Other	20,306	251,766
	Total	240,856	1,991,763
Other[3]	Samsung Engineering	338	1,151,536
	S-1	2,423	40,558
	Other	48,703	185,256
	Total	51,464	1,377,350

[1] Balances due from and to separate entities that are related parties of the Company.
[2] Payables and others include lease liabilities.
[3] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

		December 31, 2020	
(In millions of Korean won)	**Name of company**[1]	**Receivables**	**Payables**[2]
Associates and joint ventures	Samsung SDS	36,905	543,388
	Samsung Electro-Mechanics	379	120,407
	Samsung SDI	108,561	89,178
	Cheil Worldwide	195	398,836
	Other	253,921	1,154,549
	Total	399,961	2,306,358
Other related parties	Samsung C&T	245,138	2,327,126
	Other	20,484	172,726
	Total	265,622	2,499,852
Other[3]	Samsung Engineering	492	538,853
	S-1	2,091	45,257
	Other	11,344	55,053
	Total	13,927	639,163

[1] Balances due from and to separate entities that are related parties of the Company.
[2] Payables and others include lease liabilities.
[3] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

(C) For the years ended December 31, 2021 and 2020, the Company invested ₩ 47,090 million and ₩ 83,280 million, respectively, in associates and joint ventures. In addition, the Company recovered ₩ 19,169 million of investments in associates and joint ventures for the year ended December 31, 2021, and there was no return of investments in associates and joint ventures for the year ended December 31, 2020.

(D) For the year ended December 31, 2021, the Company declared ₩ 3,527,449 million of dividends (₩ 1,659,962 million for the year ended December 31, 2020) to the related parties. In addition, for the year ended December 31, 2021, the Company declared ₩ 267,738 million (₩ 125,744 million for the year ended December 31, 2020) of dividends to the entities that are not related parties of the Company in accordance with *Korean IFRS 1024*, but belong to the same conglomerate according to the Monopoly Regulation and Fair Trade Act. As of December 31, 2021 and 2020, there is no dividend payables to the entities that are not in scope of Korean IFRS 1024.

(E) For the year ended December 31, 2021, the Company entered into lease agreements with its related parties amounted to ₩ 12,602 million, and the lease payments made to the related parties for the years ended December 31, 2021 and 2020 amounted to ₩ 31,893 million and ₩ 51,798 million, respectively.

(F) Key management compensation

The compensation paid or payable to key management (executive directors) for their services for the years ended December 31, 2021 and 2020 consists of:

(In millions of Korean won)	**2021**	**2020**
Short-term employee benefits	20,370	13,333
Post-employment benefits	886	987
Other long-term employee benefits	8,092	7,287

31. Information for Non-Controlling Interests

(A) Changes in accumulated non-controlling interests

The profit or loss allocated to non-controlling interests and accumulated non-controlling interests of subsidiaries that are material to the Company for the years ended December 31, 2021 and 2020 are as follows:

	Samsung Display Co., Ltd. and its subsidiaries	
(In millions of Korean won)	**2021**	**2020**
Percentage of non-controlling interests	15.2%	15.2%
Balance as of January 1	7,723,784	7,427,228
Profit for the year	580,164	294,139
Dividends	(3,123)	(54,121)
Other	(272,270)	56,538
Balance as of December 31	8,028,555	7,723,784

(B) The summarized financial information for each subsidiary with non-controlling interests that are material to the Company before the intercompany eliminations for the years December 31, 2021 and 2020 are as follows:

(1) Summarized consolidated statements of financial position

	Samsung Display Co., Ltd. and its subsidiaries	
(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Current assets	35,220,985	28,354,913
Non-current assets	24,773,119	26,904,627
Current liabilities	7,539,403	7,631,559
Non-current liabilities	1,359,478	841,323
Equity attributable to:	51,095,223	46,786,658
Owners of the parent company	51,012,895	46,282,988
Non-controlling interests	82,328	503,670

(2) Summarized consolidated statements of comprehensive income

	Samsung Display Co., Ltd. and its subsidiaries	
(In millions of Korean won)	**2021**	**2020**
Sales	31,557,504	30,474,830
Profit for the year	3,511,314	1,874,486
Other comprehensive income (loss)	1,256,904	408,022
Total comprehensive income attributable to:	4,768,218	2,282,508
Owners of the parent company	4,752,963	2,267,953
Non-controlling interests	15,255	14,555

(3) Summarized consolidated statements of cash flows

(In millions of Korean won)	Samsung Display Co., Ltd. and its subsidiaries	
	2021	**2020**
Cash flows from operating activities	10,943,029	7,800,766
Cash flows from investing activities	(9,927,110)	(6,933,401)
Cash flows from financing activities	(1,284,749)	(536,883)
Reclassification to assets held-for-sale	-	(139)
Effect of exchange rate changes on cash and cash equivalents	52,154	(27,688)
Increase (decrease) in cash and cash equivalents	(216,676)	302,655
Cash and cash equivalents at beginning of the year	975,535	672,880
Cash and cash equivalents at end of year	758,859	975,535

32. Assets and Liabilities Held-for-Sale

(A) Sales of ownership interest in SSM and SSL

For the year ended December 31, 2020, the Company decided to sell its 100% ownership in Samsung Suzhou Module Co., Ltd. ("SSM") and 60% ownership in Samsung Suzhou LCD Co., Ltd. ("SSL") to TCL China Star Opto-electronics Technologies Co., Ltd. ("CSOT"). The Company entered into the sales agreement on August 28, 2020, and the sales were completed on April 1, 2021.

(B) Details of assets and liabilities classified as held-for-sale as of December 31, 2020 are as follows:

(In millions of Korean won)	**December 31, 2020**
Assets held-for-sale	
Cash and cash equivalents	139
Inventories	53,157
Other current assets	26,474
Property, plant and equipment	766,614
Intangible assets	1,421
Other non-current assets	81,627
Total	**929,432**
Liabilities held-for-sale	
Current liabilities	337,032
Non-current liabilities	1,710
Total	**338,742**

(C) Details of accumulated other comprehensive income attributable to assets held-for-sale are as follows:

(In millions of Korean won)	**December 31, 2020**
Loss on overseas business translation, net of tax	(12,132)

4. Non-consolidated financial statements

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF FINANCIAL POSITION

(In millions of Korean won, in thousands of US dollars (Note 2.29))

	Notes	December 31, 2021	December 31, 2020	December 31, 2021	December 31, 2020
		KRW	KRW	USD	USD
Assets					
Current assets					
Cash and cash equivalents	4, 28	3,918,872	989,045	3,425,290	864,475
Short-term financial instruments	4, 28	15,000,576	29,101,284	13,111,255	25,435,980
Trade receivables	4, 5, 7, 28	33,088,247	24,736,740	28,920,786	21,621,150
Non-trade receivables	4, 7, 28	1,832,488	1,898,583	1,601,686	1,659,457
Prepaid expenses		817,689	890,680	714,701	778,499
Inventories	8	15,973,053	13,831,372	13,961,249	12,089,312
Other current assets	4, 28	2,922,491	2,350,845	2,554,404	2,054,756
		73,553,416	**73,798,549**	**64,289,371**	**64,503,629**
Non-current assets					
Financial assets at fair value through other comprehensive income	4, 6, 28	1,662,532	1,539,659	1,453,136	1,345,739
Financial assets at fair value through profit or loss	4, 6, 28	2,135	3,107	1,866	2,716
Investments in subsidiaries, associates and joint ventures	9	56,225,599	56,587,548	49,143,991	49,460,352
Property, plant and equipment	10	103,667,025	86,166,924	90,610,174	75,314,209
Intangible assets	11	8,657,456	7,002,648	7,567,050	6,120,665
Net defined benefit assets	14	2,324,291	1,162,456	2,031,547	1,016,045
Deferred income tax assets	25	1,211,100	992,385	1,058,562	867,394
Other non-current assets	4, 7, 28	3,808,630	2,411,151	3,328,934	2,107,467
		177,558,768	**155,865,878**	**155,195,260**	**136,234,587**
Total assets		**251,112,184**	**229,664,427**	**219,484,631**	**200,738,216**

The above separate statements of financial position should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF FINANCIAL POSITION

(In millions of Korean won, in thousands of US dollars (Note 2.29))

	Notes	December 31, 2021	December 31, 2020	December 31, 2021	December 31, 2020
		KRW	KRW	USD	USD
Liabilities and Equity					
Current liabilities					
Trade payables	4, 28	11,557,441	6,599,025	10,101,783	5,767,878
Short-term borrowings	4, 5, 12, 28	9,204,268	12,520,367	8,044,991	10,943,428
Other payables	4, 28	13,206,753	9,829,541	11,543,364	8,591,511
Advances received	17	474,731	424,368	414,939	370,919
Withholdings	4, 28	624,585	432,714	545,919	378,214
Accrued expenses	4, 17, 28	8,275,410	7,927,017	7,233,123	6,928,610
Current income tax liabilities		5,599,896	3,556,146	4,894,590	3,108,250
Current portion of long-term liabilities	4, 12, 13, 28	139,328	87,571	121,780	76,541
Provisions	15	3,643,853	2,932,468	3,184,910	2,563,124
Other current liabilities	17	341,038	103,687	298,084	90,628
		53,067,303	**44,412,904**	**46,383,483**	**38,819,103**
Non-current liabilities					
Debentures	4, 13, 28	29,048	31,909	25,389	27,890
Long-term borrowings	4, 12, 28	431,915	150,397	377,515	131,455
Long-term other payables	4, 28	2,653,715	1,247,752	2,319,480	1,090,598
Long-term provisions	15	1,659,774	503,035	1,450,726	439,678
Other non-current liabilities		76,697	1,706	67,037	1,491
		4,851,149	**1,934,799**	**4,240,147**	**1,691,112**
Total liabilities		**57,918,452**	**46,347,703**	**50,623,630**	**40,510,215**

The above separate statements of financial position should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF FINANCIAL POSITION

(In millions of Korean won, in thousands of US dollars (Note 2.29))

	Notes	December 31, 2021	December 31, 2020	December 31, 2021	December 31, 2020
		KRW	KRW	USD	USD
Equity					
Preference shares	18	119,467	119,467	104,420	104,420
Ordinary shares	18	778,047	778,047	680,052	680,052
Share premium		4,403,893	4,403,893	3,849,223	3,849,223
Retained earnings	19	188,774,335	178,284,102	164,998,228	155,829,238
Other components of equity	20	(882,010)	(268,785)	(770,922)	(234,932)
Total equity		**193,193,732**	**183,316,724**	**168,861,001**	**160,228,001**
Total liabilities and equity		**251,112,184**	**229,664,427**	**219,484,631**	**200,738,216**

The above separate statements of financial position should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF PROFIT OR LOSS

(In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	**2021**	**2020**	**2021**	**2020**
		KRW	KRW	USD	USD
Revenue	29	199,744,705	166,311,191	174,586,881	145,364,314
Cost of sales	21	135,823,433	116,753,419	118,716,486	102,048,338
Gross profit		**63,921,272**	**49,557,772**	**55,870,395**	**43,315,976**
Selling and administrative expenses	21, 22	31,928,110	29,038,798	27,906,768	25,381,365
Operating profit	29	**31,993,162**	**20,518,974**	**27,963,627**	**17,934,611**
Other non-operating income	23	7,359,004	797,494	6,432,138	697,049
Other non-operating expense	23	745,978	857,242	652,022	749,272
Financial income	24	3,796,979	5,676,877	3,318,750	4,961,875
Financial expense	24	3,698,675	5,684,180	3,232,827	4,968,258
Profit before income tax		**38,704,492**	**20,451,923**	**33,829,666**	**17,876,005**
Income tax expense	25	7,733,538	4,836,905	6,759,500	4,227,697
Profit for the year		**30,970,954**	**15,615,018**	**27,070,166**	**13,648,308**
Earnings per share	26				
(in Korean won, in US dollars)					
- Basic		4,559	2,299	3.98	2.01
- Diluted		4,559	2,299	3.98	2.01

The above separate statements of profit or loss should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF COMPREHENSIVE INCOME

(In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	**2021**	**2020**	**2021**	**2020**
		KRW	KRW	USD	USD
Profit for the year		**30,970,954**	**15,615,018**	**27,070,166**	**13,648,308**
Other comprehensive income (loss)					
Items that will not be reclassified subsequently to profit or loss:					
Gain (loss) on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	(99,916)	93,251	(87,332)	81,506
Remeasurement of net defined benefit assets, net of tax	14, 20	(513,309)	(642,550)	(448,658)	(561,621)
Items that may be reclassified subsequently to profit or loss		-	-	-	-
Other comprehensive income (loss) for the year, net of tax		**(613,225)**	**(549,299)**	**(535,990)**	**(480,115)**
Total comprehensive income for the year		**30,357,729**	**15,065,719**	**26,534,176**	**13,168,193**

The above separate statements of comprehensive income should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF CHANGES IN EQUITY

(In millions of Korean won)

2020 KRW	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Total
Balance as of January 1, 2020		**119,467**	**778,047**	**4,403,893**	**172,288,326**	**280,514**	**177,870,247**
Profit for the year		-	-	-	15,615,018	-	15,615,018
Gain on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	-	93,251	93,251
Remeasurement of net defined benefit assets, net of tax	14, 20	-	-	-	-	(642,550)	(642,550)
Total comprehensive income (loss) for the year		**-**	**-**	**-**	**15,615,018**	**(549,299)**	**15,065,719**
Dividends	19	-	-	-	(9,619,242)	-	(9,619,242)
Total transactions with owners		**-**	**-**	**-**	**(9,619,242)**	**-**	**(9,619,242)**
Balance as of December 31, 2020		**119,467**	**778,047**	**4,403,893**	**178,284,102**	**(268,785)**	**183,316,724**

The above separate statements of changes in equity should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF CHANGES IN EQUITY

(In thousands of US dollars (Note 2.29))

2020 USD	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Total
Balance as of January 1, 2020		**104,420**	**680,052**	**3,849,223**	**150,588,629**	**245,183**	**155,467,507**
Profit for the year		-	-	-	13,648,308	-	13,648,308
Gain on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	-	81,506	81,506
Remeasurement of net defined benefit assets, net of tax	14, 20	-	-	-	-	(561,621)	(561,621)
Total comprehensive income (loss) for the year		**-**	**-**	**-**	**13,648,308**	**(480,115)**	**13,168,193**
Dividends	19	-	-	-	(8,407,699)	-	(8,407,699)
Total transactions with owners		**-**	**-**	**-**	**(8,407,699)**	**-**	**(8,407,699)**
Balance as of December 31, 2020		**104,420**	**680,052**	**3,849,223**	**155,829,238**	**(234,932)**	**160,228,001**

The above separate statements of changes in equity should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF CHANGES IN EQUITY

(In millions of Korean won)

2021 KRW	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Total
Balance as of January 1, 2021		**119,467**	**778,047**	**4,403,893**	**178,284,102**	**(268,785)**	**183,316,724**
Profit for the year		-	-	-	30,970,954	-	30,970,954
Loss on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	-	(99,916)	(99,916)
Remeasurement of net defined benefit assets, net of tax	14, 20	-	-	-	-	(513,309)	(513,309)
Total comprehensive income (loss) for the year		-	-	-	**30,970,954**	**(613,225)**	**30,357,729**
Dividends	19	-	-	-	(20,480,721)	-	**(20,480,721)**
Total transactions with owners		-	-	-	**(20,480,721)**	-	**(20,480,721)**
Balance as of December 31, 2021		**119,467**	**778,047**	**4,403,893**	**188,774,335**	**(882,010)**	**193,193,732**

The above separate statements of changes in equity should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF CHANGES IN EQUITY

(In thousands of US dollars (Note 2.29))

2021 USD	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Total
Balance as of January 1, 2021		**104,420**	**680,052**	**3,849,223**	**155,829,238**	**(234,932)**	**160,228,001**
Profit for the year		-	-	-	27,070,166	-	27,070,166
Loss on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	-	(87,332)	(87,332)
Remeasurement of net defined benefit assets, net of tax	14, 20	-	-	-	-	(448,658)	(448,658)
Total comprehensive income (loss) for the year		**-**	**-**	**-**	**27,070,166**	**(535,990)**	**26,534,176**
Dividends	19	-	-	-	(17,901,176)	-	(17,901,176)
Total transactions with owners		**-**	**-**	**-**	**(17,901,176)**	**-**	**(17,901,176)**
Balance as of December 31, 2021		**104,420**	**680,052**	**3,849,223**	**164,998,228**	**(770,922)**	**168,861,001**

The above separate statements of changes in equity should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF CASH FLOWS

(In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	**2021**	**2020**	**2021**	**2020**
		KRW	KRW	USD	USD
Operating activities					
Profit for the year		30,970,954	15,615,018	27,070,166	13,648,308
Adjustments	27	25,168,062	24,319,842	21,998,147	21,256,760
Changes in assets and liabilities arising from operating activities	27	(5,781,655)	(393,206)	(5,053,456)	(343,682)
Cash generated from operations		**50,357,361**	**39,541,654**	**44,014,857**	**34,561,386**
Interest received		282,918	448,323	247,285	391,857
Interest paid		(125,036)	(148,262)	(109,288)	(129,588)
Dividends received		6,560,011	129,569	5,733,778	113,250
Income tax paid		(5,825,185)	(2,462,259)	(5,091,504)	(2,152,138)
Net cash from operating activities		**51,250,069**	**37,509,025**	**44,795,128**	**32,784,767**
Investing activities					
Net decrease (increase) in short-term financial instruments		13,600,708	(2,099,892)	11,887,700	(1,835,411)
Disposal of financial assets at fair value through other comprehensive income		-	503	-	440
Acquisition of financial assets at fair value through other comprehensive income		(234,975)	(204,957)	(205,380)	(179,143)
Disposal of financial assets at fair value through profit or loss		912	74	797	65
Disposal of investments in subsidiaries, associates and joint ventures		605,607	22,057	529,331	19,279
Acquisition of investments in subsidiaries, associates and joint ventures		(138,858)	(163,456)	(121,369)	(142,869)
Disposal of property, plant and equipment		408,560	431,142	357,102	376,840
Acquisition of property, plant and equipment		(36,021,504)	(26,962,042)	(31,484,599)	(23,566,176)
Disposal of intangible assets		5,809	1,082	5,077	946
Acquisition of intangible assets		(2,459,929)	(2,239,834)	(2,150,101)	(1,957,727)
Cash inflow (outflow) from other investing activities		(201,537)	39,748	(176,153)	34,741
Net cash used in investing activities		**(24,435,207)**	**(31,175,575)**	**(21,357,595)**	**(27,249,015)**

The above separate statements of cash flows should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF CASH FLOWS

(In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	**2021**	**2020**	**2021**	**2020**
		KRW	KRW	USD	USD
Financing activities					
Net increase (decrease) in short-term borrowings	27	(3,288,858)	2,326,350	(2,874,627)	2,033,346
Repayment of debentures and long-term borrowings	27	(117,963)	(134,443)	(103,106)	(117,510)
Dividends paid		(20,478,233)	(9,618,283)	(17,899,002)	(8,406,861)
Net cash used in financing activities		**(23,885,054)**	**(7,426,376)**	**(20,876,735)**	**(6,491,025)**
Effect of foreign exchange rate changes		19	54	17	48
Net increase(decrease) in cash and cash equivalents		**2,929,827**	**(1,092,872)**	**2,560,815**	**(955,225)**
Cash and cash equivalents					
Beginning of the year		989,045	2,081,917	864,475	1,819,700
End of the year		**3,918,872**	**989,045**	**3,425,290**	**864,475**

The above separate statements of cash flows should be read in conjunction with the accompanying notes.

5. Notes to non-consolidated financial statements

1. General Information

Samsung Electronics Co., Ltd. (the "Company") was incorporated under the laws of the Republic of Korea in 1969 and listed its shares on the Korea Stock Exchange in 1975. The Company operates three business divisions: Consumer Electronics ("CE"), Information technology & Mobile communications ("IM"), and Device Solutions ("DS"). CE division includes digital TVs, monitors, air conditioners and refrigerators and IM division includes mobile phones, communication systems, and computers. DS division includes semiconductor products such as memory, foundry and system LSI. The Company is domiciled in the Republic of Korea and is located in Suwon, the Republic of Korea.

These financial statements have been prepared in accordance with *Korean IFRS 1027, Separate Financial Statements*.

2. Significant Accounting Policies

2.1 Basis of Presentation

The principal accounting policies used to prepare the separate financial statements are set out below. Except for the effect of the amendments to the Korean IFRS and new interpretations set out below, the principal accounting policies used to prepare the separate financial statements as of and for the year ended December 31, 2021 are consistent with those used to prepare the separate financial statements as of and for the year ended December 31, 2020.

The Company maintains its accounting records in Korean won and prepares the statutory financial statements in Korean language (Hangul) in accordance with International Financial Reporting Standards as adopted by the Republic of Korea ("Korean IFRS"). The accompanying separate financial statements have been condensed, restructured and translated into English from the Korean language financial statements.

Certain information attached to the Korean language financial statements that are not required for a fair presentation of the Company's financial position, financial performance, or cash flows, are not presented in the accompanying separate financial statements.

The separate financial statements of the Company have been prepared in accordance with Korean IFRS. These are the standards, subsequent amendments and related interpretations issued by the International Accounting Standards Board (IASB) that have been adopted by the Republic of Korea.

Korean IFRS permits the use of critical accounting estimates in the preparation of the separate financial statements and requires management judgments in applying the accounting policies. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the separate financial statements, are disclosed in Note 3.

2.2 Changes in Accounting Policies and Disclosures

(A) New and amended standards adopted by the Company

The Company applied the following amended and/or enacted standards for the first time for their annual reporting period commencing on January 1, 2021:

Amendments to Korean IFRS 1116, Lease

The amendments introduce a practical expedient that simplifies the lessee's accounting treatments for COVID-19 related rent concessions, and through such expedient a lessee may elect not to assess whether the rent concessions granted as a direct consequence of the COVID-19 pandemic are lease modification. A lessee that makes this election shall account for any changes in lease payments resulting from the rent concessions the same way as prescribed by this standard if the changes were not considered as lease modifications. The application of amendments does not have a significant impact on the Company's year-end financial statements.

(B) New and amended standards not yet adopted by the Company

The amended accounting standard issued that is not mandatory for the annual reporting period commencing on January 1, 2021 and has not been early adopted by the Company is as follows:

Amendments to Korean IFRS 1116, Lease

During the year ended December 31, 2020, the amendments to Korean IFRS 1116 introduced a practical expedient that provided practical relief to lessees in accounting for rent concessions occurring as a direct consequence of COVID-19. The amendments extend the practical expedient to apply to reduction in lease payments originally due on or before 30 June 2022.
The amendments are effective for annual reporting periods beginning on or after April 1, 2021, with early application permitted.

Amendments to Korean IFRS 1103, Business Combinations

The amendments add to Korean IFRS 1103 a requirement that, for obligations within the scope of IAS 37, an acquirer applies Korean IFRS 1037 or Korean IFRS 2121 Levies to determine whether at the acquisition date a present obligation exists as a result of the past events. The amendments also add an explicit statement that an acquirer does not recognise contingent assets acquired in a business combination. The amendments are effective for business combinations for which the date of acquisition is on or after the beginning of the first annual period beginning on or after January 1, 2022, with early application permitted
.

Amendments to Korean IFRS 1016, Property, Plant and Equipment

The amendments prohibit deducting from the cost of an item of property, plant and equipment any proceeds from selling items produced while bringing that asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Instead, an entity recognizes the proceeds from selling such items, and the cost of producing those items, in profit or loss. The amendments are effective for annual reporting periods beginning on or after January 1, 2022, with early application permitted.

Amendments to Korean IFRS 1037, Provisions, Contingent Liabilities and Contingent Assets

The amendments specify that the 'cost of fulfilling' a contract comprises the 'costs that relate directly to the contract'. Costs that relate directly to a contract consist of both the incremental costs of fulfilling that contract and an allocation of other costs that relate directly to fulfilling the contract. The amendments are effective for annual periods beginning on or after 1 January 2022, with early application permitted.

Amendments to Korean IFRS 1001, Presentation of Financial Statements

The amendments clarify that the classification of liabilities as current or non-current is based on the rights that are in existence at the end of the reporting period, specify that classification is unaffected by expectations about whether an entity will exercise its right to defer settlement of a liability, and elucidate that settlement refers to the transfer to the counterparty of cash, equity instruments, other assets or services. The amendments are applied retrospectively for annual periods beginning on or after January 1, 2023, with early application permitted.

Amendments to Korean IFRS 1001, Presentation of Financial Statements

The amendments define the term 'material accounting policy information', and develop guidance and examples in IFRS Practice Statement 2 to explain and demonstrate the application of 'materiality'. The amendments are effective for annual periods beginning on or after January 1, 2023, with earlier application permitted and are applied prospectively.

Amendments to Korean IFRS 1008, Accounting Policies, Changes in Accounting Estimates and Errors

The amendments define accounting estimates, and clarify that it is different from changes in accounting policies. The amendments are effective for annual periods beginning on or after January 1, 2023, to changes in accounting policies and changes in accounting estimates that occur on or after the beginning of the same period, with earlier application permitted.

Amendments to Korean IFRS 1012, Income Taxes

The amendments introduce a further exception to the initial recognition exemption. Under the amendments, an entity does not apply the initial recognition exemption for transactions that give rise to equal taxable and deductible temporary differences. The amendments are effective for annual reporting periods beginning on or after January 1, 2023, with earlier application permitted.

2.3 Subsidiaries, Associates and Joint Ventures

The Company, as the ultimate controlling company in accordance with Korean IFRS 1110 *Consolidated Financial Statements* recognizes investments in subsidiaries, associates and joint ventures are recognized under the cost method in accordance with Korean IFRS 1027 *Separate Financial Statements* on the Company's separate financial statements.

If there is any objective evidence that the investment in the subsidiaries, associates and joint ventures is impaired, the Company recognizes the difference between the recoverable amount and its carrying amount as an impairment loss.

2.4 Foreign Currency Translation

(A) Functional and presentation currency

Items included in the separate financial statements of each of the Company's entities are measured using the currency of the primary economic environment in which each entity operates (the "functional currency"). The separate financial statements are presented in Korean won, which is the parent company's functional and presentation currency.

(B) Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions or valuation where items are re-measured. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognized in profit or loss. Exchange differences arising on non-monetary financial assets and liabilities such as equity instruments at fair value through profit or loss and equity instruments at fair value through other comprehensive income are recognized in profit or loss and other comprehensive income, respectively, as part of the fair value gain or loss.

2.5 Cash and Cash Equivalents

Cash and cash equivalents include cash on hand, deposits held at call with banks, and other short-term investment assets with high liquidity that are readily convertible to a known amount of cash and are subject to an insignificant risk of change in value.

2.6 Financial Assets

(A) Classification

From January 1, 2018, the initial application date for Korean IFRS 1109 *Financial Instruments,* the Company classifies its financial assets in the following measurement categories:

- Financial assets measured at fair value (changes in fair value recognized in either other comprehensive income, or profit or loss).
- Financial assets measured at amortized cost.

The classification depends on the Company's business model for managing the financial assets and the contractual terms of the cash flows.

For financial assets measured at fair value, gains and losses will either be recorded in profit or loss or other comprehensive income. For investments in debt instruments, this will depend on the business model in which the investment is held. The Company reclassifies debt investments only when its business model for managing those assets changes.

For investments in equity instruments that are not held for trading, classification will depend on whether the Company has made an irrevocable election at the time of initial recognition to account for the equity investment at fair value through other comprehensive income. Changes in fair value of the investments in equity instruments that are not elected to be accounted for as other comprehensive income are recognized in profit or loss.

(B) Measurement

At initial recognition, the Company measures a financial asset at its fair value. In the case of financial asset not measured at fair value through profit or loss, transaction costs that are directly attributable to the acquisition of the financial asset or the issuance of the financial liabilities are added to its fair value. Transaction costs of financial assets carried at fair value through profit or loss are expensed in profit or loss.

Hybrid (combined) contracts with embedded derivatives are considered in their entirety when determining whether their cash flows solely consist of the payments of principal and interest.

a) Debt instruments

Subsequent measurement of debt instruments depends on the Company's business model for managing the asset and the cash flow characteristics of the asset. The Company classifies its debt instruments into one of the following three measurement categories:

① Financial assets measured at amortized cost

Assets that are held for collection of contractual cash flows where those cash flows represent solely the payments of principal and interest are measured at amortized cost. A gain or loss on a debt investment that is subsequently measured at amortized cost and is not part of a hedging relationship is recognized in profit or loss when the asset is derecognized or impaired. Interest income from these financial assets is included in 'financial income' using the effective interest rate method.

② Financial assets measured at fair value through other comprehensive income

Assets that are held for collection of contractual cash flows and for selling the financial assets, where the assets' cash flows represent solely the payments of principal and interest, are measured at fair value through other comprehensive income. Movements in the carrying amount are taken through other comprehensive income, except for the recognition of impairment loss (reversal of impairment loss), interest income and foreign exchange gains and losses which are recognized in profit or loss. When the financial assets are derecognized, the cumulative gain or loss previously recognized in other comprehensive income is reclassified from equity to profit or loss. Interest income from these financial assets is included in 'financial income' using the effective interest rate method. Foreign exchange gains and losses are presented in 'financial income' or 'financial expenses' and impairment losses are presented in 'other non-operating expenses'.

③ Financial assets measured at fair value through profit or loss

Assets that do not meet the criteria for amortized cost or fair value through other comprehensive income are measured at fair value through profit or loss. A gain or loss on a debt investment that is subsequently measured at fair value through profit or loss and is not part of a hedging relationship is recognized in profit or loss and presented in the separate statement of profit or loss within 'other non-operating income' or 'other non-operating expenses' in the year in which it arises.

b) Equity instruments

The Company subsequently measures all equity investments at fair value. Where the Company's management has elected to present fair value gains and losses on equity investments in other comprehensive income, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. When the financial asset is derecognized, the cumulative gain or loss on valuation of financial assets at fair value through other comprehensive income recognized in equity is reclassified to retained earnings. Dividend income from such investments continue to be recognized in profit or loss as 'other non-operating income' when the right to receive the payments is established.

Changes in the fair value of financial assets at fair value through profit or loss are recognized in 'other non-operating income' or 'other non-operating expenses' in the separate statements of profit or loss as applicable.

(C) Impairment

The Company assesses on a forward-looking basis the expected credit losses associated with its debt instruments carried at amortized cost and fair value through other comprehensive income. The impairment methodology applied depends on whether there has been a significant increase in credit risk. For trade receivables, the Company applies the simplified approach, which requires expected lifetime losses to be recognized from initial recognition of the receivables.

(D) Recognition and derecognition

Regular way purchases and sales of financial assets are recognized or derecognized on a trade date basis. Financial assets are derecognized when the rights to receive cash flows from the financial assets have expired or have been transferred and the Company has transferred substantially all the risks and rewards of ownership. If a transfer does not result in derecognition because the Company has retained substantially all the risks and rewards of ownership of the transferred asset, the Company continues to recognize the transferred asset in its entirety and recognizes a financial liability for the consideration received. The Company classifies the financial liability as 'borrowings' in the separate statement of financial position.

(E) Offsetting of financial instruments

Financial assets and liabilities are offset and the net amount is reported in the statements of financial position when there is a legally enforceable right to offset the recognized amounts and there is an intention to settle on a net basis or, realize the assets and settle the liability simultaneously. The legally enforceable right must not be contingent on future events and must be enforceable in the normal course of business, even in the event of default, insolvency or bankruptcy of the Company or the counterparty.

2.7 Trade Receivables

Trade receivables are amounts due from customers for inventories sold or services performed in the ordinary course of business. If collection is expected within one year or less, they are classified as current assets. If collection is expected beyond one year, they are presented as non-current assets. Trade receivables are recognized initially at transaction price and subsequently measured at amortized cost using the effective interest method, less loss allowance, unless the trade receivables bear significant financial component.

2.8 Inventories

Inventories are stated at the lower of cost and net realizable value. Cost is determined using the average cost method, except for materials in transit. The cost of finished goods and work in progress comprises raw materials, direct labor, other direct costs and related production overheads (based on normal operating capacity). It excludes costs of idle plant and abnormal waste. Net realizable value is the estimated selling price in the ordinary course of business, less applicable variable selling expenses.

The Company regularly estimates the changes in future customer demand in the products that may cause a significant change in the valuation allowance and recognizes the valuation allowance if there is any case such as excess, obsolescence and decline in market value. Loss on valuation of inventories is recorded as cost of sales.

2.9 Property, Plant and Equipment

Property, plant and equipment are stated at cost less accumulated depreciation and accumulated impairment losses. Historical cost includes expenditures that are directly attributable to the acquisition. Subsequent costs are included in the asset's carrying amount or recognized as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the cost will flow to the Company and the cost can be measured reliably. The carrying amounts of the replaced parts are derecognized and the repairs and maintenance expenses are recognized in profit or loss in the period they are incurred.

Depreciation on tangible assets is calculated using the straight-line method to allocate the difference between their cost and their residual values over their estimated useful lives. Land is not depreciated. Costs that are directly attributable to the acquisition, construction or production of a qualifying asset, including capitalized interest costs, form part of the cost of that asset and are amortized over the estimated useful lives.

The Company's policy is that property, plant and equipment should be depreciated over the following estimated useful lives:

	Estimated useful lives
Buildings and structures	15, 30 years
Machinery and equipment	5 years
Other	5 years

The depreciation method, residual values and useful lives of property, plant and equipment are reviewed, and adjusted if appropriate, at the end of each reporting period. An asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount. Gains and losses on disposals are determined by comparing the proceeds with the carrying amount and are recognized in the separate statements of profit or loss as 'other non-operating income' or 'other non-operating expenses'.

2.10 Borrowing Costs

General and specific borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset are capitalized during the period of time that is required to complete and prepare the asset for its intended use. Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalization. Other borrowing costs are expensed in the period in which they are incurred.

2.11 Intangible Assets

Goodwill represents the excess of the cost of acquisition over the fair value of the Company's share of the net identifiable assets of the acquired subsidiaries, associates, joint ventures and businesses at the date of acquisition. Goodwill on an acquisition of businesses is included in intangible assets and goodwill on an acquisition of subsidiaries, associates and joint ventures' shares is included in the investments in subsidiaries, associates and joint ventures.

Intangible assets, except for goodwill, are initially recognized at their historical cost and carried at cost less accumulated amortization and accumulated impairment losses.

Internally generated development costs are the aggregate costs recognized after meeting the asset recognition criteria, including technical feasibility, and determined to have future economic benefits. Membership rights and certain trademarks are regarded as intangible assets with an indefinite useful life and not amortized because there is no foreseeable limit to the period over which the assets are expected to be utilized. However, the Company records impairment based on its reasonable estimation of the benefits associated with the membership rights and assessment of impairment indicators, such as a decline in the market value. Intangible assets with definite useful lives such as trademarks, licenses, and other intangible assets, are amortized using the straight-line method over their estimated useful lives.

The Company's policy is that intangible assets should be amortized over the following estimated useful lives:

	Estimated useful lives
Development costs	2 years
Trademarks, licenses and other intangible assets	5 - 10 years

2.12 Impairment of Non-Financial Assets

Goodwill or intangible assets with indefinite useful lives are not subject to amortization and are tested annually for impairment. Assets that are subject to amortization are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and value in use. For the purposes of assessing impairment, assets are grouped at the lowest level for which there are separately identifiable cash flows (cash-generating units). Non-financial assets other than goodwill that suffered an impairment are reviewed for possible reversal of the impairment at the end of each reporting period.

2.13 Assets Held-for-Sale (Disposal Group)

Non-current assets (or disposal groups) are classified as assets held-for-sale when their carrying amount is to be recovered principally through a sale transaction and the sale is considered highly probable. The assets are measured at the lower of carrying amount and the fair value less costs to sell. Gain or loss on disposal is determined by comparing the proceeds with the carrying amount of relevant assets, and is recognized in the statements of profit or loss as 'other non-operating income' or 'other non-operating expenses'.

2.14 Financial Liabilities

(A) Classification and measurement

The Company shall classify all financial liabilities as financial liabilities measured subsequently at amortized cost, except for the following:

- Financial liabilities at fair value through profit or loss. Such liabilities, including derivatives that are liabilities, shall be subsequently measured at fair value.
- Financial liabilities that arise when a transfer of a financial asset does not qualify for derecognition or when the continuing involvement approach applies. Such financial liabilities are measured based on the methodology described in Note 2.6 Financial Assets.
- Financial guarantee contracts. After the initial recognition, an issuer of such a contract shall subsequently measure it at the higher of:
  (c) The amount of the loss allowance determined based on the expected credit losses.
  (d) The amount initially recognized less the cumulative amount of income recognized in accordance with the principles of Korean IFRS 1115 *Revenue from Contracts with Customers*, when appropriate.
- Commitments to provide loan at below-market interest rate. An issuer of such a commitment shall subsequently measure it at the higher of:
  (c) The amount of the loss allowance determined based on the expected credit losses.
  (d) The amount initially recognized less the cumulative amount of income recognized in accordance with the principles of Korean IFRS 1115 *Revenue from Contracts with Customers*, when appropriate.
- Contingent consideration recognized by an acquirer in a business combination to which Korean IFRS 1103 *Business Combinations* applies. Such contingent consideration shall subsequently be measured at fair value with changes recognized in profit or loss.

(B) Derecognition

Financial liabilities are removed from the separate statements of financial position when it is extinguished; for example, when the obligation specified in the contract is discharged or cancelled or expired or when the terms of an existing financial liability are substantially modified. The difference between the carrying amount of a financial liability extinguished or transferred to another party and the consideration paid (including any non-cash assets transferred or liabilities assumed) is recognized in profit or loss.

2.15 Trade Payables

Trade payables are amounts due to suppliers for inventories purchased or services received in the ordinary course of business. If payment is expected to be made within 12 months, they are classified as current liabilities. If not, they are presented as non-current liabilities. Non-current trade payables are recognized initially at fair value and subsequently measured at amortized cost using the effective interest method.

2.16 Borrowings

Borrowings are recognized initially at fair value, net of transaction costs, and are subsequently measured at amortized cost. Any difference between cost and the redemption value is recognized in the separate statement of profit or loss over the period of the borrowings using the effective interest method. If the Company has an indefinite right to defer payment for a period longer than 12 months after the end of the reporting date, such liabilities are recorded as non-current liabilities, otherwise, they are recorded as current liabilities.

2.17 Provisions and Contingent Liabilities

A provision is recognized when the Company has present legal or constructive obligation as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation. Provisions are not recognized for future operating losses.

Provisions are measured at present value of the expenditures expected to be required to settle the obligation using a pre-tax rate that reflects the current market assessments of the time value of money and the risks specific to the obligation. The increase in the provision due to the passage of time is recognized as interest expense.

The Company discloses a contingent liability if there is a possible obligation from past events in which the existence may only be identified through the occurrence of uncertain future events; or there is a present obligation that the possibility on the outflow of economic resources is uncertain; or the amount of economic resources required to settle the present obligation cannot be reasonably estimated.

2.18 Employee Benefits

The Company has a variety of retirement pension plans including a defined benefit plan and a defined contribution plan.

A defined contribution plan is a pension plan under which the Company pays fixed contributions into a separate fund. The Company has no legal or constructive obligation to pay further contributions if the fund does not hold sufficient assets to pay all employees the benefits relating to employee service received in the current and prior periods. For a defined contribution plans, the Company pays contributions to annuity plans that are managed either publicly or privately on a mandatory, contractual or voluntary basis. The Company has no further future payment obligations once the contributions have been paid. The contributions are recognized as employee benefit expense when they are due. Prepaid contributions are recognized as an asset to the extent that a cash refund or a reduction in the future payments is available.

A defined benefit plan is a pension plan that is not a defined contribution plan. Typically a defined benefit plan establishes an amount of pension benefit that an employee will receive upon retirement, usually dependent on one or more factors such as age, years of service and compensation. The liabilities (assets) recognized in the separate statements of financial position with respect to the defined benefit pension plan is the present value of the defined benefit obligation at the end of the reporting period less the fair value of plan assets. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using the interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid and that have the terms to maturity approximating to the terms of the related pension obligation.

Actuarial gains and losses resulting from the changes in actuarial assumptions, and the differences between the previous actuarial assumptions and what has actually occurred, are recognized in other comprehensive income in the period in which they were incurred. When plan amendments, curtailments and settlements occur, past service costs or gain or loss from settlements are immediately recognized in profit or loss.

2.19 Financial Guarantee Contract

Financial guarantee contracts are contracts that require the issuer to make specified payments to reimburse the holder for a loss it incurs because a specified debtor fails to make payments when due.

The liability is initially measured at fair value and then subsequently measured at the higher of the following, and is recognized in the separate statements of financial position within 'other financial liabilities':

- the amount determined in accordance with the expected credit loss model and
- the amount initially recognized less the cumulative amount of income recognized in accordance with Korean IFRS 1115 *Revenue from Contracts with Customers*, where appropriate.

2.20 Current and Deferred Tax

The tax expense for the year comprises current and deferred tax. Current and deferred tax is recognized in profit or loss, except to the extent that it relates to the items recognized in other comprehensive income or directly in equity. The tax expense is calculated on the basis of the tax laws enacted or substantively enacted at the end of the reporting period.

Deferred tax is recognized for temporary differences arising between the tax bases of assets and liabilities and their carrying amounts as expected tax consequences at the recovery or settlement of the carrying amounts of those assets and liabilities. However, deferred tax assets and liabilities are not recognized if they arise from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither the accounting nor taxable profit. Deferred tax assets are recognized only to the extent that it is probable that a future taxable profit will be available against which the temporary differences can be utilized.

A deferred tax liability is recognized for taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint ventures, except to the extent that the Company is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. In addition, a deferred tax asset is recognized for deductible temporary differences arising from such investments to the extent that it is probable the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset the current tax assets against the current tax liabilities and when the deferred income tax assets and liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities with an intention to settle the balances on a net basis.

2.21 Derivative Instruments

The Company initially recognizes rights and obligations from derivative contracts as assets and liabilities at fair value. Gain or loss arising from these contracts are recognized in profit or loss. Qualified hedged amount from cash flow hedge and hedge of a net investment in a foreign operation is deferred in equity.

The Company applies cash flow hedge accounting to hedge the price risk associated with inventory purchase and other. The effective portion of changes in fair value of derivatives that are designated and qualify as cash flow hedges is recognized in other comprehensive income, and the ineffective portion is recognized in financial income or expenses.

2.22 Dividend

Dividend is recognized as a liability when approved by the Company's shareholders.

2.23 Share Capital

Ordinary shares and preference shares with no repayment obligations are classified as equity. When the Company purchases its ordinary shares, the acquisition costs, including direct transaction costs, are deducted from equity until the redemption or reissuance as treasury shares. Consideration received on the reissuance of treasury shares is credited to equity attributable to owners of the parent company.

2.24 Revenue Recognition

Revenue mainly comprises the fair value of the consideration received or receivable for the sale of goods in the ordinary course of the Company's activities. Revenue is shown net of value-added tax, returns, sales incentives and discounts and after eliminating intercompany transactions.

The Company applied Korean IFRS 1115 *Revenue from Contracts with Customers* to the annual period beginning January 1, 2018. The Company shall recognize revenue in accordance with Korean IFRS 1115 *Revenue from Contracts with Customers* by applying the following 5 steps: ① Identify the contracts with the customers, ② Identify the separate performance obligations, ③ Determine the transaction price of the contract, ④ Allocate the transaction price to each of the separate performance obligations, and ⑤ Recognize the revenue as each performance obligation is satisfied.

(A) Identification of performance obligations

The Company exports various products and merchandise in accordance with Incoterms Group C trading conditions (Incoterms CIF, and other). According to Korean IFRS 1115 *Revenue from Contracts with Customers* since the seller provides the shipping service after the control of the product or merchandise has been transferred to the customer, the shipping service (including insurance) is recognized as a separate performance obligation.

(B) Performance obligations satisfied over time

The Company delivers products to customers and installs them in accordance with the system air conditioner contracts awarded by the Public Procurement Service. According to Korean IFRS 1115 *Revenue from Contracts with Customers* the Company should recognize revenue over time if the Company creates or enhances an asset (for example, work in progress) that the customer controls as the asset is created or enhanced. The Company recognizes the revenue from system air conditioner installation over time as the customer controls the outcome of the service.

(C) Variable consideration

The Company estimates amount of variable consideration by using the 'expected value method' or the 'most likely amount method' which method the Company expects to better predict the amount of consideration. The Company recognizes revenue only to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognized will not occur, and classifies the amount which the Company does not expect to be entitled as contract liabilities.

The Company measures refund liability at the amount of consideration received for which the Company does not expect to be entitled. The Company has a right to recover the product from the customer when the customer exercises his right of return and recognizes an asset and a corresponding adjustment to cost of sales. The asset is measured with reference to the former carrying amount of the product less the costs to recover the products.

(D) Allocation of the transaction price

The transaction price in an arrangement must be allocated to each separate performance obligation based on the relative standalone selling prices of the goods or services being provided to a customer. The Company determines the standalone selling price for each separate performance obligation by using methods such as the 'adjusted market assessment approach'.

2.25 Leases

A lease is a contract, whereby the lessor conveys to the lessee, the right to control the use of an identified asset for a period of time in exchange for consideration.

At inception of a contract, the Company assesses whether the contract is, or contains, a lease. However, the Company did not reassess all contracts at initial application of Korean IFRS 1116 *Leases* because the Company applied the practical expedient to contracts entered into before January 1, 2019.

For a contract that is, or contains, a lease, both lessee and lessor account for each lease component within the contract as a lease separately from the non-lease components of the contract. In lessee accounting, however, the Company does not account for them separately but instead applies the practical expedient to account for each lease component and any associated non-lease components as a single lease component.

(A) Lessee accounting

The Company recognizes a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments at the commencement date of the lease.

The right-of-use asset is initially measured at cost and subsequently measured at cost less accumulated depreciation and accumulated impairment losses, adjusted for the remeasurement of lease liability. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term from the commencement date of the lease and is classified as 'property, plant and equipment' in the separate financial statements.

At the commencement date, the lease liability is measured at the present value of the lease payments that are not paid at that date. When measuring the present value, the lease payments are discounted using the interest rate implicit in the lease. If such implicit rate cannot be readily determined, the Company uses the Company's incremental borrowing rate. The lease liability is subsequently increased by the amount of interest expenses recognized on the lease liability and reduced by the lease payments made. Lease liabilities are remeasured when the future lease payments are changed due to the following:

- Changes in an index or rate
- Changes in amounts expected to be payable by the lessee under the residual value guarantee
- Changes in the assessment of whether a purchase option or an option to renew is reasonably certain to be exercised, or
- Changes in the assessment of whether it is reasonably certain that an option to terminate the lease will not be exercised.

Lease liabilities are classified as 'current portion of long-term liabilities' and/or 'long-term borrowings' in the separate financial statements.

The Company elected the practical expedient for short-term leases (leases that have a lease term of 12 months or less at the commencement date) and leases of low-value assets (leases for which the underlying asset is valued at USD 5,000 or less), and the lease payments are recognized as an expense on a straight-line basis over the lease term.

(B) Lessor accounting

The accounting policies as a lessor did not change significantly from the accounting policies applied before the initial application of the Korean IFRS 1116 *Leases* on January 1, 2019.

The Company classifies a lease as a finance lease if it transfers substantially all the risks and rewards incidental to ownership at the inception of the lease. A lease other than a finance lease is classified as an operating lease. Lease income from operating leases is recognized in income on a straight-line basis over the lease term. Initial direct costs incurred by the lessor in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognized as an expense over the lease term on the same basis as the lease income.

2.26 Government Grants

Government grants are recognized at their fair values when there is reasonable assurance that the grant will be received and the Company will comply with the conditions attached to it. Government grants relating to costs are deferred and recognized in the separate statements of profit or loss over the period necessary to match the costs they are intended to compensate. Government grants relating to assets are recognized in liabilities as deferred income government grants, and depreciated over the expected lives of the related assets, and credited to the statements of profit or loss.

2.27 Earnings per Share

Basic earnings per share is calculated by dividing the net profit for the period available to the ordinary shareholders by the weighted-average number of ordinary shares outstanding during the year.

Diluted earnings per share is calculated by dividing the profit for the year attributable to owners of the parent company from the separate statements of profit or loss by the weighted-average number of ordinary shares outstanding and potential dilutive shares. Potential dilutive shares are used in the calculation of dilutive earnings per share only when they have dilutive effects.

2.28 Reportable Segments

Reportable segments are disclosed in a manner consistent with the reporting provided to the chief operating decision-maker. The chief operating decision-maker is responsible for making strategic decisions on resource allocation and assessing performance of the reportable segments. The Management Committee, which makes strategic decisions, is regarded as the chief operating decision-maker.

2.29 Convenience Translation into United States Dollar Amounts

The Company operates primarily in Korean won and its official accounting records are maintained in Korean won. The US dollar amounts provided in the separate financial statements represent a supplementary information solely for the convenience of the reader. All Korean won amounts are expressed in U.S. dollar at the rate of ₩ 1,144.1 to USD 1, the average exchange rate for the year ended December 31, 2021. Such presentation is not in accordance with generally accepted accounting principles, and should not be construed as a representation that the Korean won amounts shown could be readily converted, realized or settled in US dollar at this or at any other rate.

2.30 Approval of the Separate Financial Statements

These separate financial statements were approved by the Board of Directors on January 27, 2022, and may be modified and approved at the Annual General Shareholders' Meetings.

3. Critical Accounting Estimates and Assumptions

The Company makes estimates and assumptions concerning the future. The estimates and assumptions are continuously assessed, considering historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. The resulting accounting estimates will, by definition, seldom equal the related actual results. In particular, the recent spread of COVID-19 during the year ended December 31, 2021 may result in changes to the Company's assumptions and estimates but its potential financial impact cannot be reasonably estimated as of the reporting date.

The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are addressed below.

(A) Revenue recognition

A refund liability and a right to the returned goods are recognized for the products expected to be returned at the time of sale. Accumulative experience is used to estimate such returns at the time of sale at a portfolio level (through expected value method), and the Company's revenue is affected by the changes in expected return rate.

Sales of goods are recognized based on the considerations specified in the contract, net of sales incentives, when control of the products has transferred. The sales deduction, which affects the Company's revenue, is reasonably estimated based on the historical experience and past contracts.

(B) Provision for warranty

The Company recognizes provision for warranty on products sold. The Company accrues provision for warranty based on the best estimate of amounts necessary to settle future and existing claims at the end of each accounting period. The amounts are estimated based on the past experience.

(C) Fair value of financial instruments

The fair value of financial instruments that are not traded in an active market is determined by using a variety of methods and assumptions that are mainly based on market conditions existing at the end of each reporting period.

(D) Impairment of financial assets

The loss allowance for financial assets are based on assumptions about risk of default and expected loss rates. The Company uses judgement in making these assumptions and selecting the inputs to the impairment calculation based on the Company's past history, existing market conditions as well as forward looking estimates at the end of each reporting period.

(E) Lease

In determining the lease term, the Company considers all facts and circumstances that create an economic incentive to exercise an extension option, or not to exercise a termination option. Extension options (or periods after termination options) are only included in the lease term if the lease is reasonably certain to be extended (or not terminated).

The lease term is reassessed if an option is actually exercised (or not exercised) or the Company becomes obliged to exercise (or not exercise) it. The Company reassesses whether it is reasonably certain to exercise an extension option (or not to exercise such option), upon the occurrence of either a significant event or a significant change in circumstances that is within the control of the lessee.

(F) Net defined benefit liabilities (assets)

The net defined benefit liabilities (assets) depend on a number of factors that are determined on an actuarial basis using a number of assumptions including the discount rate. Any changes in these assumptions will impact the carrying amount of the net defined benefit liability. The Company, in consideration of the interest rates of high-quality corporate bonds, determines the appropriate discount rate at the end of each year. This is the interest rate that is used to determine the present value of the estimated future cash outflows expected to be required to settle the net defined benefit liabilities (assets). The principal actuarial assumptions associated with the net defined benefit liabilities (assets) are based on the current market expectations.

(G) Impairment of goodwill and intangible assets that have an indefinite useful life

At the end of each reporting period, the Company tests whether goodwill and intangible assets that have an indefinite useful life have become impaired by comparing the carrying amounts of assets or cash-generating units to the recoverable amounts. The recoverable amounts of assets or cash-generating units have been determined based on the value-in-use calculations, and these calculations are based on estimates.

(H) Income taxes

Income taxes on the Company's taxable income from operating activities are subject to various tax laws and determinations of each tax authority across various countries throughout the world. There is uncertainty in determining the eventual tax effects on the taxable income from operating activities. The Company has recognized current tax and deferred tax at the end of the fiscal year based on the best estimate of future taxes payable as a result of operating activities. However, the resulting deferred income tax assets and liabilities may not equal the actual future taxes payable and such difference may impact the current tax and deferred income tax assets and liabilities upon the determination of eventual tax effects.

Regarding taxes payable in Korea, if a certain portion of taxable income is not used for investments or for increases in wages or dividends, in accordance with the *Tax System for Recirculation of Corporate Income*, the Company is liable to pay additional income tax calculated based on the Korean tax law. The current and deferred tax at the end of the fiscal year are based on the best estimate of future taxes payable, which can differ from the actual future taxes payable as a result of changes in investments, wages and dividends; this results in an additional uncertainty in measuring the final tax effects.

The Company assesses uncertainty over a tax treatment. When the Company concludes it is not probable that the taxation authority will accept an uncertain tax treatment, the Company will reflect the effect of uncertainty for each uncertain tax treatment by using either of the following methods, depending on which method the Company expects to better predict the resolution of the uncertainty:

- The most likely amount: the single most likely amount in a range of possible outcomes.
- The expected value: the sum of the probability-weighted amounts in a range of possible outcomes.

4. Financial Instruments by Category

(A) Categorizations of financial assets and liabilities as of December 31, 2021 and December 31, 2020 are as follows:

(1) As of December 31, 2021

(In millions of Korean won)	**Financial assets measured at amortized cost**	**Financial assets measured at fair value through other comprehensive income**	**Financial assets measured at fair value through profit or loss**	**Total**
Financial assets				
Cash and cash equivalents	3,918,872	-	-	3,918,872
Short-term financial instruments	15,000,576	-	-	15,000,576
Trade receivables	33,088,247	-	-	33,088,247
Financial assets at fair value through other comprehensive income	-	1,662,532	-	1,662,532
Financial assets at fair value through profit or loss	-	-	2,135	2,135
Other	5,076,418	-	-	5,076,418
Total	57,084,113	1,662,532	2,135	58,748,780

(In millions of Korean won)	**Financial liabilities measured at amortized cost**	**Other financial liabilities**[1]	**Total**
Financial liabilities			
Trade payables	11,557,441	-	11,557,441
Short-term borrowings	-	9,204,268	9,204,268
Other payables	12,948,960	-	12,948,960
Current portion of long-term liabilities	5,810	133,518	139,328
Debentures	29,048	-	29,048
Long-term borrowings	-	431,915	431,915
Long-term other payables	2,335,218	-	2,335,218
Other	3,056,156	-	3,056,156
Total	29,932,633	9,769,701	39,702,334

[1] Other financial liabilities include collateralized borrowings and lease liabilities which are not subject to categorizations.

(2) As of December 31, 2020

(In millions of Korean won)	**Financial assets measured at amortized cost**	**Financial assets measured at fair value through other comprehensive income**	**Financial assets measured at fair value through profit or loss**	**Total**
Financial assets				
Cash and cash equivalents	989,045	-	-	989,045
Short-term financial instruments	29,101,284	-	-	29,101,284
Trade receivables	24,736,740	-	-	24,736,740
Financial assets at fair value through other comprehensive income	-	1,539,659	-	1,539,659
Financial assets at fair value through profit or loss	-	-	3,107	3,107
Other	4,149,950	-	-	4,149,950
Total	58,977,019	1,539,659	3,107	60,519,785

(In millions of Korean won)	**Financial liabilities measured at amortized cost**	**Other financial liabilities**[1]	**Total**
Financial liabilities			
Trade payables	6,599,025	-	6,599,025
Short-term borrowings	-	12,520,367	12,520,367
Other payables	9,671,280	-	9,671,280
Current portion of long-term liabilities	5,318	82,253	87,571
Debentures	31,909	-	31,909
Long-term borrowings	-	150,397	150,397
Long-term other payables	935,038	-	935,038
Others	3,423,251	-	3,423,251
Total	20,665,821	12,753,017	33,418,838

[1] Other financial liabilities include collateralized borrowings and lease liabilities which are not subject to categorizations.

(B) Net gains or net losses on each category of financial assets and liabilities for the years ended December 31, 2021 and 2020 are as follows:

(1) For the year ended December 31, 2021

(In millions of Korean won)	**Financial assets measured at amortized cost**	**Financial assets measured at fair value through other comprehensive income**	**Financial assets measured at fair value through profit or loss**	**Total**
Financial assets				
Gain (loss) on valuation (other comprehensive income)	-	(99,916)	-	(99,916)
Gain on valuation/disposal (profit or loss)	-	-	14,003	14,003
Interest income	260,396	-	-	260,396
Foreign exchange differences (profit or loss)	69,874	-	-	69,874
Dividend income	-	3,118	593	3,711
Impairment/reversal (profit or loss)	(17,144)	-	-	(17,144)

(In millions of Korean won)	**Financial liabilities measured at amortized cost**	**Other financial liabilities**[1]	**Total**
Financial liabilities			
Interest expense	(49,982)	(100,002)	(149,984)
Foreign exchange differences (profit or loss)	317,176	(21,167)	296,009

[1] Other financial liabilities include collateralized borrowings, lease liabilities which are not subject to categorizations.

(2) For the year ended December 31, 2020

(In millions of Korean won)	**Financial assets measured at amortized cost**	**Financial assets measured at fair value through other comprehensive income**	**Financial assets measured at fair value through profit or loss**	**Total**
Financial assets				
Gain on valuation (other comprehensive income)	-	93,251	-	93,251
Gain (loss) on valuation/disposal (profit or loss)	-	-	(1)	(1)
Interest income	507,947	-	-	507,947
Foreign exchange differences (profit or loss)	(542,069)	-	-	(542,069)
Dividend income	-	2,160	1,343	3,503
Impairment/reversal (profit or loss)	(1,195)	-	-	(1,195)

(In millions of Korean won)	**Financial liabilities measured at amortized cost**	**Other financial liabilities**[1]	**Total**
Financial liabilities			
Interest expense	(44,725)	(144,576)	(189,301)
Foreign exchange differences (profit or loss)	110,776	21,112	131,888

[1] Other financial liabilities include collateralized borrowings, lease liabilities which are not subject to categorizations.

5. Transfer of Financial Assets

Trade receivables of the Company have been discounted through factoring agreements with banks during the years ended December 31, 2021 and 2020. Trade receivables provided as collaterals in such factoring transactions do not meet the requirements for asset derecognition as risks and rewards are not substantially transferred in the event of a debtor default due to the recourse obligation, etc. Financial liabilities recognized in relation to these transactions are included as 'short-term borrowings' on the separate statements of financial position (refer to Note 12).

The following table presents a breakdown of discounted trade receivables as of December 31, 2021 and 2020:

(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Carrying amount of the discounted trade receivables	9,204,268	12,520,367
Carrying amount of the related borrowings	9,204,268	12,520,367

6. Financial Assets at Fair Value

(A) Details of financial assets at fair value as of December 31, 2021 and December 31, 2020 are as follows:

(1) Financial assets at fair value through other comprehensive income

(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Equity instruments	1,662,532	1,539,659

(2) Financial assets at fair value through profit or loss

(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Debt instruments	2,135	3,107

(B) Changes in financial assets at fair value for the years ended December 31, 2021 and 2020 are as follows:

(1) Financial assets at fair value through other comprehensive income

(In millions of Korean won)	**2021**	**2020**
Balance as of January 1	1,539,659	1,206,080
Acquisition	260,642	204,957
Fair value valuation gain (loss)	(137,815)	128,622
Other	46	-
Balance as of December 31	1,662,532	1,539,659

(2) Financial assets at fair value through profit or loss

(In millions of Korean won)	**2021**	**2020**
Balance as of January 1	3,107	3,181
Disposal	(912)	(74)
Fair value valuation gain (loss)	(60)	-
Balance as of December 31	2,135	3,107

(C) Changes in gain (loss) on valuation of financial assets at fair value through other comprehensive income for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Balance as of January 1	262,752	134,130
Fair value valuation gain(loss)	(137,815)	128,622
Balance as of December 31	124,937	262,752
Income tax effects on equity	(34,358)	(72,257)
Total	90,579	190,495

(D) Details of listed equity securities of financial assets at fair value as of December 31, 2021 and 2020 are as follows:

	December 31, 2021				**December 31, 2020**
(In millions of Korean won, number of shares and percentage)	**Number of shares owned**	**Percentage of ownership[1] (%)**	**Acquisition cost**	**Carrying amount (Market value)**	**Carrying amount (Market value)**
Samsung Heavy Industries	134,027,281	15.2	932,158	759,935	708,882
Hotel Shilla	2,004,717	5.1	13,957	156,368	164,988
iMarket Korea	647,320	1.9	324	6,926	5,658
Skylife	240,000	0.5	3,344	2,194	2,114
Yongpyong Resort	400,000	0.8	1,869	1,958	1,702
A-Tech Solution	1,592,000	15.9	26,348	26,188	19,263
Wonik Holdings	1,759,171	2.3	15,410	8,761	11,153
Wonik IPS	1,850,936	3.8	16,214	78,295	81,904
Dongjin Semichem	2,467,894	4.8	48,277	125,863	90,078
Soulbrain Holdings	461,741	2.2	30,752	15,976	20,825
Soulbrain	373,368	4.8	24,866	103,983	101,668
S&S Tech	1,716,116	8.0	65,933	63,153	74,651
YIK Corp	9,601,617	11.7	47,336	59,530	60,010
Kctech	1,022,216	4.9	20,720	24,584	31,433
Lotvacuum	1,267,668	7.1	18,990	21,805	24,086
Newpower	2,140,939	4.9	12,739	13,723	14,109
Fine Semitech	1,522,975	7.0	43,009	38,607	-
DNF	810,030	7.0	20,964	18,509	-
Marvell	173,187	0.0	11,705	17,962	-
Total			1,354,915	1,544,320	1,412,524

[1] Ownership represents the Company's ownership of the total ordinary shares issued by each entity.

7. Trade and Non-Trade Receivables

(A) Trade and non-trade receivables as of December 31, 2021 and 2020 are as follows:

	December 31, 2021		December 31, 2020	
(In millions of Korean won)	**Trade**	**Non-trade**	**Trade**	**Non-trade**
Receivables	33,353,467	1,855,136	24,841,610	1,915,583
Less: Loss allowance	(56,610)	(4,397)	(37,469)	(7,014)
Subtotal	33,296,857	1,850,739	24,804,141	1,908,569
Less: Non-current portion	(208,610)	(18,251)	(67,401)	(9,986)
Current portion	33,088,247	1,832,488	24,736,740	1,898,583

As of December 31, 2021, trade receivables discounted through factoring agreements were accounted for as collateral borrowings and amount of the trade receivables were ₩ 9,204,268 million (as of December 31, 2020, ₩ 12,520,367 million) (refer to Note 12).

(B) Movements in the loss allowance for receivables for the years ended December 31, 2021 and 2020 are as follows:

	2021		2020	
(In millions of Korean won)	**Trade**	**Non-trade**	**Trade**	**Non-trade**
Balance as of January 1	37,469	7,014	37,992	5,331
Bad debt expense (reversal)	19,235	(1,998)	(489)	1,739
Write-off	(94)	(619)	(34)	(56)
Balance as of December 31	56,610	4,397	37,469	7,014

(C) The details of trade and non-trade receivables classified by past due date to measure expected credit losses as of December 31, 2021 and 2020 are as follows:

	December 31, 2021		December 31, 2020	
(In millions of Korean won)	**Trade**	**Non-trade**	**Trade**	**Non-trade**
Receivables not past due	32,986,766	1,640,450	24,504,533	1,576,620
Past due[1]:				
Less than 31 days overdue	181,986	31,420	69,437	54,393
31 days to 90 days overdue	26,727	17,586	18,924	31,398
Over 90 days overdue	157,988	165,680	248,716	253,172
Subtotal	366,701	214,686	337,077	338,963
Total	33,353,467	1,855,136	24,841,610	1,915,583

[1] The Company does not consider trade and non-trade receivables that are overdue for less than or equal to 31 days as impaired.

(D) The maximum exposure to current credit risk is equivalent to the carrying amount of receivables as of December 31, 2021. The Company has in place insurance contracts covering the Company's major receivables.

8. Inventories

Inventories as of December 31, 2021 and 2020 are as follows:

	December 31, 2021			December 31, 2020		
(In millions of Korean won)	**Gross amount**	**Valuation allowance**	**Carrying amount**	**Gross amount**	**Valuation allowance**	**Carrying amount**
Finished goods	3,884,713	(366,987)	3,517,726	2,535,410	(118,007)	2,417,403
Work in process	9,384,285	(222,291)	9,161,994	8,904,968	(65,773)	8,839,195
Raw materials and supplies	3,211,380	(258,464)	2,952,916	2,544,706	(379,326)	2,165,380
Materials in transit	340,417	-	340,417	409,394	-	409,394
Total	16,820,795	(847,742)	15,973,053	14,394,478	(563,106)	13,831,372

The inventories recognized as expense for the year ended December 31, 2021, amount to ₩ 135,609,737 million (2020: ₩ 116,543,552 million). The amount includes loss on valuation of inventories.

9. Investments in Subsidiaries, Associates and Joint Ventures

(A) Changes in investments in subsidiaries, associates and joint ventures for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Balance as of January 1	56,587,548	56,571,252
Acquisition	138,858	163,456
Disposal	(567,693)	(22,057)
Impairment (reversal)	66,886	(125,103)
Balance as of December 31	56,225,599	56,587,548

(B) Major investments in associates as of December 31, 2021 are as follows:
(refer to Note 30 for list of the Company's subsidiaries)

Investee	Nature of relationship with associate	Percentage of ownership (%)[1]	Principal business location	Fiscal period-end
Samsung Electro-Mechanics Co., Ltd.	Manufacture and supply electronic components including passive components, circuit boards, and modules	23.7	Korea	December
Samsung SDS Co., Ltd.	Provide IT services including computer programming, system integration and management, and logistical services	22.6	Korea	December
Samsung Biologics Co., Ltd.	New business investment	31.5	Korea	December
Samsung SDI Co., Ltd.[2]	Manufacture and supply electronic components including secondary cell batteries	19.6	Korea	December
Cheil Worldwide, Inc.	Advertising agency	25.2	Korea	December

[1] Ownership represents the Company's ownership of the total ordinary shares issued by each entity.
[2] The Company's ownership of ordinary shares outstanding is 20.6%.

(C) A summary of the condensed financial information of major subsidiaries and associates as of and for the years ended December 31, 2021 and 2020 is as follows:

(1) Major subsidiaries

	2021			
(In millions of Korean won)	**Assets**	**Liabilities**	**Sales**	**Profit for the year**
Samsung Display Co., Ltd. (SDC)[1]	54,967,156	9,081,737	28,755,975	2,770,060
Samsung Electronics America, Inc. (SEA)[1]	42,982,054	19,246,751	42,325,524	823,914
Samsung (CHINA) Investment Co., Ltd. (SCIC)[1]	13,599,093	9,685,278	2,615,685	451,062
Samsung (China) Semiconductor Co., Ltd. (SCS)[1]	19,049,536	5,168,738	7,341,018	1,708,832
Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)[1]	14,651,496	8,998,502	-	24,527
Samsung Asia Private Ltd. (SAPL)[1]	14,683,789	58,381	-	4,668,478
Shanghai Samsung Semiconductor Co., Ltd. (SSS)[1]	7,765,126	5,799,690	31,326,186	325,397
Samsung Electronica da Amazonia Ltda. (SEDA)[1]	4,589,505	1,671,097	6,020,523	490,202
Samsung India Electronics Private Ltd. (SIEL)[1]	7,765,019	3,236,745	12,222,643	522,672
Thai Samsung Electronics Co., Ltd. (TSE)[1]	3,018,358	474,223	4,443,031	142,191
Samsung Electronics (UK) Ltd. (SEUK)[1]	2,925,062	1,992,367	5,621,922	241,403
Samsung Electronics GmbH (SEG)[1]	2,289,391	2,228,650	6,385,080	2,158
Samsung Electronics Hungarian Private Co., Ltd. (SEH)[1]	2,504,075	641,004	4,357,137	157,616
Samsung Electronics Benelux B.V. (SEBN)[1]	2,612,357	766,034	2,569,603	284,816
Samsung Electronics Europe Logistics B.V. (SELS)[1]	2,305,275	2,144,805	14,700,517	13,943

[1] The above summary of condensed financial information is based on separate financial statements of each subsidiary.

	2020			
(In millions of Korean won)	**Assets**	**Liabilities**	**Sales**	**Profit for the year**
Samsung Display Co., Ltd. (SDC)[1]	50,039,755	7,612,332	27,149,102	1,798,100
Samsung Electronics America, Inc. (SEA)[1]	36,765,070	15,828,083	35,237,365	1,623,555
Samsung (CHINA) Investment Co., Ltd. (SCIC)[1]	15,438,819	12,358,881	2,475,454	127,051
Samsung (China) Semiconductor Co., Ltd. (SCS)[1]	14,348,735	3,511,003	5,321,312	1,100,619
Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)[1]	11,495,430	7,641,709	-	16,150
Samsung Asia Pte. Ltd. (SAPL)[1]	9,552,755	523,402	1,634,692	968,504
Shanghai Samsung Semiconductor Co., Ltd. (SSS)[1]	7,678,989	5,010,041	25,829,119	271,691
Samsung Electronica da Amazonia Ltda. (SEDA)[1]	6,280,131	1,556,057	6,390,696	819,561
Samsung India Electronics Private Ltd. (SIEL)[1]	6,250,492	2,523,027	10,943,343	611,571
Thai Samsung Electronics Co., Ltd. (TSE)[1]	2,920,299	451,055	3,744,080	160,264
Samsung Electronics (UK) Ltd. (SEUK)[1]	2,767,563	1,886,447	4,987,522	133,016
Samsung Electronics GmbH (SEG)[1]	2,687,535	2,626,979	6,306,675	605
Samsung Electronics Hungarian Private Co., Ltd. (SEH)[1]	2,230,457	504,952	3,665,360	148,056
Samsung Electronics Benelux B.V. (SEBN)[1]	2,145,488	736,480	2,324,308	58,579
Samsung Electronics Europe Logistics B.V. (SELS)[1]	1,700,033	1,550,350	13,444,960	20,623

[1] The above summary of condensed financial information is based on separate financial statements of each subsidiary.

(2) Major associates

(In millions of Korean won)	2021				
	Samsung Electro-Mechanics	**Samsung SDS**	**Samsung Biologics**	**Samsung SDI**	**Cheil Worldwide**
Current assets	4,598,269	7,575,968	2,823,175	7,444,907	2,018,598
Non-current assets	5,343,105	2,941,464	5,146,835	18,388,286	523,513
Current liabilities	2,234,657	2,370,290	1,107,295	6,461,286	1,224,222
Non-current liabilities	835,592	703,442	1,871,614	4,175,208	190,622
Revenue	9,675,036	13,630,002	1,568,007	13,553,220	3,325,712
Profit or loss from continuing operations[1]	1,055,411	611,171	393,589	1,169,801	165,485
Profit or loss from discontinued operation, net of tax[1]	(162,966)	-	-	-	-
Other comprehensive income (loss)[1]	151,809	134,163	(1,270)	623,792	32,535
Total comprehensive income[1]	1,044,254	745,334	392,319	1,793,593	198,020

[1] Profit (loss) attributable to owners of the parent company.

(In millions of Korean won)	2020				
	Samsung Electro-Mechanics	**Samsung SDS**	**Samsung Biologics**	**Samsung SDI**	**Cheil Worldwide**
Current assets	4,150,303	6,581,153	1,751,347	5,657,405	1,742,270
Non-current assets	5,075,196	2,573,766	4,672,854	15,876,827	500,194
Current liabilities	1,914,880	1,720,757	589,301	4,983,633	1,046,224
Non-current liabilities	1,400,223	575,054	1,236,117	3,191,672	180,710
Revenue	8,208,738	11,017,432	1,164,777	11,294,770	2,747,922
Profit or loss from continuing operations[1]	595,938	443,455	240,975	574,723	157,400
Profit or loss from discontinued operation, net of tax[1]	8,024	-	-	-	-
Other comprehensive income (loss)[1]	(33,475)	(134,669)	3,354	144,901	(14,795)
Total comprehensive income[1]	570,487	308,786	244,329	719,624	142,605

[1] Profit (loss) attributable to owners of the parent company.

(D) Fair value of marketable investments in associates as of December 31, 2021 and are 2020 as follows:

(In millions of Korean won and number of shares)	December 31, 2021			December 31, 2020	
	Number of shares held	**Market value**	**Carrying amount**	**Market value**	**Carrying amount**
Samsung Electro-Mechanics	17,693,084	3,494,384	445,244	3,149,369	445,244
Samsung SDS	17,472,110	2,734,385	560,827	3,118,772	560,827
Samsung Biologics	20,836,832	18,815,659	443,193	17,211,223	443,193
Samsung SDI	13,462,673	8,818,051	1,242,605	8,454,559	1,242,605
Cheil Worldwide	29,038,075	663,520	491,599	598,184	491,599

10. Property, Plant and Equipment

(A) Changes in property, plant and equipment for the years ended December 31, 2021 and 2020 are as follows:

	2021					
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Construction in progress**	**Other**	**Total**
Balance as of January 1	7,800,435	19,087,134	43,749,609	13,994,259	1,535,487	86,166,924
Acquisition cost	7,801,259	28,992,675	146,778,918	13,994,259	3,535,985	201,103,096
Accumulated depreciation and impairment	(824)	(9,905,541)	(103,029,309)	-	(2,000,498)	(114,936,172)
Acquisitions and capital expenditures[1]	5,295	4,385,819	31,501,402	1,339,173	607,076	37,838,765
Depreciation	(406)	(1,614,006)	(18,016,803)	-	(532,894)	(20,164,109)
Disposals/scrap	(24,319)	(5,104)	(108,737)	-	(5,402)	(143,562)
Other	(11)	(12,027)	9,842	(25,930)	(2,867)	(30,993)
Balance as of December 31	7,780,994	21,841,816	57,135,313	15,307,502	1,601,400	103,667,025
Acquisition cost	7,782,125	33,244,532	175,487,461	15,307,502	4,022,759	235,844,379
Accumulated depreciation and impairment	(1,131)	(11,402,716)	(118,352,148)	-	(2,421,359)	(132,177,354)

[1] The capitalized borrowing costs are ₩21,911 million, and interest rate used to calculate the borrowing costs eligible for capitalization is 1.1%.

	2020					
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Construction in progress**	**Other**	**Total**
Balance as of January 1	7,803,272	14,908,032	34,492,059	15,294,787	1,592,125	74,090,275
Acquisition cost	7,803,624	23,486,138	127,459,572	15,294,787	3,312,418	177,356,539
Accumulated depreciation and impairment	(352)	(8,578,106)	(92,967,513)	-	(1,720,293)	(103,266,264)
Acquisitions and capital expenditures	2,254	5,569,437	23,651,596	(1,233,051)	445,494	28,435,730
Depreciation	(472)	(1,378,486)	(14,263,941)	-	(482,631)	(16,125,530)
Disposals/scrap	(4,878)	(6,526)	(128,181)	-	(21,121)	(160,706)
Other	259	(5,323)	(1,924)	(67,477)	1,620	(72,845)
Balance as of December 31	7,800,435	19,087,134	43,749,609	13,994,259	1,535,487	86,166,924
Acquisition cost	7,801,259	28,992,675	146,778,918	13,994,259	3,535,985	201,103,096
Accumulated depreciation and impairment	(824)	(9,905,541)	(103,029,309)	-	(2,000,498)	(114,936,172)

(B) Changes in the right-of-use assets for the years ended December 31, 2021 and 2020 are as follows:

	2021				
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Other**	**Total**
Balance as of January 1	2,593	144,615	70,429	188,236	405,873
Acquisition	91	446,071	4,674	992	451,828
Depreciation	(405)	(80,085)	(36,065)	(9,617)	(126,172)
Disposals/scrap	-	(28)	-	(1,131)	(1,159)
Other[1]	-	(45)	-	-	(45)
Balance as of December 31	2,279	510,528	39,038	178,480	730,325

	2020				
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Other**	**Total**
Balance as of January 1	2,703	177,324	117,522	208,852	506,401
Acquisition	103	46,476	6,414	8,796	61,789
Depreciation	(472)	(77,761)	(46,849)	(11,233)	(136,315)
Disposals/scrap	-	(1,424)	(6,510)	(17,919)	(25,853)
Other[1]	259	-	(148)	(260)	(149)
Balance as of December 31	2,593	144,615	70,429	188,236	405,873

[1] Other includes cumulative effects of changes in accounting policies.

(C) Details of depreciation of property, plant and equipment for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Cost of sales	18,479,655	14,529,186
Selling and administrative expenses and other	1,684,454	1,596,344
Total	20,164,109	16,125,530

11. Intangible Assets

(A) Changes in intangible assets for the years ended December 31, 2021 and 2020 are as follows:

	2021					
(In millions of Korean won)	**Intellectual property rights**	**Development cost**	**Membership**	**Goodwill**	**Other**	**Total**
Balance as of January 1	1,195,319	371,392	194,277	-	5,241,660	7,002,648
External acquisitions	286,963	-	4,329	-	3,610,518	3,901,810
Internally generated/ developed	-	193,708	-	-	-	193,708
Amortization	(218,754)	(321,608)	-	-	(1,851,408)	(2,391,770)
Disposals/scrap	(42,031)	-	-	-	(557)	(42,588)
Impairment (reversal)	-	-	(3,471)	-	-	(3,471)
Other	4,744	(6,582)	-	-	(1,043)	(2,881)
Balance as of December 31	1,226,241	236,910	195,135	-	6,999,170	8,657,456

	2020					
(In millions of Korean won)	**Intellectual property rights**	**Development cost**	**Membership**	**Goodwill**	**Other**	**Total**
Balance as of January 1	1,143,602	740,736	187,186	206,741	5,730,388	8,008,653
External acquisitions	272,799	-	-	-	1,112,729	1,385,528
Internally generated/ developed	-	109,482	-	-	-	109,482
Amortization	(207,641)	(455,990)	-	-	(1,951,594)	(2,615,225)
Disposals/scrap	(29,840)	-	-	-	(6,132)	(35,972)
Impairment (reversal)	(6,545)	(3,474)	7,091	(206,741)	-	(209,669)
Other[1]	22,944	(19,362)	-	-	356,269	359,851
Balance as of December 31	1,195,319	371,392	194,277	-	5,241,660	7,002,648

[1] Other includes reclassification of licenses.

(B) Details of amortization of intangible assets for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Cost of sales	1,931,598	2,171,952
Selling and administrative expenses and other	460,172	443,273
Total	2,391,770	2,615,225

12. Borrowings

(A) Details of the carrying amounts of borrowings as of December 31, 2021 and December 31, 2020 are as follows:

(In millions of Korean won)	Financial institutions	Interest rate (%) as of Dec 31, 2021	December 31, 2021	December 31, 2020
Short-term borrowings				
Collateralized borrowings[1]	Woori Bank and other	0.0~8.7	9,204,268	12,520,367
Current portion of long-term borrowings				
Lease liabilities[2]	-	1.2	133,518	82,253
Long-term borrowings				
Lease liabilities[2]	-	1.2	431,915	150,397

[1] Collateralized borrowings are secured by trade receivables.

[2] Interest expenses arising from the lease liabilities for the years ended December 31, 2021 and 2020 amount to ₩ 4,939 million and ₩ 4,696 million, respectively, which were determined using the weighted average incremental borrowing rate. The right-of-use assets are pledged as collateral to lessors in the event of default. Short-term lease payments and low- valued asset lease payments that are not included in measurement of lease liabilities during the years ended December 31, 2021 and 2020 amount to ₩ 56,750 million and ₩ 42,088 million, respectively.

(B) Maturities of lease liabilities outstanding as of December 31, 2021 are as follows:

(In millions of Korean won)	Lease liabilities
Repayment terms	
2022	141,900
2023	94,422
2024	87,942
2025	81,229
2026 and thereafter	195,016
Total	600,509

13. Debentures

(A) Details of the carrying amounts of debentures as of December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**Issue date**	**Due date**	**Interest rate (%) as of Dec 31, 2021**	**December 31, 2021**	**December 31, 2020**
US dollar denominated straight bonds[1]	Oct 2, 1997	Oct 1, 2027	7.7	35,565 (USD 30 million)	38,080 (USD 35 million)
Less: Discounts				(707)	(853)
Less: Current Portion				(5,810)	(5,318)
Total				29,048	31,909

[1] US dollar denominated straight bonds are repaid annually for twenty years after a ten-year grace period from the date of issuance. Interest is paid semi-annually.

(B) Maturities of debentures outstanding as of December 31, 2021 are as follows:

(In millions of Korean won)	**Debentures**
Repayment terms	
2022	5,928
2023	5,928
2024	5,928
2025	5,928
2026 and thereafter	11,853
Total	35,565

14. Net Defined Benefit Liabilities (Assets)

(A) Details of net defined benefit liabilities (assets) recognized in the statements of financial position as of December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Present value of funded defined benefit obligations	11,155,187	9,740,095
Present value of unfunded defined benefit obligations	18,449	13,987
Subtotal	11,173,636	9,754,082
Fair value of plan assets	(13,497,927)	(10,916,538)
Total	(2,324,291)	(1,162,456)

(B) The components of defined benefit costs recognized in profit or loss for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Current service cost	907,450	802,039
Net interest income	(40,104)	(15,895)
Total	867,346	786,144

(C) The expenses related to the defined benefit plans recognized in the statements of profit or loss for the years ended December 31, 2021 and 2020 are as follows :

(In millions of Korean won)	**2021**	**2020**
Cost of sales	341,934	317,381
Selling and administrative expenses and other	525,412	468,763
Total	867,346	786,144

(D) Changes in the defined benefit obligations for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Balance as of January 1	9,754,082	8,277,908
Current service cost	907,450	802,039
Interest cost	296,029	240,765
Remeasurement:		
Actuarial gains or losses arising from changes in demographic assumptions	-	(40,581)
Actuarial gains or losses arising from changes in financial assumptions	150,624	622,915
Other	429,051	225,438
Benefits paid	(374,416)	(385,631)
Other	10,816	11,229
Balance as of December 31	11,173,636	9,754,082

(E) Changes in the fair value of plan assets for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Balance as of January 1	10,916,538	8,764,763
Interest income on plan assets	336,133	256,660
Remeasurement of plan assets	(128,336)	(78,505)
Contributions by employer	2,640,100	2,159,200
Benefits paid	(276,733)	(194,495)
Other	10,225	8,915
Balance as of December 31	13,497,927	10,916,538

Expected contributions to post-employment benefit plans for the year ended December 31, 2022 are ₩ 1,326,253 million.

(F) As of December 31, 2021, plan assets are invested in principal guaranteed fixed income financial instruments.

(G) The principal actuarial assumptions as of December 31, 2021 and 2020 are as follows:

(In percentage)	**December 31, 2021**	**December 31, 2020**
Discount rate	3.8	3.2
Salary growth rate (including the effects of inflation)	5.3	4.5

(H) The sensitivity analysis of the defined benefit obligations as of December 31, 2021 and 2020 to changes in the weighted principal assumptions is as follows:

(In percentage)	**December 31, 2021**	**December 31, 2020**
Discount rate		
1%p increase	91	91
1%p decrease	110	110
Salary growth rate		
1%p increase	110	110
1%p decrease	91	91

(I) The weighted average maturity of the defined benefit obligations is 9.26 years as of December 31, 2021.

15. Provisions

Changes in provisions for the year ended December 31, 2021 are as follows:

(In millions of Korean won)	Warranty (A)	Royalty expenses (B)	Long-term incentives (C)	Other (D, E)	Total
Balance as of January 1	340,818	1,304,018	567,004	1,223,663	3,435,503
Charged to profit or loss	464,983	541,054	186,259	2,481,632	3,673,928
Payment	(419,088)	(464,463)	(194,281)	(1,025,978)	(2,103,810)
Other	-	115,916	-	182,090	298,006
Balance as of December 31	386,713	1,496,525	558,982	2,861,407	5,303,627

(A) The Company accrues warranty reserves for estimated costs of quality assurance, exchanges, repairs, recalls, and future services based on historical experience and terms of warranty programs.

(B) The Company recognizes provisions for the estimated royalty expenses that are under negotiation with counterparties. The timing and amount of payment depend on the settlement of the negotiation.

(C) The Company has a long-term incentive plan for its executives based on a three-year management performance criteria and recognizes a provision for the estimated incentive cost for the accrued period.

(D) The Company records provisions for future expenses expected to be incurred for products that have been discontinued from manufacturing and sales.

(E) The Company makes provisions for the carrying amounts of emission rights held by the Company and the emission in excess of the emission rights for the applicable years. Details of emission rights and liabilities as of December 31, 2021 are as follows:

(1) Allocated emission rights and estimated volume of emission as of December 31, 2021 are as follows:

(In ten thousand metric tons)	December 31, 2021
Allocated emission rights	1,126
Estimated volume of emission	1,442

As of December 31, 2021, emission permits allocated to the Company for the remaining plan periods are 44,720 thousand tons.

(2) Changes in the emission rights for the year ended December 31, 2021 are as follows:

(In millions of Korean won)	2021
Balance as of January 1	44,865
Acquisition	1,312
Submission	(104)
Balance as of December 31	46,073

(3) Changes in the emission liabilities for the year ended December 31, 2021 are as follows:

(In millions of Korean won)	2021
Balance as of January 1	31,777
Charged to the statement of profit or loss	13,376
Submission	(104)
Balance as of December 31	45,049

16. Commitments and Contingencies

(A) Guarantees

(1) Debt guarantees provided by the Company for overseas subsidiaries as of December 31, 2021 are as follows:

(In millions of Korean won and thousands of US dollars)

Overseas subsidiaries	Creditor	Period	Actual indebtedness	Guaranteed amount
SETK	BNP and others	Dec 16, 2022	121,244	956,699
SETK-P	BNP and others	Dec 16, 2022	39,516	154,115
SEIL	Citibank	Dec 16, 2022	12,978	18,494
Other			-	8,669,206
Total			173,738	9,798,514
			US$ 146,556	US$ 8,265,301

(2) The ceiling amount of guarantees provided by the Company for the execution of contracts by overseas subsidiaries is ₩ 413,105 million as of December 31, 2021.

(3) The Company has not been provided any collateral or guarantees from its related parties as of December 31, 2021.

(B) Litigation

As of December 31, 2021, the Company is involved in various claims, disputes, and investigations conducted by regulatory bodies that arose during the normal course of business with numerous entities. Although the outflow of resources and timing of these matters are uncertain, the Company believes the outcome will not have a material impact on the financial position of the Company.

(C) Joint liabilities related to the divestiture

The Company, Samsung Display Co., Ltd. and others are jointly and severally liable to fulfill the debts of Samsung Display Co., Ltd. and others which relate to the periods prior to Samsung Display Co., Ltd.'s separation from the Company.

(D) Other commitments

(1) As of December 31, 2021, the Company has trade financing agreements, trade notes receivable discounting facilities, and loan facilities with accounts receivable pledged as collateral with 5 financial institutions including Woori Bank, with a combined limit of up to ₩ 10,304,805 million. In addition, the Company has a trade financing agreement (up to USD 8,950 million) with 19 financial institutions including Shinhan Bank, and loan facilities with accounts receivable pledged as collateral related to purchase payments with 4 financial institutions including Industrial Bank of Korea (up to ₩ 408,913 million).

(2) As of December 31, 2021, unfulfilled agreements relating to the acquisition of property, plant and equipment and intangible assets amount to ₩ 7,536,277 million.

17. Contract Liabilities

The Company has recognized the following contract liabilities related to revenue from contracts with customers:

(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Contract liabilities[1]	1,104,756	1,065,465

[1] Contract liabilities include advances received, accrued expenses, other current liabilities and others.

The revenue recognized during the current reporting period in relation to carried-forward balance of contract liabilities amounts to ₩ 330,965 million.

18. Share Capital

As of December 31, 2021, the Company's total number of authorized shares is 25,000,000,000 shares (₩ 100 per share). The Company has issued 5,969,782,550 shares of ordinary shares and 822,886,700 shares of preference shares as of December 31, 2021, excluding the retired shares. As of the December 31, 2021, the number of shares outstanding is the same as the number of shares issued above, and no changes were made to the number of shares outstanding during the years ended December 31, 2021 and 2020. Due to the retirement of shares, the total par value of the shares issued is ₩ 679,267 million (ordinary shares of ₩ 596,978 million and preference shares of ₩ 82,289 million), which does not agree with paid-in capital of ₩ 897,514 million.

19. Retained Earnings

(A) Retained earnings as of December 31, 2021 and 2020 consist of the following:

(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Appropriated retained earnings		
Legal reserves:		
Earned profit reserves[1]	450,789	450,789
Discretionary reserves:	164,709,023	169,432,080
Subtotal	165,159,812	169,882,869
Unappropriated retained earnings	23,614,523	8,401,233
Total	188,774,335	178,284,102

[1] The Commercial Code of the Republic of Korea requires the Company to appropriate as a legal reserve, an amount equal to a minimum of 10% of annual cash dividends declared, until the reserve equals 50% of its issued capital stock. As of December 31, 2021, since the Company's profit reserves reached 50% of its capital stock, the Company has no obligation for additional reserves.

(B) Separate statements of appropriation of retained earnings for the years ended December 31, 2021 and 2020 are as follows:

The appropriation of retained earnings for the year ended December 31, 2021, is expected to be appropriated at the shareholders' meeting. The appropriation date for the year ended December 31, 2020 was March 17, 2021.

(In millions of Korean won)	**2021**	**2020**
Retained earnings before appropriations		
Unappropriated retained earnings carried over from prior year	30	30
Interim dividends:		
In 2021 - ₩ 1,083 (dividend rate: 1083%)	(7,356,461)	(7,213,815)
In 2020 - ₩ 1,062 (dividend rate: 1062%)		
Profit for the year	30,970,954	15,615,018
Retained earnings available for appropriation	**23,614,523**	**8,401,233**
Transfers from other reserves		
Reserve for business rationalization	-	4,723,057
Appropriations of retained earnings		
Cash dividends:	2,452,976	13,124,260
In 2021:		
Ordinary shares - ₩ 361 (dividend rate: 361%)		
Preference shares - ₩ 362 (dividend rate: 362%)		
In 2020:		
Ordinary shares - ₩ 1,932 (dividend rate: 1932%)		
Preference shares - ₩ 1,933 (dividend rate: 1933%)		
Reserve for research and human resources development	21,161,517	-
Total appropriations of retained earnings	**23,614,493**	**13,124,260**
Unappropriated retained earnings to be carried forward	**30**	**30**

(C) Details of interim and year-end dividends are as follows:

(1) Interim dividends (Record date: March 31, 2021 and 2020, June 30, 2021 and 2020, and September 30, 2021 and 2020)

(In millions of Korean won and number of shares)			**2021**	**2020**
1st Quarter	Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
		Preference shares	822,886,700	822,886,700
	Dividend rate (based on par value)		361%	354%
	Dividend amount	Ordinary shares	2,155,092	2,113,303
		Preference shares	297,062	291,302
		Total	2,452,154	2,404,605
2nd Quarter	Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
		Preference shares	822,886,700	822,886,700
	Dividend rate (based on par value)		361%	354%
	Dividend amount	Ordinary shares	2,155,092	2,113,303
		Preference shares	297,062	291,302
		Total	2,452,154	2,404,605
3rd Quarter	Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
		Preference shares	822,886,700	822,886,700
	Dividend rate (based on par value)		361%	354%
	Dividend amount	Ordinary shares	2,155,092	2,113,303
		Preference shares	297,062	291,302
		Total	2,452,154	2,404,605

(2) Year-end dividends (Record date: December 31, 2021 and 2020)

(In millions of Korean won and number of shares)		**2021**	**2020**
Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
	Preference shares	822,886,700	822,886,700
Dividend rate (based on par value)	Ordinary shares	361%	1932%
	Preference shares	362%	1933%
Dividend amount	Ordinary shares	2,155,092	11,533,620
	Preference shares	297,884	1,590,640
	Total	2,452,976	13,124,260

20. Other Components of Equity

Other components of equity as of December 31, 2021 and 2020 consist of the following:

(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Gain on valuation of financial assets at fair value through other comprehensive income	90,579	190,495
Remeasurement of net defined benefit assets	(2,732,997)	(2,219,688)
Others	1,760,408	1,760,408
Total	(882,010)	(268,785)

21. Expenses by Nature

Expenses by nature for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Changes in finished goods, work in process, and other	(1,423,122)	(1,102,250)
Raw materials used, merchandise purchased, and other	90,519,249	79,001,881
Wages and salaries	14,870,760	12,510,224
Post-employment benefit	898,132	811,122
Depreciation	20,164,109	16,125,530
Amortization	2,391,770	2,615,225
Welfare	2,630,171	2,327,252
Utilities	2,903,838	2,600,685
Outsourcing	3,106,610	2,989,647
Advertising	1,945,358	1,316,851
Sales promotion expenses	1,066,434	896,646
Other	28,678,234	25,699,404
Total[1]	167,751,543	145,792,217

[1] Equal to sum of cost of sales and selling and administrative expenses in the separate statements of profit or loss.

22. Selling and Administrative Expenses

Selling and administrative expenses for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Selling and administrative expenses		
Wages and salaries	2,396,978	2,178,159
Post-employment benefit	163,395	135,433
Commissions	2,397,640	2,226,051
Depreciation	396,881	429,725
Amortization	220,616	194,890
Advertising	1,945,358	1,316,851
Sales promotion expenses	1,066,434	896,646
Transportation	907,948	759,938
Service charges	1,675,628	1,318,609
Other	1,911,866	1,878,587
Subtotal	13,082,744	11,334,889
Research and development expenses		
Total expenses	19,039,074	17,813,391
Capitalized expenses	(193,708)	(109,482)
Subtotal	18,845,366	17,703,909
Total	31,928,110	29,038,798

23. Other Non-Operating Income and Expenses

Details of other non-operating income and expenses for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Other non-operating income		
Dividend income	6,560,011	129,569
Rental income	164,197	167,239
Gain on disposal of property, plant and equipment	278,849	306,182
Other	355,947	194,504
Total	7,359,004	797,494

(In millions of Korean won)	**2021**	**2020**
Other non-operating expenses		
Loss on disposal of property, plant and equipment	13,366	9,831
Donations	195,457	254,791
Other	537,155	592,620
Total	745,978	857,242

24. Financial Income and Expenses

Details of financial income and expenses for the years ended December 31, 2021 and 2020 are as follows:

(*In millions of Korean won*)	**2021**	**2020**
Financial income		
Interest income	260,396	507,947
Interest income from financial assets measured at amortized cost	260,396	507,947
Foreign exchange differences	3,497,401	5,168,930
Gain from derivatives	39,182	-
Total	3,796,979	5,676,877

(*In millions of Korean won*)	**2021**	**2020**
Financial expenses		
Interest expenses	149,984	189,301
Interest expenses from financial liabilities measured at amortized cost	49,982	44,725
Other financial liabilities	100,002	144,576
Foreign exchange differences	3,485,602	5,494,879
Losses from derivatives	63,089	-
Total	3,698,675	5,684,180

The Company recognizes foreign exchange gains and losses arising from foreign currency transactions and translation as financial income and expenses.

25. Income Tax Expense

(A) Income tax expense for the years ended December 31, 2021 and 2020 consists of the following:

(In millions of Korean won)	**2021**	**2020**
Current taxes		
Current tax on profits for the year	8,041,604	4,823,845
Adjustments recognized in the current year	(321,952)	249,914
Subtotal	7,719,652	5,073,759
Deferred taxes		
Changes in deferred taxes arising from unused tax credits	(332,351)	(34,673)
Changes in deferred taxes arising from temporary differences	346,237	(202,181)
Subtotal	13,886	(236,854)
Items charged directly to equity	-	-
Income tax expense	7,733,538	4,836,905

(B) The tax on the Company's profit before income tax differs from the theoretical amount that would arise using the tax rate applicable to profits of the Company as follows:

(In millions of Korean won)	**2021**	**2020**
Profit before income tax	38,704,492	20,451,923
Tax calculated at tax rates applicable to profits[1]	10,643,735	5,624,279
Adjustments:		
Non-taxable income	(34,706)	(94,157)
Disallowed expense	651,517	9,073
Tax credits	(3,420,702)	(940,044)
Other	(106,306)	237,754
Subtotal	(2,910,197)	(787,374)
Income tax expense	7,733,538	4,836,905

[1] The statutory tax rate regulated by tax law as of December 31, 2021 and 2020 is applied.

(C) The movement in deferred income tax assets and liabilities resulting from the tax effect of temporary differences for the years ended December 31, 2021 and 2020 are as follows:

(1) 2021

	Temporary differences			Deferred tax assets (liabilities)		
(In millions of Korean won)	**Balance as of January 1**	**Increase (Decrease)**	**Balance as of December 31**	**Balance as of January 1**	**Increase (Decrease)**	**Balance as of December 31**
Deferred tax arising from temporary differences						
Revaluation of land	(3,420,886)	14,261	(3,406,625)	(940,744)	3,922	(936,822)
Investments in subsidiaries, associates and joint ventures[1]	(3,994,444)	157,076	(3,837,368)	(909,018)	55,853	(853,165)
Accumulated depreciation and other	(514,103)	(1,942,199)	(2,456,302)	(141,379)	(534,104)	(675,483)
Accrued income	(112,810)	58,703	(54,107)	(31,023)	16,144	(14,879)
Provisions, accrued expenses, and other	9,540,744	1,557,561	11,098,305	2,623,704	428,330	3,052,034
Foreign currency translation	(51,955)	46,642	(5,313)	(14,288)	12,827	(1,461)
Asset impairment losses	1,744,851	(648,554)	1,096,297	399,268	(178,352)	220,916
Post-employment benefits	(4,223,358)	(1,869,997)	(6,093,355)	(1,161,424)	(514,249)	(1,675,673)
Valuation effects from spin-off[2]	10,586,822	-	10,586,822	-	-	-
Other	1,038,962	2,858,629	3,897,591	115,053	363,392	478,445
Subtotal	10,593,823	232,122	10,825,945	(59,851)	(346,237)	(406,088)
Deferred tax arising from unused tax credits						
Unused tax credits	282,542	389,511	672,053	282,542	332,351	614,893
Deferred tax recognized in equity						
Loss (gain) on valuation of financial assets at fair value through other comprehensive income and other	(262,753)	137,815	(124,938)	(72,257)	37,899	(34,358)
Remeasurement of net defined benefit assets	3,061,640	708,012	3,769,652	841,951	194,702	1,036,653
Subtotal	2,798,887	845,827	3,644,714	769,694	232,601	1,002,295
Total				-	-	1,211,100

[1] Deferred tax assets are not recognized if it is probable that the temporary differences will not reverse in the foreseeable future for investments in subsidiaries, associates and joint ventures.

[2] Difference in carrying amount for accounting and tax purposes for the shares of Samsung Display Co., Ltd., the Company's subsidiary, acquired through spin-off of the LCD division in the past. As of the reporting date, the Company does not have plans to dispose of its investments in Samsung Display Co., Ltd. As it is probable that the temporary differences will not reverse in the foreseeable future, deferred tax assets were not recognized.

(2) 2020

(In millions of Korean won)	Temporary differences			Deferred tax assets (liabilities)		
	Balance as of January 1	**Increase (Decrease)**	**Balance as of December 31**	**Balance as of January 1**	**Increase (Decrease)**	**Balance as of December 31**
Deferred tax arising from temporary differences						
Revaluation of land	(3,417,804)	(3,082)	(3,420,886)	(939,896)	(848)	(940,744)
Investments in subsidiaries, associates and joint ventures[1]	(3,994,444)	-	(3,994,444)	(909,018)	-	(909,018)
Accumulated depreciation and other	108,447	(622,550)	(514,103)	29,823	(171,202)	(141,379)
Accrued income	(155,013)	42,203	(112,810)	(42,628)	11,605	(31,023)
Provisions, accrued expenses, and other	7,244,548	2,296,196	9,540,744	1,992,251	631,453	2,623,704
Foreign currency translation	(124,453)	72,498	(51,955)	(34,224)	19,936	(14,288)
Asset impairment losses	1,611,087	133,764	1,744,851	443,049	(43,781)	399,268
Post-employment benefits	(2,702,738)	(1,520,620)	(4,223,358)	(743,253)	(418,171)	(1,161,424)
Valuation effects from spin-off[2]	10,586,822	-	10,586,822	-	-	-
Other	466,776	572,186	1,038,962	(58,136)	173,189	115,053
Subtotal	9,623,228	970,595	10,593,823	(262,032)	202,181	(59,851)
Deferred tax arising from unused tax credits						
Unused tax credits	247,870	34,672	282,542	247,869	34,673	282,542
Deferred tax recognized in equity						
Loss on valuation of financial assets at fair value through other comprehensive income and other	(134,131)	(128,622)	(262,753)	(36,886)	(35,371)	(72,257)
Remeasurement of net defined benefit assets	2,175,363	886,277	3,061,640	598,225	243,726	841,951
Subtotal	2,041,232	757,655	2,798,887	561,339	208,355	769,694
Total				547,176	445,209	992,385

[1] Deferred tax assets are not recognized if it is probable that the temporary differences will not reverse in the foreseeable future for investments in subsidiaries, associates and joint ventures.

[2] Difference in carrying amount for accounting and tax purposes for the shares of Samsung Display Co., Ltd., the Company's subsidiary acquired through a spin-off of the LCD division in the past. As of the reporting date, the Company does not have plans to dispose of its investments in Samsung Display Co., Ltd. As it is probable that the temporary differences will not reverse in the foreseeable future, deferred tax assets were not recognized.

(D) Details of period when the deferred tax assets (liabilities) are recovered (settled) as of December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Net deferred tax assets (liabilities) to be recovered (settled) within 12 months	2,837,162	2,168,431
Net deferred tax assets (liabilities) to be recovered (settled) after more than 12 months	(1,626,062)	(1,176,046)
Total	1,211,100	992,385

26. Earnings per Share

(A) Basic earnings per share

Basic earnings per share for the years ended December 31, 2021 and 2020 are calculated as follows:

(1) Ordinary shares

(In millions of Korean won, thousands of number of shares)	**2021**	**2020**
Profit for the year	30,970,954	15,615,018
Profit for the year available for ordinary shares	27,218,306	13,722,639
Weighted-average number of ordinary shares outstanding	5,969,783	5,969,783
Basic earnings per ordinary share *(in Korean won)*	4,559	2,299

(2) Preference shares

(In millions of Korean won, thousands of number of shares)	**2021**	**2020**
Profit for the year	30,970,954	15,615,018
Profit for the year available for preference shares	3,752,648	1,892,379
Weighted-average number of preference shares outstanding	822,887	822,887
Basic earnings per preference share *(in Korean won)*	4,560	2,300

(B) Diluted earnings per share

The Company does not have dilutive potential ordinary shares and as a result, basic earnings per share and diluted earnings per share are the same for the years ended December 31, 2021 and 2020.

27. Statements of Cash Flows

(A) The Company used the indirect method to present cash flows from operating activities. Adjustments and changes in assets and liabilities arising from operating activities for the years ended December 31, 2021 and 2020 are as follows:

- Adjustments

(In millions of Korean won)	**2021**	**2020**
Adjustments :		
Income tax expense	7,733,538	4,836,905
Financial income	(514,303)	(932,340)
Financial expenses	636,934	773,679
Post-employment benefits	898,132	811,122
Depreciation	20,164,109	16,125,530
Amortization	2,391,770	2,615,225
Bad debt expenses (reversal)	19,235	(489)
Dividends income	(6,560,011)	(129,569)
Gain on disposal of property, plant and equipment	(278,849)	(306,182)
Loss on disposal of property, plant and equipment	13,366	9,831
Loss (gain) on valuation of inventories	696,536	145,280
Others	(32,395)	370,850
Total	25,168,062	24,319,842

- Changes in assets and liabilities arising from operating activities

(In millions of Korean won)	**2021**	**2020**
Changes in assets and liabilities :		
Decrease (increase) in trade receivables	(8,102,318)	1,680,321
Decrease in non-trade receivables	54,306	468,606
Increase in prepaid expenses	(198,371)	(86,681)
Decrease (increase) in inventories	(2,732,143)	(1,680,513)
Increase (decrease) in trade payables	4,935,529	(867,032)
Increase in other payables	1,004,128	296,526
Increase in advances received	50,363	68,806
Increase (decrease) in withholdings	191,872	49,264
Increase (decrease) in accrued expenses	920,919	2,030,147
Increase (decrease) in provisions	1,570,118	1,216,028
Payment of post-employment benefits	(405,203)	(410,608)
Increase in plan assets	(2,363,367)	(1,964,705)
Other	(707,488)	(1,193,365)
Total	(5,781,655)	(393,206)

(B) Significant non-cash investing and financing transactions for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**2021**	**2020**
Valuation of financial assets at fair value through other comprehensive income	(137,815)	128,622
Reclassification of construction in progress to property, plant and equipment	36,663,946	30,550,917
Acquisition of right-of-use assets (new lease contracts established)	451,828	61,789
Reclassification of current portion of debentures	5,810	5,318
Reclassification of current portion of long-term borrowings	133,518	82,253

(C) Changes in liabilities arising from financing activities for the years ended December 31, 2021 and 2020 are as follows:

(1) 2021

			Non-cash transactions		
(In millions of Korean won)	**As of January 1**	**Cash flows from financing activities**	**New lease contracts**	**Other[1]**	**As of December 31**
Short-term borrowings	12,520,367	(3,288,858)	-	(27,241)	9,204,268
Debentures and long-term borrowings	269,877	(117,963)	451,828	(3,451)	600,291
Total	12,790,244	(3,406,821)	451,828	(30,692)	9,804,559

[1] Other includes amortization and effects of changes in foreign currency exchange rates.

(2) 2020

			Non-cash transactions		
(In millions of Korean won)	**As of January 1**	**Cash flows from financing activities**	**New lease contracts**	**Other[1]**	**As of December 31**
Short-term borrowings	10,228,216	2,326,350	-	(34,199)	12,520,367
Debentures and long-term borrowings	368,113	(134,443)	61,789	(25,582)	269,877
Total	10,596,329	2,191,907	61,789	(59,781)	12,790,244

[1] Other includes amortization, effects of changes in foreign currency exchange rates and the cumulative effect of changes in accounting policies.

(D) For the years ended December 31, 2021 and 2020, cash outflows from repayment of the principal (financial activities) were ₩ 112,523 million and ₩ 128,575 million, respectively, while cash outflows due to interest expenses (operating activities) in relation to the lease liabilities amount to ₩ 4,939 million and ₩ 4,696 million, respectively.

(E) The Company reported cash receipts and payments arising from transactions occurring frequently, of large gross amounts, and with short-term maturities, such as short-term financial instruments, borrowings and other, on a net basis. As of December 31, 2021, most of the Company's cash and cash equivalents consist of bank deposits.

28. Financial Risk Management

The Company's financial risk management focuses on minimizing the market risk, credit risk, and liquidity risk arising from operating activities. To mitigate these risks, the Company implements and operates a financial risk policy and program that closely monitors and manages such risks. In addition, the Company uses derivatives to hedge certain risk exposure.

The finance team mainly carries out the Company's financial risk management. After implementing the global financial risk management policies, the finance team periodically measures, evaluates, and hedges the financial risk and also establishes and implements the global financial risk management policy.

The Company also manages the foreign exchange risk by monitoring the foreign exchange rate fluctuations at local finance centers across major regions (United States, United Kingdom, Singapore, China, Brazil, and Russia) and acting as an agent of foreign exchange transactions. In addition, the Company manages the liquidity risk by utilizing a globally integrated finance structure.

The Company's financial assets that are under the financial risk management are comprised of cash and cash equivalents, short-term financial instruments, trade receivables and others. The Company's financial liabilities under financial risk management are comprised of trade payables, borrowings, and others.

(A) Market risk

(1) Foreign exchange risk

The Company is exposed to the foreign exchange risk arising from its global operations performed in currencies other than its functional currency. The major currencies that are exposed to the foreign exchange risk are the US dollar, Euro, and Indian Rupee.

The Company focuses on minimizing the impact of the foreign exchange fluctuation by maintaining the equal amount of assets and liabilities denominated in each foreign currency, irrespective of the foreign exchange fluctuation considerations. To prevent the exchange position, the Company's foreign exchange management policy requires the normal business transactions, including imports and exports, as well as the financing transactions such as depositing and borrowing, to be in local currency or for the cash-in currency to be matched up with the cash-out currency. Moreover, the Company periodically evaluates and monitors the foreign exchange risk to efficiently mitigate such risk, and the speculative foreign exchange transactions are strictly prohibited.

As of December 31, 2021 and 2020, when the currency rates change by 5%, the impact on profit or loss (before income tax effects) arising from financial assets and liabilities denominated in foreign currencies other than the functional currency are as follows:

	December 31, 2021		**December 31, 2020**	
(In millions of Korean won)	**Increase**	**Decrease**	**Increase**	**Decrease**
USD	119,312	(119,312)	25,761	(25,761)
EUR	(33,776)	33,776	(22,112)	22,112
INR	25,057	(25,057)	21,948	(21,948)

(2) Interest rate risk

Risk of changes in interest rates for floating interest rate financial instruments is defined as the risk that the fair value of components of the statements of financial position, and future cash flows of interest income (expenses) of a financial instrument, will fluctuate because of the changes in market interest rates. The Company's position with regard to interest rate risk exposure is mainly driven by its floating interest rate debt obligations and interest-bearing deposits. The Company implemented policies and operates to minimize uncertainty arising from changes in interest rates and finance expenses.

(3) Price risk

The Company's investment portfolio consists of direct and indirect investments in equity instruments classified as financial assets at fair value through other comprehensive income, which is in line with the Company's strategy.

As of December 31, 2021 and 2020, price fluctuation of marketable equity securities (listed stocks) by 1% would result in changes in other comprehensive income (before income tax) of ₩ 15,443 million and ₩ 14,125 million, respectively.

(B) Credit risk

Credit risk arises during the normal course of transactions and investing activities where clients or other parties fail to discharge an obligation. The Company monitors and sets the client's and the counterparty's credit limits on a periodic basis based on the client's and counterparty's financial conditions, default histories and other important factors. Adequate insurance coverage is maintained for trade receivables related to the trading partners situated in higher risk countries.

Credit risk can arise from transactions with financial institutions which include financial instrument transactions such as cash and cash equivalents, deposits, and derivative instruments. To minimize such risk, the Company transacts only with banks which have strong international credit ratings (S&P A and above), and all new transactions with financial institutions with no prior transaction history are approved, managed and monitored by the Company's finance team. The Company generally enters into a financial agreement with no restrictions, such as debt ratio covenants, provision of collateral and/or repayment of loans/ borrowings. The Company requires separate approvals for contracts with restrictions.

As of December 31, 2021 and 2020, the Company estimates that its maximum exposure to credit risk is the carrying amount of its financial assets, net of impairment losses.

(C) Liquidity risk

Due to large investments made by the Company, maintaining adequate levels of liquidity risk is critical. The Company strives to achieve this goal by periodically forecasting its capital balance, estimating the required cash levels, and managing income and expenses.

The Company manages its liquidity risk by periodically forecasting the projected cash flows. If abnormal signs are identified, the Company works with the local finance center and provides liquidity support by utilizing a globally integrated finance structure, such as Cash Pooling. In addition, the Company maintains a liquidity management process which provides an additional financial support from the local finance center and the Company. The Cash Pooling program allows the sharing of surplus funds among the entities and contributes to minimizing the liquidity risk and strengthening the Company's competitive position by reducing capital operation expenses and financial expenses.

For the need of large scale of liquidity, the Company secures the credit limit for overseas subsidiaries through payment guarantees.

As of December 31, 2021 and 2020, the following table is an undiscounted cash flow analysis for financial liabilities according to their remaining contractual maturity.

	December 31, 2021				
(In millions of Korean won)	**Less than 3 months**	**4 – 6 months**	**7 – 12 months**	**1 - 5 years**	**More than 5 years**
Financial liabilities	35,764,225	435,581	728,627	2,798,560	87,798

	December 31, 2020				
(In millions of Korean won)	**Less than 3 months**	**4 – 6 months**	**7 – 12 months**	**1 - 5 years**	**More than 5 years**
Financial liabilities	31,594,935	131,341	608,538	1,121,448	35,383

The table above shows the Company's financial liabilities based on the remaining period at the separate statement of financial position date until the contractual maturity date. The amounts disclosed in the table are the contractual undiscounted cash flows.

The maximum liquidity risk exposure from those other than the above financial liabilities (e.g., payment guarantees for affiliated companies, performance bonds, and other) as of December 31, 2021 and 2020 are ₩ 10,211,619 million and ₩ 9,374,823 million, respectively.

(D) Capital risk management

The purpose of capital management is to maintain a sound capital structure. The Company monitors capital on the basis of credit ratings and debt ratio. Debt ratio is calculated by dividing the total liabilities by total equity in the financial statements.

The Company has maintained an AA- and Aa3 credit ratings from S&P and Moody's, respectively.

The debt ratio as of December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	**December 31, 2021**	**December 31, 2020**
Total liabilities	57,918,452	46,347,703
Total equity	193,193,732	183,316,724
Debt ratio	30.0%	25.3%

(E) Fair value estimation

(1) Carrying amounts and fair value of financial instruments by category as of December 31, 2021 and 2020 are as follows:

	December 31, 2021		December 31, 2020	
(In millions of Korean won)	**Carrying amount**	**Fair value**	**Carrying amount**	**Fair value**
Financial assets				
Cash and cash equivalents	3,918,872	(*1)	989,045	(*1)
Short-term financial instruments	15,000,576	(*1)	29,101,284	(*1)
Trade receivables	33,088,247	(*1)	24,736,740	(*1)
Financial assets at fair value through other comprehensive income	1,662,532	1,662,532	1,539,659	1,539,659
Financial assets at fair value through profit or loss	2,135	2,135	3,107	3,107
Other	5,076,418	(*1)	4,149,950	(*1)
Total financial assets	58,748,780		60,519,785	
Financial liabilities				
Trade payables	11,557,441	(*1)	6,599,025	(*1)
Short-term borrowings	9,204,268	(*1)	12,520,367	(*1)
Other payables	12,948,960	(*1)	9,671,280	(*1)
Current portion of long-term liabilities	139,328	6,276	87,571	5,318
- Current portion of long-term borrowing	133,518	(*2)	82,253	(*2)
- Current portion of debentures	5,810	6,276	5,318	5,318
Debentures	29,048	35,863	31,909	36,507
Long-term borrowings	431,915	(*2)	150397	(*2)
Long-term other payables	2,335,218	(*1)	935,038	(*1)
Other	3,056,156	(*1)	3,423,251	(*1)
Total financial liabilities	39,702,334		33,418,838	

(*1) Assets and liabilities whose carrying amount is a reasonable approximation of fair value are excluded from the fair value disclosures.

(*2) Lease liabilities, classified under the current portion of long-term liabilities and long-term borrowings, are excluded from the fair value disclosures in accordance with *Korean IFRS 1107.*

(2) Fair value hierarchy classifications of the financial instruments that are measured at fair value or its fair value disclosed as of December 31, 2021 and 2020 are as follows:

	December 31, 2021			
(In millions of Korean won)	**Level 1**	**Level 2**	**Level 3**	**Total balance**
1) Assets				
Financial assets at fair value through other comprehensive income	1,544,320	-	118,212	1,662,532
Financial assets at fair value through profit or loss	-	-	2,135	2,135
2) Liabilities				
Current portion of debentures	-	6,276	-	6,276
Debentures	-	35,863	-	35,863

	December 31, 2020			
(In millions of Korean won)	**Level 1**	**Level 2**	**Level 3**	**Total balance**
1) Assets				
Financial assets at fair value through other comprehensive income	1,412,524	-	127,135	1,539,659
Financial assets at fair value through profit or loss	-	-	3,107	3,107
2) Liabilities				
Current portion of debentures	-	5,318	-	5,318
Debentures	-	36,507	-	36,507

The levels of the fair value hierarchy and its application to financial assets and liabilities are described below.

- Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities
- Level 2: Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly
- Level 3: Inputs for the asset or liability that are not based on observable market data (that is, unobservable inputs)

The fair value of financial instruments traded in active markets is based on quoted market prices at the statements of financial position date. A market is regarded as active if quoted prices are readily and regularly available from an exchange, dealer, broker, industry group, pricing service, or regulatory agency, and those prices represent actual and regularly occurring market transactions on an arm's length basis. The quoted market price used for financial assets held by the Company is the current bid price. These instruments are included in Level 1. The instruments included in Level 1 are listed equity investments, most of which are classified as financial assets at fair value through other comprehensive income.

The fair value of financial instruments that are not traded in an active market (for example, over-the-counter derivatives) is determined by using valuation techniques. These valuation techniques maximize the use of observable market data where it is available and rely as little as possible on the entity-specific estimates. If all significant inputs required for a fair value of an instrument are observable, the instrument is included in Level 2.

If one or more of the significant inputs are not based on observable market data, the instrument is included in Level 3.

The Company performs the fair value measurements required for financial reporting purposes, including Level 3 fair values and discusses valuation processes and results at least once every quarter in line with the Company's quarterly reporting dates. The Company's policy is to recognize transfers between levels at the end of the reporting period, if corresponding events or changes in circumstances have occurred.

Specific valuation techniques used to value financial instruments include:

- Quoted market prices or dealer quotes for similar instruments
- The fair value of forward foreign exchange contracts is determined using forward exchange rates at the statements of financial position date, with the resulting value discounted back to present value

Other techniques, such as discounted cash flow analysis, are used to determine fair value for the remaining financial instruments. For trade and other receivables that are classified as current assets, the book value approximates a reasonable estimate of fair value.

(3) Valuation technique and the inputs

The Company utilizes a present value technique to discount future cash flows using a proper interest rate for corporate bonds, government and public bonds, and bank debentures that are classified as Level 2 in the fair value hierarchy.

The following table presents the valuation technique and the inputs used for major financial instruments classified as Level 3.

(In millions of Korean won, and percentage)

Classification	Fair value	Valuation technique	Level 3 inputs	Input range (Weighted average)
Financial assets at fair value through other comprehensive income				
Samsung Venture Investment	22,198	Discounted cash flow	Permanent growth rate	-1.0%~1.0%(0.0%)
			Weighted average cost of capital	19.7%~21.7%(20.7%)
MiCo Ceramics Co., Ltd.,	24,636	Discounted cash flow, and etc.	Permanent growth rate	-1.0%~1.0%(0.0%)
			Weighted average cost of capital	14.7%~16.7%(15.7%)

(4) Changes in Level 3 instruments:

(In millions of Korean won)	2021	2020
Financial assets		
Balance as of January 1	130,242	84,536
Acquisitions	-	39,239
Disposals	(912)	(74)
Amount recognized in other comprehensive income	2,736	6,541
Other	(11,719)	-
Balance as of December 31	120,347	130,242

(5) Sensitivity analysis for recurring fair value measurements categorized within Level 3

Sensitivity analysis of financial instruments is performed to measure favorable and unfavorable changes in the fair value of financial instruments which are affected by the unobservable parameters, using a statistical technique. When the fair value is affected by more than two input parameters, the amounts represent the most favorable or unfavorable.

The results of the sensitivity analysis for the effect on other comprehensive income or loss (before-tax amount for other comprehensive income or loss) from changes in inputs for major financial instruments which are categorized within Level 3 and subject to sensitivity analysis are as follows:

(In millions of Korean won)	**Favorable changes**		**Unfavorable changes**	
Classification	**Profit or loss**	**Equity**	**Profit or loss**	**Equity**
Financial assets at fair value through other comprehensive income[1]	-	1,721	-	(1,346)

[1] For equity securities, changes in fair value are calculated with the correlation between the growth rate (-1% ~1%) and the discount rate, which are significant unobservable inputs.

29. Segment Information

The chief operating decision-maker has been identified as the Management Committee. The Company determines operating segments based on the units reported to the Management Committee. The Management Committee reviews the operating profits of each operating segment in order to assess the performance and to make strategic decisions regarding the allocation of resources to the segment.

Sales revenue consists mostly of product sales. The operating segments are product-based and are identified based on the internal organization and revenue streams. As of the reporting date, the operating segments are comprised of CE, IM, DS (Semiconductor), and others.

Total assets and liabilities of each operating segment are excluded from the disclosure as these have not been provided regularly to the Management Committee.

(1) For the year ended December 31, 2021

(In millions of Korean won)	**CE**	**IM**	**DS**	**Total[1]**
Sales	33,729,352	73,506,114	94,373,136	199,744,705
Depreciation	96,931	206,276	19,457,650	20,164,109
Amortization	58,754	1,251,306	891,431	2,391,770
Operating profit	(712,563)	7,118,710	25,592,201	31,993,162

[1] Other operating segments are not separately disclosed.

(2) For the year ended December 31, 2020

(In millions of Korean won)	**CE**	**IM**	**DS**	**Total[1]**
Sales	30,618,259	64,473,747	70,874,770	166,311,191
Depreciation	98,409	202,568	15,413,851	16,125,530
Amortization	50,762	1,373,849	1,021,608	2,615,225
Operating profit	592,493	4,285,747	15,633,976	20,518,974

[1] Other operating segments are not separately disclosed.

30. Related Party Transactions

(A) Subsidiaries

List of subsidiaries as of December 31, 2021 are as follows:

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
America	Samsung Electronics America, Inc. (SEA)	Sale of electronic devices	100.0
	Samsung International, Inc. (SII)	Manufacture of electronic devices	100.0
	Samsung Mexicana S.A. de C.V (SAMEX)	Manufacture of electronic devices	100.0
	Samsung Electronics Home Appliances America, LLC (SEHA)	Manufacture of home appliances	100.0
	Samsung Research America, Inc (SRA)	R&D	100.0
	Samsung Next LLC (SNX)	Management of overseas subsidiaries	100.0
	Samsung Next Fund LLC (SNXF)	Technology business, venture capital investments	100.0
	NeuroLogica Corp.	Manufacture and sale of medical equipment	100.0
	Samsung HVAC America, LLC	Sale of air conditioning products	100.0
	Joyent, Inc.	Cloud services	100.0
	Dacor Holdings, Inc.	Management of overseas subsidiaries	100.0
	Dacor, Inc.	Manufacture and sale of home appliances	100.0
	Dacor Canada Co.	Sale of home appliances	100.0
	SmartThings, Inc.	Sale of smart home electronics	100.0
	TeleWorld Solutions, Inc. (TWS)	Installation & optimization of network devices	100.0
	Samsung Semiconductor, Inc. (SSI)	Sale of semiconductor and display panels	100.0
	Samsung Austin Semiconductor LLC (SAS)	Manufacture of semiconductors	100.0
	Samsung Oak Holdings, Inc. (SHI)	Management of overseas subsidiaries	100.0
	SEMES America, Inc.	Semiconductor equipment services	100.0
	Samsung Electronics Canada, Inc. (SECA)	Sale of electronic devices	100.0
	AdGear Technologies Inc.	Digital advertising platforms	100.0
	Samsung Electronica da Amazonia Ltda. (SEDA)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Mexico S.A. de C.V. (SEM)	Sale of electronic devices	100.0
	Samsung Electronics Digital Appliance Mexico, S.A. de C.V. (SEDAM)	Manufacture of home appliances	100.0
	Samsung Electronics Latinoamerica(Zona Libre), S. A. (SELA)	Sale of electronic devices	100.0
	Samsung Electronics Latinoamerica Miami, Inc. (SEMI)	Sale of electronic devices	100.0
	Samsung Electronica Colombia S.A. (SAMCOL)	Sale of electronic devices	100.0
	Samsung Electronics Argentina S.A. (SEASA)	Marketing and services	100.0
	Samsung Electronics Chile Limitada (SECH)	Sale of electronic devices	100.0
	Samsung Electronics Peru S.A.C. (SEPR)	Sale of electronic devices	100.0
	Samsung Electronics Venezuela, C.A. (SEVEN)	Marketing and services	100.0
	Samsung Electronics Panama. S.A. (SEPA)	Consulting	100.0
	Harman International Industries, Inc.	Management of overseas subsidiaries	100.0
	Harman Becker Automotive Systems, Inc.	Manufacture and sale of audio products, R&D	100.0
	Harman Connected Services, Inc.	Connected service provider	100.0
	Harman Connected Services Engineering Corp.	Connected service provider	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
America	Harman da Amazonia Industria Eletronica e Participacoes Ltda.	Manufacture and sale of audio products	100.0
	Harman de Mexico, S. de R.L. de C.V.	Manufacture of audio products	100.0
	Harman do Brasil Industria Eletronica e Participacoes Ltda.	Sale of audio products, R&D	100.0
	Harman Financial Group LLC	Management company	100.0
	Harman International Industries Canada Ltd.	Sale of audio products	100.0
	Harman International Mexico, S. de R.L. de C.V.	Sale of audio products	100.0
	Harman KG Holding, LLC	Management of overseas subsidiaries	100.0
	Harman Professional, Inc.	Sale of audio products, R&D	100.0
	Beijing Integrated Circuit Industry International Fund, L.P	Venture capital investments	61.4
	China Materialia New Materials 2016 Limited Partnership	Venture capital investments	99.0
	Harman da Amazonia Industria Eletronica e Participacoes Ltda.	Manufacture and sale of audio products	100.0
Europe & CIS	Samsung Electronics (UK) Ltd. (SEUK)	Sale of electronic devices	100.0
	Samsung Electronics Ltd. (SEL)	Management of overseas subsidiaries	100.0
	Samsung Semiconductor Europe Limited (SSEL)	Sale of semiconductor and display panels	100.0
	Samsung Electronics GmbH (SEG)	Sale of electronic devices	100.0
	Samsung Electronics Holding GmbH (SEHG)	Management of overseas subsidiaries	100.0
	Samsung Semiconductor Europe GmbH (SSEG)	Sale of semiconductor and display panels	100.0
	Samsung Electronics France S.A.S (SEF)	Sale of electronic devices	100.0
	Samsung Electronics Italia S.P.A. (SEI)	Sale of electronic devices	100.0
	Samsung Electronics Iberia, S.A. (SESA)	Sale of electronic devices	100.0
	Samsung Electronics Portuguesa, Unipessoal, Lda. (SEP)	Sale of electronic devices	100.0
	Samsung Electronics Hungarian Private Co., Ltd. (SEH)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Europe Logistics B.V. (SELS)	Logistics	100.0
	Samsung Electronics Benelux B.V. (SEBN)	Sale of electronic devices	100.0
	Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	Management of overseas subsidiaries	100.0
	Samsung Electronics Nordic Aktiebolag (SENA)	Sale of electronic devices	100.0
	Samsung Electronics Slovakia s.r.o. (SESK)	Manufacture of TV and monitors	100.0
	Samsung Display Slovakia s.r.o. (SDSK)	Toll processing of display panels	100.0
	Samsung Electronics Polska, SP.Zo.o (SEPOL)	Sale of electronic devices	100.0
	Samsung Electronics Poland Manufacturing SP.Zo.o (SEPM)	Manufacture of home appliances	100.0
	Samsung Electronics Romania LLC (SEROM)	Sale of electronic devices	100.0
	Samsung Electronics Austria GmbH (SEAG)	Sale of electronic devices	100.0
	Samsung Electronics Switzerland GmbH (SESG)	Sale of electronic devices	100.0
	Samsung Electronics Czech and Slovak s.r.o. (SECZ)	Sale of electronic devices	100.0
	Samsung Electronics Baltics SIA (SEB)	Sale of electronic devices	100.0
	Samsung Electronics Greece S.M.S.A (SEGR)	Sale of electronic devices	100.0
	Samsung Electronics Air Conditioner Europe B.V. (SEACE)	Sale of air conditioning products	100.0
	Samsung Nanoradio Design Center (SNDC)	R&D	100.0
	Samsung Denmark Research Center ApS (SDRC)	R&D	100.0
	Samsung Cambridge Solution Centre Limited (SCSC)	R&D	100.0
	Zhilabs, S.L.	Development and sale of network solutions	100.0
	Foodient Ltd.	R&D	100.0
	Samsung Electronics Rus Company LLC (SERC)	Sale of electronic devices	100.0
	Samsung Electronics Rus Kaluga LLC (SERK)	Manufacture of TV	100.0
	Samsung Electronics Ukraine Company LLC (SEUC)	Sale of electronic devices	100.0
	Samsung Electronics Central Eurasia LLP (SECE)	Sale of electronic devices	100.0
	Samsung Electronics Overseas B.V. (SEO)	Sale of electronic devices	100.0
	Samsung R&D Institute Rus LLC (SRR)	R&D	100.0
	Samsung Electronics Caucasus Co., Ltd (SECC)	Marketing	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Europe & CIS	AKG Acoustics GmbH	Manufacture and sale of audio products	100.0
	AMX UK Limited	Sale of audio products	100.0
	Harman Audio Iberia Espana Sociedad Limitada	Sale of audio products	100.0
	Harman Automotive UK Limited	Manufacture of audio products	100.0
	Harman Becker Automotive Systems GmbH	Manufacture and sale of audio products, R&D	100.0
	Harman Becker Automotive Systems Italy S.R.L.	Sale of audio products	100.0
	Harman Becker Automotive Systems Manufacturing Kft	Manufacture of audio products, R&D	100.0
	Harman Belgium SA	Sale of audio products	100.0
	Harman Connected Services AB.	Connected service provider	100.0
	Harman Finland Oy	Connected service provider	100.0
	Harman Connected Services GmbH	Connected service provider	100.0
	Harman Connected Services Poland Sp. Zo.o	Connected service provider	100.0
	Harman Connected Services UK Ltd.	Connected service provider	100.0
	Harman Consumer Nederland B.V.	Sale of audio products	100.0
	Harman Deutschland GmbH	Sale of audio products	100.0
	Harman Finance International GP S.a.r.l	Management of overseas subsidiaries	100.0
	Harman France SNC	Sale of audio products	100.0
	Harman Holding GmbH & Co. KG	Management company	100.0
	Harman Hungary Financing Ltd.	Financing company	100.0
	Harman Inc. & Co. KG	Management of overseas subsidiaries	100.0
	Harman International Estonia OU	R&D	100.0
	Harman International Industries Limited	Sale of audio products, R&D	100.0
	Harman International Romania SRL	R&D	100.0
	Harman Finance International, SCA	Financing company	100.0
	Harman International s.r.o.	Manufacture of audio products	100.0
	Harman Management GmbH	Management of overseas subsidiaries	100.0
	Harman Professional Kft	Manufacture of audio products, R&D	100.0
	Harman Professional Denmark ApS	Sale of audio products, R&D	100.0
	Red Bend Software Ltd.	Software design	100.0
	Red Bend Software S.A.S	Software design	100.0
	Studer Professional Audio GmbH	Sale of audio products, R&D	100.0
	Harman Connected Services OOO	Connected service provider	100.0
	Harman RUS CIS LLC	Sale of audio products	100.0
	AKG Acoustics GmbH	Manufacture and sale of audio products	100.0
	AMX UK Limited	Sale of audio products	100.0
	Harman Audio Iberia Espana Sociedad Limitada	Sale of audio products	100.0
	Harman Automotive UK Limited	Manufacture of audio products	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Middle East & Africa	Samsung Gulf Electronics Co., Ltd. (SGE)	Sale of electronic devices	100.0
	Samsung Electronics Turkey (SETK)	Sale of electronic devices	100.0
	Samsung Electronics Industry and Commerce Ltd. (SETK-P)	Manufacture of electronic devices	100.0
	Samsung Electronics Levant Co.,Ltd. (SELV)	Sale of electronic devices	100.0
	Samsung Electronics Maghreb Arab (SEMAG)	Sale of electronic devices	100.0
	Samsung Electronics Egypt S.A.E (SEEG)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Israel Ltd. (SEIL)	Marketing	100.0
	Samsung Electronics Tunisia S.A.R.L (SETN)	Marketing	100.0
	Samsung Electronics Pakistan(Private) Ltd. (SEPAK)	Marketing	100.0
	Samsung Electronics Saudi Arabia Ltd. (SESAR)	Sale of electronic devices	100.0
	Samsung Semiconductor Israel R&D Center, Ltd. (SIRC)	R&D	100.0
	Corephotonics Ltd.	R&D	100.0
	Samsung Electronics South Africa(Pty) Ltd. (SSA)	Sale of electronic devices	100.0
	Samsung Electronics South Africa Production (pty) Ltd. (SSAP)	Manufacture of TV and monitors	100.0
	Samsung Electronics West Africa Ltd. (SEWA)	Marketing	100.0
	Samsung Electronics East Africa Ltd. (SEEA)	Marketing	100.0
	Global Symphony Technology Group Private Ltd.	Management of overseas subsidiaries	100.0
	Harman Connected Services Morocco	Connected service provider	100.0
	Harman Industries Holdings Mauritius Ltd.	Management of overseas subsidiaries	100.0
	Red Bend Ltd.	Manufacture of audio products	100.0
Asia (Excluding China)	Samsung Asia Pte. Ltd. (SAPL)	Management of overseas subsidiaries	100.0
	Samsung Electronics Singapore Pte. Ltd. (SESP)	Sale of electronic devices	100.0
	Samsung Malaysia Electronics (SME) Sdn. Bhd. (SME)	Sale of electronic devices	100.0
	Samsung Electronics Display (M) Sdn. Bhd. (SDMA)	Manufacture of electronic devices	100.0
	Samsung Electronics (M) Sdn. Bhd. (SEMA)	Manufacture of home appliances	100.0
	Samsung Vina Electronics Co., Ltd. (SAVINA)	Sale of electronic devices	100.0
	Samsung Electronics Vietnam Co., Ltd. (SEV)	Manufacture of electronic devices	100.0
	Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	Manufacture of communication equipment	100.0
	Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	Manufacture and sale of electronic devices	100.0
	Samsung Display Vietnam Co., Ltd. (SDV)	Manufacture of display panels	100.0
	PT Samsung Electronics Indonesia (SEIN)	Manufacture and sale of electronic devices	100.0
	PT Samsung Telecommunications Indonesia (STIN)	Sale of electronic devices and services	100.0
	Thai Samsung Electronics Co., Ltd. (TSE)	Manufacture and sale of electronic devices	91.8
	Laos Samsung Electronics Sole Co., Ltd. (LSE)	Marketing	100.0
	Samsung Electronics Philippines Corporation (SEPCO)	Sale of electronic devices	100.0
	Samsung Electronics Australia Pty. Ltd. (SEAU)	Sale of electronic devices	100.0
	Samsung Electronics New Zealand Limited (SENZ)	Sale of electronic devices	100.0
	Samsung India Electronics Private Ltd. (SIEL)	Manufacture and sale of electronic devices	100.0
	Samsung Display Noida Private Limited (SDN)	Manufacture of display panels	100.0
	Samsung R&D Institute India-Bangalore Private Limited (SRI-Bangalore)	R&D	100.0
	Samsung R&D Institute BanglaDesh Limited (SRBD)	R&D	100.0
	Samsung Nepal Services Pvt, Ltd. (SNSL)	Service	100.0
	Samsung Japan Corporation (SJC)	Sale of semiconductor and display panels	100.0
	Samsung R&D Institute Japan Co., Ltd. (SRJ)	R&D	100.0
	Samsung Electronics Japan Co., Ltd. (SEJ)	Sale of electronic devices	100.0
	Harman Connected Services Corp. India Pvt. Ltd.	Connected service provider	100.0
	Harman International (India) Private Limited	Sale of audio products, R&D	100.0
	Harman International Industries PTY Ltd.	Management of overseas subsidiaries	100.0
	Harman International Japan Co., Ltd.	Sale of audio products, R&D	100.0
	Harman Singapore Pte. Ltd.	Sale of audio products	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
	Samsung (CHINA) Investment Co., Ltd. (SCIC)	Sale of electronic devices	100.0
	Samsung Electronics Hong Kong Co., Ltd. (SEHK)	Sale of electronic devices	100.0
	Samsung Electronics Taiwan Co., Ltd. (SET)	Sale of electronic devices	100.0
	Tianjin Samsung Electronics Co., Ltd. (TSEC)	Manufacture of TV and monitors	91.2
	Suzhou Samsung Electronics Co., Ltd. (SSEC)	Manufacture of home appliances	88.3
	Samsung Suzhou Electronics Export Co., Ltd. (SSEC-E)	Manufacture of home appliances	100.0
	Samsung Electronics Suzhou Computer Co., Ltd. (SESC)	Manufacture of electronic devices	100.0
	Tianjin Samsung Telecom Technology Co., Ltd. (TSTC)	Manufacture of communication equipment	90.0
	Beijing Samsung Telecom R&D Center (SRC-Beijing)	R&D	100.0
	Samsung Electronics China R&D Center (SRC-Nanjing)	R&D	100.0
	Samsung Mobile R&D Center China-Guangzhou (SRC-Guangzhou)	R&D	100.0
	Samsung R&D Institute China-Shenzhen (SRC-Shenzhen)	R&D	100.0
	Shanghai Samsung Semiconductor Co., Ltd. (SSS)	Sale of semiconductor and display panels	100.0
	Samsung (China) Semiconductor Co., Ltd. (SCS)	Manufacture of semiconductors	100.0
	Samsung SemiConductor Xian Co., Ltd. (SSCX)	Sale of semiconductor and display panels	100.0
	Samsung Electronics Suzhou Semiconductor Co., Ltd. (SESS)	Toll processing of semiconductors	100.0
China	Tianjin Samsung LED Co., Ltd. (TSLED)	Manufacture of LED	100.0
	Samsung Semiconductor (China) R&D Co., Ltd. (SSCR)	R&D	100.0
	Samsung Display Dongguan Co., Ltd. (SDD)	Manufacture of display panels	100.0
	Samsung Display Tianjin Co., Ltd. (SDT)	Manufacture of display panels	95.0
	SEMES (XIAN) Co., Ltd.	Semiconductor equipment services	100.0
	Samsung Semiconductor Investment L.P. I	Technology business, venture capital investments	99.0
	Harman (China) Technologies Co., Ltd.	Manufacture of audio products	100.0
	Harman (Suzhou) Audio and Infotainment Systems Co., Ltd.	Sale of audio products	100.0
	Harman Automotive Electronic Systems (Suzhou) Co., Ltd.	Manufacture of audio products, R&D	100.0
	Harman Commercial (Shanghai) Co., Ltd.	Sale of audio products	100.0
	Harman Connected Services Solutions (Chengdu) Co., Ltd.	Connected service provider	100.0
	Harman Holding Limited	Sale of audio products	100.0
	Harman International (China) Holdings Co., Ltd.	Sale of audio products, R&D	100.0
	Harman Technology (Shenzhen) Co., Ltd.	Sale of audio products, R&D	100.0
	Samsung (CHINA) Investment Co., Ltd. (SCIC)	Sale of electronic devices	100.0
	Samsung Electronics Hong Kong Co., Ltd. (SEHK)	Sale of electronic devices	100.0
	Samsung Electronics Taiwan Co., Ltd. (SET)	Sale of electronic devices	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Domestic	Samsung Display Co., Ltd.	Manufacture and sale of display panels	84.8
	SU Materials	Manufacture of display components	50.0
	STECO Co., Ltd.	Manufacture of semiconductor components	70.0
	SEMES Co., Ltd.	Manufacture and sale of semiconductor/FPD	91.5
	Samsung Electronics Service Co., Ltd.	Repair services for electronic devices	99.3
	Samsung Electronics Service Customer Satisfaction Co., Ltd.	Call center for repair services for electronic devices	100.0
	Samsung Electronics Sales Co., Ltd.	Sale of electronic devices	100.0
	Samsung Electronics Logitech Co., Ltd.	General logistics agency	100.0
	Samsung Medison Co., Ltd.	Manufacture and sale of medical equipment	68.5
	Mirero System Co., Ltd.	Development and supply of semiconductor process defect and quality control software	99.9
	Dowooinssys Co., Ltd.	Manufacture of display components	69.0
	Gf-System Co., Ltd.	Manufacture of display components	100.0
	Harman International Korea	Software development and supply, etc.	100.0
	Samsung Venture Capital Union #21	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #22	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #26	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #28	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #29	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #32	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #33	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #37	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #40	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #42	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #43	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #45	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #48	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #52	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #55	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #56	Technology business, Venture capital investments	99.0
	Growth type private equity trust specialized in semiconductors	Investment on semiconductor industry	66.7
	System LSI mutual benefit private equity trust	Investment on semiconductor industry	62.5

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

(B) Sale and purchase transactions

Sale and purchase transactions with related parties for the years ended December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	Name of company[1]	December 31, 2021			
		Sales and other	Disposal of non-current assets	Purchases and other	Purchase of non-current assets
Subsidiaries	Samsung Display Co., Ltd.	234,883	2,475	916,709	-
	Samsung Electronics America, Inc. (SEA)	32,860,328	-	165,629	-
	Samsung (China) Semiconductor Co., Ltd. (SCS)	167,937	190,056	7,340,085	9,857
	Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	9,380,604	686	21,146,962	1,111
	Harman and its subsidiaries[2]	65	-	48,387	-
	Samsung Electronics Vietnam Co., Ltd. (SEV)	6,652,988	1,716	15,387,219	317
	Samsung (CHINA) Investment Co., Ltd. (SCIC)	1,525,639	-	9,019	-
	Samsung Semiconductor, Inc. (SSI)	31,894,007	-	409,852	-
	Samsung Asia Pte. Ltd. (SAPL)	18	-	22,855	-
	Samsung Austin Semiconductor LLC. (SAS)	598	1,183	3,703,472	7,511
	Samsung India Electronics Private Ltd. (SIEL)	4,327,075	2,609	3,373,962	-
	Shanghai Samsung Semiconductor Co., Ltd. (SSS)	25,683,936	-	3,885	-
	Samsung Display Vietnam Co., Ltd. (SDV)	1,314,121	-	-	-
	Samsung Eletronica da Amazonia Ltda. (SEDA)	3,151,503	403	8,600	-
	Samsung Electronics (UK) Ltd. (SEUK)	1,535,053	-	91,821	1
	Samsung International, Inc. (SII)	417,680	-	7,721,915	-
	Thai Samsung Electronics Co., Ltd. (TSE)	1,459,938	-	2,489,534	-
	Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	652,277	3,222	5,183,912	900
	Samsung Electronics Taiwan Co., Ltd. (SET)	4,853,191	-	674	-
	Samsung Electronics Hungarian Private Co. Ltd. (SEH)	547,190	-	547	-
	Samsung Electronics Europe Logistics B.V. (SELS)	4,294,662	-	11,007	-
	Samsung Electronics Benelux B.V. (SEBN)	365,818	-	2,695	-
	Samsung Electronics GmbH (SEG)	3,332,793	-	7,646	-
	Samsung Display Dongguan Co., Ltd. (SDD)	288,980	-	-	-
	Other	53,602,392	10,982	15,648,603	3,784
	Total	188,543,676	213,332	83,694,990	23,481
Associates and joint ventures	Samsung SDS Co.,Ltd	141,014	-	1,542,039	530,412
	Samsung Electro-Mechanics Co., Ltd	45,303	-	975,086	-
	Samsung SDI Co., Ltd	49,995	269	360,350	30,627
	Cheil Worldwide Inc	26,794	-	720,533	16
	Other	595,551	68	773,381	8,011
	Total	858,657	337	4,371,389	569,066
Other related parties	Samsung C&T Co., Ltd	66,745	-	78,054	3,902,417
	Other	303,093	-	564,706	92,577
	Total	369,838	-	642,760	3,994,994
Other[3]	Samsung Engineering Co., Ltd	598	-	38,556	2,106,166
	S-1	7,132	-	401,224	27,744
	Other	106,714	2,371	200,387	38,531
	Total	114,444	2,371	640,167	2,172,441

[1] Transactions with separate entities that are related parties of the Company.

[2] Transactions with the intermediate parent company, including Harman International Industries, Inc. and its subsidiaries.

[3] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise group according to the Monopoly Regulation and Fair Trade Act.

(In millions of Korean won)	Name of company[1]	2020			
		Sales and other	Disposal of non-current assets	Purchases and other	Purchase of non-current assets
Subsidiaries	Samsung Display	196,823	-	1,016,635	99
	Samsung Electronics America. (SEA)	26,957,506	-	169,209	-
	Samsung Electronics Vietnam THAINGUYEN (SEVT)	5,604,586	160	17,562,566	1,666
	Samsung (CHINA) Investment (SCIC)	1,258,362	-	16,121	-
	Harman and its subsidiaries[2]	82	-	96,868	-
	Samsung (China) Semiconductor (SCS)	151,476	266,135	5,321,169	6,447
	Samsung Electronics Vietnam. (SEV)	3,996,320	2,650	13,734,647	1,355
	Samsung Semiconductor, Inc. (SSI)	20,816,043	-	433,784	330
	Samsung Asia Pte. Ltd. (SAPL)	1,623,597	-	30,383	-
	Shanghai Samsung Semiconductor (SSS)	19,538,264	-	205,749	-
	Samsung Display Vietnam (SDV)	1,155,048	-	-	-
	Samsung Austin Semiconductor (SAS)	768	62,423	3,913,100	1,863
	Samsung Eletronica da Amazonia (SEDA)	1,043,819	243	5,089	-
	Samsung India Electronics (SIEL)	3,839,831	-	2,613,913	-
	Thai Samsung Electronics (TSE)	1,234,284	-	2,002,528	-
	Samsung Electronics (UK) (SEUK)	888,317	-	105,904	-
	Samsung Electronics GmbH (SEG)	3,560,864	-	8,158	-
	Samsung Electronics HCMC CE Complex (SEHC)	709,713	-	5,249,002	31
	Samsung Electronics Hungarian (SEH)	884,255	-	1,849	-
	Samsung Electronics Benelux (SEBN)	200,787	-	2,611	-
	Samsung Display Dongguan (SDD)	79,708	-	-	-
	Samsung Electronics Europe Logistics (SELS)	4,047,574	-	8,728	-
	Samsung Electronics France (SEF)	2,034,589	-	4,367	-
	Samsung Japan Corporation (SJC)	2,526,771	-	7,163	-
	Other	42,074,984	13,361	19,651,006	14,732
	Total	144,424,371	344,972	72,160,549	26,523
Associates and joint ventures	Samsung SDS	106,676	77	1,566,150	426,799
	Samsung Electro-Mechanics	36,562	-	1,072,949	-
	Samsung SDI	54,356	272	314,277	69,619
	Cheil Worldwide	26,244	-	620,199	-
	Other	541,318	30	696,055	4,360
	Total	765,156	379	4,269,630	500,778
Other related parties	Samsung C&T	87,844	-	151,612	3,491,244
	Other	264,426	-	535,448	84,663
	Total	352,270	-	687,060	3,575,907
Other[3]	Samsung Engineering	3,906	-	43,472	1,614,571
	S-1	10,933	-	374,209	33,340
	Other	79,524	-	202,874	799
	Total	94,363	-	620,555	1,648,710

[1] Transactions with separate entities that are related parties of the Company.

[2] Transactions with the intermediate parent company, including Harman International Industries, Inc. and its subsidiaries.

[3] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise group according to the Monopoly Regulation and Fair Trade Act.

(C) Balances of receivables and payables

Balances of receivables and payables arising from the sales and purchases of goods and services as of December 31, 2021 and 2020 are as follows:

(In millions of Korean won)	Name of company[1]	December 31, 2021	
		Receivables and other[2]	Payables and other[3]
Subsidiaries	Samsung Display Co., Ltd.	23,791	119,401
	Samsung Electronics America, Inc. (SEA)	4,708,011	143,310
	Samsung (China) Semiconductor Co., Ltd. (SCS)	59,110	726,945
	Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	734,283	4,049,400
	Harman and its subsidiaries[4]	-	7,541
	Samsung Electronics Vietnam Co., Ltd. (SEV)	414,781	2,301,949
	Samsung (CHINA) Investment Co., Ltd. (SCIC)	138,307	77,540
	Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	316	-
	Samsung Semiconductor, Inc. (SSI)	7,320,890	123,555
	Samsung Asia Pte. Ltd. (SAPL)	1,736	2,164
	Samsung Austin Semiconductor LLC. (SAS)	4,645	277,682
	Samsung India Electronics Private Ltd. (SIEL)	1,099,927	463,652
	Shanghai Samsung Semiconductor Co., Ltd. (SSS)	4,337,520	217
	Samsung Display Vietnam Co., Ltd. (SDV)	161,441	-
	Samsung Eletronica da Amazonia Ltda. (SEDA)	258,490	1,040
	Samsung Electronics (UK) Ltd. (SEUK)	201,717	19,595
	Samsung International, Inc. (SII)	32,564	259,847
	Thai Samsung Electronics Co., Ltd. (TSE)	132,508	334,943
	Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	167,225	430,960
	Samsung Electronics Taiwan Co., Ltd. (SET)	372,716	32,145
	Samsung Electronics Hungarian Private Co. Ltd. (SEH)	58,694	99
	Samsung Electronics Europe Logistics B.V. (SELS)	629,882	1,715
	Samsung Electronics Benelux B.V. (SEBN)	45,171	3,351
	Samsung Electronics GmbH (SEG)	223,603	2,272
	Samsung Display Dongguan Co., Ltd. (SDD)	18,025	-
	Other	9,220,424	2,284,643
	Total	30,365,777	11,663,966
Associates and joint ventures	Samsung SDS Co., Ltd	64,364	574,443
	Samsung Electro-Mechanics Co., Ltd	2,415	108,103
	Samsung SDI Co., Ltd	113,845	54,076
	Cheil Worldwide Inc.	59	421,901
	Other	192,550	166,311
	Total	373,233	1,324,834
Other related parties	Samsung C&T Corporation	195,355	1,640,615
	Other	15,839	125,470
	Total	211,194	1,766,085
Other [5]	Samsung Engineering Co., Ltd	289	1,099,881
	S-1 Corporation	2,058	29,620
	Other	4,286	56,476
	Total	6,633	1,185,977

[1] Transactions with separate entities that are related parties of the Company.

[2] The Company has not recognized bad debt allowance in relation to the receivables due from subsidiaries as of December 31, 2021.

[3] Payables and others include lease liabilities.

[4] Transactions with the intermediate parent company, including Harman International Industries, Inc. and its subsidiaries.

[5] Although these entities are not related parties of the Company in accordance with Korean IFRS 1024, they belong to the same large enterprise group according to the Monopoly Regulation and Fair Trade Act.

(In millions of	December 31, 2020

Korean won)	Name of Company[1]	Receivables and other[2]	Payables and other[3]
Subsidiaries	Samsung Display	8,791	110,590
	Samsung Electronics America (SEA)	4,386,729	109,808
	Samsung Electronics Vietnam THAINGUYEN (SEVT)	573,990	1,475,012
	Samsung (CHINA) Investment (SCIC)	114,209	63,247
	Harman and its subsidiaries[4]	-	11,649
	Samsung (China) Semiconductor (SCS)	58,124	503,142
	Samsung Electronics Vietnam (SEV)	479,330	1,642,273
	Samsung Electronics Europe Holding (SEEH)	348	-
	Samsung Semiconductor, Inc. (SSI)	3,904,314	119,569
	Samsung Asia Pte. Ltd. (SAPL)	92,692	38,434
	Shanghai Samsung Semiconductor (SSS)	3,310,319	202
	Samsung Display Vietnam (SDV)	118,106	-
	Samsung Austin Semiconductor (SAS)	6,634	297,169
	Samsung Eletronica da Amazonia (SEDA)	368,591	938
	Samsung India Electronics (SIEL)	825,400	283,091
	Thai Samsung Electronics (TSE)	76,754	219,580
	Samsung Electronics (UK) (SEUK)	250,169	27,984
	Samsung Electronics GmbH (SEG)	674,888	1,999
	Samsung Electronics HCMC CE Complex (SEHC)	127,677	502,978
	Samsung Electronics Hungarian (SEH)	83,227	229
	Samsung Electronics Benelux (SEBN)	114,569	3,363
	Samsung Display Dongguan (SDD)	14,237	-
	Samsung Electronics Europe Logistics (SELS)	939,206	1,651
	Samsung Electronics France (SEF)	313,893	340
	Samsung Japan Corporation (SJC)	227,020	57,762
	Other	6,543,308	2,253,734
	Total	23,612,525	7,724,744
Associates and joint ventures	Samsung SDS	36,752	493,346
	Samsung Electro-Mechanics	310	71,041
	Samsung SDI	107,201	58,274
	Cheil Worldwide	76	393,348
	Other	103,652	161,686
	Total	247,991	1,177,695
Other related parties	Samsung C&T	212,894	2,300,740
	Other	16,065	111,425
	Total	228,959	2,412,165
Other[5]	Samsung Engineering	441	523,140
	S-1	1,619	32,165
	Other	3,133	20,697
	Total	5,193	576,002

[1] Transactions with separate entities that are related parties of the Company.
[2] The Company has not recognized any bad debt allowance in relation to the receivables due from subsidiaries as of December 31, 2020.
[3] Payables and others include lease liabilities.
[4] Transactions with the intermediate parent company, including Harman International Industries, Inc. and its subsidiaries.
[5] Although these entities are not related parties of the Company in accordance with Korean IFRS 1024, they belong to the same large enterprise group according to the Monopoly Regulation and Fair Trade Act.

(D) For the years ended December 31, 2021 and 2020, the Company invested ₩ 138,858 million and ₩ 163,456 million, respectively, in subsidiaries, and received ₩592,520 million and ₩ 22,057 million in return of investments for the years ended December 31, 2021 and 2020, respectively. In addition, there were no additional investments in associates and joint ventures or return of those investments for the years ended December 31.

(E) For the years ended December 31, 2021 and 2020, the Company declared dividend of ₩ 3,527,449 million and ₩ 1,659,962 million, respectively, to the related parties. In addition, for the years ended December 31, 2021 and 2020, the Company declared ₩ 267,738 million and ₩ 125,744 of dividends to the entities that are not related parties of the Company in accordance with *Korean IFRS 1024*, but belong to the same conglomerate according to the Monopoly Regulation and Fair Trade Act. As of December 31, 2021 and 2020, no dividends declared remains unpaid.

(F) For the years ended December 31, 2021 and 2020, assets leased from related parties amounted to ₩ 63,887 million and ₩ 289 million, respectively, and lease payments made to the related parties amounted to ₩ 51,703 million and ₩ 67,002 million, respectively.

(G) As of December 31, 2021, the Company provides guarantees in relation to borrowings of the related parties (refer to Note 16).

(H) Key management compensation

The compensation paid or payable to key management (executive directors) for their services for the years ended December 31, 2021 and 2020 consists of:

(In millions of Korean won)	**2021**	**2020**
Short-term employee benefits	20,370	13,333
Post-employment benefits	886	987
Other long-term employee benefits	8,092	7,287

6. Dividends

We continue to work to enhance shareholder value alongside our efforts to strengthen competitiveness of our products and businesses. We utilized 50% of the free cash flow as the shareholder return pool for 2018 to 2020 as part of our shareholder return policy for 2018 to 2020 and paid annual, regular dividends of KRW 9.6 trillion. A special cash dividend of KRW 10.7 trillion was paid out at the same time as the 2020 end-year, regular dividend. The shareholder return policy for 2021 to 2023 was announced in January 2021. For this term, we kept the shareholder return pool at 50% of the free cash flow, but increased the annual, regular dividend to KRW 9.8 trillion. Any remaining portion of the 50% of the free cash flow will be paid out to shareholders.

Dividends paid in the three most recent fiscal years are as follows:

[Key dividend indices]

Classification		2021	2020	2019
Par value per share (KRW)		100	100	100
Consolidated net profit[1] (KRW mil)		39,243,791	26,090,846	21,505,054
Separate net profit (KRW mil)		30,970,954	15,615,018	15,353,323
EPS[2] (KRW)		5,777	3,841	3,166
Total cash dividend (KRW mil)		9,809,438	20,338,075	9,619,243
Total stock dividend (KRW mil)		-	-	-
Dividend payout ratio (%)		25.0	78.0	44.7
Cash dividend yield (%)	Common	1.8	4.0	2.6
	Preferred	2.0	4.2	3.1
Stock dividend yield (%)	Common	-	-	-
	Preferred	-	-	-
Cash dividend per share (KRW)	Common	1,444	2,994	1,416
	Preferred	1,445	2,995	1,417
Stock dividend per share (share)	Common	-	-	-
	Preferred	-	-	-

Dividends were KRW 2,452,154 million or KRW 361 per share in the first three quarters of 2021, and KRW 2,404,605 million or KRW 354 per share in each of the first three quarters of 2019 and 2020. For further information relating to total cash dividend, see retained earnings in 『3. Note to Consolidated Financial Statements』 in 『III. Financial Affairs』.

1) Equity attributable to owners of the parent.

2) Basic earnings per common share on a consolidated basis. For further information relating to the calculation of basic EPS, see Earnings Per Share in 『3. Note to Consolidated Financial Statements』 in 『III. Financial Affairs』.

History of dividend payouts is as follows:

Number of continuous dividend payments		Average dividend yield	
Quarterly/biannual dividends	End-year dividends	Past 3 years	Past 5 years
33	41	2.8%	2.7%

The number of continuous dividend payments includes the quarterly dividend for the quarter and the end-year dividend for the recent business year. Continuous payment of the end-year dividend started in 1981, biannual dividend in 1999, and quarterly dividend in 2017.
The average dividend yield is based on common shares. The average dividend yield of preferred shares for the past 3 years and past 5 years are 3.1% and 3.2% respectively.
The "past 3 years" refers to the period from 2019 to 2021, and the "past 5 years" refers to the period from 2017 to 2021. For the dividend yield of 2021, please refer to the table of key dividends above (common shares at 1.8%, preferred shares at 2.0%).

7. Matters about financing through the issuance of securities

7-1 Financing through the issuance of securities

[Issuance of equity securities]

N/A

[Issuance of debt securities]

A. List of issued debt securities

(As of December 31, 2021) (KRW mil, %)

Issuing company	Type of securities	Issuance method	Date of Issuance	Total nominal amount	Interest rate	Rating (rating institution)	Maturity date	Payment status	Management company
Samsung Electronics	Corporate bonds	Public offering	Oct 2,1997	118,550	7.7	Aa3(Moody's), AA-(S&P)	Oct 1, 2027	Partial redemption	Goldman Sachs et al.
Harman International Industries, Inc	Corporate bonds	Public offering	May 11, 2015	474,200	4.2	Baa1 (Moody's), A- (S&P)	May 15, 2025	Unredeemed	J.P.Morgan et al.
Harman Finance International, SCA	Corporate bonds	Public offering	May 27, 2015	469,819	2.0	Baa1 (Moody's), A- (S&P)	May 27, 2022	Unredeemed	HSBC et al.
Dowinsys Co., Ltd	Corporate bonds	Private placement	Feb 28, 2020	23,000	0.5	-	Feb 28, 2025	Unredeemed	-
SEMES	Commercial paper	Private placement	Jan 13, 2021	70,000	1.2	A1	Apr 13, 2021	Redeemed	-
SEMES	Commercial paper	Private placement	Jan 20, 2021	15,000	1.3	A1	Apr 20, 2021	Redeemed	-
SEMES	Commercial paper	Private placement	Jan 28, 2021	115,000	1.3	A1	Apr 28, 2021	Redeemed	-
SEMES	Commercial paper	Private placement	Feb 16, 2021	120,000	1.2	A1	May 17, 2021	Redeemed	-
SEMES	Commercial paper	Private placement	Apr 20, 2021	30,000	1.2	A1	Jul 19, 2021	Redeemed	-
SEMES	Commercial paper	Private placement	Apr 28, 2021	170,000	1.2	A1	Jul 27, 2021	Redeemed	-
SEMES	Commercial paper	Private placement	May 17, 2021	120,000	1.2	A1	Aug 17, 2021	Redeemed	-
Total	-	-	-	1,725,569	-	-	-	-	-

※ The exchange rate as of the reporting date has been applied.

※ The rating institutions of Commercial paper are NICE Investors Service and Korea Ratings Corporation.

B. Commercial Paper Balance

Not Applicable

(Reporting Date: December 31, 2021)

Maturity		Under 10 days	Above 10 days / under 30 days	Above 30 days / under 90 days	Above 90 days / under 180 days	Above 180 days / under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years	Total
Balance	Public	-	-	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-

C. Short Term Bond Unredeemed Balance

Not Applicable

(Reporting Date: December 31, 2021) (KRW mil)

Maturity		Under 10 days	Above 10 days / under 30 days	Above 30 days / under 90 days	Above 90 days / under 180 days	Above 180 days / under 1 year	Total	Issue limit	Balance limit
Balance	Public	-	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-

D. Corporate Bond Unredeemed Balance

(Reporting Date: December 31, 2021) (KRW mil)

Maturity		Under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years / under 4 years	Above 4 years / under 5 years	Above 5 years / under 10 years	Above 10 years	Total
Balance	Public	475,747	5,928	5,928	480,128	5,928	5,925	-	979,584
	Private	-	-	-	23,000	-	-	-	23,000
	Total	475,747	5,928	5,928	503,128	5,928	5,925	-	1,002,584

※ Based on consolidated financial statements
※ The exchange rate as of the reporting date has been applied.

- Corporate Bond Unredeemed Balance (Samsung Electronics)

(Reporting Date: December 31, 2021) (KRW mil)

Maturity		Under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years / under 4 years	Above 4 years / under 5 years	Above 5 years / under 10 years	Above 10 years	Total
Unredeemed balance	Public	5,928	5,928	5,928	5,928	5,928	5,925	-	35,565
	Total	5,928	5,928	5,928	5,928	5,928	5,925	-	35,565

※ The exchange rate as of the reporting date has been applied.

- Corporate Bond Unredeemed Balance (Harman)

(Reporting Date: December 31, 2021) (KRW mil)

Maturity		Under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years / under 4 years	Above 4 years / under 5 years	Above 5 years / under 10 years	Above 10 years	Total
Unredeemed balance	Public	469,819	-	-	474,200	-	-	-	944,019
	Total	469,819	-	-	474,200	-	-	-	944,019

※ The exchange rate as of the reporting date has been applied.

- Corporate Bond Unredeemed Balance (Dowinsys)

(Reporting Date: December 31, 2021) (KRW mil)

Maturity		Under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years / under 4 years	Above 4 years / under 5 years	Above 5 years / under 10 years	Above 10 years	Total
Unredeemed balance	Private	-	-	-	23,000	-	-	-	23,000
	Total	-	-	-	23,000	-	-	-	23,000

※ Outstanding balance of corporate bonds are intercompany balances eliminated in consolidated financial statements

E. Hybrid Bond Outstanding Balance

Not Applicable

(Reporting Date: December 31, 2021) (KRW mil)

Maturity		Under 1 year	Above 1 year / under 5 years	Above 5 years / under 10 years	Above 10 years / under 15 years	Above 15 years / under 20 years	Above 20 years / under 30 years	Above 30 years	Total
Unredeemed balance	Public	-	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-

F. Contingent Convertible Bond Outstanding Balance

Not Applicable

(Reporting Date: December 31, 2021) (KRW mil)

Maturity		Under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years / under 4 years	Above 4 years / under 5 years	Above 5 years / under 10 years	Above 10 years / under 20 years	Above 20 years / under 30 years	Above 30 years	Total
Unredeemed balance	Public	-	-	-	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-	-

G. Details and Compliance of the Bond Management Contract (Samsung Electronics)

(Reporting Date : December 31, 2021) (KRW mil, %)

Name of security	Date of issuance	Maturity date	Issued amount	Settlement date of bond management contract	Debenture management company
US$ 100,000,000 7.7% debenture	Oct 2, 1997	Oct 1, 2027	118,550	Oct 2, 1997	The Bank of New York Mellon Trust Company, N.A.

(Reporting Date: December 31, 2021)

Financial ratios	Contract details	Not applicable
	Implementation status	Not applicable
Constraint on collateral	Contract details	Less than 10% of net tangible assets
	Implementation status	Compliant (there is no collateral for the relevant assets)
Constraint on disposal of assets	Contract details	Certain requirements, such as transfer of obligations on the bond, must be satisfied to dispose all or most of an asset
	Implementation status	Compliant (disposed assets accounted for 0.3% of the total assets during 2021)
Constraint on governance	Contract Details	Not applicable
	Implementation status	Not applicable
Submission of implementation report	Implementation status	Not applicable

※ The exchange rate as of the base date has been applied.
※ The date of the bond management contract was signed on the same day as the Fiscal Agency Agreement; accordingly, the Bank of New York Mellon Trust Company, N.A. is under the authority of the Fiscal Agent.
※ The net tangible assets subjected to the limitation of collaterals are production facilities and stocks owned by the Company.
※ The reporting date is the date when most recent financial statements were prepared, which are used to determine the status of implementation.
※ The constraint on governance is as of the reporting date.

7-2 Use of funds financed through the issuance of securities

Not applicable

8. Other financial information

A. Restatement of financial statements and other matters to note

(1) Restatement of financial statements: Not Applicable

(2) Acquisition, divestment, asset sales, and sale of business

The major acquisition, divestment and transfer of business during past three years are as follows.

[Sale of SSL, SSM]

On August 28, 2020, Samsung Display Co., Ltd., the Company's subsidiary, decided to sell its 100% ownership in Samsung Suzhou Module Co., Ltd. ("SSM") and 60% ownership in Samsung Suzhou LCD Co., Ltd. ("SSL") to TCL China Star Optoelectronics Technologies Co. Ltd. ("CSOT"). The sales were completed on April 1, 2021.

For information about the effect of the sales to the financial statements, please refer to Note 28 "Assets held-for-sale (Disposal group)" in "3.Notes to the consolidated financial statements".

[PLP Business]

- Details of acquisition
In accordance with the resolution of the Board of Directors on April 30, 2019, the Company acquired PLP business from Samsung Electro-Mechanics Co., Ltd.(location: South Korea; CEO: Kyehyun Kyung) at a price of KRW 785,000 million on June 1, 2019 to strengthen its semiconductor competitiveness through securing next-generation packaging technology.

- Details of the above statement can be found in the "Business Acquisition from Related Parties", published in DART (http://dart.fss.or.kr/) on April 30, 2019.

(KRW 100 mil)

	Account	Forecast		Actual			
		1st Year	2nd Year	1st Year		2nd Year	
				Actual	Difference	Actual	Difference
PLP Business	Sales	101	219	-	-	-	-
	Operating Income	-1,273	-2,155	-1,095	14%	-44	98%
	Net Income	-1,273	-2,155	-1,095	14%	-2,146	0%

※ No third-party sales is recognized from PLP business as its products are internally transferred within the Company's manufacturing process.

※ Actual operating income and net income for first year of acquisition (seven month period ended December 31, 2019) differs by 14% from the forecast due to several factors such as reduction in wages.

※ Actual operating income for the second year (the year ended December 31, 2020) of acquisition differs by 98% from the forecast due to several factors such as reduction in wages.

[Corephotonics Ltd.]

- Samsung Electronics Benelux B.V. (SEBN), the Company's subsidiary, acquired 83.9% of the equity shares of Corephotonics Ltd.(location: Tel Aviv, Israel; CEO: David Mendlovic) on January 28, 2019 and additional 8.5% on March 4, 2019 to secure CIS optical technology and talent.

(3) Information on the accounting treatment of the sales of assets related to asset backed securities and contingent liabilities

Accounting Treatment of the sale of assets related to asset backed securities:

- Not applicable

Litigation

The Company is involved in various claims, disputes, and investigations conducted by regulatory bodies, which arose during the normal course of business with numerous entities. Although the outflow of resources and timing of these matters are uncertain, as of the reporting date, the Company believes the outcome will not have a material impact on the financial position of the Company.

Debt guarantee

- Domestic: Not applicable

- Overseas:

(USD thousand)

Company	Relationship	Creditor	Guarantee	Transactions				Limit of guarantee
			Expiry date	Beginning of period	Increase	Decrease	End of period	
SEA	Subsidiary	BOA etc.	16-Dec-22	-	-	-	-	1,328,000
SEM	Subsidiary	BBVA etc.	16-Dec-22	-	-	-	-	906,000
SAMCOL	Subsidiary	Citibank etc.	16-Dec-22	117,109	-	-117,109	-	310,000
SEDA	Subsidiary	BRADESCO etc.	16-Dec-22	-	-	-	-	409,000
SECH	Subsidiary	Citibank etc.	16-Dec-22	-	-	-	-	62,000
SEPR	Subsidiary	BBVA etc.	16-Dec-22	-	-	-	-	150,000
SSA	Subsidiary	SCB etc.	16-Dec-22	-	-	-	-	318,000
SEMAG	Subsidiary	SocGen etc.	16-Dec-22	-	-	-	-	110,000
SETK	Subsidiary	BNP etc.	16-Dec-22	169,280	-	-67,005	102,275	807,000
SETK-P	Subsidiary	BNP etc.	16-Dec-22	-	33,334	-	33,334	130,000
SECE	Subsidiary	Citibank etc.	16-Dec-22	-	-	-	-	73,722
SEEG	Subsidiary	HSBC	13-Jun-22	-	-	-	-	85,000
SEIN	Subsidiary	BNP etc.	08-Nov-22	-	-	-	-	70,000
SJC	Subsidiary	Mizuho Bank etc.	16-Dec-22	-	-	-	-	877,579
SEUC	Subsidiary	Credit Agricole etc.	16-Dec-22	-	-	-	-	150,000
SEDAM	Subsidiary	Citibank etc.	16-Dec-22	-	-	-	-	141,000
SECA	Subsidiary	BoA	08-Nov-22	-	-	-	-	70,000
SELA	Subsidiary	Citibank	16-Dec-22	-	-	-	-	120,000
SEEH	Subsidiary	HSBC etc.	16-Dec-22	-	-	-	-	712,400
SERK	Subsidiary	SOCGEN etc.	16-Dec-22	-	-	-	-	290,000
SELV	Subsidiary	Citibank	16-Dec-22	-	-	-	-	10,000
SEIL	Subsidiary	Citibank	16-Dec-22	-	10,947	-	10,947	15,600
SAPL	Subsidiary	BOA etc.	16-Dec-22	-	-	-	-	345,000
SEV	Subsidiary	SCB	28-Feb-21	-	-	-	-	-
SAVINA	Subsidiary	HSBC	13-Jun-22	-	-	-	-	51,000
SET	Subsidiary	SCB	28-Feb-21	-	-	-	-	-
SCIC	Subsidiary	HSBC etc.	16-Dec-22	-	-	-	-	300,000
SME	Subsidiary	SCB	08-Nov-22	-	-	-	-	110,000
SAMEX	Subsidiary	Citibank	16-Dec-22	-	-	-	-	5,000
SEASA	Subsidiary	Citibank	16-Dec-22	-	-	-	-	2,000
SSAP	Subsidiary	SCB	08-Nov-22	-	-	-	-	35,000
SEPM	Subsidiary	HSBC	13-Jun-22	-	-	-	-	35,000
SESAR	Subsidiary	HSBC	13-Jun-22	-	-	-	-	50,000
AdGear Technologies Inc.	Subsidiary	BOA	08-Nov-22	-	-	-	-	2,000
Harman International Industries, Inc.	Subsidiary	JP Morgan	13-Jun-22	-	-	-	-	100,000
Harman International Japan Co., Ltd.	Subsidiary	MUFG	08-Nov-22	-	-	-	-	25,000
Harman RUS CIS LLC	Subsidiary	SocGen	08-Nov-22	-	-	-	-	15,000
Harman Holding Limited	Subsidiary	HSBC	13-Jun-22	-	-	-	-	30,000
Harman do Brasil Industria Eletronica e Participacoes Ltda.	Subsidiary	SocGen	08-Nov-22	-	-	-	-	15,000
Harman da Amazonia Industria Eletronica e Participacoes Ltda.								
Harman Finance International, SCA	Subsidiary	JP Morgan etc.	27-May-22	430,499	-	-34,195	396,304	396,304
SDN	Subsidiary	SIEL	22-Nov-24	273,243	297,878	-	571,121	671,908
Total				990,131	342,159	-218,309	1,113,981	9,333,513

※ Information above are prepared on consolidated basis. Debt guarantees for Harman Finance International, SCA, and SDN are provided by Harman International Industries, Inc. and Samsung Display Co., Ltd., respectively.

※ SEC requires Board approval for individual guarantees exceeding 2.5% of total equity. When the guarantee amount is between 0.1% and/or less than 2.5%, the approval decision is delegated to the Management Committee. Samsung Display Co., Ltd requires Board approval for individual guarantees over KRW 10,000 million.

※ SEC claims fees on the debt guarantees depending on the maturity date of each debt guarantee, general loan interest rate, etc.
In 2021, the Company claimed approximately USD 266,000 as guarantee fee and, as of the reporting date, has not collected the amount.
In 2021, Samsung Display Co., Ltd. claimed approximately USD 2,529,000 as guarantee fee to SDN and, as of the reporting date, has not collected the amount.

Refer to the notes to the consolidated financial statements for the information on contingent liabilities.

(4) Other matters requiring attention in relation to the use of the financial statements

A. Emphasis of matter and key audit matter in independent auditor's report

Period	Emphasis of matter	Key audit matter
2021	Not applicable	(Consolidated financial statement) 1. Sales deduction related to the Sales promotion activities of products (Separate financial statement) 1. Sales deduction related to the Sales promotion activities of products
2020	Not applicable	(Consolidated financial statement) 1. Sales deduction related to the Sales promotion activities of products 2. Impairment of goodwill and intangible assets with indefinite useful lives (Separate financial statement) 1. Sales deduction related to the Sales promotion activities of products
2019	Not applicable	(Consolidated financial statement) 1. Sales promotion activities related to the sales of products 2. Impairment of goodwill and intangible assets with indefinite useful lives 3. Appropriateness of depreciation expense cut-off on property, plant and equipment (Separate financial statement) 1. Sales promotion activities related to the sales of products 2. Appropriateness of depreciation expense cut-off on property, plant and equipment

B. Allowance for bad debt

The allowances for bad debt by account over the past 3 years are as follows:

(KRW mil)

Period	Account	Receivables amount	Allowance amount	Allowance (%)
2021	Trade receivables	41,024,295	310,880	0.8%
	Short-term loans	17,895	73	0.4%
	Other receivables	4,569,772	72,515	1.6%
	Advances	1,122,660	3,847	0.3%
	Trade receivables (long-term)	225,739	-	0.0%
	Other receivables (long-term)	1,002,404	290	0.0%
	Advances (long-term)	1,770,999	9,003	0.5%
	Long-term loans	199,577	917	0.5%
	Total	49,933,341	397,525	0.8%
2020	Trade receivables	31,283,789	318,731	1.0%
	Short-term loans	7,813	73	0.9%
	Other receivables	3,663,822	59,283	1.6%
	Advances	890,413	3,371	0.4%
	Trade receivables (long-term)	85,575	-	0.0%
	Other receivables (long-term)	401,582	204	0.1%
	Advances (long-term)	1,397,698	5,972	0.4%
	Long-term loans	113,944	1,309	1.1%
	Total	37,844,636	388,943	1.0%
2019	Trade receivables	35,471,674	340,331	1.0%
	Short-term loans	8,744	82	0.9%
	Other receivables	4,237,479	58,359	1.4%
	Advances	1,430,317	3,484	0.2%
	Trade receivables (long-term)	411,229	79	0.0%
	Other receivables (long-term)	346,780	307	0.1%
	Advances (long-term)	774,472	7,333	0.9%
	Long-term loans	120,540	1,335	1.1%
	Total	42,801,235	411,310	1.0%

※ Based on consolidated financial statements
※ Receivables amount represents the value after deducting present value discount account

Allowance for bad debt by year

(KRW mil)

	2021	2020	2019
1. Allowance for bad debt (beginning balance)	388,943	411,310	614,882
2. Net bad debt expense (① − ②+③)	25,926	65,575	16,715
① Bad debt expense, etc (Write-off)	22,400	40,487	6,579
② Bad debt recovered	-	745	11,294
③ Others	3,526	25,833	21,430
3. Bad debts expense	34,508	43,208	-186,857
4. Allowance for bad debts (Ending balance)	397,525	388,943	411,310

※ Based on consolidated financial statements.

The guideline for bad debt allowances for trade receivables

(1) Calculation of bad debt allowance

- Bad debt allowance is calculated using an expected credit loss impairment model which is based on write-off experience rate and future expected bad debt amount.

(2) Calculation basis of write-off experience rate and future expected bad debt:

- Write-off experience rate for each aging group of receivables is calculated based on the actual rate of credit losses to three-year average receivables balance.
- Future expected bad debt is determined taking into consideration cases of debtor bankruptcy, compulsory execution, death, disappearance, credit information of debtor and forward-looking information.

[Bad debt allowance by circumstance]

Circumstance	Rate of allowance
Dispute or conflict	25%
Receivable through utilization of third party collection agency	50%
Receivable under litigation	75%
Customer filed or in the process of filing bankruptcy	100%

(3) Instruction: Write-off is recorded when trade receivables contain the following characteristics:

- Objective proof of bad debts, such as bankruptcy, compulsory execution, discontinuance of business, debtor's death or disappearance
- Legal action has failed or the right of collection has been extinguished.
- When the third party collection agency notifies that collection is not possible.
- When the collateral is sold or insurance is received.
- When collection expense exceeds receivables amount.

The outstanding period of trade receivables

(Reporting Date: December 31, 2021) (KRW mil, %)

	Less than 6 months	6 months ~ 1 year	1 year ~ 3 years	More than 3 years	Total
Amount	41,009,414	15,082	136,756	88,782	41,250,034
Ratio	99.5%	0.0%	0.3%	0.2%	100.0%

※ Base on consolidated financial statements
※ Receivables amount in net present value

C. Inventory

- The inventory status by Division over the last three years is as follows:

(KRW mil, %)

Division		Category	2021	2020	2019	Note
CE		Finished goods	5,015,240	2,351,619	1,554,116	
		Work in process	219,560	136,255	146,387	
		Raw material	4,542,301	3,503,321	2,012,159	
		Material in transit	737,838	1,335,111	1,895,387	
		Total	10,514,939	7,326,306	5,608,049	
IM		Finished goods	3,762,382	3,968,844	2,426,034	
		Work in process	579,525	458,318	420,664	
		Raw material	6,811,585	3,726,192	3,228,906	
		Material in transit	587,570	824,662	810,599	
		Total	11,741,062	8,978,016	6,886,203	
DS	Semi-conductor	Finished goods	2,421,589	1,639,523	1,740,881	
		Work in process	11,751,356	10,586,921	8,772,850	
		Raw material	2,067,629	1,636,803	1,332,267	
		Material in transit	33,844	43,564	66,033	
		Total	16,274,418	13,906,811	11,912,031	
	DP	Finished goods	294,777	134,963	345,940	
		Work in process	874,229	650,762	488,468	
		Raw Material	810,325	603,779	634,990	
		Material in transit	48,253	33,271	22,214	
		Total	2,027,584	1,422,775	1,491,612	
	DS total	Finished goods	2,788,247	1,861,756	2,130,587	
		Work in process	12,698,697	11,298,157	9,302,907	
		Raw material	2,900,762	2,254,591	1,991,422	
		Material in transit	82,862	73,688	89,044	
		Total	18,470,568	15,488,192	13,513,960	
Harman		Finished goods	533,008	502,117	746,742	
		Work in process	105,271	80,237	90,249	
		Raw material	736,109	337,386	372,231	
		Material in transit	321,128	224,961	145,329	
		Total	1,695,516	1,144,701	1,354,551	
Total		Finished goods	12,280,579	9,387,886	8,115,116	
		Work in process	13,473,618	11,818,090	9,886,634	
		Raw material	14,184,841	9,790,766	7,747,110	
		Material in transit	1,445,366	1,046,403	1,017,604	
		Total	41,384,404	32,043,145	26,766,464	
Inventory ratio (%) [Inventory ÷ Total Assets] × 100			9.7%	8.5%	7.6%	
Inventory turnover (x) [Yearly COGS ÷ {(Beginning of inventory + End of inventory)÷2}]			4.5	4.9	5.3	

※ Based on consolidated financial statements

Inventory counts

(1) Inspection date

- End of May and November (twice a year)
- For the difference in inventories between the inspection date and at the end of the year, the Company checks all the warehouse record during the period in order to confirm the existence of the inventories as of the date of the financial statements.

(2) Inspection method

- Internal warehouse: Closed & entire quantity inspection

※ Sample inspection for semi-conductor and DP work-in-progress inventories, SVC materials

- Outside warehouse

  Perform check for the possession confirmation documents and sample tests at the third party warehouse and inventory-in-transit.
- External auditors join and observe the inspection and carry out sample tests to check the existence and completeness.

※ For the HQ, the most recent inventory inspection was conducted from Nov 28 to Dec 1, 2021. The subsidiaries flexibly conducted the inventory inspection during the same period as HQ, considering restrictions in movements by local governments due to spread of COVID-19.

Inventory aging and valuation

Inventories are stated at the lower of cost or net realizable value. Inventory as of December 31, 2021 are as follows:

(KRW mil)

Category	Acquisition cost	Inventory valuation reserve	Balance	Note
Finished goods	13,000,200	-719,621	12,280,579	
Work in process	13,967,331	-493,713	13,473,618	
Raw material	14,864,486	-679,645	14,184,841	
Material in transit	1,445,366	-	1,445,366	
Total	43,277,383	-1,892,979	41,384,404	

※ Based on consolidated financial statements

D. Fair value estimation

Refer to 3. Financial Instruments by Category and 25. Financial Risk Management in 『Ⅲ. Financial Affairs』.

IV. Management Discussion and Analysis

1. Note on forward-looking statements

This annual report includes forward-looking statements that relate to future events and can be generally identified by phrases containing words such as “believes,” “expects,” “anticipates,” “foresees,” “forecasts,” “estimates” or other words or phrases of similar meaning. These forward-looking statements are not guarantees of future performance and may involve known and unknown risks, uncertainties and other factors that may affect our actual results, performance, achievements or financial position, making them materially different from the actual future results, performance, achievements or financial position expressed or implied by these forward-looking statements. Unless otherwise specified, all data presented in this report is from our consolidated financial statements.

Uncertain events that could positively or negatively affect the Company’s management condition and financial performance include, but are not limited to:

- Trends of financial markets domestically and abroad, including changes in exchange rates and interest rates
- The Company’s strategic decision making, including disposals and purchases of businesses
- Unexpected sudden changes in core businesses such as CE, IM, Semiconductor, DP and Harman
- Other changes domestically and abroad that can affect management condition and financial performance

The Company assumes no obligation to revise or update this report to reflect risks or uncertainties that arise after the reporting period.

(Responsibility statement)

In accordance with article 3(2) c) of the Transparency Law (Luxembourg), Ki-nam Kim and Yoon-ho Choi, as a CEO and the executive in charge of reporting confirm that, to the best of their knowledge, the consolidated financial statements and the statutory non-consolidated financial statements prepared in accordance with the applicable set of accounting standards give a true and fair view of the assets, liabilities, financial position and profit or loss of the Company and the undertakings included in the consolidation taken as a whole and that the management report includes a fair review of the development and performance of the business and the position of the Company and the undertakings included in the consolidation taken as a whole, together with a description of the principal risks and uncertainties that they face.

2. Overview

The business environment remained challenging in 2021 as uncertainties in the global economy intensified due to effects of the prolonged Covid-19 pandemic and the spread of new variants, global supply disruptions, and a slowdown in China’s economic growth.

Despite the formidable economic conditions, Samsung Electronics in 2021 achieved total revenue of KRW 280 trillion and operating profit of KRW 52 trillion on a consolidated basis, and total revenue of KRW 200 trillion and operating profit of KRW 32 trillion on a standalone basis.

Our financial structure remained sound—we recorded a debt ratio of 39.9%, capital adequacy ratio of 71.5%, and ROE of 13.7% on a consolidated basis. On a standalone basis, the respective figures were 30.0%, 76.9%, and 16.5%. Our brand value in 2021 was evaluated at USD 74.6 billion (*Interbrand*; October 2021), an all-time high, and up 20% from last year’s figure and maintaining our position as the world’s fifth most valuable brand.

On the business side, we further strengthened profitability and cost competitiveness of the component business based on our capabilities in core technologies, including migration to 6th generation V-NAND while leading expansion of EUV technology. In addition, we solidified our market power and leadership in the industry by launching the Galaxy Z Flip and Z Fold 3 while expanding sales of Neo QLED TVs and Bespoke products.

In 2022, we expect the external environment to remain difficult: macro uncertainties in the global economy, such as a resurgence of COVID-19 and prolonged component supply disruptions, are likely to persist, while intensifying competition for our main products and a rapidly changing paradigm in the IT industry will present numerous hurdles.

As a global industry leader that values various customer experiences, we reorganized our corporate structure at the end of 2021, merging the CE Division and IM Division to launch the new Device eXperience (DX) Division to preemptively address such market changes and to sustain our commitment to create new experiences for our customers. Through the restructuring, we will offer various products, including TV, home appliances, smartphones, and communications equipment, as well as services and solutions that reflect the needs of our customers to ensure that they conveniently enjoy optimal experiences, while mobilizing all efforts to create synergies between products and establish the foundation for differentiated products and services.

3. Financial position and performance (consolidated)

A. Financial position

(KRW mil)

Classification	2021	2020	Increase/decrease	change
Current assets	218,163,185	198,215,579	19,947,606	10.1%
- Cash and cash equivalents	39,031,415	29,382,578	9,648,837	32.8%
- Short-term financial instruments	81,708,986	92,441,703	-10,732,717	-11.6%
- Other current financial assets	3,409,791	2,828,562	581,229	20.5%
- Trade and other receivables	40,713,415	30,965,058	9,748,357	31.5%
- Inventories	41,384,404	32,043,145	9,341,259	29.2%
- Other current assets	11,915,174	10,554,533	1,360,641	12.9%
Non-current assets	208,457,973	180,020,139	28,437,834	15.8%
- Other non-current financial assets	15,491,183	13,778,185	1,712,998	12.4%
- Associates and joint ventures	8,932,251	8,076,779	855,472	10.6%
- Property, plant and equipment	149,928,539	128,952,892	20,975,647	16.3%
- Intangible assets	20,236,244	18,468,502	1,767,742	9.6%
- Other non-current assets	13,869,756	10,743,781	3,125,975	29.1%
Total assets	426,621,158	378,235,718	48,385,440	12.8%
Current liabilities	88,117,133	75,604,351	12,512,782	16.6%
Non-current liabilities	33,604,094	26,683,351	6,920,743	25.9%
Total liabilities	121,721,227	102,287,702	19,433,525	19.0%
Equity attributable to owners of the parent	296,237,697	267,670,331	28,567,366	10.7%
Non-controlling interest	8,662,234	8,277,685	384,549	4.6%
Total equity	304,899,931	275,948,016	28,951,915	10.5%
Total liabilities and equity	426,621,158	378,235,718	48,385,440	12.8%
Capital adequacy ratio	71.5%	73.0%	-1.5%p	
Debt-to-equity ratio	39.9%	37.1%	2.8%p	
Inventory turnover	4.5	4.9	-0.4	

Presented in accordance with K-IFRS.

Samsung Electronics' total assets in 2021 were KRW 426.6212 trillion, an increase of KRW 48.3854 trillion (12.8%) from the previous year. The main contributors to the increase in total assets are trade and other receivables and inventories, with an increase of KRW 9.7484 trillion and 9.3413 trillion respectively, as well as an increase in tangible assets caused by large-scale facility investment for the semiconductor and DP businesses worth KRW 20.9756 trillion.

Total liabilities were KRW 121.7212 trillion, an increase of KRW 19.4335 trillion (19.0%) from the previous year. This includes an increase of KRW 12.5128 trillion (16.6%) in current liabilities and an increase of KRW 6.9207 trillion (25.9%) in non-current liabilities. The changes are attributable to a KRW 3.7141 trillion and 3.6858 trillion increase in trade payables and other payables respectively. In addition, a KRW 2.3189 trillion and 4.3874 trillion increase in current income tax liabilities and deferred income tax liabilities respectively.

Total equity was KRW 304.8999 trillion, an increase of KRW 28.9519 trillion (10.5%) from the previous year. Retained earnings increased by KRW 21.9966 trillion year-on-year from net income of KRW 39.2438 trillion and dividends of KRW 20.4807 trillion. Other components of equity increased by KRW 6.5587 trillion due to factors such as the overseas operations translation difference.

In terms of financial ratios, the Company maintained a sound financial structure as the capital adequacy ratio decreased by 1.5%pts from the previous year to 71.5% and the debt-to-equity ratio increased by 2.8%pts from the previous year to 39.9%.

B. Performance

(KRW mil)

Classification	2021	2020	Increase/decrease	change
Sales	279,604,799	236,806,988	42,797,811	18.1%
Cost of sales	166,411,342	144,488,296	21,923,046	15.2%
Gross profit	113,193,457	92,318,692	20,874,765	22.6%
Selling and administrative expenses	61,559,601	56,324,816	5,234,785	9.3%
Operating profit	51,633,856	35,993,876	15,639,980	43.5%
Other income	2,205,695	1,384,068	821,627	59.4%
Other expenses	2,055,971	2,488,902	-432,931	-17.4%
Gain on valuation using the equity method of accounting	729,614	506,530	223,084	44.0%
Financial income	8,543,187	12,267,600	-3,724,413	-30.4%
Financial expenses	7,704,554	11,318,055	-3,613,501	-31.9%
Income before income tax expense	53,351,827	36,345,117	17,006,710	46.8%
Income tax expense	13,444,377	9,937,285	3,507,092	35.3%
Net income	39,907,450	26,407,832	13,499,618	51.1%
Equity attributable to owners of the parent	39,243,791	26,090,846	13,152,945	50.4%
Non-controlling interests	663,659	316,986	346,673	109.4%

Presented in accordance with K-IFRS.

In 2021, revenue increased year-on-year by KRW 42.7978 trillion (18.1%) to an all-time annual high of KRW 279.6048 trillion, driven by expanding sales of flagship smartphones and premium digital appliances, such as Neo QLED TV and Bespoke, as well as high-capacity memory and OLED panels. Operating profit increased by KRW 15.64 trillion (43.5%) to KRW 51.6339 trillion.

Income before income taxes increased year-on-year by KRW 17.0067 trillion (46.8%) to KRW 53.3518 trillion, and net income increased by KRW 13.4996 trillion (51.1%) to KRW 39.9075 trillion.

We continued to maintain a sound financial structure, highlighted by a year-on-year increase in ROE of 3.9%pts to 13.7%, and an increase in net profit ratio of 3.1%pts to 14.3%.

[Performance by division]

(KRW mil)

Classification	Division	Business	2021		2020		Change	
			Amount	Share	Amount	Share	Amount	(%)
Revenue	CE Division		55,832,435	20.0%	48,173,324	20.3%	7,659,111	15.9%
	IM Division		109,251,383	39.1%	99,587,493	42.1%	9,663,890	9.7%
	DS Division	Semi-conductor	94,158,569	33.7%	72,857,803	30.8%	21,300,766	29.2%
		DP	31,712,526	11.3%	30,585,715	12.9%	1,126,811	3.7%
		Others	-782,071	-0.3%	-407,372	-0.2%	-374,699	92.0%
		Total	125,089,024	44.7%	103,036,146	43.5%	22,052,878	21.4%
	Harman Division		10,039,922	3.6%	9,183,748	3.9%	856,174	9.3%
	Others		-20,607,965	-7.4%	-23,173,723	-9.8%	2,565,758	-11.1%
	Overall Sales		279,604,799	100.0%	236,806,988	100.0%	42,797,811	18.1%
Operating profit	CE Division		3,645,721	7.1%	3,561,536	9.9%	84,185	2.4%
	IM Division		13,647,575	26.4%	11,472,671	31.9%	2,174,904	19.0%
	DS Division	Semi-conductor	29,199,292	56.6%	18,804,970	52.2%	10,394,322	55.3%
		DP	4,457,365	8.6%	2,236,919	6.2%	2,220,446	99.3%
		Others	77,542	0.1%	78,342	0.2%	-800	-1.0%
		Total	33,734,199	65.3%	21,120,231	58.7%	12,613,968	59.7%
	Harman Division		599,097	1.2%	55,518	0.2%	543,579	979.1%
	Others		7,264	0.0%	-216,080	-0.6%	223,344	103.4%
	Overall operating profit		51,633,856	100.0%	35,993,876	100.0%	15,639,980	43.5%

Includes inter-divisional revenue and operating profit.

(CE Division)

The CE Division's revenue in 2021 increased by KRW 7.6591 trillion (15.9%) from the previous year to KRW 55.8324 trillion. Operating profit grew by KRW 0.0842 trillion (2.4%) to KRW 3.6457 trillion, the gains driven by solid sales of premium products, which include Neo QLED TVs and models in the Bespoke lineup.

In the CE Division, sales of premium products are leading sustained growth, including those for Neo QLED TVs featuring premium technology as well as for products tailored to experience-oriented lifestyles, such as our Lifestyle TVs, Bespoke products, and new home appliance products. In the Visual Display Business, we are expanding our leadership in the premium, ultra-large, over 75" TV market with QLED TVs featuring quantum dot technology, and we are growing market power with releases of new Lifestyle TV products, including The Terrace and The Premier. In addition, we keep pushing the boundary of the overall market with diverse new products such as The Wall micro LED TV, soundbars, and LED signage.

Based on positive responses for our new products, Samsung has remained atop the TV market for 16 consecutive years, spanning from 2006 to 2021; and at the peak of the digital signage market for 13 consecutive years, from 2009 to 2021, solidifying our industry leadership.

In 2022, the Company will continue to innovate to lift demand for premium TVs and sales of Lifestyle TV products. We will expand the adoption of Micro LED technology to household products and increase the portion of 8K TVs in the premium segment while reinforcing the Lifestyle TV lineup with The Freestyle, which garnered significant attention at CES 2022. In addition, we will actively adopt eco-friendly technologies and strengthen content services that can be used for in-home activities, including working out and gaming.

In the Digital Appliance Business, we continue to launch products and services that not only offer advanced functions based on highly-efficient, eco-friendly technologies, but also increase convenience in our customers' lives, all based on a deep understanding of the changing life patterns of our consumers. We are also creating new value with smart appliances that connect with various devices as well as a suite of services centering on Bixby and SmartThings.

In 2022, we will maintain growth momentum by strengthening the global sales of Bespoke products in earnest, and we will offer customized services by connecting products, enabling our consumers to enjoy even further differentiated experiences. Furthermore, we will keep fortifying our status as a market-leading, global brand in home appliances by continually releasing new products that reflect the needs of consumers and the latest trends.

(IM Division)

The IM division's revenue in 2021 was KRW 109.2514 trillion, an increase of KRW 9.6639 trillion (9.7%) compared to the previous year, while operating profit increased by KRW 2.1749 trillion (19.0%) to KRW 13.6476 trillion. Revenue and operating profit increased, aided by gains in sales volume on the back of recovery of market demand that had been stagnant due to the pandemic.

Despite unfavorable conditions, including prolonged effects of Covid-19 and a shortage of some components, the IM Division achieved solid results, achieving growth in revenue and operating profit on an increased portion of premium products and enhanced operational efficiency.

In the premium segment, following the launch of the Galaxy Z Flip and Galaxy Z Fold 2 in 2020, we released Galaxy Z Flip 3 and Z Fold 3 in 2021 to deliver experiences tailored to the various lifestyles of our users, further expanding our premium user base. Foldables, along with S-series models, are spearheading growth of our flagship products by offering unique user experiences. Moreover, Galaxy Ecosystem allowed customers to experience expanded connectivity between various products and services and take advantage of collaborations with global partners, leading growth in the tablet, PC, and wearables businesses to exceed market and thus highlight strength in this segment in 2021.

In 2022, we plan to lead changes in the mobile market and actively tackle fierce industry competition. We will push to expand our premium customer base by leveraging S22 and S21 FE to bolster leadership in the flagship market; and for foldable products, we will keep fortifying our position at the front of the market through technology and also broad cooperation with our partners. Furthermore, we will offer the utmost Multi Device experience via Galaxy Ecosystem, which enables convenient use of not only mobile products, but also TVs and home appliances.

(DS Division: Semiconductor)

In the semiconductor business, revenue in 2021 increased by KRW 21.3008 trillion (29.2%) to KRW 94.1586 trillion thanks to increased component demand for server and high-capacity products for mobile products. Operating profit increased by KRW 10.3943 trillion (55.3%) to KRW 29.1993 trillion compared to the prior year.

The memory business in 2021 achieved the highest revenue in the global semiconductor industry by maintaining its dominant position in cost competitiveness via technology leadership and through timely responses to market demand. In 2022, we will continue to preemptively address growth of contactless industries and issues in the global component supply chain to reinforce our position as a top semiconductor company.

For DRAM products, we secured core, future technologies by establishing a next-generation DRAM mass production system that applies the multi-step EUV process. We are focusing on qualitative growth that further differentiates our products and improves profitability by centering our business portfolios on high-value solutions. Furthermore, we will remain the market leader by continually enhancing competitiveness in emerging areas, such as AI and edge computing.

For NAND products, we will work to increase market share by securing a lineup of advanced products and widening the performance gap by migrating to 6th-generation V-NAND products backed by our exceptional technological capabilities, and by pursuing full-fledged adoption of 7th-generation V-NAND products in 2022..

System LSI will diversify its foundry suppliers to enable increases in production and actively address market demand amid a global semiconductor shortage. Moreover, we aim to increase revenue by adding customers via our product competitiveness and flexible pricing policy that reflects supply and demand dynamics.

For SoCs, we released new 4nm 5G products and expanded our product lineup by leveraging our 5G technology to include SoCs for mobile products and automotives. For image sensors, we will lead the market for mobile image sensors through our micro-pixel ISOCELL technology; and continue to strengthen our portfolio by expanding the product lineup of image sensors for automotives and by developing new technologies to maintain stable growth.

For Foundry in 2022, we will solidify our technology leadership in advanced node processes by applying GAA technology in the mass production of 3nm products for the first time in the world. Furthermore, we will actively address continued, strong growth of legacy processes to increase revenue and expand our customer base by securing continuity of supply despite the global chip shortage.

(DS Division: Display)

The DP Division's revenue in 2021 was KRW 31.7125 trillion, slightly up from the previous year by KRW 1.1268 trillion (3.7%). However, operating profit increased by KRW 2.2204 trillion (99.3%) to KRW 4.4574 trillion as sales of value-added OLED panels expanded.

The DP business actively addressed our customers' increasingly sophisticated needs by establishing an optimal product portfolio in the mobile business—covering mass-market through to premium products—with our Flexible and Rigid OLED panels. Indeed, our industry-leading capabilities have been recognized based on our products' differentiated technologies and performance.

For mobile panels, we solidified our position in the smartphone OLED panel market through our differentiated technologies and by increasing our customer base amid a recovery of formerly stagnant smartphone demand and rising penetration of 5G services. In large panels, we started supplying QD Display products in 4Q21, and the technology has garnered high praise from our customers.

In the mobile panel business in 2022, we will continue to expand the application of new technologies in Flexible OLED panels while also enhancing the cost competitiveness of Rigid OLED panels to promote and increase adoption of OLED panels in smartphones. Moreover, we aim to further diversify the business by expanding into IT, gaming, and automotive products to further reinforce our business leadership. In large panels, we will establish a foundation to solidify our position in the premium segment with the full-fledged mass production of QD display based on our differentiated technologies.

(Harman Division)

In the Harman Division in 2021, both revenue and operating profit increased year-on-year thanks to a recovery of demand from sluggish levels amid Covid-19 from car manufacturers and consumers; and also to continued improvement in cost efficiency, including those related to development. Revenue increased by KRW 0.8562 trillion (9.3%) to KRW 10.0399 trillion and operating profit increased by KRW 0.5436 trillion (979.1%) to KRW 0.5991 trillion. Harman recorded the strongest results since its acquisition in the automotive components, consumer audio, and professional solution markets, despite a challenging business environment caused by semiconductor shortages and supply chain disruptions.

As a leader in the car component market, we supply car manufacturers with products that apply innovative technologies, all while maintaining quality at a level befitting a premium brand. By proactively addressing the transition to digital cockpits, we gained early dominance in the infotainment market and obtained an order for 5G Telematics Control Units (TCUs). We will focus our capabilities on providing a more convenient, pleasant, and safe in-cabin experience by preparing for the era of autonomous vehicles based on our technological innovations.

In the consumer audio market, we have used our innovative technologies to firmly establish the brand's reputation among consumers and audiophiles. In particular, JBL, which celebrated its 75th anniversary last year, has sold the most Bluetooth speakers in the global market for six consecutive years, and it is also sustaining notable growth momentum in the wireless earphone market.

In 2022, we expect the external environment to remain challenging, influenced by factors such as continued short supply of automotive semiconductors, and rises in logistics and material costs, while competition is likely to intensify. However, we will strive to secure product and cost competitiveness via thorough preparations and innovative technologies while contributing to enhancing shareholder value by achieving solid earnings.

C. New and closed businesses

N/A

D. Changes in organizational structure

In March 2017, the Company acquired shares of Harman International Industries, Inc. and added the Harman Division. In June 2017, the System LSI business was divided into Foundry and System LSI businesses.

[As of June 2017]

	Before	After
Business organization	CE Division (Visual Display, Digital Appliances, Health & Medical Equipment)	CE Division (Visual Display, Digital Appliances, Health & Medical Equipment)
	IM Division (Mobile, Network)	IM Division (Mobile, Network)
	DS Division (Memory, System LSI, DP)	DS Division (Memory, System LSI, Foundry, DP)
	-	Harman Division
Regional headquarters	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa
	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)

The Health & Medical Equipment Business was excluded from the CE Division in 1Q18 and re-included in 1Q20.

In December 2021, the Company merged the previous CE Division and Mobile Communications Business into the DX Division, and it renamed the IM Division to the MX (Mobile eXperience) Business.

[As of December 2021]

	Before	After
Business organization	CE Division (Visual Display, Digital Appliances, Health & Medical Equipment)	DX Division (Visual Display, Digital Appliances, Health & Medical Equipment, Mobile eXperience, Network)
	IM Division (Mobile, Network)	
	DS Division (Memory, System LSI, Foundry, DP)	DS Division (Memory, System LSI, Foundry, DP)
	Harman Division	Harman Division
Regional headquarters	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa
	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)

E. Foreign exchange risk

The Company experiences currency gains and losses based on the different functional currency of each entity due to global operations. As such, the Company is exposed to foreign currency volatility from exchange positions of currencies, especially related to the US dollar, Euro and Indian rupee.

(closing rate end at year-end by currency)

Currency	2021	2020	Change	Change (%)
USD	1,185.50	1,088.00	97.50	9.0%
EUR	1,342.34	1,338.24	4.10	0.3%
INR	15.93	14.86	1.07	7.2%

The foreign currency exposure to financial assets and liabilities of a 5% currency rate change against the Korean won (before income tax) are presented below:

(KRW mil)

Currency	December 31, 2021		December 31, 2020	
	Increase	Decrease	Increase	Decrease
USD	250,489	-250,489	174,400	-174,400
EUR	107,519	-107,519	112,244	-112,244
INR	24,216	-24,216	21,959	-21,959

To minimize foreign exchange risk arising from operating activities, the Company maintains the same level of equity and liability in each currency regardless of foreign exchange fluctuations. The Company's foreign exchange management policy requires normal business transactions (including imports and exports) to be conducted in the local currency or for the cash-in currency to be matched with the cash-out currency.

The Company effectively manages its foreign exchange risk by regular monitoring foreign exchange rates and limits all foreign exchange transactions besides the purpose of hedging risks.

F. Recognition of asset impairment loss

The Company conducts an annual review on asset impairment of CGUs (cash generating unit). The recoverable amount of a CGU is based on the calculation of value in use, and the value in use is calculated using a BTCF (before tax cash flow) assumption that based on the financial budget for the next five years (or longer if mid- to long-term plans for new businesses with emerging technologies are deemed appropriate) approved by the management committee. In calculating terminal-year cash flow for period that exceeds the term, assumption of fixed average growth (does not exceed industry average) was used.

Impairment losses are recognized to the extent the carrying amount exceeds the recoverable amount of a CGU. The recoverable amount is determined by choosing the greater figure between the use-value and fair-value, which deducts the disposal amount per cost. Recognized impairment gains or losses in 2021 reached KRW 151.4 billion for tangible assets and KRW 53.7 billion for intangible assets.

Refer to 『3. Notes to consolidated financial statements』 of 『III. Financial Affairs』 and 『B. Equity Investments in other corporations』 of 『IX. Affiliates and Subsidiaries』 for more details about asset impairment loss.

4. Liquidity, financing, and expenditure

Due to large investments made by the Company, maintaining adequate levels of liquidity is critical. The Company strives to achieve this goal by periodically forecasting its cash flow, estimating required cash levels, and managing income and expenses.

The Company preemptively manages risks by predicting cash flow on a regular basis. We efficiently manage liquidity risk through cash pooling by region, which allows the use of internal funds in case of lack of funds in the region. The cash pooling program allows sharing of surplus funds among entities and contributes to minimizing liquidity risk and strengthening the Company's competitive position by reducing capital operating expenses and finance expenses.

In addition, the Company provides payment guarantees, securing the limit of borrowing for overseas subsidiaries to prepare for any potential need for large-scale liquidity.

A. Current status of liquidity

The Company has ample liquidity according to the liquidity assessment index of the global credit rating agency Moody's. The Company's cash coverage (liquid funds/borrowings), which is a major liquidity index that Moody's uses, corresponds to the highest level, Aaa.

	2021	2020
Cash coverage (liquid funds/borrowings)	675%	617%

Moody's requires 400% or higher for an Aaa rating

As of December 31, 2021, the Company's liquidity is presented below:

(KRW mil)

Classification	2021	2020	Change
Liquid funds			
Cash and cash equivalents	39,031,415	29,382,578	9,648,837
Short-term financial instruments	81,708,986	92,441,703	-10,732,717
Short-term financial assets at amortized cost	3,369,034	2,757,111	611,923
Financial assets at fair value through profit or loss	40,757	71,451	-30,694
Total financial assets	124,150,192	124,652,843	-502,651
Borrowings			
Short-term borrowings	13,687,793	16,553,429	-2,865,636
Current portion of long-term liabilities	1,329,968	716,099	613,869
Debentures	508,232	948,137	-439,905
Long-term borrowings	2,866,156	1,999,716	866,440
Total financial liabilities	18,392,149	20,217,381	-1,825,232
Net cash (liquid funds – borrowings)	105,758,043	104,435,462	1,322,581

Current portion of long-term liabilities is current portion of long-term borrowings and current portion of debentures.

As of the end of 2021, the Company had KRW 124.1502 trillion of financial assets.

These liquid funds include: i) cash and cash equivalents; ii) short-term financial instruments; iii) short-term financial assets at amortized cost; and iv) financial assets at fair value through other comprehensive income. This balance decreased by KRW 0.5027 trillion from KRW 124.6528 trillion at the end of the previous year.

The Company's borrowings (including debentures) are KRW 18.3921 trillion, a decrease of KRW 1.8252 trillion from KRW 20.2174 trillion at the end of the previous year.

The Company's liquidity includes an inflow of KRW 65.1054 trillion in cash flows from operating activities and an outflow of KRW 49.8290 trillion in acquisition of tangible and intangible assets, and KRW 20.5104 in dividends. The Company's net cash (liquid funds – borrowings) in 2021 is KRW 105.7580 trillion, which is an increase of KRW 1.3226 trillion from KRW 104.4355 trillion at the end of the previous year.

B. Financing and expenditures

(Borrowings)

As of December 31, 2021, the Company's borrowings (including debentures) are presented below:

(KRW mil)

Classification	Creditor	Annual interest rate (%)	2021	2020
Short-term borrowings				
Collateralized borrowings	Woori Bank, etc.	0.0–13.3	11,556,101	14,275,043
Non-collateralized borrowings	CitiBank, etc.	0.0–30.0	2,131,692	2,278,386
Total short-term borrowings	-	-	13,687,793	16,553,429
Liquid long-term borrowings				
Bank borrowings	BNP	18.3–19.6	40,415	-
Capital lease liabilities	CSSD, etc.	3.3	811,902	710,781
Total liquid long-term borrowings			852,317	710,781
Long-term borrowings				
Bank borrowings	Industrial Bank of Korea	1.5	1,500	-
Capital lease liabilities	CSSD, etc.	3.3	2,864,656	1,999,716
Total long-term borrowings	-		2,866,156	1,999,716

(KRW mil)

Classification	Issuance date	Maturity date	Annual interest rate (%)	2021	2020
Debentures					
USD denominated straight bonds	Oct 2, 1997	Oct 1, 2027	7.7	35,565 (USD 30,000,000)	38,080 (USD 35,000,000)
USD denominated debenture bonds	May 11, 2015	May 15, 2025	4.2	474,200 (USD 400,000,000)	435,200 (USD 400,000,000)
EUR denominated debenture bonds	May 27, 2015	May 27, 2022	2.0	469,819 (EUR350,000,000)	468,383 (EUR350,000,000)
Sub Total				979,584	941,663
Premium on bonds payable (discount on bonds payable)				6,299	11,792
Total				985,883	953,455
Deduction: Current debentures				(477,651)	(5,318)
Non-current debentures				508,232	948,137

(Borrowings and payment of borrowings)

The Company's short-term borrowing increases or decreases depending on the discount amount of trade receivables. In 2021, short-term borrowing decreased by KRW 2.8656 trillion, while KRW 1.0404 trillion of long-term borrowing increased.

(Plan for payment of borrowings)

The Company's plan for payment of borrowings (including debentures) is presented below:

(KRW mil)

Year of payment	Amount of payment
2022	15,114,323
2023	754,501
2024	608,122
20245	951,184
2026~	1,346,673
Total	18,774,803

Amount calculated excluding bond discount, premium on bonds payable, and present value of bonds payable discount.

(Compliance to bond management contract conditions)

The Company's bonds are subject to conditions to protect investors such as constraint on collateral, constraint on disposal of assets, etc., and the Company complies with these conditions.

5. Off-balance sheet activities

- Refer to 『2. Notes to consolidated financial statements』 in 『III. Financial Affairs』

6. Other information for investment decision making

A. Significant accounting policies and estimation

- The Company applied the following major amended and enacted standards for the annual period beginning on January 1, 2021:

Amendments to Korean IFRS 1116, Lease

The amendments introduced a practical expediency that simplifies the lessee's accounting treatments for COVID-19 related rent concessions, and through such expediency a lessee may elect not to assess whether the rent concessions granted as a direct consequence of the COVID-19 pandemic are lease modifications. A lessee that makes this election shall account for any changes in lease payments resulting from the rent concessions the same way as prescribed by this standard if the changes were not considered as lease modifications. The application of the amendments does not have a significant impact on the Company's interim separate financial statements.

B. Environment and employees

- Refer to 『3. Matters related to sanctions』 in 『XI. Other information』 for environmental sanctions or administrative actions.
- No significant changes in employee positions during this period.

C. Legal regulations

- Refer to 『3. Matters related to sanctions』 in 『XI. Other information』 for major legal regulations on the Company's businesses.

D. Derivatives and risk management policy

- To manage exchange rate risk, overseas companies hedge by buying or selling currency forwards for a foreign currency position that is not among the companies' functional currencies.

- Refer to 『5. Risk management and derivative trading』 in 『II. Businesses Overview』 and 『3. Notes to Financial Statements』 in 『III. Financial Affairs』 for the Company's key derivatives and risk management policy.

V. Auditor's Report

1. Introduction

Deloitte Anjin conducted audits on the consolidated/separate financial statements of financial position of the Company as of December 31, 2021 and December 31, 2020, and Samil PwC conducted audits on the Company's consolidated/separate statements of financial position as at December 31, 2019, and the related consolidated/separate statements of profit or loss, comprehensive income, changes in equity and cash flows for the years then ended and expressed an unqualified opinion on those financial statements.

All of the Company's subsidiaries were expressed unqualified opinion for the years ended December 31, 2021, 2020, and 2019.

Period end	Company Auditor	Audit Opinion	Emphasis of Matter	Key Audit Matter(s)
Dec 31, 2021	Deloitte Anjin	Unqualified	Not applicable	(Consolidated) 1. Sales deduction related to the sales promotion activities of products (Separate) 1. Sales deduction related to the sales promotion activities of products
Dec 31, 2020	Deloitte Anjin	Unqualified	Not applicable	(Consolidated) 1. Sales deduction related to the sales promotion activities of products 2. Impairment of goodwill and intangible assets with indefinite useful lives (Separate) 1. Sales deduction related to the sales promotion activities of products
Dec 31, 2019	Samil PwC	Unqualified	Not applicable	(Consolidated) 1. Sales promotion activities related to the sale of products. 2. Impairment of goodwill and intangible assets with indefinite useful lives. 3. Appropriateness of depreciation expense cut-off on property, plant and equipment. (Separate) 1. Sales promotion activities related to the sale of products. 2. Appropriateness of depreciation expense cut-off on property, plant and equipment.

※ Audit opinion on both separate and consolidated financial statements.

< Review plan for the period ended December 31, 2021>

Review Period		Planned Dates
2021 1Q	Pre-review	Mar 8, 2021 ~ Mar 25, 2021
	Review	Apr 5, 2021 ~ May 14, 2021
2021 2Q	Pre-review	Jun 7, 2021 ~ Jun 25, 2021
	Review	Jul 5, 2021 ~ Aug 13, 2021
2021 3Q	Pre-review	Sep 6, 2021 ~ Sep 24, 2021
	Review	Oct 4, 2021 ~ Nov 12, 2021
Audit of IT systems and automated internal controls		Mar 16, 2021 ~ Jan 7, 2022
Early substantive audit procedures (annual audit)		Mar 8, 2021 ~ Dec 31, 2021
Audit of Internal Control over Financial Reporting ("ICFR")		Apr 5, 2021 ~ Jan 28, 2022
Update of early substantive audit procedures and audit of financial statements		Jan 3, 2022 ~ Feb 16, 2022

※ Above schedule is for the review of separate and consolidated financial statements

[Audit Contract Description] (KRW mil)

Fiscal Period	Auditor	Description	Contract		Actual	
			Audit fee	Total Hours	Fee Claimed	Hours spent
Year ended Dec 31, 2021	Deloitte Anjin	- Review of the interim separate/consolidated financial statements - Audit of separate/consolidated financial statements - Audit of Internal Control over Financial Reporting (ICFR)	7,900	76,741	7,900	76,999
Year ended Dec 31, 2020	Deloitte Anjin	- Review of the interim separate/consolidated financial statements - Audit of separate/consolidated financial statements - Audit of Internal Control over Financial Reporting (ICFR)	8,400	85,721	8,400	86,128
Year ended Dec 31, 2019	Samil PwC	- Review of the interim separate/consolidated financial statements - Audit of separate/consolidated financial statements - Audit of Internal Control over Financial Reporting (ICFR)	6,481	69,685	6,481	69,021

[Non-Audit Service Contract Description] (KRW mil)

Fiscal Period	Contract Date	Non-audit Service Description	Period for Service	Compensation	Note
Year ended Dec 31, 2021	Jun 2017	E-discovery advisory services	Jan – Dec 2021	394	Deloitte Anjin
Year ended Dec 31, 2020	Jun 2017	E-discovery advisory services	Jan – Dec 2020	59	Deloitte Anjin
Year ended Dec 31, 2019	Feb 2019	SOC 2 certification and other advisory services	Feb – Sep 2019	258	Samil PwC
	Oct 2019	Custom tax and other advisory services	Oct – Dec 2019	127	
	Subtotal			385	

[Details of internal audit committee's discussion with Auditors]

No.	Date	Participants	Method	Details of discussion
1	Jan 26, 2021	Audit Committee: 3 members Company: Head of Audit Team Auditor: Signing partner and 1 other	Face-to-face meeting	- Key Audit Matters and others audit focus areas - Progress of audit of Internal Control over Financial Reporting - Other required communications at the completion stage of the audit
2	Apr 27, 2021	Audit Committee: 3 members Company: Head of Audit Team Auditor: Signing partner and 1 other	Face-to-face meeting	- Yearly plan for communication with those charged with governance - Audit plan for the year ending December 31, 2021 - Discussion of quarterly review focus areas and independence of non-audit services
3	Jul 27, 2021	Audit Committee: 3 members Company: Head of Audit Team Auditor: Signing partner and 1 other	Face-to-face meeting	- Annual audit plan and its progress - Plan for the Key Audit Matters selection - Progress of audit of Internal Control over Financial Reporting - Discussion of quarterly review focus areas and other required communications
4	Oct 26, 2021	Audit Committee: 3 members Company: Head of Audit Team Auditor: Signing partner and 1 other	Face-to-face meeting	- Annual audit plan and its progress - Plan for the Key Audit Matters selection - Progress of audit of Internal Control over Financial Reporting - Discussion of quarterly review focus areas and other required communications
5	Jan 25, 2022	Audit Committee: 3 members Company: Head of Audit Team Auditor: Signing partner and 1 other	Face-to-face meeting	- Key Audit Matters and others audit focus areas - Progress of audit of Internal Control over Financial Reporting - Other required communications at the completion stage of the audit

2. Change of independent auditor

There are 228 subsidiaries as of December 31, 2021. Samsung Electronics Singapore Pte. Ltd. (SESP) and Samsung Electronics Industry and Commerce Ltd (SETK-P) newly appointed Deloitte, and Gf-System Co., Ltd. newly appointed Anjin as the external auditor. And Samsung Electronics Benelux B.V. (SEBN) have changed the external auditor to E&Y from Deloitte, and Dowinsys Co., Ltd to Anjin from Samduk, respectively. Appointment of auditor was decided at the entities' own discretion.

Upon termination of the contract with previous auditor, Samil PwC, Deloitte Anjin has been designated as the Company's external auditor for three years ending December 31, 2022, in accordance with periodic designation regulation of Article 11 (1) and (2) of the "Act on External Audit of Stock Companies, Etc.", Article 17 of the "Enforcement Decree of the Act on External Audit of Stock Companies, Etc.", and Article 10 and Article 15 (1) of "Regulations on External Audit and Accounting".

There were 241 subsidiaries as at December 31, 2020. For the year ending December 31, 2020, 6 domestic subsidiaries, including Samsung Display Co., Ltd., changed external auditor from Samil PwC to Deloitte Anjin, 24 overseas subsidiaries, including Samsung Electronics America, Inc. (SEA), changed PwC to Deloitte, and 2 overseas subsidiaries, Samsung Electronica da Amazonia Ltda. (SEDA) and Samsung Gulf Electronics Co., Ltd. (SGE), changed KPMG to Deloitte. These changes in external auditors were instituted to improve efficiency in audit of consolidated financial statements due to designation of the Company's external auditor.

Details of change in subsidiaries' external auditors are as follows:

Subsidiaries	Previous auditor	Current Auditor
Samsung Display Co., Ltd.	Samil PwC	Deloitte Anjin
Samsung Electronics Service Co., Ltd.	Samil PwC	Deloitte Anjin
Samsung Electronics Service CS Co., Ltd.	Samil PwC	Deloitte Anjin
Samsung Electronics Sales Co., Ltd.	Samil PwC	Deloitte Anjin
Samsung Electronics Logitech Co., Ltd.	Samil PwC	Deloitte Anjin
Mirero System Co., Ltd.	Samil PwC	Deloitte Anjin
Samsung Electronics America, Inc. (SEA)	PwC	Deloitte
Samsung Semiconductor, Inc. (SSI)	PwC	Deloitte
Samsung Mexicana S.A. de C.V (SAMEX)	PwC	Deloitte
Samsung International, Inc. (SII)	PwC	Deloitte
Samsung Austin Semiconductor LLC. (SAS)	PwC	Deloitte
Samsung Electronics Mexico S.A. De C.V. (SEM)	PwC	Deloitte
Samsung Electronics (UK) Ltd. (SEUK)	PwC	Deloitte
Samsung Electronics Holding GmbH (SEHG)	PwC	Deloitte
Samsung Semiconductor Europe GmbH (SSEG)	PwC	Deloitte
Samsung Electronics GmbH (SEG)	PwC	Deloitte
Samsung Electronics Benelux B.V. (SEBN)	PwC	Deloitte
Samsung Vina Electronics Co., Ltd. (SAVINA)	PwC	Deloitte
Samsung Asia Private Ltd. (SAPL)	PwC	Deloitte
Samsung Electronics Australia Pty. Ltd. (SEAU)	PwC	Deloitte
Thai Samsung Electronics Co., Ltd. (TSE)	PwC	Deloitte
Samsung Display Vietnam Co., Ltd. (SDV)	PwC	Deloitte
Samsung Electronics Vietnam Co., Ltd. (SEV)	PwC	Deloitte
Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	PwC	Deloitte
Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	PwC	Deloitte
Samsung (CHINA) Investment Co., Ltd. (SCIC)	PwC	Deloitte
Shanghai Samsung Semiconductor Co., Ltd. (SSS)	PwC	Deloitte
Samsung Electronics Saudi Arabia Ltd. (SESAR)	PwC	Deloitte
Samsung Electronics Turkey (SETK)	PwC	Deloitte
Samsung Electronics Rus Company LLC (SERC)	PwC	Deloitte
Samsung Eletronica da Amazonia Ltda. (SEDA)	KPMG	Deloitte
Samsung Gulf Electronics Co., Ltd. (SGE)	KPMG	Deloitte

The newly acquired subsidiary, TeleWorld Solutions, Inc.(TWS), appointed PwC as their external auditor. Appointment of auditor was decided at the entities' own discretion.

There were 240 subsidiaries as at December 31, 2019. The newly acquired entities during 2019, FOODIENT LTD. and Corephotonics Ltd. appointed PwC and E&Y, respectively, as the external auditor, and Zhilabs, S.L. appointed E&Y as the external auditor. The newly incorporated entities during 2019, Samsung Display Noida Private Limited (SDN) and Samsung Venture Capital Union SVIC No. 45 and No. 48 appointed PwC and KPMG, respectively, as the external auditor.

Appointment of auditors were decided at each newly acquired subsidiary's own discretion.

3. Regarding internal control

[Audit opinion of Internal Control over Financial Reporting (ICFR)]

Fiscal Period	Group Auditor	Opinion	Remarks
Year ended Dec 31, 2021	Deloitte Anjin	[Audit Opinion] The Company maintained, in all material respects, effective internal control over financial reporting As of December 31, 2021, based on *Conceptual Framework for Designing and Operating Internal Control over Financial Reporting*.	Not applicable
Year ended Dec 31, 2020	Deloitte Anjin	[Audit Opinion] The Company maintained, in all material respects, effective internal control over financial reporting As of December 31, 2020, based on *Conceptual Framework for Designing and Operating Internal Control over Financial Reporting*.	Not applicable
Year ended Dec 31, 2019	Samil PwC	[Audit Opinion] The Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on *Conceptual Framework for Designing and Operating Internal Control over Financial Reporting*.	Not applicable

VI. Corporate Governance

1. Board of Directors

A. Overview

The Board of Directors consisted of 11 directors, 5 of whom are Executive Directors (Ki-nam Kim, Hyun-suk Kim, Dong-jin Koh, Jong-hee Han, and Yoon-ho Choi) and 6 Independent Directors (Jae-wan Bahk, Sun-uk Kim, Byung-gook Park, Jeong Kim, Curie Ahn, and Han-jo Kim). The Board has appointed Jae-wan Bahk as Chairman as he will be able to mediate the different opinions of Directors and is most qualified to manage Board activities. The roles of Board Chairman and CEO have been separated to enhance the Board's independence and transparency.

The Board has six committees: Management Committee, Audit Committee, Independent Director Recommendation Committee, Related Party Transactions Committee, Compensation Committee, and Sustainability Committee (formerly Governance Committee).

[As of December 31, 2021]

Classification	Composition	Members	Head	Role
Board of Directors	5 Executive Directors	Ki-nam Kim, Hyun-suk Kim, Dong-jin Koh, Jong-hee Han, Yoon-ho Choi	Jae-wan Bahk (Independent)	- Make resolutions on matters provided for by the relevant laws and regulations or the Articles of Incorporation, matters delegated by a general meeting of shareholders, as well as on important matters concerning basic policies and business execution. - Supervise management.
	6 Independent Directors	Jae-wan Bahk, Sun-uk Kim, Byung-gook Park, Jeong Kim, Curie Ahn, Han-jo Kim		
Management Committee	5 Executive Directors	Ki-nam Kim, Hyun-suk Kim, Dong-jin Koh, Jong-hee Han, Yoon-ho Choi	Ki-nam Kim (Executive)	- Deliberate and decide on matters related to finance, general management, and on matters specifically delegated by the Board.
Audit Committee	3 Independent Directors	Jae-wan Bahk Sun-uk Kim Han-jo Kim	Jae-wan Bahk (Independent)	- Review and audit matters concerning management of the Company, including the Company's financial situation.
Independent Director Recommendation Committee	3 Independent Directors	Byung-gook Park Jeong Kim Curie Ahn	-	- Assess the independence, diversity, and ability of potential candidates for Independent Director positions. - Recommend candidates.
Related Party Transactions Committee	3 Independent Directors	Sun-uk Kim Jae-wan Bahk Han-jo Kim	Sun-uk Kim (Independent)	- Voluntarily comply with fair transaction regulations to enhance corporate transparency.
Compensation Committee	3 Independent Directors	Byung-gook Park Jae-wan Bahk Jeong Kim	Byung-gook Park (Independent)	- Ensure the objectivity and transparency of the decision-making process for Director compensation.
Sustainability Committee (formerly Governance Committee)	6 Independent Directors	Jae-wan Bahk, Sun-uk Kim, Byung-gook Park, Jeong Kim, Curie Ahn, Han-jo Kim	Jae-wan Bahk (Independent)	- Promote sustainability management in ESG areas and enhance shareholder value.

Mar 17, 2021: Ki-nam Kim, Hyun-suk Kim, and Dong-jin Koh were reappointed as Executive Directors; Byung-gook Park and Jeong Kim as Independent Directors; and Sun-uk Kim as Independent Director for Audit Committee member at the AGM.
Apr 9, 2021: Executive Director Ki-nam Kim was appointed as the Head of Management Committee
Apr 27, 2021: Independent Director Sun-uk Kim was appointed as the Head of Related Party Transactions Committee.
Jul 29, 2021: The Governance Committee was reorganized into the Sustainability Committee at the Board meeting.
Head of Independent Director Recommendation Committee will be appointed at the upcoming committee meeting.
Dec 22, 2021: Independent Director Byung-gook Park was appointed as the Head of Compensation Committee.
Dec 31, 2021: Yoon-ho Choi resigned from his position of Executive Director.

The number of Independent Directors and changes in the number are shown below.

Number of Directors	Number of Independent Directors	Changes of Independent Directors		
		Appointed	Dismissed	Resigned
11	6	3	-	-

Mar 17, 2021: Byung-gook Park and Jeong Kim were reappointed as Independent Directors; and Sun-uk Kim as Independent Director and Audit Committee member at the AGM

B. Agendas considered and voting results (2021)

Date	Agenda	Results	Executive Directors (attendance)					Independent Directors (attendance)					
			Ki-nam Kim (100%)	Hyun-suk Kim (100%)	Dong-jin Koh (100%)	Jong-hee Han (100%)	Yoon-ho Choi (88%)	Jae-wan Bahk (100%)	Sun-uk Kim (100%)	Byung-gook Park (100%)	Jeong Kim (100%)	Curie Ahn (100%)	Han-jo Kim (100%)
Jan 28	① Approval of 2020 financial statements and annual business report	Approved	For	For	For	For	For	For	For	For	For	For	For
	② Approval of shareholder return policy for 2021 to 2023	Approved	For	For	For	For	For	For	For	For	For	For	For
	※ Reported items: 1) Report on 2020 internal accounting management system activities 2) Report on evaluation of 2020 internal accounting management system activities												
Feb 16	① Decision to convene the 52nd AGM	Approved	For	For	For	For	For	For	For	For	For	For	For
	② Decisions on the 52nd AGM agenda items	Approved	For	For	For	For	For	For	For	For	For	For	For
	※ Reported Items: 1) 2020 annual audit report, 2) 2020 annual business report, 3) Report on 2020 internal accounting management system activities ※ Agenda item 1: Approval of 2020 financial statements, including balance sheet, income statement, and the statement of appropriation of retained earnings, etc. ※ Agenda item 2: Appointment of Directors 2-1: Appointment of Independent Directors 2-1-1: Appointment of Byung-gook Park as Independent Director 2-1-2: Appointment of Jeong Kim as Independent Director 2-2: Appointment of Executive Directors 2-2-1: Appointment of Ki-nam Kim as Independent Director 2-2-2: Appointment of Hyun-suk Kim as Executive Director 2-2-3: Appointment of Dong-jin Koh as Executive Director ※ Agenda item 3: Appointment of Sun-uk Kim as Independent Director for Audit Committee Member ※ Agenda item 4: Approval of remuneration limit for Directors												
	③ Approval of 2021 social contribution matching fund	Approved	For	For	For	For	For	For	For	For	For	For	For

Date	Agenda	Results	Executive Directors (attendance)					Independent Directors (attendance)					
			Ki-nam Kim (100%)	Hyun-suk Kim (100%)	Dong-jin Koh (100%)	Jong-hee Han (100%)	Yoon-ho Choi (88%)	Jae-wan Bahk (100%)	Sun-uk Kim (100%)	Byung-gook Park (100%)	Jeong Kim (100%)	Curie Ahn (100%)	Han-jo Kim (100%)
	④ Agreement on establishment and operation of SCC and revision of regulation	Approved	For	For	For	For	For	For	For	For	For	For	For
	⑤ Donation to Chung-nam Samsung Institute	Approved	-	For	For	For	For	For	For	For	For	For	For
	⑥ Contract with Samsung Biologics and Samsung Bioepis for use of Samsung CI	Approved	For	For	For	For	For	For	For	For	For	For	For
Mar 17	① Appointment of CEO	Approved	For	For	For	For	For	For	For	For	For	For	For
	② Appointment of Board committee members	Approved	For	For	For	For	For	For	For	For	For	For	For
	③ Remuneration limit of Directors	Approved	For	For	For	For	For	For	For	For	For	For	For
	④ Appointment of SCC member	Approved	For	For	For	For	For	For	For	For	For	For	For
	⑤ Application for product liability insurance	Approved	For	For	For	For	For	For	For	For	For	For	For
Apr 29	① Approval of 1Q21 interim business report and quarterly dividend	Approved	For	For	For	For	For	For	For	For	For	For	For
	② Charitable contributions	Approved	For	For	For	For	For	For	For	For	For	For	For
	③ Joining of the New Technology Investment Association	Approved	For	For	For	For	For	For	For	For	For	For	For
	④ Donation to incentive fund for DS Division's suppliers	Approved	For	For	For	For	For	For	For	For	For	For	For
Jul 29	① Approval of 2021 Half-year business report and quarterly dividend of 2Q21	Approved	For	For	For	For	For	For	For	For	For	For	For
	② Revision of Sustainability committee(formerly, Governance) Committee regulations	Approved	For	For	For	For	For	For	For	For	For	For	For
	③ Package insurance policy for Domestic operations	Approved	For	For	For	For	For	For	For	For	For	For	For
	④ Establishment of plans on safety and health	Approved	For	For	For	For	For	For	For	For	For	For	For
Oct 28	① Approval of 3Q21 interim business report	Approved	For	For	For	For	For	For	For	For	For	For	For
	② Participation in Samsung Heavy Industries' rights offering	Approved	For	For	For	For	For	For	For	For	For	For	For
	③ Joining of the New Technology Investment Association	Approved	For	For	For	For	For	For	For	For	For	For	For
	④ Sponsorship of the WorldSkills Competition	Approved	For	For	For	For	For	For	For	For	For	For	For
	⑤ Contribution to Joint Investment Technology Development Agreement Fund	Approved	For	For	For	For	For	For	For	For	For	For	For
Nov 30	① Approval of transaction with affiliate company	Approved	For	For	For	For	For	For	For	For	For	For	For
	② Payment of retirement pension plan	Approved	For	For	For	For	For	For	For	For	For	For	For
	③ Approval of business plan for 2022	Approved	For	For	For	For	For	For	For	For	For	For	For
	④ Contribution to Community Chest of Korea's annual fundraising campaign for 2022	Approved	For	For	For	For	For	For	For	For	For	For	For
	⑤ Contribution to UNDP sourced from Samsung Global Goals	Approved	For	For	For	For	For	For	For	For	For	For	For

Date	Agenda	Results	Executive Directors (attendance)					Independent Directors (attendance)					
			Ki-nam Kim (100%)	Hyun-suk Kim (100%)	Dong-jin Koh (100%)	Jong-hee Han (100%)	Yoon-ho Choi (88%)	Jae-wan Bahk (100%)	Sun-uk Kim (100%)	Byung-gook Park (100%)	Jeong Kim (100%)	Curie Ahn (100%)	Han-jo Kim (100%)
	※ Reported items: 1) Report on results of efficacy evaluation of compliance system 2) Report on results of the compliance review 3) Report on measures to establish compliance culture												
Dec 22	Appointment of Head of the Samsung Compliance Committee	Approved	For	For	For	For	Absent	For	For	For	For	For	For

Mar 17, 2021: Byung-gook Park and Jeong Kim were reappointed as Independent Directors; and Sun-uk Kim as Independent Director and Audit Committee member at the AGM.
*CEO Ki-nam Kim did not vote for the agenda for February 16, 2021 meeting '⑤ Donation to Chung-nam Samsung Institute', as it is a transaction between a Director and the Company in accordance with the Commercial Act and Ki-nam Kim has a special interest in the agenda item.
Dec 31, 2021: Yoon-ho Choi resigned from his position of Executive Director.

C. Committees

(1) Composition of Board Committees

[As of December 31, 2021]

Committee	Composition	Members	Responsibilities and authorities	Note
Management	5 Executive Directors	Ki-nam Kim (head), Hyun-suk Kim, Dong-jin Koh, Jong-hee Han, Yoon-ho Choi	See below	Appointment of Executive Director Ki-Nam Kim as the Head (April 9, 2021)
Related Party Transactions	3 Independent Directors	Sun-uk Kim (head), Jae-wan Bahk, Han-jo Kim		Appointment of Independent Director Sun-Uk Kim as the Head (April 27, 2021)
Compensation	3 Independent Directors	Byung-gook Park(head), Jae-wan Bahk, Jeong Kim		Appointment of Independent Director Byung-gook Park as the Head (December 22, 2021)
Sustainability (formerly Governance)	6 Independent Directors	Jae-wan Bahk (head), Sun-uk Kim, Byung-gook Park, Jeong Kim, Curie Ahn, Han-jo Kim		-

The Audit Committee and Independent Director Recommendation Committee were excluded according to Corporate Disclosure Guidelines.

Jul 29, 2021: The Governance Committee was reorganized into the Sustainability Committee at the Board meeting
Dec 22, 2021: Independent Director Byung-gook Park was appointed as the Head of Compensation Committee.
Dec 31, 2021: Yoon-ho Choi resigned from his position of Executive Director.

(The Management Committee)

Responsibilities: The Management Committee deliberates and decides on matters specified by Board regulations and resolutions or specifically delegated by the Board. The composition and operation of the management committee are determined by the Board.

- Authorities:

(A) General management

1. Annual or mid to long-term management policy and strategy
2. Key management strategy
3. Business planning and restructuring
4. Establishment, relocation, and withdrawal of overseas branch and corporation
5. Initiating cooperation such as strategic partnership with foreign companies
6. Acquisition or disposal of domestic and overseas subsidiaries
   (provided that the value of transaction exceeds 0.1% of total equity)
7. Other major management matters
8. Establishment, relocation, and withdrawal of branches and operations
9. Appointment or dismissal of supervisors
10. Suspension or shutdown of production over 5% of the total production in the recent year
11. Licensing agreements and technology transfer, partnership in regards to technology of over 0.5% of the total equity
12. Acquisitions and transfers of patents related to new material and new technology of over 0.5% of the total equity
13. Collection and destruction of products corresponding to over 5% of the total sales in the recent business year
14. Contracting for over 5% of the total sales in the recent business year
15. Contracting or canceling of single sales agency and suppliers over 5% of the total sales in the recent business year
16. Establishment of basic principles of organization management
17. Decision making on basic principles and any changes related to wages, bonus, and fringe benefits
18. Appointments, dismissals and changes of transfer agent
19. Closing of shareholder register and setting reference date
20. Establishment of corporate guidelines for business and management related activities

(B) Matters related to Finance

1. Acquisitions or disposals of equity investments with a value no less than 0.1% and less than 2.5% of the total equity
2. Direct overseas investments with a value no less than 0.1% and less than 2.5% of the total equity
3. New debt guarantee (excluding extension of period) or collateral issuance with a value no less than 0.1% and less than 2.5% of the total equity
   A. Collateral: Only in the case of providing collateral for others
   B. Guarantee: Excludes performance guarantee (eg, bid, contract, defect, difference guarantee) and tax payment guarantee
4. New credit agreement contract (excluding extension of period) with a value no less than 0.1% and less than 5% of the total equity
5. Approval of related party transactions:
   Related party transactions with affiliates involving cash (loans and payments), equity (stocks and bonds) or assets (such as real estate and intangible property rights) with a value between KRW 3 billion and/or less than KRW 5 billion, as defined in the Monopoly Regulation and Fair Trade Act
   ※ Excluding cases where existing contracts are renewed without significant change.
6. Issuance of corporate bonds
7. Acquisition and disposal of real estate with a value of over 0.1% of the total equity, provided that the transaction is with a third party
8. Any matters that the CEO deems necessary and important for the business (eg, capex)

(C) All other matters except for those delegated to the Board and other committees in accordance with Board regulations

(Related Party Transactions Committee)

- Responsibilities: Improve management transparency through the establishment of a voluntary compliance system
- Authorities:

1. Right to receive reports on related party transactions:
   The Committee can request reports on related party transactions with affiliates
   ※ According to the Monopoly Regulation and Fair Trade Act, the Related Party Transactions committee is permitted to conduct preliminary reviews and approves on related party transactions over KRW 5 billion and other transactions that are deemed as significant
2. Right to order ex officio investigation of related party transactions
3. Right to propose corrective measures for related party transactions

(Compensation Committee)

- Responsibilities: Provide transparent and objective decision making process related to remuneration of directors
- Authorities:

1. Propose remuneration limit of directors at AGM
2. Establish the director remuneration system
3. Other matters delegated by the Board

(Sustainability Committee)

- Responsibilities: Promote sustainability management in ESG areas and enhance shareholder value
- Authorities:

1. Matters related to corporate sustainability management
   - Key strategies and policies on sustainability management
   - Report on key activities for sustainability management including environment, society, and governance
   - Plans for publishing the Company's Sustainability Report
2. Matters related to shareholder value enhancement
   - Preliminary review on shareholder return policies
   - Report on key issues related to shareholder rights and interests
   - Other matters that may significantly impact sustainability management and shareholder value that are deemed necessary for the Committee to discuss
3. Establishment, composition, operation of organizations under the committee including research groups, councils, etc.
4. Other matters delegated by the Board

(2) Committee Activities

☐ The Management Committee (2021)

Date	Agenda	Voting results	Director (attendance)				
			Ki-nam Kim (100%)	Hyun-suk Kim (100%)	Dong-jin Koh (100%)	Jong-hee Han (100%)	Yoon-ho Choi (89%)
Jan 6	① Investment in memory business	Approved	For	For	For	For	For
Feb 5	① Investment in memory business	Approved	For	For	For	For	For
	② Investment in R&D	Approved	For	For	For	For	For
	③ Establishment of overseas subsidiary	Approved	For	For	For	For	For
	④ Contract agreement for using Samsung CI	Approved	For	For	For	For	For
Mar 5	① Investment in memory business	Approved	For	For	For	For	For
	② Investment in foundry business	Approved	For	For	For	For	For
Apr 9	① Appointment of the Head of Management Committee	Approved	For	For	For	For	For
	② Investment in memory business	Approved	For	For	For	For	For
May 7	① Investment in foundry business	Approved	For	For	For	For	For
	② Licensing agreement	Approved	For	For	For	For	For
Jun 18	① Investment in memory business (Pyeongtaek)	Approved	For	For	For	For	For
	② Investment in memory business	Approved	For	For	For	For	For
	③ Investment in foundry business (Hwaseong)	Approved	For	For	For	For	For
	④ Investment in foundry business (Pyeongtaek)	Approved	For	For	For	For	For
	⑤ Investment in foundry business	Approved	For	For	For	For	For
	⑥ Change of trademark royalty	Approved	For	For	For	For	For
Jul 29	① Investment in DS division	Approved	For	For	For	For	For
Oct 8	① Investment in memory business	Approved	For	For	For	For	For
	② Investment in memory business (Pyeongtaek)	Approved	For	For	For	For	For
Dec 30	① Licensing agreement	Approved	For	For	For	For	Absent

☐ The Related Party Transactions Committee (2021)

Date	Agenda	Voting results	Directors (attendance)		
			Sun-uk Kim (100%)	Jae-wan Bahk (100%)	Han-jo Kim (100%)
Jan 26	① Report on 4Q20 related party transactions	-	-	-	-
Feb 10	① Prior review on large-scale related party transactions 1) Contract agreement with Samsung Biologics and Samsung Bioepis for using Samsung CI	-	-	-	-
Mar 12	① Prior review on large-scale related party transactions 1) Application for product liability insurance	-	-	-	-
Apr 27	① Appointment of the Head of Related Party Transactions Committee	Approved	For	For	For

Date	Agenda	Voting results	Directors (attendance)		
			Sun-uk Kim (100%)	Jae-wan Bahk (100%)	Han-jo Kim (100%)
	② Prior review on large-scale related party transactions 1) Charitable contribution 2) Application for New Technology Investment Association ③ Report on 1Q21 related party transactions	- -	- -	- -	- -
Jul 27	① Prior review on large-scale related party transactions 1) Package insurance policy for Domestic operations ② Report on 2Q21 related party transactions	- -	- -	- -	- -
Oct 26	① Prior review on large-scale related party transactions 1) Participation in Samsung Heavy Industries' rights offering 2) Joining of the New Technology Investment Association ② Report on 3Q21 related party transactions	-	-	-	-
Nov 26	① Prior review on large-scale related party transactions 1) Payment of retirement pension plan 2) Approval of 2022 large-scale product and service transactions	-	-	-	-

☐ The Compensation Committee (2021)

Date	Agenda	Voting results	Directors (attendance)		
			Byung-gook Park (100%)	Jae-wan Bahk (100%)	Jeong Kim (100%)
Feb 10	① Review of fixed annual income for each Executive Director in 2021 ② Review on 2021 remuneration limit for Directors	Approved Approved	For For	For For	For For
Dec 22	① Appointment of head of the Committee ② Review on special bonus for Executive Directors in 2021	Approved Approved	For For	For For	For For

☐ The Sustainability Committee (2021)

Date	Agenda	Voting results	Directors (attendance)					
			Jae-wan Bahk (100%)	Sun-uk Kim (100%)	Byung-gook Park (100%)	Jeong Kim (100%)	Curie Ahn (100%)	Han-jo Kim (100%)
Jan 26	① Prior review on the shareholder return policy for 2021 to 2023	Approved	For	For	For	For	For	For

Date	Agenda	Voting results	Directors (attendance)					
			Jae-wan Bahk (100%)	Sun-uk Kim (100%)	Byung-gook Park (100%)	Jeong Kim (100%)	Curie Ahn (100%)	Han-jo Kim (100%)
	※ Reporting Item 1) Reporting on current status of IR							
Apr 29	※ Reporting Item 1) Reporting on current status of IR 2) Report on plans for publishing Sustainability Report	-	-	-	-	-	-	-
Jul 29	※ Reporting Item 1) Reporting on current status of IR 2) Operation of the Sustainability Committee	-	-	-	-	-	-	-
Oct 28	※ Reporting Item 1) Reporting on current status of IR 2) Operation of the Sustainability Committee	-	-	-	-	-	-	-

Jul 29, 2021: The Governance Committee was reorganized into the Sustainability Committee at the Board meeting.

D. Director independence

(1) Appointment of Directors

The Board nominates Executive Director candidates and the Independent Director Recommendation Committee nominates Independent Director candidates. Directors are then appointed at the general meeting.

A candidate for Director needs to meet the requirements of relevant laws and the Articles of Incorporation. Executive Directors are appointed based on his or her expertise and leadership among a list of candidates that is constantly updated. Independent Directors should have no material interests with the Company and its major shareholder, possess knowledge and experience in IT, accounting, finance, law, economics, EHS, etc., and be able to fulfill the roles and responsibilities of supervising management from an independent position. The company has not set separate standards with respect to the independence of Directors besides the requirements in relevant laws and the Article of Incorporation.

Please refer to 『VIII. Executives and Employees』 for more information about the career of each Director.

The Board submits shareholders' proposal for appointment of Directors at the general shareholder meeting as a separate agenda if the proposal satisfies related laws and regulations.

The composition of the Board of Directors, as appointed by shareholders, is as follows:

[As of December 31, 2021]

Position	Name	Term (No. of reappointments)	Reasons for appointment	Nominator	Responsibility	Transaction with the Company	Relationship with the Company's major shareholders
Executive Director (CEO)	Ki-nam Kim	Mar 2018 – Mar 2024 (1)	Director Ki-nam Kim has built expertise based on his experience as the president of Samsung Advanced Institute of Technology, head of the memory business, and president of the semiconductor business. He will play a critical role in solidifying leadership of the component business despite growing external uncertainty.	The Board	CEO, President of Samsung Advanced Institute of Technology	N/A	Related party
Executive Director (CEO)	Hyun-suk Kim	Mar 2018 – Mar 2024 (1)	Director Hyun-suk Kim is an expert in display R&D and played a crucial role in positioning the company as the leader in the global TV market. He will use this successful experience in other businesses such as the home appliance business to create synergies within the CE division.	The Board	CEO, Person in charge of Emerging Technology	N/A	Related party
Executive Director (CEO)	Dong-jin Koh	Mar 2018 – Mar 2024 (1)	Director Dong-jin Koh is an expert in mobile R&D and has contributed in advancing our mobile business with the galaxy lineup. He will play a critical role in becoming a first mover in the stagnant yet competitive smartphone market.	The Board	CEO, Person in charge of HR innovation	N/A	Related party

Position	Name	Term (No. of reappointments)	Reasons for appointment	Nominator	Responsibility	Transaction with the Company	Relationship with the Company's major shareholders
Executive Director	Jong-hee Han	Mar 2020 – Mar 2023 (None)	Director Jong-hee Han is an expert in display R&D and played a leading role in continuously achieving the top position in global TV market. He will contribute to further solidifying leadership in TV market amid intensifying competition by using his excellent business capabilities.	The Board	Head of DX Division, Head of Visual Display Business	N/A	Related party
Executive Director	Yoon-ho Choi	Mar 2020 – Mar 2023 (None)	Director Yoon-ho Choi is a finance expert and contributed to enhancing synergy among businesses in SEC. He will contribute to efficient and stable management of the Company by capitalizing on his capabilities in risk management amid uncertain global economy.	The Board	General management	N/A	Related party
Independent Director	Jae-wan Bahk	Mar 2016 – Mar 2022 (1)	Director Jae-wan Bahk is an expert in finance and public sector with abundant experience relative to state affairs and policy design. He can contribute to objective supervision of the management and the Board's strategic decisions.	Independent Director Recommendation Committee	Chairman of the Board	N/A	N/A
Independent Director	Sun-uk Kim	Mar 2018 – Mar 2024 (1)	Director Sun-uk Kim is a legal expert and has experience as a professor at a school of law and the Legislation Minister. She can present a new perspective to the Board based on objective and juridical reasoning.	Independent Director Recommendation Committee	Overall management	N/A	N/A
Independent Director	Byung-gook Park	Mar 2018–Mar 2024 (1)	Director Byung-gook Park is a professor at electrical engineering and an expert in flash memory. He will play a crucial role in strengthening expertise of the Board.	Independent Director Recommendation Committee	Overall management	N/A	N/A
Independent Director	Jeong Kim	Mar 2018 – Mar 2024 (1)	Director Jeong Kim is an IT expert and an entrepreneur. He will contribute to the Board's strategic decisions by utilizing his expertise, wide network, and business capability.	Independent Director Recommendation Committee	Overall management	N/A	N/A
Independent Director	Curie Ahn	Mar 2019 – Mar 2022 (None)	Director Curie Ahn is a medical expert who has been working for the marginalized and public good. Director Ahn will help address the increasingly important EHS issues, improving social communication and achieving sustainable growth.	Independent Director Recommendation Committee	Overall management	N/A	N/A

Position	Name	Term (No. of reappointments)	Reasons for appointment	Nominator	Responsibility	Transaction with the Company	Relationship with the Company's major shareholders
Independent Director	Han-jo Kim	Mar 2019 – Mar 2022 (None)	Director Han-jo Kim has built expertise in finance and business management through his experience as a President of Korea Exchange Bank and now serves as the chairman of a social contribution foundation. He will contribute to the Company by providing valuable insight on overall business issues and by utilizing expertise in finance, co-growth, etc.	Independent Director Recommendation Committee	Overall management	N/A	N/A

Relationship with Company's major shareholders is in accordance with Article 542-8 of the Commercial Act.
Mar 17, 2021: Executive Directors Ki-nam Kim, Hyun-suk Kim, and Dong-jin Koh were reappointed as CEOs; Byung-gook Park and Jeong Kim as Independent Directors; and Sun-uk Kim as Independent Director and Audit Committee member at the AGM.
Dec 31, 2021: Yoon-ho Choi resigned from his position as Executive Director.
Feb 15, 2022: Executive Directors Ki-nam Kim, Hyun-suk Kim, and Dong-jin Koh resigned from their positions as CEO; and Executive Director Jong-hee Han was appointed as CEO at the Board meeting.

(2) Independent Director Recommendation Committee

The Independent Director Recommendation Committee assesses the independence and ability of potential candidates and recommends selected candidates to be appointed at the annual general meeting of shareholders. As of the reporting date (December 31, 2021), the committee is composed of three Independent Directors (Byung-gook Park, Jeong Kim, and Curie Ahn) based on related laws that states more than a majority of members should be independent directors in accordance with clause 4 of Article 542-8 of the Commercial Law.

Date	Agenda	Voting results	Directors (attendance)		
			Jeong Kim (100%)	Byung-gook Park (100%)	Curie Ahn (100%)
Jan 28	① Decision on date of Independent Director candidate recommendation	Approved	For	For	For
Feb 10	① Recommendation of Independent Director candidate	Approved	For	For	For
	② Recommendation of Independent Director for Audit Committee candidate	Approved	For	For	For

(3) Expertise of Independent Directors

1) Support team for Independent Directors

[As of December 31, 2021]

Team	Number of employees	Position (total years served/ years in support team)	Key activities
HR	5	Executive Vice President: 1 person (31 years and 1 month / 3 years) Executive Vice President: 1 person (27 years and 10 months / 1 year and 11 months) Principal Professional: 1 person (18 years and 11 months / 2 year and 5 months) Senior Professional: 2 persons (average: 12 years and 8 months / 3 years	· Support operation of annual shareholders' meeting, Board meetings, and Committee meetings · Support education for Independent Directors and their activities · Establish database on Director candidates · Provide information for resolution process to each Directors · Administrative work for meetings · Record meeting agendas for the Board and committee meetings

2) Education programs to provide updates on key management issues for Independent Directors

① Inspection of domestic and overseas business sites

Date	Organizer	Participants	Reasons for absence	Education contents
Aug 16, 2019 – Aug 23, 2019	HR team and management team of the region where the inspection takes place	Jae-wan Bahk, Sun-uk Kim, Byung-gook Park, Jeong Kim, Curie Ahn, Han-jo Kim	N/A	On-site inspection to check business operations

② Orientation for newly appointed Independent Directors

Date	Organizer	Participants	Reasons for absence	Education contents
Mar 20, 2019	HR team	Curie Ahn, Han-jo Kim	N/A	Key issues regarding Board activities and management
Apr 30, 2019	HR team and relevant management team	Curie Ahn, Han-jo Kim	N/A	Key issues regarding Board activities and management
Jul 30, 2019	HR team and relevant management team	Curie Ahn, Han-jo Kim	N/A	Key issues regarding Board activities and management

③ Orientation for Independent Directors

Date	Organizer	Participants	Reasons for absence	Education contents
Jan 30, 2019	Support Team	In-ho Lee, Kwang-soo Song, Jae-wan Bahk, Sun-uk Kim, Byung-gook Park, Jeong Kim	N/A	Business plans for 2019
Jan 31, 2019	Network business	In-ho Lee, Kwang-soo Song, Jae-wan Bahk, Sun-uk Kim, Byung-gook Park, Jeong Kim	N/A	Briefing on 5G technology and tour of production lines
Nov 27, 2020	Planning Team	Jae-wan Bahk, Sun-uk Kim, Byung-gook Park, Jeong Kim, Curie Ahn, Han-jo Kim	N/A	Changing environment in post-COVID-19 era and mid- to long-term strategy

2. Audit System

A. Profiles of Audit Committee members

As of December 31, 2021, SEC operates an Audit Committee consisting of three Independent Directors. Directors Jae-wan Bahk (head) and Han-jo Kim qualify as experts in finance in accordance with relevant regulations.

Name	Major experience	Accounting/financial expertise[1]	
		Classification	Relevant experience
Jae-wan Bahk (Head)	· 2020–present: Professor Emeritus, Department of Public Administration Graduate School of Governance at Sungkyunkwan University · 1996–2020: Professor, Department of Public Administration & Graduate School of Governance, Sungkyunkwan University · 2016–present: Independent Director, Lotte Shopping · 2014–present: Chief Director, Hansun Foundation · 2011–2013: Minister of Strategy and Finance · 2010–2011: Minister of Employment and Labor · 2004–2008: Member of the 17th National Assembly	Type 2[2]	· 1996–2020: Professor of Public Administration, Sungkyunkwan University · 1992: Gained Ph.D. in Financial Administration
Sun-uk Kim	· 2018–present: Professor Emeritus, School of Law, Ewha Womans University · 1995–2018: Professor, Ewha Law School, Ewha Womans University · 2010–2014: President, Ewha Womans University · 2005–2007: Minister of Government Legislation	–	–
Han-jo Kim	· 2019–2021: CEO/Rep Director, Hana Foundation · 2015–2019: CEO/Rep Director, Hana Nanum Foundation · 2015–2016: Vice Chairman, Hana Financial Group · 2014–2015: President, Korea Exchange Bank · 2013–2014: President, KEB Capital Inc.	Type 4[3]	· 2015–2016: Vice Chairman, Hana Financial Group · 2014–2015: President, Korea Exchange Bank · 2013–2014: President, KEB Capital · 2012–2013: Head of Corporate Business Group, Korea Exchange Bank · 1999–2002, 2004–2005: Head of Branch, Korea Exchange Bank

1) Defined in Public Disclosure Guideline and Article 37-2 of the Enforcement Decree of the Commercial Act
2) Holds at least a master's degree in accounting or finance and who has worked for a research institute or university at least as a researcher or an assistant professor in accounting or finance for an aggregate of at least five years
3) Experience at financial, government, securities-related organizations in charge of accounting or finance or in charge of supervision over accounting or finance for an aggregate of at least five years

B. Audit Committee independence

Pursuant to related laws and the Articles of Incorporation, SEC has prepared internal audit regulations which encompass composition, operation, authority, and responsibility of the Audit Committees to carry out audit related activities.

The Audit Committee is exclusively composed of Independent Directors recommended by the Board and appointed at the general shareholder meeting. Currently, it includes financial experts Jae-wan Bahk (head) and Han-jo Kim and legal expert Sun-uk Kim. Committee members do not have any relation to the Company's major shareholders that may undermine the independence of the Committee. Also, the Audit Committee satisfies requirements of relevant laws (eg, the stipulation that the role of head of the committee be held by an Independent Director).

Requirements	Requirement status	Applicable acts, etc.
The audit committee shall consist of at least three directors.	Satisfied: the committee consists of three Directors	Article 415-2 (2) of the Commercial Act, Article 2 of the Company's Audit Committee Regulation
The ratio of independent directors shall exceed two thirds of the total number of members.	Satisfied: all members are independent directors)	
At least one member of the committee shall be an accounting or financing expert.	Satisfied: Jae-wan Bahk; Han-jo Kim	Article 542-11 (2) of the Commercial Act, Article 3 of the Company's Audit Committee Regulation
The representative of the committee shall be an Independent Director.	Satisfied: Independent Director Jae-wan Bahk	
Other conditions (related party of the major shareholder, etc.)	Satisfied (n/a)	Article 542-11 (3) of the Commercial Act

[As of December 31, 2021]

Name	Term (No. of reappointments)	Reasons for appointment	Nominator	Relationship with the Company	Relationship with the Company's major shareholders	Concurrent positions
Jae-wan Bahk (Head)	Mar 2019–Mar 2022 (-)	Expertise in finance and public sector and abundant experience in state affairs and policy design. He can contribute to the committee's activities by offering an objective perspective.	Independent Director Recommendation Committee	N/A	N/A	Independent Director Lotte Shopping, Co., Ltd 2016~
Sun-uk Kim	Mar 2018–Mar 2024 (1)	Based on the legal expertise and experience running organizations in areas including administration, finance, international affairs, etc., she can carry out the duties in an aboveboard manner with strict standards.	Independent Director Recommendation Committee	N/A	N/A	-
Han-jo Kim	Mar 2019–Mar 2022 (-)	An expert in finance with broad experience, he offers impartial judgement on overall management activities while carrying out his duties	Independent Director Recommendation Committee	N/A	N/A	-

Relationship with the Company and Company's major shareholders is in accordance with Article 542-8 of the Commercial Act.

The Audit Committee reviews accounting documents including financial statements and audit process related documents presented by the external auditor, and if needed, requests the external auditor to perform additional reviews on accounting books and records. To ensure the reliability of accounting related disclosures, the audit committee receives and reviews a report on internal accounting control systems prepared by internal accounting managers. In addition, the Committee attends the Board meetings and other significant meetings. The Committee receives reports on deliberations of the Management Committee and on business performance from Directors and requests additional reviews and supplementation of data as needed.

C. Major activities of the Audit Committee (2021)

Date	Agenda	Voting results	Directors (attendance)		
			Jae-wan Bahk (100%)	Sun-uk Kim (100%)	Han-jo Kim (100%)
Jan 26	- Report on 2020 internal accounting management system activities	-	-	-	-
	- Report on evaluation of 2020 internal accounting management system activities	-	-	-	-
	- Communication between external auditor and audit committee	-	-	-	-
	- Report on 2020 financial statement and business report	-	-	-	-
	- Report on 4Q20 non-audit activities	-	-	-	-
	- Report on 4Q20 external contributions	-	-	-	-
	- Report on 2020 audit activities	-	-	-	-
Feb 10	- Review of the 52nd AGM agenda	-	-	-	-
	- Report on activities of internal compliance system in 2020	-	-	-	-
Apr 27	- Communication between external auditor and audit committee	-	-	-	-
	- Decision on the terms and conditions of the audit contract with the designated external auditor	Approved	For	For	For
	- Report on 1Q21 interim business report	-	-	-	-
	- Report on 1Q21 non-audit activities	-	-	-	-
	- Report on plans for reviewing 2021 internal accounting management system activities	-	-	-	-
	- Report on 1Q21 external contributions	-	-	-	-
	- Report on plans for evaluating 2020 internal accounting management system activities	-			
Jul 27	- Communication between external auditor and audit committee	-	-	-	-
	- Report on 2021 half-year business report	-	-	-	-
	- Report on 2Q21 non-audit activities	-	-	-	-
	- Interim report on 2021 internal accounting management system activities	-	-	-	-
	- Report on 2Q21 external contributions	-	-	-	-
	- Report on 1H21 audit activities	-	-	-	-
	- Interim report on evaluation of 2021 internal accounting management system activities	-	-	-	-
	- Report on evaluation of 2020 external audit activities	-	-	-	-
Oct 26	- Communication between external auditor and audit committee	-	-	-	-
	- Report on 3Q21 interim business report	-	-	-	-
	- Report on 3Q21 non-audit activities	-	-	-	-
	- Report on 3Q21 external contributions	-	-	-	-

D. Education programs for the Audit Committee

In accordance with the working guide for internal accounting management system, we are conducting additional training to ensure the expertise of the Audit Committee. Organized by external experts, finance team, and audit team, education on changes to internal control, internal accounting management system is provided more than once a year.

E. Previous education sessions

Date	Organizer	Participants	Reasons for absence	Education contents
Apr 29, 2019	Audit team Finance team HR team External experts	Jae-wan Bahk Sun-uk Kim Han-jo Kim	N/A	Introduction materials
Jul 30, 2019	External experts	Jae-wan Bahk Sun-uk Kim Han-jo Kim	N/A	Internal accounting management system
Jul 28, 2020	External experts	Jae-wan Bahk Sun-uk Kim Han-jo Kim	N/A	Internal accounting management system
Jul 27, 2021	External experts	Jae-wan Bahk Sun-uk Kim Han-jo Kim	N/A	Internal accounting management system

F. Support team for the Audit Committee

[As of December 31, 2021]

Team	Composition	Service years on team	Major tasks
Audit team	1 Executive Vice President, 2 Principal Professionals 1 Senior Professional	Executive Vice President: 2 Years Principal professional: 3 years 10 months (average) Senior Professional: 2 years 9 months	Support the Audit Committee
Internal accounting assessment support group	1 Vice President, 1 Lawyer, 1 Senior Professional	Vice President: 3 years Lawyer: 9 months Senior Professional: 11 months	Support assessment of the internal accounting management system

G. Compliance Officer

[As of December 31, 2021]

1. Personal information and major career	**Name**	Duk-ho Ahn
	Date of birth	July 1968
	Sex	Male
	Current position	Corporate Compliance Team leader at Samsung Electronics (Jan 2020–present)
	Career	- Jan 2020: Head of Compliance Team, SEC (Executive Vice President) - Nov 2017: Head of Legal Support Team, SEC DS Division (Executive Vice President) - Apr 2017: Head of Legal Support Team, SEC DS Division (Senior Vice President) - Dec 2010: Office of Compliance Management, SEC (Senior Vice President) - Mar 2006: Office of Legal Affairs, SEC (Vice President) - Mar 2005: Office of Legal Affairs, Samsung Restructuring Head Office (Vice President) - 1997–2005: Judge at the Seoul District Court, Seoul Administration Court
	Academic background	Bachelor's Degree in Law (Seoul National University)
2. Date of Board resolution		Jan 30, 2020
3. Disqualifications		N/A
4. Others		N/A

Compliance officer meets the eligibility requirement (lawyer) stated in Article 542-13 (5) of the Commercial Act.

H. Major compliance activities

The Company conducts compliance assessments on a regular and ad-hoc basis and reflects the results in the Company's business activities to improve compliance of the Company and its employees.

Date	Assessment subject	Assessment area	Results
Feb 2021	Violation risk of competitors' business secrets	Business secrets	Overall result was satisfactory. Internal policies were followed in areas where there was room for improvement.
	Industrial health and safety risk	Environment & safety	
Mar 2021	Compliance of domestic and overseas third-party production customers	Technology leak, product liability, etc.	
Apr 2021	Monitoring external contributions and related party transaction risks	Anti-corruption, fair transaction	
Jun 2021	Voluntary compliance of overseas subsidiaries	Status of compliance program	
	Online compliance of overseas sales subsidiaries	Fair transaction, business secrets, etc.	
	Compliance of domestic and overseas third-party production customers	Technology leak, product liability, etc.	
Aug 2021	Monitoring external contributions and related party transaction risks	Anti-corruption, fair transaction	
	Compliance of subsidiaries	Business secrets, personal information, etc.	
Sep 2021	Compliance of domestic sales & marketing organizations	Fair transaction, business secrets, etc.	
	Online compliance of overseas sales subsidiaries	Fair transaction, business secrets, etc.	
	Compliance of domestic and overseas third-party production customers	Technology leak, product liability, etc.	
Oct 2021	Violation of equipment company's business secrets	Business secrets	
	Industrial health and safety risk	Environment & safety	
	Monitoring external contributions and related party transaction risks	Anti-corruption, fair transaction	
Nov 2021	Compliance of patent application process	Technology misuse, business secrets, etc.	
	Compliance of subsidiaries	Business secrets, personal information, etc.	
	Online compliance of overseas sales subsidiaries	Fair transaction, business secrets, etc.	
Dec 2021	Compliance of domestic and overseas third-party production customers	Technology leak, product liability, etc.	

Assessment conducted in the final month of each quarter.
Each assessment was conducted on selected organizations.

I. Support team for the Compliance Officer

[As of December 31, 2021]

Team	Composition	Service years (average)	Major tasks
Compliance team, etc.	1 Executive Vice President 3 Vice Presidents 14 Principal Professionals 12 Lawyers 33 Senior Professionals 7 Professionals (Total: 70)	Executive Vice President (1 month) Vice Presidents (5 years 3 months) Principal Professionals (7 years 9 months) Lawyers (4 years and 2 months) Senior Professionals (5 years and 1 months) Professionals (1 year and 7 months)	Supports activities of the Compliance Officer

3. General meeting of shareholders

A. Voting method

As of December 31, 2021, the Company has not adopted cumulative voting or paper voting and has adopted electronic voting, which was used at the 52nd AGM on March 17, 2021.
On January 30, 2020, the Board resolved to adopt electronic voting to enhance convenience in exercising voting rights for shareholders in accordance with Article 368-4 (Exercise of Voting Rights by Electronic Means) of the Commercial Act. E-voting has been used at every AGM since it was introduced at the 51st AGM on March 18, 2020.
The convocation notice of general meeting of shareholders includes the information that voting rights can be exercised electronically. Owners of shares as of the last day of every settlement term can exercise their voting rights via the electronic voting system of Korea Securities Depository ten days prior to general meeting date until the day before the meeting, without being present at the meeting.

[As of December 31, 2021]

Classification	Cumulative voting	Paper voting	Electronic voting
Adoption	Excluded	Not adopted	Adopted
Implementation	-	-	52nd AGM (2020)

The Company as of the reporting date employs proxy voting and it contacts shareholders directly to recommend delegating voting rights, contacts shareholders by mail or email, and also made a power of attorney form available on the Company website.

B. Minority shareholder rights

No minority shareholder rights were exercised during the reporting period.

C. Competition over management rights

No competition over management rights occurred during the reporting period.

D. Voting shares

As of December 31, 2021, SEC has 5,969,782,550 issued shares of common stock, and 822,886,700 issued shares of preferred stock with no voting rights. There are 597,491,116 shares of common stock with limited voting rights under relevant laws. Thus, the total number of shares with full voting rights is 5,372,291,434.

[As of December 31, 2021]

Classification	Share type	Number of shares	Note
Number of issued shares (A)	Common	5,969,782,550	-
	Preferred	822,886,700	-
Shares with no voting rights (B)	Common	-	-

Classification	Share type	Number of shares	Note
Shares with no voting rights according to Articles of Incorporation (C)	Preferred	822,886,700	-
Shares with limited voting rights under relevant laws (D)	Common	596,959,200[1)]	508,157,148 shares held by Samsung Life Insurance & 88,802,052 shares held by Samsung Fire & Marine Insurance
	Preferred	531,916	Restricted by the Insurance Business Act: Shares held by Samsung Life Insurance in certain special accounts
Shares with voting rights (F = A - B - C - D)	Common	5,372,291,434	-
	Preferred	-	-

1) Pursuant to Korea's Monopoly Regulation and Fair Trade Act, owners can exercise certain rights on some shares in accordance with related laws, including the right to vote on agendas such as the appointment or dismissal of directors and revisions to the Articles of Incorporation.

E. Stock affairs

Preemptive rights in the Articles of Incorporation
1. New shares to be issued by the Company shall be allocated to the shareholders in proportion to their respective shareholdings in accordance with Paragraph 6, Article 8. If shares are not subscribed for as a result of waiver or loss of the preemptive right of the shareholders to subscribe for new shares, or if fractional shares remain at the time of allocation of new shares, such shares may be disposed of by a resolution of the Board of Directors in accordance with applicable laws and regulations. 2. Notwithstanding the above Paragraph 1, new shares may be allocated to persons other than shareholders in the following cases: a. If the Company issues new shares or causes underwriters to underwrite new shares by a resolution of the Board of Directors in accordance with applicable laws and regulations including the Financial Investment Services and Capital Markets Act; b. If the Company allocates new shares preferentially to members of the Employee Stock Ownership Association by a resolution of the Board of Directors in accordance with applicable laws and regulations including the Financial Investment Services and Capital Markets Act; c. If the Company issues new shares for the issuance of depositary receipts (DR) by a resolution of the Board of Directors in accordance with the applicable laws and regulations including the Financial Investment Services and Capital Markets Act; d. If the Company issues new shares by public offering in accordance with Article 11-3; e. If new shares are issued by the exercise of stock options in accordance with Article 11-4; f. If the Company issues new shares to the extent of 20% of the total issued and outstanding shares to domestic or foreign financial institutions for the purpose of obtaining financing urgently or to the relevant partner company for the purpose of inducing technology therefrom, etc., by a resolution of the Board of Directors; provided that the issue price of the new shares shall not be less than the price prescribed by the Financial Investment Services and Capital Markets Act and other applicable laws and regulations. ☞ (Note) Paragraph 6, Article 8 In the case of rights issue, bonus issue or stock dividend, the holders of common shares shall be entitled to common shares, and the holders of preferred shares shall be entitled to preferred shares, in proportion to their respective shareholdings; provided that in the case of rights issue and stock dividend the Company may, if necessary, issue only one kind of shares, where all the shareholders shall be entitled to such kind of shares to be issued. ☞ (Note) Article 11-3 (Public Offering) 1. The Company may issue new shares by public offering to the extent that the new shares do not exceed 20% of the total number of issued and outstanding shares by a resolution of the Board of Directors, pursuant to Article 165-6, Paragraph 1, Item 3 of the Financial Investment Services and Capital Markets Act.

2. If the Company issues new shares by public offering, the type, quantity and issue price of the shares to be newly issued shall be determined by a resolution of the Board of Directors; provided that the issue price of such new shares shall not be less than the price prescribed by the Financial Investment Services and Capital Markets Act and other applicable laws and regulations.

☞ (Note) Article 11-4 (Stock Options)

1. The Company may grant stock options to its officers and employees (including officers and employees of the related companies as set forth in Article 542-3, Paragraph 1 of the Commercial Code; the same shall apply for the purpose of this Article) by a special resolution of the general meeting of shareholders pursuant to Article 542-3 of the Commercial Code, to the extent permitted by the Commercial Code; provided, however, that the Company may grant the stock options to its officers and employees (except for the directors of the Company) by a resolution of the Board of Directors to the extent determined by the relevant laws and regulations.

2. The person to whom stock options may be granted are the officers and employees who have contributed or have the capacity to contribute to the establishment, management, overseas business, technical innovation, etc. of the Company; provided, however, that the officers and employees who may not be entitled to stock options under the relevant laws and regulations shall be excluded.

3. The shares to be issued to the officers or employees by the exercise of their stock options (in case the Company pays, either in cash or treasury shares, the difference between the exercise price of stock options and the market price, they refer to the shares which are the basis for such calculation) shall be common shares in registered form or preferred shares in registered form.

4. Total number of shares to be delivered in accordance with the exercise of stock options shall be up to the extent permitted by the relevant laws and regulations.

5. The stock options may be exercised until an expiry date determined by a resolution of the general meeting of shareholders or the Board of Directors and such expiry date shall be determined within a period not exceeding eight (8) years from the date when two (2) years have elapsed from the date of the general meeting of shareholders or the date of the Board of Directors' meeting at which a resolution to grant such stock options is adopted; provided, however, that the person to whom a stock option is granted should serve the Company for at least two (2) years after the date of such resolution in order to exercise such stock option, unless otherwise set forth by relevant laws and regulations.

6. The terms and conditions for stock options, such as the contents and exercise price thereof shall be determined by a special resolution of the general meeting of shareholders or by a resolution of the Board of Directors in accordance with the relevant laws and regulations and the Articles of Incorporation; provided, however, that such matters which are not provided for as matters reserved for resolutions of the general meeting of shareholders or the Board of Directors' meeting under the relevant laws and regulations or the Articles of Incorporation may be determined by the Board of Directors or a committee authorized by the Board of Directors.

7. The Company may cancel the grant of stock options by a resolution of the Board of Directors in any of the following cases:

a. In case the relevant officer or employee voluntarily retires from his/her office or leaves the Company after the grant of stock options;
b. In case the relevant officer or employee causes substantial damages to the Company due to his/her willful misconduct or negligence;
c. In case any of the causes for cancellation set forth in the stock option agreement occurs.

Settlement date	Dec 31	Annual General Meetings of Shareholders	Within 3 months after the end of every business year
Record date (closing period)			Last day of fiscal year (One month from Jan 1)
Transfer agent	Korea Securities Depository (T: +82-51-519-1500): 40 Munhyeongeumyung-ro, Nam-gu, Busan, Korea		
Shareholder benefit	n/a	Published on	Joongang Daily

With Act on Electronic Registration of Stocks, Bonds, etc. ("Electronic Securities Act") taking effect Sep 16, 2019, rights specified on stocks and subscription warrants are subject to mandatory electronic registration, therefore, "Stock types" are no longer applicable.
Related information is published on Joongang Daily in pursuant to our Articles of Incorporation, as well as on our website (http://www.samsung.com/sec/ir).

F. Results of shareholder meetings

[As of December 31, 2021]

Date	Agenda	Results
The 52nd AGM (Mar 17, 2021)	1. Approval of Balance Sheet, Income Statement, and Statement of Appropriation of Retained Earnings, etc. for 2020	Approved
	2. Appointment of Directors	
	2.1: Appointment of Independent Directors	
	2.1.1: Byung-gook Park	Approved
	2.1.2: Jeong Kim	Approved
	2.2: Appointment of Executive Directors	
	2.2.1: Ki-nam Kim	Approved
	2.2.2: Hyun-suk Kim	Approved
	2.2.3: Dong-jin Koh	Approved
	3. Appointment of Sun-uk Kim as Independent Director for Audit Committee Member	Approved
	4. Approval of remuneration limit for Directors	Approved
The 51st AGM (Mar 18, 2020)	1. Approval of Balance Sheet, Income Statement, and Statement of Appropriation of Retained Earnings (draft), etc. for 2019	Approved
	2. Appointment of Executive Directors	
	2.1: Jong-hee Han	Approved
	2.2: Yoon-ho Choi	Approved
	3. Approval of remuneration limit for Directors	Approved
The 50th AGM (Mar 20, 2019)	1. Approval of Balance Sheet, Income Statement, and Statement of Appropriation of Retained Earnings (draft), etc. for 2018	Approved
	2. Appointment of Directors/Committee Members	
	2.1: Independent Directors	
	2.1.1: Jae-wan Bahk	Approved
	2.1.2: Han-jo Kim	Approved
	2.1.3: Curie Ahn	Approved
	2.2: Audit Committee	
	2.2.1: Jae-wan Bahk	Approved
	2.2.2: Han-jo Kim	Approved
	3. Approval of remuneration limit for Directors	Approved

An extraordinary meeting of shareholders was not held during the reporting period.

VII. Information on Shareholders

1. Ownership of shares by the major shareholder(s) and related parties

[As of December 31, 2021]

Name	Relationship[1)]	Type of share	Ownership				Notes
			Period start		Period end		
			Shares	Stake (%)	Shares	Stake (%)	
Kun-hee Lee	-	Common	249,273,200	4.18	0	0.00	Bequest
		Preferred	619,900	0.08	0	0.00	Bequest
Samsung Life Insurance	Major shareholder	Common	508,157,148	8.51	508,157,148	8.51	-
		Preferred	43,950	0.01	43,950	0.01	–
Samsung Life Insurance (special accounts)	Major shareholder	Common	16,284,877	0.27	13,860,804	0.23	Open market transactions
		Preferred	772,567	0.09	548,463	0.07	Open market transactions
Samsung C&T	Affiliate	Common	298,818,100	5.01	298,818,100	5.01	-
Samsung Fire & Marine Insurance	Affiliate	Common	88,802,052	1.49	88,802,052	1.49	-
Samsung Welfare Foundation	Funded foundation	Common	4,484,150	0.08	4,484,150	0.08	-
Samsung Foundation Of Culture	Funded foundation	Common	1,880,750	0.03	1,880,750	0.03	-
Ra-hee Hong	Related party of the major shareholder	Common	54,153,600	0.91	137,244,666	2.30	Inheritance
		Preferred	0	0.00	206,633	0.03	Inheritance
Jae-yong Lee	Related party of the major shareholder	Common	42,020,150	0.70	97,414,196	1.63	Inheritance
		Preferred	0	0.00	137,757	0.02	Inheritance
Boo-jin Lee	Executive member of affiliate	Common	0	0.00	55,394,044	0.93	Inheritance
		Preferred	0	0.00	137,755	0.02	Inheritance
Seo-hyun Lee	Related party of the major shareholder	Common	0	0.00	55,394,044	0.93	Inheritance
		Preferred	0	0.00	137,755	0.02	Inheritance
Ki-nam Kim	Executive member of affiliate	Common	200,000	0.00	210,000	0.00	Open market transactions
Hyun-suk Kim	Executive member of affiliate	Common	99,750	0.00	99,750	0.00	-
Dong-jin Koh	Executive member of affiliate	Common	75,000	0.00	75,000	0.00	-
Jong-hee Han	Executive member of affiliate	Common	5,000	0.00	5,000	0.00	-
Byung-gook Park	Executive member of affiliate	Common	0	0.00	1,000	0.00	Open market transactions
Curie Ahn	Executive member of affiliate	Common	2,600	0.00	3,800	0.00	Open market transactions

Name	Relationship[1]	Type of share	Ownership				Notes
			Period start		Period end		
			Shares	Stake (%)	Shares	Stake (%)	
Han-jo Kim	Executive member of affiliate	Common	2,175	0.00	2,175	0.00	-
Total		Common	1,264,258,552	21.18	1,261,846,679	21.14	-
		Preferred	1,436,417	0.17	1,212,313	0.15	-

Common shares carry full voting rights while preferred shares do not (owners of certain common shares have limited voting rights in accordance with relevant laws. For information on voting rights, please refer to 『VI. Corporate Governance-3. General meeting of shareholders-D. Voting shares』).

The major shareholder changed to Samsung Life Insurance as the shares of the previous major shareholder (Kun-hee Lee, who passed away on October 25, 2020) were inherited by Jae-yong Lee and three others during the reporting period. For detailed information, please refer to 3) Change of the major shareholder.

For changes after December 31, please refer to 'Ownership status of securities, etc. of executives and major shareholder' published in Korean in DART (http://dart.fss.or.kr).

Parts of shares owned by the related party of the major shareholder (Ra-hee Hong) have been signed to the trust contract of disposal of securities on October 5, 2021. For detailed information, please refer to the "Report on Mass Holding of Securities (General)" disclosed on DART (http://dart.fss.or.kr) on October 8, 2021.

1) In accordance with Article 3 Paragraph 1 of Enforcement Decree of the Act on Corporate Governance of Financial Companies.

2. Matters related to the major shareholder

A. Overview of the major shareholder (corporation or organization)

(1) Basic information of the major shareholder (Samsung Life Insurance Co., Ltd.)

1) Legal, commercial name: Samsung Life Insurance Co., Ltd.

2) Date of establishment: April 24, 1957

3) Address, phone number, and English language website of the corporate headquarters

- Address: 11, Seocho-daero 74-gil, Seocho-gu, Seoul, Republic of Korea
- Phone: +82-2-1588-3114
- Website: https://www.samsunglife.com

4) CEO and major shareholder of the major shareholder (Samsung Life Insurance)

Name	Number of investors	CEO		Major shareholder	
		Name	Share ratio (%)	Name	Share ratio (%)
Samsung Life Insurance Co., Ltd	121,283	Young-muk Jeon	0.00	Samsung C&T	19.34

Based on common shares as of December 31, 2021.

5) Changes to the CEO and major shareholder of the major shareholder (Samsung Life Insurance)

Date of change	CEO		Major shareholder	
	Name	Share ratio (%)	Name	Share ratio (%)
Mar 21, 2018	Chang-soo Kim	-	-	-
Mar 21, 2018	Sung-chul Hyun	-	-	-
Mar 27, 2018	Sung-chul Hyun	0.00	-	-
Mar 19, 2020	Sung-chul Hyun	0.00	-	-
Mar 19, 2020	Young-muk Jeon	-	-	-

Date of change	CEO		Major shareholder	
	Name	Share ratio (%)	Name	Share ratio (%)
Mar 23, 2020	Young-muk Jeon	0.00	-	-
Mar 24, 2020	Young-muk Jeon	0.00	-	-
Mar 16, 2021	Young-muk Jeon	0.00	-	-
Apr 29, 2021	-	-	Kun-hee Lee	-
Apr 29, 2021	-	-	Samsung C&T	19.34

Mar 21, 2018: Chang-soo Kim resigned from his position as CEO, and Executive Director Sung-chul Hyun was appointed as CEO.
Mar 19, 2020: Sung-chul Hyun resigned from his position as CEO, and Executive Director Young-muk Jeon was appointed as CEO.
Apr 29, 2021: The major shareholder changed to Samsung C&T as the shares of the previous major shareholder (who passed away on October 25, 2020) were inherited.

(2) Financial status of the recent settlement term of the major shareholder (Samsung Life Insurance)

(KRW mil)

Classification	
Name of the corporation or organization	Samsung Life Insurance Co., Ltd
Total assets	341,382,574
Total liabilities	301,757,207
Total equity	39,625,367
Revenue	35,079,078
Operating profit	1,701,023
Profit for the period	1,597,702

The financial status is as of December 31, 2021, based on the consolidated K-IFRS financial statements.

(3) Business conditions of the major shareholder (Samsung Life Insurance)

Samsung Life Insurance is a company in which life insurance and its related reinsurance contract are the key purpose of business operations, and it operates businesses in accordance with the Insurance Business Act and other related laws.

Its key subsidiary, Samsung Card, is a specialized credit finance business company that operates specialized credit finance businesses (including credit card business, facility leasing business, and installment financing business) in accordance with the Specialized Credit Finance Business Act and other related laws.

☞ Please refer to the business report (interim and half-year) of Samsung Life Insurance published in DART (http://dart.fss.or.kr) for more details of the major shareholder.

B. Certain transaction that may cause changes in the major shareholder

N/A

C. Overview of the major shareholder of the major shareholder

(1) Basic information of the major shareholder (Samsung C&T) of the major shareholder (Samsung Life Insurance)

1) Legal, commercial name: Samsung C&T Corporation

2) Date of establishment and period of existence: Dongwha Real Estate was first established on December 23, 1963, and the company name was changed to Cheil Industries in July 2014. It merged with Samsung C&T Corporation (founded as Samsung Sanghoe on March 1, 1938, and established as Samsung C&T in January 1951) and changed the company name to Samsung C&T Corporation on September 2, 2015 (merger registration date).

3) Address, phone number, and English language website of the corporate headquarters

- Address: 26, Sangil-ro 6-gil, Gangdong-gu, Seoul, Republic of Korea
- Phone: +82-2-2145-5114
- Website: https://www.samsungcnt.com

4) CEO and major shareholder of the major shareholder (Samsung C&T) of the major shareholder

Name	Number of investors	CEO		Major shareholder	
		Name	Share ratio (%)	Name	Share ratio (%)
Samsung C&T	196,786	Jung-suk Koh	0.00	Jae-yong Lee	18.13
		Se-chul Oh	0.00		
		Seung-hwan Han	0.00		

As of December 31, 2021 based on common shares

5) Changes to the CEO and major shareholder of the major shareholder (Samsung C&T) of the major shareholder (Samsung Life Insurance)

Date of change	CEO		Major shareholder	
	Name	Share ratio (%)	Name	Share ratio (%)
Mar 22, 2018	Chi-hun Choi	-	-	-
Mar 22, 2018	Shin Kim	-	-	-
Mar 22, 2018	Bong-yung Kim	-	-	-
Mar 22, 2018	Young-ho Lee	-	-	-
Mar 22, 2018	Jung-suk Koh	-	-	-
Mar 22, 2018	Keum-yong Chung	-	-	-
Mar 19, 2021	Young-ho Lee	-	-	-
Mar 19, 2021	Keum-yong Chung	-	-	-
Mar 19, 2021	Se-chul Oh	0.00	-	-
Mar 19, 2021	Seung-hwan Han	0.00	-	-
Mar 19, 2021	Jung-suk Koh	0.00	-	-
Apr 29, 2021	-	-	Jae-yong Lee	18.13

Mar 22, 2018: Chi-hun Choi, Shin Kim, and Bong-yung Kim resigned from their positions as CEO, and Executive Directors Young-ho Lee, Jung-suk Koh, and Keum-yong Chung were appointed as CEOs.
Mar 19, 2021: Young-ho Lee and Keum-yong Chung resigned from their positions as CEO, Executive Directors Se-chul Oh and Seung-hwan Han were appointed as CEOs, and Jung-suk Koh was reappointed as CEO.
Apr 29, 2021: The share ratio (common share) of the major shareholder was changed (17.48%→18.13%) as the shares were inherited (by Jae-yong Lee and three others).

(2) Financial status of the recent settlement term of the major shareholder (Samsung C&T) of the major shareholder (Samsung Life Insurance)

(KRW mil)

Classification	
Name of the corporation or organization	Samsung C&T
Total assets	55,245,423
Total liabilities	21,892,979
Total equity	33,352,444
Revenue	34,455,182
Operating profit	1,195,983
Profit for the period	1,829,084

The financial status is as of December 31, 2021, based on the consolidated K-IFRS financial statements.

(3) Business conditions of the major shareholder (Samsung C&T) of the major shareholder (Samsung Life Insurance)

Samsung C&T is consisted of Engineering & Construction, Trading & Investment, Fashion, and Resort Groups as well as biomedicine OEM and biosimilar businesses. The Engineering & Construction Group operates businesses in building, civil infrastructure, plant, and housing areas domestically and globally; Trading & Investment trades internationally in various fields, including resource development, steel, chemical, industrial materials, and textiles. The Fashion Group manufactures and sells clothing, and processes and sells wool products (fabric). The Resort Group manages landscaping business, Everland (dry park), Caribbean Bay (water park), golf course, food supply services, and food distribution business (Samsung Welstory).

☞ Please refer to the business report (interim and half-year) of Samsung C&T published in DART (http://dart.fss.or.kr) for more details of the major shareholder of the major shareholder.

3. Change of the major shareholder

[As of December 31, 2021]

Date of change	Name of major Shareholder	Number of shares owned	Share ratio (%)	Reason for change	Note
Apr 29, 2021	Samsung Life Insurance	1,263,050,053	21.16	Shares of the previous major shareholder were inherited by beneficiaries	-

Number of shares owned and share ratio are the sum of those of the major shareholder and its related parties, and the number of shares is based on shares with voting rights (including those with limited voting rights in accordance with relevant laws).

4. Ownership of shares

A. Share ownership status

[As of December 31, 2021]

Classification	Name	Number of shares owned	Share ratio (%)	Note
Shareholders with over 5% voting shares[1)]	National Pension Service	509,502,939	8.53	-
	Samsung Life Insurance	522,017,952	8.74	Including special accounts
	BlackRock Fund Advisors	300,391,061	5.03	Based on January 28, 2019
	Samsung C&T	298,818,100	5.01	-
Employee Stock Ownership Association		-	-	-

Number of shares owned and share ratio of BlackRock Fund Advisors is based on the "Report on Mass Holding of Securities" disclosed on DART (http://dart.fss.or.kr) on February 7, 2019.
The number of shares owned and share ratio of Samsung Life Insurance includes special accounts.
1) Including shares with limited voting rights in accordance with relevant laws. For more information, please refer to 『VI. Corporate Governance-3. General meeting of shareholders-D. Voting shares』

B. Minority shareholders

[As of December 31, 2021]

Classification	Shareholder			Shares owned[1)]			Note
	Number of shareholders	Total shareholders	Portion (%)	Number of shares	Total number of shares	Portion (%)	
Minority shareholder	5,066,351	5,066,466	99.99	3,922,911,893	5,969,782,550	65.71	-

Shareholders with shares less than 1/100 of total issued stocks
1) Number of voting shares, including those with limited voting rights in accordance with relevant laws.

5. Stock price and stock transactions

A. Domestic stock market

Type			Jul 2021	Aug 2021	Sep 2021	Oct 2021	Nov 2021	Dec 2021
Common stock	Stock price (KRW)	High	81,200	82,900	77,700	73,200	75,300	80,500
		Low	78,500	72,700	74,100	68,800	69,900	74,400
		Average	79,577	77,024	76,305	70,563	71,536	77,809
	Volume (shares)	High (day)	22,720,577	61,270,643	23,992,458	31,001,484	30,364,841	23,652,940
		Low (day)	8,330,969	11,739,124	10,103,212	8,395,448	9,422,009	9,155,219
		Month	275,886,253	499,862,582	281,233,337	300,193,653	313,117,871	343,905,413
Preferred stock	Stock price (KRW)	High	73,900	75,200	72,000	68,000	69,500	72,800
		Low	72,100	68,400	69,600	63,800	63,900	68,600
		Average	72,823	71,519	71,289	64,884	66,323	70,832
	Volume (shares)	High (day)	3,508,267	5,559,423	3,027,961	2,645,541	3,364,005	3,031,791
		Low (day)	547,300	840,355	735,939	797,614	651,103	586,325
		Month	26,730,895	38,317,492	25,648,892	27,916,033	28,830,181	29,422,863

Stock price is based on the closing exchange rate of the applicable trading day.

B. Overseas stock market

□ Name of stock exchange: London Stock Exchange (common stock)

Type				Jul 2021	Aug 2021	Sep 2021	Oct 2021	Nov 2021	Dec 2021
Common stock	Price per GDR	High	USD	1,799.00	1,813.50	1,670.00	1,549.00	1,584.00	1,695.50
			KRW	2,033,410	2,086,794	1,931,188	1,835,875	1,874,664	2,013,406
		Low	USD	1,691.00	1,538.50	1,562.50	1,449.00	1,482.00	1,584.50
			KRW	1,950,061	1,806,968	1,851,406	1,737,496	1,754,095	1,865,432
		Average	USD	1,740.55	1,658.19	1,621.86	1,498.26	1,512.89	1,635.81
			KRW	1,990,712	1,923,683	1,897,029	1,772,381	1,789,936	1,934,967
	Volume (shares)	High (day)		25,250	55,101	26,156	38,147	26,345	38,207
		Low (day)		2,806	8,611	5,250	9,970	5,696	1,487
		Month		368,357	428,743	286,572	395,968	336,903	407,301

Stock price in KRW is based on the closing exchange rate of the applicable trading day.
High and low price in KRW are based on the KRW/USD closing exchange rate of the applicable trading day; average price in KRW is based on monthly average KRW/USD exchange rate.
Conversion ratio between GDRs and original shares is 1:25.

□ Name of stock exchange: Luxembourg Stock Exchange (preferred stock)

Type				Jul 2021	Aug 2021	Sep 2021	Oct 2021	Nov 2021	Dec 2021
Preferred stock	Price per GDR	High	USD	1,628.00	1,648.00	1,564.00	1,432.00	1,460.00	1,534.00
			KRW	1,840,128	1,896,354	1,808,610	1,697,206	1,727,910	1,821,625
		Low	USD	1,566.00	1,454.00	1,458.00	1,348.00	1,360.00	1,444.00
			KRW	1,786,963	1,707,723	1,727,584	1,608,703	1,623,024	1,700,021
		Average	USD	1,588.55	1,538.57	1,509.82	1,380.19	1,399.82	1,489.81
			KRW	1,816,866	1,784,912	1,765,974	1,632,707	1,656,162	1,762,267
	Volume (shares)	High (day)		2,062	2,766	3,479	4,111	3,357	4,499
		Low (day)		182	460	161	473	340	35
		Month		20,152	25,190	26,451	31,384	39,567	25,711

Stock price in KRW is based on the closing exchange rate of the applicable trading day.
High and low price in KRW are based on the KRW/USD closing exchange rate of the applicable trading day; average price in KRW is based on monthly average KRW/USD exchange rate.
Conversion ratio between GDRs and original shares is 1:25.

VIII. Executives and Employees

1. Executives and employees

A. Registered Executives

[As of Dec 31, 2021] (Shares)

Name	Gender	Date of birth	Position	Registered Executive	Full/ part-time	Responsibility	Major career	Number of shares owned		Relationship with the major shareholder[1)]	Length of service (months)	Term expiration
								Common	Preferred			
Ki-nam Kim	M	Apr 1958	Chairman	Executive Director	Full	- CEO - President of Samsung Advanced Institute of Technology	- Doctor's degree in Electrical Engineering from UCLA - Head of DS Division	210,000	-	Executive Member of an Affiliate	46	Mar 22, 2024
Hyun-suk Kim	M	Jan 1961	Senior Advisor	Executive Director	Full	- CEO - Person in charge of Future Technology	- Master's degree in Electrical Engineering from Portland State University - Head of CE Division	99,750	-	Executive Member of an Affiliate	46	Mar 22, 2024
Dong-jin Koh	M	Mar 1961	Senior Advisor	Executive Director	Full	- CEO - Person in charge of HR Innovation	- Master's degree in Technology Policy from University of Sussex - Head of IM Division	75,000	-	Executive member of an Affiliate	46	Mar 22, 2024
Jong-hee Han	M	Mar 1962	Vice Chairman	Executive Director	Full	- Head of DX Division - Head of Visual Display Business	- Bachelor's degree in Electronic Engineering from Inha University - Head of Visual Display Business	5,000	-	Executive member of an Affiliate	22	Mar 17, 2023
Yoon-ho Choi	M	Jan 1963	President	Executive Director	Full	CFO	- Bachelor's degree in Business Management from Sungkyunkwan University - Head of Corporate Management Office	5,000	-	Executive member of an Affiliate	22	Mar 17, 2023
Jae-wan Bahk	M	Jan 1955	Director	Independent Director	Part	- Chairman of the Board - Head of the Audit Committee - Related Party Transactions Committee Member - Compensation Committee Member - Head of the Sustainability Committee	- Doctor's degree in Public Policy from Harvard University - Professor Emeritus of Graduate School of Public Administration at Sungkyunkwan University	-	-	Executive member of an Affiliate	70	Mar 19, 2022
Sun-uk Kim	F	Dec 1952	Director	Independent Director	Part	- Audit Committee Member - Head of the Related Party Transactions Committee - Sustainability Committee Member	- Doctor's degree in Administrative Law from University of Konstanz - Professor Emeritus at Ewha Womans University	-	-	Executive member of an Affiliate	46	Mar 22, 2024
Byung-gook Park	M	Apr 1959	Director	Independent Director	Part	- Independent Director Recommendation Committee Member - Head of	- Doctor's degree in Electrical Engineering from Stanford University - Professor of Electrical Engineering at Seoul National University	1,000	-	Executive member of an Affiliate	46	Mar 22, 2024

						Compensation Committee - Sustainability Committee Member						
Jeong Kim	M	Aug 1960	Director	Independent Director	Part	- Independent Director Recommendation Committee Member - Compensation Committee Member - Sustainability Committee Member	- Doctor's degree in Reliability Engineering from the University of Maryland - President of Kiswe Mobile	-	-	Executive member of an Affiliate	46	Mar 22, 2024
Curie Ahn	F	Mar 1955	Director	Independent Director	Part	- Independent Director Recommendation Committee Member - Sustainability Committee Member	- Doctor's degree in Medicine from Seoul National University - Professor Emeritus at the Division of Nephrology of Seoul National University	3,800	-	Executive member of an Affiliate	34	Mar 19, 2022
Han-jo Kim	M	Jul 1956	Director	Independent Director	Part	- Audit Committee Member - Related Party Transactions Committee Member - Sustainability Committee Member	- Bachelor's degree in French language and Literature from Yonsei University - Chairman of Hana Foundation	2,175	-	Executive member of an Affiliate	34	Mar 19, 2022

Mar 17, 2021: Ki-nam Kim, Hyun-suk Kim, and Dong-jin Koh were reappointed as Executive Directors; Byung-gook Park and Jeong Kim as Independent Directors; and Sun-uk Kim as Independent Director for Audit Committee member at the AGM.
1) In accordance with Article 3 Paragraph 1 of the Enforcement Decree of the Act on Corporate Governance of Financial Companies.
Dec 31, 2021: Yoon-ho Choi resigned from his position as Executive Director.
Feb 15, 2022: Executive Directors Ki-nam Kim, Hyun-suk Kim, and Dong-jin Koh resigned from their positions as CEO; and Executive Director Jong-hee Han was appointed as CEO at the Board meeting.

B. Registered executive director candidates (or to be retired)

[As of Feb 15, 2022]

	Name	Gender	Date of birth	Executive or Independent Director	Career highlights	Due Date of appointment or retirement	Relationship with the major shareholder[1)]
Appointment	Kye-Hyun Kyung	M	Mar 1963	Executive Director	- Doctor's degree in Control and Measurement Engineering from Seoul National University - Head of Flash Design Team at Memory Business Samsung Electronics - Head of Solution Product & Development Office at Memory Business Samsung Electronics - CEO of Samsung Electro-Mechanics - Head of DS Division Samsung Electronics	Mar 16, 2022	Executive member of affiliated company
Appointment	Tae-Moon Roh	M	Sep 1968	Executive Director	- Doctor's degree in Electrical Engineering, Pohang University of Science and Technology - Head of Mobile R&D Office at Mobile Business Samsung Electronics - Head of MX Business Samsung Electronics	Mar 16, 2022	Executive member of affiliated company
Appointment	Hark-Kyu Park	M	Nov 1964	Executive Director	- Master's degree in Business and Technology Management from Korea Advanced Institute of Science and Technology - COO of Samsung SDS - Head of Corporate Management Office at DS Division Samsung Electronics - Head of Corporate Management Office at DX Division Samsung Electronics	Mar 16, 2022	Executive member of affiliated company

Appointment	Jung-Bae Lee	M	Feb 1967	Executive Director	- Doctor's degree in Electronic Engineering from Seoul National University - Head of Quality Assurance Office at Memory Business Samsung Electronics - Head of DRAM Product & Technology Office at Memory Business Samsung Electronics - Head of Memory Business Samsung Electronics	Mar 16, 2022	Executive member of affiliated company
Appointment	Han-Jo Kim	M	Jul 1956	Audit Committee member	- Bachelor's degree in French language and Literature from Yonsei University - Chairman of Hana Nanum Foundation - Chairman of Hana Foundation	Mar 16, 2022	Executive member of affiliated company
Appointment	Jeong Kim	M	Aug 1960	Audit Committee member	- Doctor's degree in Reliability Engineering from the University of Maryland - President and co-founder of Kiswe Mobile	Mar 16, 2022	Executive member of affiliated company
Appointment	Wha-Jin Han	F	Dec 1959	Independent Director	- Doctor's degree in Atmospheric Chemistry from UCLA - President of Korea Foundation for Women in Science, Engineering and Technology (WISET) - Full member of the National Academy of Engineering of Korea - Endowed professor of Korea Institute of Human Resources Development in Science and Technology - Visiting professor of School of Global Studies at Hallym University	Mar 16, 2022	-
Appointment	Jun-Sung Kim	M	Oct 1967	Independent Director	- Bachelor's degree in Economics and Business Administration from Carnegie Mellon University - Managing Director of Government of Singapore Investment Corporation (GIC)	Mar 16, 2022	-
Retirement	Jae-wan Bahk	M	Jan 1955	Audit Committee member	- Doctor's degree in Public Policy from Harvard University - Professor Emeritus of Graduate School of Public Administration at Sungkyunkwan University	Mar 19, 2022	Executive member of affiliated company
Retirement	Curie Ahn	F	Mar 1955	Independent Director	- Doctor's degree in Medicine from Seoul National University - Professor Emeritus at the Division of Nephrology of Seoul National University	Mar 19, 2022	Executive member of affiliated company
Retirement	Ki-nam Kim	M	Apr 1958	Executive Director	- Doctor's degree in Electrical Engineering from UCLA - Head of DS Division Samsung Electronics - President of Samsung Advanced Institute of Technology	Mar 16, 2022	Executive member of affiliated company
Retirement	Hyun-suk Kim	M	Jan 1961	Executive Director	- Master's degree in Electrical Engineering from Portland State University - Head of CE Division Samsung Electronics	Mar 16, 2022	Executive member of affiliated company
Retirement	Dong-jin Koh	M	Mar 1961	Executive Director	- Master's degree in Technology Policy from University of Sussex - Head of IM Division Samsung Electronics	Mar 16, 2022	Executive member of affiliated company

1) Relationship with the major shareholder status was listed in accordance with Article 3 Paragraph 1 of Enforcement Decree of the Act on Corporate Governance of Financial Companies.

C. Registered Executives with concurrent positions

[As of Dec 31, 2021]

Concurrent office holder		Company		
Name	**Position**	**Name of company**	**Position**	**Period**
Jae-wan Bahk	Independent Director	Lotte Shopping Co., Ltd	Independent director	2016–present
Jeong Kim	Independent Director	Kiswe Mobile	Chairman	2013–present

D. Employees

[As of Dec 31, 2021] (KRW mil)

Division	Gender	Number of employees[1]				Average length of service (years)	Total compensation (KRW mil)	Average compensation per employee[2] (KRW mil)	Non-affiliated[3]		
		Regular	Contract-based	Others	Total				Male	Female	Total
CE	M	10,075	58	-	10,133	16.1					
	F	2,077	9	-	2,086	11.9	-	-			
IM	M	19,319	147	-	19,466	14.4	-	-			
	F	6,941	19	-	6,960	12.8	-	-			
DS	M	45,923	144	-	46,067	10.0	-	-			
	F	17,813	22	-	17,835	10.8	-	-	25,543	8,885	34,427
Others	M	8,431	160	-	8,591	15.0	-	-			
	F	2,289	58	-	2,347	11.8	-	-			
Gender total	M	83,748	509	-	84,257	12.2	12,683,498	154			
	F	29,120	108	-	29,228	11.3	3,161,517	115			
Total		112,868	617	-	113,485	11.9	15,845,015	144			

Total compensation for 2021 and average compensation per employee were calculated before income tax and other deductions based on the earned income payment record submitted to the district tax office in accordance with Article 20 of the Income Tax Act.

1) Separate basis; represents employees of domestic headquarters in Korea, including employees on leave and excluding 11 registered executives (5 Executive Directors and 6 Independent Directors).

2) Calculated based on average number of employees: 109,541 employees (male: 82,111, female: 27,430).

E. Remuneration of non-registered Executives

[As of Dec 31, 2021] (KRW mil)

Classification	Number of employees[1)]	Total compensation	Average compensation per employee	Note
Non-registered Executives	933	717,856	790	-

Total compensation for 2021 and average compensation per employee is calculated based on the earned income payment record (before earned income tax credit) submitted to the district tax office in accordance with Article 20 of the Income Tax Act.
Total compensation for 2021 includes incentives, and timing of the incentives being paid differ every year.
Average compensation per employee is calculated based on the average of the 899 employees.
1) In office as of the reporting date, and non-registered executives whose earned income was not domestic were excluded.

2. Remuneration for Directors

A. Summary on total remuneration

<Remuneration of directors and auditors>

(1) Remuneration approved at the annual general meetings of shareholders

(KRW mil)

	Number of persons[1)]	Amount approved at shareholders' meeting[2)]	Note
Registered Directors	5	-	-
Independent Directors	3	-	-
Audit Committee members or Auditor	3	-	-
Total	11	41,000	-

1) As of the day of AGM, as approved on the occasion
2) Remuneration limit for directors (including those retired) approved at the AGM on March 17, 2021, as per Article 388 of the Commercial Act and our Articles of Incorporation.

(2) Remuneration Paid

[Remuneration paid for directors and auditors]

(KRW mil)

Number of persons[1)]	Total amount of remuneration[2)]	Average remuneration per Director	Note
11	39,621	3,602	-

There are no recognized expenses (compensation expenses) in this term from granting stock options.
Based on the Income Tax Act that incumbent or retired registered directors, independent directors, and members of audit committee in the fiscal year received in accordance with Article 159 of the Financial Investment Services and Capital Markets Act and Article 168 of the Enforcement Decree of the same Act.
1) The number as of the reporting date is 10, but the figure includes one person who resigned from the position as registered director during the fiscal year.
2) Earned income as per Income Tax Act (Article 20: Wage and Salary Income, Article 21: Other Income, Article 22: Retirement income). Includes remuneration that newly appointed or resigned directors received as non-registered executives.

[Remuneration paid, by Director type]

(KRW mil)

	Number of persons[1)]	Total amount of remuneration[2)]	Average remuneration per Director[3)]
Registered Directors (excluding Independent Directors and Audit Committee members)	5	38,735	7,747
Independent Directors (excluding Audit Committee members)	3	547	182
Audit Committee members	3	338	113
Auditor	-	-	-

There are no recognized expenses (compensation expenses) in this term from granting stock options.
Based on the Income Tax Act that incumbent or retired registered directors, independent directors, and members of audit committee in the fiscal year received in accordance with Article 159 of the Financial Investment Services and Capital Markets Act and Article 168 of the Enforcement Decree of the same Act.

1) The number as of the reporting date is 4, but the figure includes one person who resigned from the position as registered director during the fiscal year.

2) Earned income as per Income Tax Act (Article 20: Wage and Salary Income, Article 21: Other Income, Article 22: Retirement income). Includes remuneration that newly appointed or resigned directors received as non-registered executives.

(3) Criteria and methodology

Remuneration of directors is paid in accordance with internal regulations for Executive treatment and Independent Director treatment within the remuneration limit approved at the AGM.

Type	Criteria and methodology
Registered Directors (excluding Independent Directors and Audit Committee members)	• Salary: In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position, responsibilities, and performance results. • Traditional holiday bonus: 100% of monthly wage • Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) • Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax (± assessed considerations) and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance.) • Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. • Fringe benefits: Medical services, checkups, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
Independent Directors (excluding Audit Committee members)	• Salary: In accordance with internal regulations for independent director treatment, remuneration is determined based on responsibilities, etc. • Fringe benefits: Medical services, checkups, group accident insurance are provided in line with the internal regulations for independent director treatment
Audit Committee members	• Salary: In accordance with internal regulations for independent director treatment, remuneration is determined based on responsibilities, etc. • Fringe benefits: Medical services, checkups, group accident insurance are provided in line with the internal regulations for independent director treatment

<Remuneration for individual Directors and Auditors who are paid KRW 500 million or more >

(1) Summary on Remuneration by Executive

(KRW mil)

Name	Position	Total amount of remuneration	Remuneration not included in total amount
Ki-nam Kim	CEO	8,644	-
Hyun-suk Kim	CEO	10,334	-
Dong-jin Koh	CEO	11,838	-
Jong-hee Han	Executive Director	4,505	-
Yoon-ho Choi	Executive Director	3,414	-

Based on the Income Tax Act that incumbent or retired registered directors, independent directors, and members of audit committee in the fiscal year received in accordance with Article 159 of the Financial Investment Services and Capital Markets Act and Article 168 of the Enforcement Decree of the same Act.

Earned income as per Income Tax Act (Article 20: Wage and Salary Income, Article 21: Other Income, Article 22: Retirement income). Includes remuneration that directors who were newly appointed or resigned during the fiscal year received as non-registered executives.

(2) Criteria and methodology

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Ki-nam Kim (CEO)	Earned Income	Salary	1,742	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position (vice chairman), responsibilities, and performance results. He was paid KRW 125 million per month from January to February, KRW 200 million in March, and KRW 144 million per month from April to December.
		Bonus	6,745	- Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance.) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. - Special bonus: In accordance with internal regulations for executive treatment (Board resolution) and the approval of the Compensation Committee at the meeting held in December 2021, paid a special bonus. ※ Quantitative indicators suggest that the Company achieved a ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% over 2017–2019; and that the DS division achieved revenue of KRW 125.09 trillion and operating profit of KRW 33.73 trillion in 2021. Qualitative indicators include maintaining leadership in the memory market and enhancing competitiveness in the future via active investments in the non-memory business, including System LSI and Foundry. The amount of the bonus was determined based on the indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	157	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Hyun-suk Kim (CEO)	Earned Income	Salary	1,106	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (president), responsibilities, and performance results. He was paid KRW 83 million per month from January to February, 116 million in March and 92 million per month from April to December.
		Bonus	3,511	- Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance.) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. - Special bonus: In accordance with internal regulations for executive treatment (Board resolution) and the approval of the Compensation Committee at the meeting held in December 2021, paid a special bonus. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the CE division achieved revenue of KRW 55.83 trillion and operating profit of KRW 3.65 trillion in 2021. Qualitative indicators include solidification of leadership in the market with innovative products, including expanding the lineup of Lifestyle TVs and Bespoke home appliances, amid intensified competitive environment in the consumer electronics industry; and contributions to establishing solid profit structure via improvement in operational structure. The amount of bonus was determined based on the indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	170	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		5,547	- In accordance with internal regulations for severance pay of executives (Board resolution), calculated by multiplying KRW 87 million (monthly wage at the time of retirement), 19 (years of service), and a variable within a 1.0-3.5 range.
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Dong-jin Koh (CEO)	Earned Income	Salary	1,170	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (president), responsibilities, and performance results. He was paid KRW 98 million per month from January to December.
		Bonus	4,046	- Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual

Name	Type of remuneration		Total amount	Criteria and methodology
				performance.) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. - Special bonus: In accordance with internal regulations for executive treatment (Board resolution) and the approval of the Compensation Committee at the meeting held in December 2021, paid a special bonus. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the IM division achieved revenue of KRW 109.25 trillion and operating profit of KRW 13.65 trillion in 2021. Qualitative indicators include leading the market with technological innovations in mobile, including Galaxy S21, foldable phones, etc. and contributions to securing next-generation communications technologies. The amount of bonus was determined based on the indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	187	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		6,435	- In accordance with internal regulations for severance pay of executives (Board resolution), calculated by multiplying KRW 98 million (monthly wage at the time of retirement), 20 (years of service), and a variable within a 1.0-3.5 range.
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Jong-hee Han (Director)	Earned Income	Salary	938	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (president), responsibilities, and performance results. He was paid KRW 67 million per month from January to February, KRW 108 million in March and KRW 77 million per month from April to December.
		Bonus	3,450	- Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance.) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. - Special bonus: In accordance with internal regulations for executive treatment (Board resolution) and the approval of the Compensation Committee at the meeting held in December 2021, paid a special bonus. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the CE division achieved revenue of KRW 55.83 trillion and operating profit of KRW 3.65 trillion in 2021. Qualitative indicators include driving solid growth by introducing innovative products including MICRO LED, Lifestyle TV, etc. and maintaining the top position in the TV market for a 16th consecutive year despite a challenging environment. The amount of bonus was determined based on the indicators listed above.

Name	Type of remuneration		Total amount	Criteria and methodology
		Profit from exercising stock option	-	n/a
		Other Income	117	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Yoon-ho Choi (Director)	Earned Income	Salary	777	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (president), responsibilities, and performance results. He was paid KRW 61 million per month from January to February, KRW 97 million in March, and KRW 70 million per month from April to November.
		Bonus	2,509	- Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance.) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. - Special bonus: In accordance with internal regulations for executive treatment (Board resolution) and the approval of the Compensation Committee at the meeting held in December 2021, paid a special bonus. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the Company achieved revenue of KRW 279.60 trillion and operating profit of KRW 51.63 trillion in 2021. Qualitative indicators include preemptive management of risks on businesses, driving solid performance improvement with advanced operation of resources; and solidifying the foundation for sustainable management via strategic investment in emerging technologies such as AI and robots and via strengthening ESG activities. The amount of bonus was determined based on the indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	128	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

Severance pay of Director Yoon-ho Choi was transferred to affiliate Samsung SDI following his relocation in December 2021.

< Remuneration for five highest-paid Executive Directors who are paid KRW 500 million or more >

(1) Summary on remuneration by Executive

(KRW mil)

Name	position	Total amount of remuneration	Remuneration not included in total amount
Dong-jin Koh	Senior Advisor	11,838	
Hyun-suk Kim	Senior Advisor	10,334	-
Sang-Kyun Kim	Senior Advisor	9,569	
Sang-hoon Lee	Senior Advisor	8,745	-
Ki-nam Kim	Chairman	8,644	

Earned income as per Income Tax Act (Article 20: Wage and Salary Income, Article 21: Other Income, Article 22: Retirement income).

(2) Criteria and methodology

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Dong-jin Koh	Earned Income	Salary	1,170	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position (President), responsibilities, and performance results. He was paid KRW 98 million per month from January to December.
		Bonus	4,046	- Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance.) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. - Special bonus: In accordance with internal regulations for executive treatment (Board resolution) and the approval of the Compensation Committee at the meeting held in December 2021, paid a special bonus. ※ Quantitative indicators suggest that the Company achieved a ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% over 2017–2019; and that the IM division achieved revenue of KRW 109.25 trillion and operating profit of KRW 13.65 trillion in 2021. Qualitative indicators include leading the market with technological innovations in mobile, including Galaxy S21, foldable phones, etc. and contributions to securing next-generation communications technologies. The amount of the bonus was determined based on the indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	187	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		6,435	- In accordance with internal regulations for severance pay of executives (Board resolution), calculated by multiplying KRW 98 million (monthly wage at the time of retirement), 20 (years of service), and a variable within a 1.0-3.5 range.
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Hyun-suk Kim	Earned Income	Salary	1,106	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position (President), responsibilities, and performance results. He was paid KRW 83 million per month from January to February, 116 million in March and 92 million per month from April to December.
		Bonus	3,511	- Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance.) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. - Special bonus: In accordance with internal regulations for executive treatment (Board resolution) and the approval of the Compensation Committee at the meeting held in December 2021, paid a special bonus. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the CE division achieved revenue of KRW 55.83 trillion and operating profit of KRW 3.65 trillion in 2021. Qualitative indicators include solidification of leadership in the market with innovative products, including expanding the lineup of Lifestyle TVs and Bespoke home appliances, amid intensified competitive environment in the consumer electronics industry; and contributions to establishing solid profit structure via improvement in operational structure. The amount of bonus was determined based on the indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	170	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		5,547	- In accordance with internal regulations for severance pay of executives (Board resolution), calculated by multiplying KRW 87 million (monthly wage at the time of retirement), 19 (years of service), and a variable within a 1.0-3.5 range.
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Sang-kyun Kim	Earned Income	Salary	808	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (President), responsibilities, and performance results. He was paid KRW 73 million per month in January, 67 million per month from February to December.

Name	Type of remuneration		Total amount	Criteria and methodology
		Bonus	4,867	- Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance.) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. - Special bonus: In accordance with internal regulations for executive treatment (Board resolution), paid a special bonus. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the Company achieved revenue of KRW 279.60 trillion and operating profit of KRW 51.63 trillion in 2021. Qualitative indicators include contributions to minimizing Company-wide legal risks by supporting businesses related to global business conflicts, responding to patent negotiation/litigation, and strengthening compliance activities. The amount of bonus was determined based on the indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	119	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		3,775	- In accordance with internal regulations for severance pay of executives (Board resolution), calculated by multiplying KRW 64 million (monthly wage at the time of retirement), 16 (years of service), and a variable within a 1.0-3.5 range.
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Sang-hoon Lee	Earned Income	Salary	778	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (President), responsibilities, and performance results. He was paid KRW 65 million per month from January to December.
		Bonus	2,738	- Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance.) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. - Special bonus: In accordance with internal regulations for executive treatment (Board resolution), paid a special bonus. Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the Company achieved revenue of KRW 279.60 trillion and operating profit of KRW 51.63

Name	Type of remuneration		Total amount	Criteria and methodology
				trillion in 2021. Qualitative indicators include enhancing Company management, and providing ways to strengthen ESG activities as a former Chairman of the Board. The amount of the bonus was determined based on the indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	223	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		5,006	- In accordance with internal regulations for severance pay of executives (Board resolution), calculated by multiplying KRW 65 million (monthly wage at the time of retirement), 22 (years of service), and a variable within a 1.0-3.5 range.
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Ki-nam Kim	Earned Income	Salary	1,742	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (Vice Chairman), responsibilities, and performance results. He was paid KRW 125 million per month from January to February, 200 million in March and 144 million per month from April to December.
		Bonus	6,745	- Traditional holiday bonus: 100% of monthly wage - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance.) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. - Special bonus: In accordance with internal regulations for executive treatment (Board resolution) and the approval of the Compensation Committee at the meeting held in December 2021, paid a special bonus. Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the DS division achieved revenue of KRW 125.09 trillion and operating profit of KRW 33.73 trillion in 2021. Qualitative indicators include maintaining leadership in the memory market and enhancing future business competitiveness in the non-memory business, including System LSI and Foundry. The amount of the bonus was determined based on the indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	157	- Fringe benefits: Medical services, checkups, vehicle, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

B. Stock options granted and exercised

(1) Status of stock options granted to registered Directors

As of December 31, 2021, there were no accumulated-basis unexercised stock options granted to registered Directors or auditors.

(KRW mil)

Type	Number	Total fair value of stock options	Note
Registered Director	5[1)]	-	-
Independent Director	3	-	-
Audit Committee member or Auditor	3	-	-
Total	11	-	-

1) There were 4 registered directors as of the reporting date; the figure above includes a person who resigned from the position of registered director during the fiscal year.

(2) Status of stock options granted to non-registered Executives

As of December 31, 2021, there were no accumulated-basis unexercised stock options granted to non-registered Executives.

IX. Affiliates and Subsidiaries

1. *Affiliates & subsidiaries*

A. Affiliates

As of December 31, 2021, Samsung Group is consisted of 59 domestic affiliates. Among the Samsung Group's 59 domestic affiliates, sixteen (16) affiliates including Samsung Electronics are listed, and forty-four (43) affiliates are unlisted.

[As of December 31, 2021]

Name of affiliated group	No. of Affiliates		
	Listed	Unlisted	Total
Samsung	16	43	59

B. Ownership status of affiliates and subsidiaries

1) Domestic

Investee / Investor	Samsung C&T Corp	Samsung BioLogics	Samsung Life Insurance	Samsung SDI	Samsung SDS	Samsung Engineering	Samsung Electro-mechanics	Samsung Electronics	Samsung Heavy Industries	Samsung Securities	Samsung Card	Samsung Fire & Marine Insurance	MULTI CAMPUS	S1 Corporation	Cheil Worldwide
Samsung C&T Corporation		43.4	19.3		17.1	7.0		5.0	0.1						
Samsung BioLogics															
Samsung Life Insurance	0.1	0.1		0.1	0.1	0.1	0.2	8.7	3.0	29.6	71.9	15.0	0.0	5.4	0.3
Samsung SDI						11.7			0.4					11.0	
Samsung SDS													47.2		
Samsung Electro-mechanics									2.1						
Samsung Electronics		31.5		19.6	22.6		23.7		15.2						25.2
Samsung Heavy Industries															
Samsung Securities.														1.3	
Samsung Card														1.9	3.0
Samsung Fire & Marine Insurance						0.2		1.5						1.0	
S1 Corporation															
Cheil Worldwide									0.1						
Hotel Shilla															
SDC															
Samsung Asset Management															
Samsung Electronics Service															
Miracom															
Samsung Global Research													15.2		
Harman International Industries, Inc.															
Total	0.1	75.0	19.3	19.7	39.8	19.0	23.9	15.2	20.9	29.6	71.9	15.0	62.4	20.7	28.6

※ Percent of ownership as of December 31, 2021 based on common shares

Investee / Investor	Hotel Shilla	Samsung Display	Samsung Medison	Samsung BioEpis	Samsung Venture Investment	Samsung Life Service	Samsung Futures	Samsung Active Asset Management	Samsung SRA Asset Management	Samsung Welstory	Samsung Asset Management	Samsung Electronics Logitech	Samsung Electronics Service	Service CS	Samsung Electronics Sales
Samsung C&T Corporation					16.7					100.0					
Samsung BioLogics				50.0											
Samsung Life Insurance	7.4					99.8			100.0		100.0				
Samsung SDI	0.1	15.2			16.3										
Samsung SDS															
Samsung Electro-mechanics					17.0										
Samsung Electronics	5.1	84.8	68.5		16.3							100.0	99.3		100.0
Samsung Heavy Industries					17.0										
Samsung Securities.	3.1				16.7		100.0								
Samsung Card	1.3														
Samsung Fire & Marine Insurance															
S1 Corporation															
Cheil Worldwide															
Hotel Shilla															
SDC															
Samsung Asset Management								100.0							
Samsung Eelectronics Service														100.0	
Miracom															
Samsung Global Research															
Harman International Industries, Inc.															
Total	17.0	100.0	68.5	50.0	100.0	99.8	100.0	100.0	100.0	100.0	100.0	100.0	99.3	100.0	100.0

※ Percent of ownership as of December 31, 2021 based on common shares

Investee / Investor	Samsung Card Customer Service	Samsung Corning Advanced Glass	Samsung Hedge Asset Management	Samsung Fire & Marine Insurance Service	Samsung Claim Adjustment Service	SEMES	Suwon Samsung Bluewings FC	STECO	Shilla HM	SD Flex	SBTM	S-1CRM	SU Materials	S-Core	STM
Samsung C&T Corporation															
Samsung BioLogics															
Samsung Life Insurance															
Samsung SDI										50.0					100.0
Samsung SDS														81.8	
Samsung Electro-mechanics															
Samsung Electronics						91.5		70.0							
Samsung Heavy Industries															
Samsung Securities.															
Samsung Card	100.0														
Samsung Fire & Marine Insurance				100.0	100.0										
S1 Corporation												100.0		0.6	
Cheil Worldwide							100.0							5.2	
Hotel Shilla									100.0		100.0				
SDC		50.0											50.0		
Samsung Asset Management			100.0												
Samsung Eelectronics Service															
Miracom														0.5	
Samsung Global Research															
Harman International Industries, Inc.															
Total	100.0	50.0	100.0	100.0	100.0	91.5	100.0	70.0	100.0	50.0	100.0	100.0	50.0	88.1	100.0

※ Percent of ownership as of December 31, 2021 based on common shares

Investee / Investor	HDC Shilla Duty Free LTD	Open Hands	Cheil Fashion Retail	Miracom	Samsung Global Research	Samsung Lions	Samsung Life Financial Service	Samsung Fire & Marine Financial Service	Samwoo Architects & Engineers	Seoul Lakeside CC	SECUI	CVnet	Harman International Korea	Human TSS
Samsung C&T Corporation			100.0		1.0				100.0	100.0	8.7	40.1		
Samsung BioLogics														
Samsung Life Insurance					14.8		100.0							
Samsung SDI					29.6									
Samsung SDS		100.0		83.6							56.5	9.4		
Samsung Electro-mechanics					23.8									
Samsung Electronics					29.8									
Samsung Heavy Industries					1.0									
Samsung Securities.														
Samsung Card														
Samsung Fire & Marine Insurance								100.0						
S1 Corporation				0.6										100.0
Cheil Worldwide				5.4		67.5								
Hotel Shilla	50.0													
SDC														
Samsung Asset Management														
Samsung Eelectronics Service														
Miracom														
Samsung Global Research														
Harman International Industries, Inc.													100.0	
Total	50.0	100.0	100.0	89.6	100.0	67.5	100.0	100.0	100.0	100.0	65.2	49.5	100.0	100.0

※ Percent of ownership as of December 31, 2021 based on common shares

2) Overseas

Investor	Investee	Ownership
Samwoo Architects & Engineers	SAMOO HU Designer and Engineering Services Limited	100.0
Samwoo Architects & Engineers	SAMOO DESIGNERS & ENGINEERS INDIA PRIVATE LIMITED	100.0
Samwoo Architects & Engineers	SAMOO (KL) SDN. BHD.	100.0
Samsung C&T America Inc.	Meadowland Distribution	100.0
Samsung C&T America Inc.	Samsung Green repower, LLC	100.0
Samsung C&T America Inc.	Samsung Solar Construction Inc.	100.0
Samsung C&T America Inc.	QSSC, S.A. de C.V.	20.0
Samsung C&T America Inc.	Samsung Solar Energy LLC	100.0
Samsung C&T America Inc.	Equipment Trading Solutions Group, LLC	70.0
Samsung C&T America Inc.	FLOWFY COMMERCE SERVICE LLC	100.0
Samsung Renewable Energy Inc.	SP Armow Wind Ontario LP	50.0
Samsung Renewable Energy Inc.	SRE GRW EPC GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE GRW EPC LP	100.0
Samsung Renewable Energy Inc.	SRE SKW EPC GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE SKW EPC LP	100.0
Samsung Renewable Energy Inc.	SRE WIND PA GP INC.	100.0
Samsung Renewable Energy Inc.	SRE WIND PA LP	100.0
Samsung Renewable Energy Inc.	SRE GRS Holdings GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE GRS Holdings LP	100.0
Samsung Renewable Energy Inc.	SRE K2 EPC GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE K2 EPC LP	100.0
Samsung Renewable Energy Inc.	SRE KS HOLDINGS GP INC.	100.0
Samsung Renewable Energy Inc.	SRE KS HOLDINGS LP	100.0
Samsung Renewable Energy Inc.	SP Belle River Wind LP	42.5
Samsung Renewable Energy Inc.	SRE Armow EPC GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Armow EPC LP	100.0
Samsung Renewable Energy Inc.	North Kent Wind 1 LP	35.0
Samsung Renewable Energy Inc.	SRE Wind GP Holding Inc.	100.0
Samsung Renewable Energy Inc.	South Kent Wind LP Inc.	50.0
Samsung Renewable Energy Inc.	Grand Renewable Wind LP Inc.	45.0
Samsung Renewable Energy Inc.	SRE North Kent 2 LP Holdings LP	100.0
Samsung Renewable Energy Inc.	SRE Solar Development GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Solar Development LP	100.0
Samsung Renewable Energy Inc.	SRE Windsor Holdings GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Southgate Holdings GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Solar Construction Management GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Solar Construction Management LP	100.0
Samsung Renewable Energy Inc.	SRE BRW EPC GP INC.	100.0
Samsung Renewable Energy Inc.	SRE BRW EPC LP	100.0
Samsung Renewable Energy Inc.	SRE North Kent 1 GP Holdings Inc	100.0
Samsung Renewable Energy Inc.	SRE North Kent 2 GP Holdings Inc	100.0
Samsung Renewable Energy Inc.	SRE Belle River GP Holdings Inc	100.0
Samsung Renewable Energy Inc.	SRE NK1 EPC GP Inc	100.0
Samsung Renewable Energy Inc.	SRE NK1 EPC LP	100.0
Samsung Renewable Energy Inc.	SRE Summerside Construction GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Summerside Construction LP	100.0
Samsung Green repower, LLC	Monument Power, LLC	100.0
SP Armow Wind Ontario GP Inc	SP Armow Wind Ontario LP	0.0
Samsung C&T Oil & Gas Parallel Corp.	PLL Holdings LLC	83.6
Samsung C&T Oil & Gas Parallel Corp.	PLL E&P LLC	90.0
SRE GRW EPC GP Inc.	SRE GRW EPC LP	0.0
SRE SKW EPC GP Inc.	SRE SKW EPC LP	0.0
PLL Holdings LLC	Parallel Petroleum LLC	61.0

Investor	Investee	Ownership
SRE WIND PA GP INC.	SRE WIND PA LP	0.0
SRE GRS Holdings GP Inc.	Grand Renewable Solar GP Inc.	50.0
SRE GRS Holdings GP Inc.	SRE GRS Holdings LP	0.0
SRE K2 EPC GP Inc.	SRE K2 EPC LP	0.0
SRE KS HOLDINGS GP INC.	KINGSTON SOLAR GP INC.	50.0
SRE KS HOLDINGS GP INC.	SRE KS HOLDINGS LP	0.0
SP Belle River Wind GP Inc	SP Belle River Wind LP	0.0
SRE Armow EPC GP Inc.	SRE Armow EPC LP	0.0
SRE Wind GP Holding Inc.	SP Armow Wind Ontario GP Inc	50.0
SRE Wind GP Holding Inc.	South Kent Wind GP Inc.	50.0
SRE Wind GP Holding Inc.	Grand Renewable Wind GP Inc.	50.0
South Kent Wind GP Inc.	South Kent Wind LP Inc.	0.0
Grand Renewable Wind GP Inc.	Grand Renewable Wind LP Inc.	0.0
North Kent Wind 1 GP Inc	North Kent Wind 1 LP	0.0
SRE Solar Development GP Inc.	SRE Solar Development LP	0.0
SRE Solar Construction Management GP Inc.	SRE Solar Construction Management LP	0.0
SRE BRW EPC GP INC.	SRE BRW EPC LP	0.0
SRE North Kent 1 GP Holdings Inc	North Kent Wind 1 GP Inc	50.0
SRE North Kent 2 GP Holdings Inc	SRE North Kent 2 LP Holdings LP	0.0
SRE Belle River GP Holdings Inc	SP Belle River Wind GP Inc	50.0
SRE NK1 EPC GP Inc	SRE NK1 EPC LP	0.0
SRE Summerside Construction GP Inc.	SRE Summerside Construction LP	0.0
Samsung Solar Energy LLC	Samsung Solar Energy 1 LLC	100.0
Samsung Solar Energy LLC	Samsung Solar Energy 2 LLC	100.0
Samsung Solar Energy LLC	Samsung Solar Energy 3, LLC	100.0
Samsung Solar Energy 1 LLC	CS SOLAR LLC	50.0
Samsung Solar Energy 3, LLC	SST SOLAR, LLC	50.0
Samsung C&T Deutschland GmbH	POSS-SLPC, S.R.O	20.0
Samsung C&T Deutschland GmbH	Solluce Romania 1 B.V.	20.0
Samsung C&T Deutschland GmbH	S.C. Otelinox S.A	99.7
Solluce Romania 1 B.V.	LJG GREEN SOURCE ENERGY ALPHA S.R.L.	78.0
Samsung C&T Malaysia SDN. BHD	WARIS GIGIH ENGINEERING AND TECHNOLOGY SDN. BHD.	70.0
Samsung C&T Singapore Pte., Ltd.	Samsung Chemtech Vina LLC	48.3
Samsung C&T Singapore Pte., Ltd.	Samsung C&T Thailand Co., Ltd	0.2
Samsung C&T Singapore Pte., Ltd.	PT. INSAM BATUBARA ENERGY	10.0
Samsung C&T Singapore Pte., Ltd.	Malaysia Samsung Steel Center Sdn.Bhd	30.0
Samsung C&T Singapore Pte., Ltd.	S&G Biofuel PTE.LTD	12.6
S&G Biofuel PTE.LTD	PT. Gandaerah Hendana	95.0
S&G Biofuel PTE.LTD	PT. Inecda	95.0
CHEIL HOLDING INC.	SAMSUNG CONST. CO. PHILS.	75.0
Samsung C&T Hongkong Ltd.	Samsung C&T Thailand Co., Ltd	6.8
Samsung C&T Hongkong Ltd.	SAMSUNG TRADING (SHANGHAI) CO., LTD	100.0
Samsung C&T Hongkong Ltd.	Samsung Precision Stainless Steel(pinghu) Co.,Ltd.	45.0
Samsung Electronics	Samsung Japan Corporation	100.0
Samsung Electronics	Samsung R&D Institute Japan Co. Ltd.	100.0
Samsung Electronics	Samsung Electronics America, Inc.	100.0
Samsung Electronics	Samsung Electronics Canada, Inc.	100.0
Samsung Electronics	Samsung Electronics Mexico S.A. De C.V.	63.6
Samsung Electronics	Samsung Electronics Ltd.	100.0
Samsung Electronics	Samsung Electronics (UK) Ltd.	100.0
Samsung Electronics	Samsung Electronics Holding GmbH	100.0
Samsung Electronics	Samsung Electronics Iberia, S.A.	100.0
Samsung Electronics	Samsung Electronics France S.A.S	100.0
Samsung Electronics	Samsung Electronics Hungarian Private Co. Ltd.	100.0
Samsung Electronics	Samsung Electronics Italia S.P.A.	100.0

Investor	Investee	Ownership
Samsung Electronics	Samsung Electronics Europe Logistics B.V.	100.0
Samsung Electronics	Samsung Electronics Benelux B.V.	100.0
Samsung Electronics	Samsung Electronics Overseas B.V.	100.0
Samsung Electronics	Samsung Electronics Polska, SP.Zo.o	100.0
Samsung Electronics	Samsung Electronics Portuguesa, Unipessoal, Lda.	100.0
Samsung Electronics	Samsung Electronics Nordic Aktiebolag	100.0
Samsung Electronics	Samsung Electronics Austria GmbH	100.0
Samsung Electronics	Samsung Electronics Slovakia s.r.o	55.7
Samsung Electronics	Samsung Electronics Europe Holding Cooperatief U.A.	100.0
Samsung Electronics	Samsung Electronics Display (M) Sdn. Bhd.	75.0
Samsung Electronics	Samsung Electronics (M) Sdn. Bhd.	100.0
Samsung Electronics	Samsung Vina Electronics Co., Ltd.	100.0
Samsung Electronics	Samsung Asia Pte. Ltd.	100.0
Samsung Electronics	Samsung India Electronics Private Ltd.	100.0
Samsung Electronics	Samsung R&D Institute India-Bangalore Private Limited	100.0
Samsung Electronics	Samsung Electronics Australia Pty. Ltd.	100.0
Samsung Electronics	PT Samsung Electronics Indonesia	100.0
Samsung Electronics	Thai Samsung Electronics Co., Ltd.	91.8
Samsung Electronics	Samsung Malaysia Electronics (SME) Sdn. Bhd.	100.0
Samsung Electronics	Samsung Electronics Hong Kong Co., Ltd.	100.0
Samsung Electronics	Suzhou Samsung Electronics Co., Ltd.	69.1
Samsung Electronics	Samsung (CHINA) Investment Co., Ltd.	100.0
Samsung Electronics	Samsung Electronics Suzhou Semiconductor Co., Ltd.	100.0
Samsung Electronics	Tianjin Samsung Electronics Co., Ltd.	48.2
Samsung Electronics	Samsung Electronics Taiwan Co., Ltd.	100.0
Samsung Electronics	Tianjin Samsung Telecom Technology Co., Ltd.	90.0
Samsung Electronics	Shanghai Samsung Semiconductor Co., Ltd.	100.0
Samsung Electronics	Samsung Electronics Suzhou Computer Co., Ltd.	73.7
Samsung Electronics	Samsung Semiconductor (China) R&D Co., Ltd.	100.0
Samsung Electronics	Samsung (China) Semiconductor Co., Ltd.	100.0
Samsung Electronics	Samsung SemiConductor Xian Co., Ltd.	100.0
Samsung Electronics	Samsung Gulf Electronics Co., Ltd.	100.0
Samsung Electronics	Samsung Electronics Egypt S.A.E	0.1
Samsung Electronics	Samsung Electronics South Africa(Pty) Ltd.	100.0
Samsung Electronics	Samsung Electronics Latinoamerica(Zona Libre), S. A.	100.0
Samsung Electronics	Samsung Eletronica da Amazonia Ltda.	87.0
Samsung Electronics	Samsung Electronics Argentina S.A.	98.0
Samsung Electronics	Samsung Electronics Chile Limitada	4.1
Samsung Electronics	Samsung Electronics Rus Company LLC	100.0
Samsung Electronics	Samsung Electronics Rus Kaluga LLC	100.0
Samsung Electronics	Tianjin Samsung LED Co., Ltd.	100.0
Samsung Biologics	Samsung Biologics America, Inc.	100.0
Samsung BioEpis	Samsung Bioepis United States Inc.	100.0
Samsung BioEpis	SAMSUNG BIOEPIS UK LIMITED	100.0
Samsung BioEpis	Samsung Bioepis NL B.V.	100.0
Samsung BioEpis	Samsung Bioepis CH GmbH	100.0
Samsung BioEpis	Samsung Bioepis PL Sp z o.o.	100.0
Samsung BioEpis	SAMSUNG BIOEPIS AU PTY LTD	100.0
Samsung BioEpis	SAMSUNG BIOEPIS NZ LIMITED	100.0
Samsung BioEpis	SAMSUNG BIOEPIS TW Limited	100.0
Samsung BioEpis	Samsung Bioepis HK Limited	100.0
Samsung BioEpis	SAMSUNG BIOEPIS IL LTD	100.0
Samsung BioEpis	SAMSUNG BIOEPIS BR PHARMACEUTICAL LTDA	100.0
Samsung Display	Intellectual Keystone Technology LLC	41.9
Samsung Display	Samsung Display Slovakia, s.r.o.	100.0

Investor	Investee	Ownership
Samsung Display	Samsung Display Vietnam Co., Ltd.	100.0
Samsung Display	Samsung Display Noida Private Limited	100.0
Samsung Display	Samsung Display Dongguan Co., Ltd.	100.0
Samsung Display	Samsung Display Tianjin Co., Ltd.	95.0
Samsung Display	Novaled GmbH	9.9
SEMES	SEMES America, Inc.	100.0
SEMES	SEMES (XIAN) Co., Ltd.	100.0
Samsung Electronics America, Inc.	NeuroLogica Corp.	100.0
Samsung Electronics America, Inc.	Dacor Holdings, Inc.	100.0
Samsung Electronics America, Inc.	Samsung HVAC America, LLC	100.0
Samsung Electronics America, Inc.	SmartThings, Inc.	100.0
Samsung Electronics America, Inc.	Samsung Oak Holdings, Inc.	100.0
Samsung Electronics America, Inc.	Joyent, Inc.	100.0
Samsung Electronics America, Inc.	TeleWorld Solutions, Inc.	100.0
Samsung Electronics America, Inc.	Samsung Semiconductor, Inc.	100.0
Samsung Electronics America, Inc.	Samsung Research America, Inc	100.0
Samsung Electronics America, Inc.	Samsung Electronics Home Appliances America, LLC	100.0
Samsung Electronics America, Inc.	Samsung International, Inc.	100.0
Samsung Electronics America, Inc.	Harman International Industries, Inc.	100.0
Dacor Holdings, Inc.	Dacor, Inc.	100.0
Dacor, Inc.	Dacor Canada Co.	100.0
Samsung Semiconductor, Inc.	Samsung Austin Semiconductor LLC.	100.0
Samsung Electronics Canada, Inc.	AdGear Technologies Inc.	100.0
Samsung Research America, Inc	SAMSUNG NEXT LLC	100.0
SAMSUNG NEXT LLC	SAMSUNG NEXT FUND LLC	100.0
Samsung International, Inc.	Samsung Mexicana S.A. de C.V	100.0
Samsung Electronics Mexico S.A. De C.V.	Samsung Electronics Digital Appliance Mexico, SA de CV	100.0
Harman International Industries, Inc.	Harman International Japan Co., Ltd.	100.0
Harman International Industries, Inc.	Harman International Industries Canada Ltd.	100.0
Harman International Industries, Inc.	Harman Becker Automotive Systems, Inc.	100.0
Harman International Industries, Inc.	Harman Professional, Inc.	100.0
Harman International Industries, Inc.	Harman Connected Services, Inc.	100.0
Harman International Industries, Inc.	Harman Financial Group LLC	100.0
Harman International Industries, Inc.	Harman Belgium SA	100.0
Harman International Industries, Inc.	Harman France SNC	100.0
Harman International Industries, Inc.	Red Bend Software SAS	100.0
Harman International Industries, Inc.	Harman Inc. & Co. KG	66.0
Harman International Industries, Inc.	Harman KG Holding, LLC	100.0
Harman International Industries, Inc.	Harman Becker Automotive Systems Italy S.R.L.	100.0
Harman International Industries, Inc.	Harman Finance International, SCA	100.0
Harman International Industries, Inc.	Harman Finance International GP S.a.r.l	100.0
Harman International Industries, Inc.	Harman Industries Holdings Mauritius Ltd.	100.0
Harman International Industries, Inc.	Harman International Mexico, S. de R.L. de C.V.	99.9
Harman Becker Automotive Systems, Inc.	Harman International Estonia OU	100.0
Harman Professional, Inc.	AMX UK Limited	100.0
Harman Professional, Inc.	Harman Singapore Pte. Ltd.	100.0
Harman Professional, Inc.	Harman da Amazonia Industria Eletronica e Participacoes Ltda.	0.0
Harman Professional, Inc.	Harman do Brasil Industria Eletronica e Participacoes Ltda.	0.0
Harman Connected Services, Inc.	Harman Connected Services Engineering Corp.	100.0
Harman Connected Services, Inc.	Harman Connected Services AB.	100.0
Harman Connected Services, Inc.	Harman Connected Services UK Ltd.	100.0
Harman Connected Services, Inc.	Harman Connected Services Corp. India Pvt. Ltd.	1.6
Harman Connected Services, Inc.	Global Symphony Technology Group Private Ltd.	100.0
Harman Financial Group LLC	Harman International (India) Private Limited	0.0
Harman Financial Group LLC	Harman International Mexico, S. de R.L. de C.V.	0.1

Investor	Investee	Ownership
Harman Financial Group LLC	Harman de Mexico, S. de R.L. de C.V.	0.0
Samsung Electronics (UK) Ltd.	Samsung Semiconductor Europe Limited	100.0
Samsung Electronics Holding GmbH	Samsung Semiconductor Europe GmbH	100.0
Samsung Electronics Holding GmbH	Samsung Electronics GmbH	100.0
Samsung Electronics Hungarian Private Co. Ltd.	Samsung Electronics Czech and Slovak s.r.o.	31.4
Samsung Electronics Hungarian Private Co. Ltd.	Samsung Electronics Slovakia s.r.o	44.3
Samsung Electronics Benelux B.V.	Samsung Electronics Mexico S.A. De C.V.	36.4
Samsung Electronics Benelux B.V.	SAMSUNG ELECTRONICS BALTICS SIA	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics West Africa Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics East Africa Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Saudi Arabia Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Egypt S.A.E	99.9
Samsung Electronics Benelux B.V.	Samsung Electronics Israel Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Tunisia S.A.R.L	99.0
Samsung Electronics Benelux B.V.	Samsung Electronics Pakistan(Private) Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics South Africa Production (pty) Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Turkey	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Industry and Commerce Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Semiconductor Israel R&D Center, Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Levant Co.,Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Maghreb Arab	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Venezuela, C.A.	100.0
Samsung Electronics Benelux B.V.	Samsung Eletronica da Amazonia Ltda.	13.0
Samsung Electronics Benelux B.V.	Samsung Electronics Chile Limitada	95.9
Samsung Electronics Benelux B.V.	Samsung Electronics Peru S.A.C.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Ukraine Company LLC	100.0
Samsung Electronics Benelux B.V.	Samsung R&D Institute Rus LLC	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Central Eurasia LLP	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Caucasus Co. Ltd	100.0
Samsung Electronics Benelux B.V.	Corephotonics Ltd.	100.0
Samsung Electronics Nordic Aktiebolag	Samsung Nanoradio Design Center	100.0
AKG Acoustics Gmbh	Harman Professional Denmark ApS	100.0
AKG Acoustics Gmbh	Studer Professional Audio GmbH	100.0
Harman Professional Denmark ApS	Martin Professional Japan Ltd.	40.0
Harman Professional Denmark ApS	Harman International s.r.o	100.0
Harman Becker Automotive Systems GmbH	Harman International Romania SRL	0.0
Harman Holding Gmbh & Co. KG	Harman Becker Automotive Systems GmbH	100.0
Harman Holding Gmbh & Co. KG	Harman Deutschland GmbH	100.0
Harman Holding Gmbh & Co. KG	Harman Becker Automotive Systems Manufacturing Kft	100.0
Harman Holding Gmbh & Co. KG	Harman RUS CIS LLC	100.0
Harman Inc. & Co. KG	Harman Holding Gmbh & Co. KG	100.0
Harman Inc. & Co. KG	Harman Management Gmbh	100.0
Harman Inc. & Co. KG	Harman Hungary Financing Ltd.	100.0
Harman Connected Services GmbH	Harman Connected Services OOO	100.0
Harman KG Holding, LLC	Harman Inc. & Co. KG	34.0
Harman Becker Automotive Systems Manufacturing Kft	Harman Professional Kft	100.0
Harman Becker Automotive Systems Manufacturing Kft	Harman Consumer Nederland B.V.	100.0
Harman Becker Automotive Systems Manufacturing Kft	Harman International Romania SRL	100.0
Harman Becker Automotive Systems Manufacturing Kft	Red Bend Ltd.	100.0
Harman Becker Automotive Systems Manufacturing Kft	Harman do Brasil Industria Eletronica e Participacoes Ltda.	100.0
Harman Hungary Financing Ltd.	Harman International Industries Limited	100.0
Harman Finance International GP S.a.r.l	Harman Finance International, SCA	0.0
Harman Consumer Nederland B.V.	AKG Acoustics Gmbh	100.0
Harman Consumer Nederland B.V.	Harman Audio Iberia Espana Sociedad Limitada	100.0
Harman Consumer Nederland B.V.	Harman Holding Limited	100.0

Investor	Investee	Ownership
Harman Audio Iberia Espana Sociedad Limitada	Harman France SNC	0.0
Harman Connected Services AB.	Harman Finland Oy	100.0
Harman Connected Services AB.	Harman Connected Services GmbH	100.0
Harman Connected Services AB.	Harman Connected Services Poland Sp.zoo	100.0
Harman Connected Services AB.	Harman Connected Services Solutions (Chengdu) Co., Ltd.	100.0
Harman International Industries Limited	Harman Automotive UK Limited	100.0
Harman International Industries Limited	Harman International Industries PTY Ltd.	100.0
Harman International Industries Limited	Harman de Mexico, S. de R.L. de C.V.	100.0
Harman Connected Services UK Ltd.	Harman Connected Services Morocco	100.0
Samsung Electronics Austria GmbH	Samsung Electronics Switzerland GmbH	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Czech and Slovak s.r.o.	68.6
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Romania LLC	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Zhilabs, S.L.	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Porta Nuova Varesine Building 2 S.r.l.	49.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Poland Manufacturing SP.Zo.o	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Greece S.M.S.A	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Air Conditioner Europe B.V.	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	FOODIENT LTD.	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Denmark Research Center ApS	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Cambridge Solution Centre Limited	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Novaled GmbH	40.0
Samsung Electronics Singapore Pte. Ltd.	Samsung Electronics Display (M) Sdn. Bhd.	25.0
Samsung Electronics Singapore Pte. Ltd.	iMarket Asia Co., Ltd.	11.4
Samsung Asia Pte. Ltd.	Samsung Electronics Japan Co., Ltd.	100.0
Samsung Asia Pte. Ltd.	Samsung Electronics Singapore Pte. Ltd.	100.0
Samsung Asia Pte. Ltd.	Samsung Electronics New Zealand Limited	100.0
Samsung Asia Pte. Ltd.	Samsung Electronics Philippines Corporation	100.0
Samsung Asia Pte. Ltd.	Samsung R&D Institute BanglaDesh Limited	100.0
Samsung Asia Pte. Ltd.	Samsung Electronics Vietnam Co., Ltd.	100.0
Samsung Asia Pte. Ltd.	Samsung Electronics Vietnam THAINGUYEN Co., Ltd.	100.0
Samsung Asia Pte. Ltd.	Samsung Electronics HCMC CE Complex Co., Ltd.	100.0
Samsung India Electronics Private Ltd.	Samsung Nepal Services Pvt, Ltd	100.0
PT Samsung Electronics Indonesia	PT Samsung Telecommunications Indonesia	100.0
Thai Samsung Electronics Co., Ltd.	Laos Samsung Electronics Sole Co., Ltd	100.0
Samsung Electronics Hong Kong Co., Ltd.	iMarket Asia Co., Ltd.	11.3
Suzhou Samsung Electronics Co., Ltd.	Samsung Suzhou Electronics Export Co., Ltd.	100.0
Samsung (CHINA) Investment Co., Ltd.	Suzhou Samsung Electronics Co., Ltd.	19.2
Samsung (CHINA) Investment Co., Ltd.	Samsung Mobile R&D Center China-Guangzhou	100.0
Samsung (CHINA) Investment Co., Ltd.	Samsung R&D Institute China-Shenzhen	100.0
Samsung (CHINA) Investment Co., Ltd.	Tianjin Samsung Electronics Co., Ltd.	43.1
Samsung (CHINA) Investment Co., Ltd.	Beijing Samsung Telecom R&D Center	100.0
Samsung (CHINA) Investment Co., Ltd.	Samsung Electronics Suzhou Computer Co., Ltd.	26.3
Samsung (CHINA) Investment Co., Ltd.	Samsung Electronics China R&D Center	100.0
Harman International (China) Holdings Co., Ltd.	Harman (Suzhou) Audio and Infotainment Systems Co., Ltd.	100.0
Harman International (China) Holdings Co., Ltd.	Harman Technology (Shenzhen) Co., Ltd.	100.0
Harman International (China) Holdings Co., Ltd.	Harman (China) Technologies Co., Ltd.	100.0
Harman Holding Limited	Harman Commercial (Shanghai) Co., Ltd.	100.0
Harman Holding Limited	Harman International (China) Holdings Co., Ltd.	100.0
Harman Holding Limited	Harman Automotive Electronic Systems (Suzhou) Co., Ltd.	100.0
Samsung Gulf Electronics Co., Ltd.	Samsung Electronics Egypt S.A.E	0.1
Samsung Electronics Maghreb Arab	Samsung Electronics Tunisia S.A.R.L	1.0
Harman Industries Holdings Mauritius Ltd.	Harman International (India) Private Limited	100.0
Global Symphony Technology Group Private Ltd.	Harman Connected Services Corp. India Pvt. Ltd.	98.4
Red Bend Ltd.	Red Bend Software Ltd.	100.0
Samsung Electronics Latinoamerica(Zona Libre), S. A.	Samsung Electronics Latinoamerica Miami, Inc.	100.0

Investor	Investee	Ownership
Samsung Electronics Latinoamerica(Zona Libre), S. A.	Samsung Electronica Colombia S.A.	100.0
Samsung Electronics Latinoamerica(Zona Libre), S. A.	Samsung Electronics Panama. S.A.	100.0
Samsung Eletronica da Amazonia Ltda.	Samsung Electronics Argentina S.A.	2.0
Harman do Brasil Industria Eletronica e Participacoes Ltda.	Harman da Amazonia Industria Eletronica e Participacoes Ltda.	100.0
Samsung Electronics Central Eurasia LLP	Samsung Electronics Caucasus Co. Ltd	0.0
Samsung SDI	Intellectual Keystone Technology LLC	41.0
Samsung SDI	Samsung SDI Japan Co., Ltd.	89.2
Samsung SDI	Samsung SDI America, Inc.	91.7
Samsung SDI	Samsung SDI Hungary., Zrt.	100.0
Samsung SDI	Samsung SDI Europe GmbH	100.0
Samsung SDI	Samsung SDI Battery Systems GmbH	100.0
Samsung SDI	Samsung SDI Vietnam Co., Ltd.	100.0
Samsung SDI	Samsung SDI Energy Malaysia Sdn, Bhd.	100.0
Samsung SDI	Samsung SDI India Private Limited	100.0
Samsung SDI	Samsung SDI(Hong Kong) Ltd.	97.6
Samsung SDI	Samsung SDI China Co., Ltd.	100.0
Samsung SDI	Samsung SDI-ARN (Xi'An) Power Battery Co., Ltd.	65.0
Samsung SDI	Samsung SDI (Tianjin) Battery Co.,Ltd.	80.0
Samsung SDI	Novaled GmbH	50.1
Samsung SDI	SAMSUNG SDI WUXI CO.,LTD.	100.0
Samsung SDI	iMarket Asia Co., Ltd.	8.7
Samsung SDI(Hong Kong) Ltd.	Samsung SDI India Private Limited	0.0
Samsung SDI(Hong Kong) Ltd.	Tianjin Samsung SDI Co., Ltd.	80.0
Samsung Electro-Mechanics	Samsung Electro-Machanics Japan Co., Ltd.	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics America, Inc.	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics GmbH	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics(Thailand) Co., Ltd.	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics Philippines, Corp.	100.0
Samsung Electro-Mechanics	Calamba Premier Realty Corporation	39.8
Samsung Electro-Mechanics	Samsung Electro-Mechanics Pte Ltd.	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics Vietnam Co., Ltd.	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics Software India Bangalore Private Limited	99.9
Samsung Electro-Mechanics	Dongguan Samsung Electro-Mechanics Co., Ltd.	100.0
Samsung Electro-Mechanics	Tianjin Samsung Electro-Mechanics Co., Ltd.	81.8
Samsung Electro-Mechanics	Samsung High-Tech Electro-Mechanics(Tianjin) Co., Ltd.	95.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics (Shenzhen) Co., Ltd.	100.0
Samsung Electro-Mechanics	Kunshan Samsung Electro-Mechanics Co., Ltd.	100.0
Samsung Electro-Mechanics	iMarket Asia Co., Ltd.	8.7
Calamba Premier Realty Corporation	Batino Realty Corporation	100.0
Samsung Electro-Mechanics Pte Ltd.	Samsung Electro-Mechanics Software India Bangalore Private Limited	0.1
Samsung Fire & Marine Insurance	Samsung Fire & Marine Management Corporation	100.0
Samsung Fire & Marine Insurance	SAMSUNG FIRE & MARINE INSURANCE COMPANY OF EUROPE LTD.	100.0
Samsung Fire & Marine Insurance	PT. Asuransi Samsung Tugu	70.0
Samsung Fire & Marine Insurance	SAMSUNG VINA INSURANCE COMPANY LIMITED	75.0
Samsung Fire & Marine Insurance	Samsung Reinsurance Pte. Ltd.	100.0
Samsung Fire & Marine Insurance	Samsung Property & Casualty Insurance Company(China), Ltd	100.0
Samsung Fire & Marine Insurance	Samsung Fire & Marine Insurance Management Middle East Limited	100.0
Samsung Heavy Industries Co.,Ltd.	Camellia Consulting Corporation	100.0
Samsung Heavy Industries Co.,Ltd.	Samsung Heavy Industries India Pvt.Ltd.	100.0
Samsung Heavy Industries Co.,Ltd.	SAMSUNG HEAVY INDUSTRIES (M) SDN.BHD	100.0
Samsung Heavy Industries Co.,Ltd.	Samsung Heavy Industries(Ningbo) Co., Ltd	100.0
Samsung Heavy Industries Co.,Ltd.	Samsung Heavy Industries(Rongcheng) Co., Ltd	100.0
Samsung Heavy Industries Co.,Ltd.	Rongcheng Gaya Heavy Industries Co., Ltd	100.0
Samsung Heavy Industries Co.,Ltd.	SAMSUNG HEAVY INDUSTRIES NIGERIA LIMITED	100.0

Investor	Investee	Ownership
Samsung Heavy Industries Co.,Ltd.	Samsung Heavy Industries Mozambique LDA	100.0
Samsung Heavy Industries Co.,Ltd.	Samsung Heavy Industries Rus LLC	100.0
SAMSUNG HEAVY INDUSTRIES NIGERIA LIMITED	SHI - MCI FZE	70.0
Samsung Life Insurance	Porta Nuova Varesine Building 2 S.r.l.	51.0
Samsung Life Insurance	THAI SAMSUNG LIFE INSURANCE CO., LTD.	48.9
Samsung Life Insurance	Beijing Samsung Real Estate Co.. Ltd	90.0
Samsung Asset Management	Samsung Asset Management (New York), Inc.	100.0
Samsung Asset Management	Samsung Global SME Private Equity Manager Fund Co., Ltd.	100.0
Samsung Asset Management	Samsung Asset Management(London) Ltd.	100.0
Samsung Asset Management	Samsung Private Equity Manager I Co., Ltd.	100.0
Samsung Asset Management	Samsung Asset Management (Hong Kong) Ltd.	100.0
Samsung Asset Management (Hong Kong) Ltd.	Samsung Asset Management (Beijing) Ltd.	100.0
Samsung C&T Corporation	Samsung C&T Japan Corporation	100.0
Samsung C&T Corporation	Samsung C&T America Inc.	100.0
Samsung C&T Corporation	Samsung E&C America, INC.	100.0
Samsung C&T Corporation	Samsung Renewable Energy Inc.	100.0
Samsung C&T Corporation	QSSC, S.A. de C.V.	80.0
Samsung C&T Corporation	Samsung C&T Oil & Gas Parallel Corp.	100.0
Samsung C&T Corporation	Samsung C&T Lima S.A.C.	100.0
Samsung C&T Corporation	Samsung C&T Deutschland GmbH	100.0
Samsung C&T Corporation	Samsung C&T U.K. Ltd.	100.0
Samsung C&T Corporation	Samsung C&T ECUK Limited	100.0
Samsung C&T Corporation	Whessoe engineering Limited	100.0
Samsung C&T Corporation	POSS-SLPC, S.R.O	50.0
Samsung C&T Corporation	Solluce Romania 1 B.V.	80.0
Samsung C&T Corporation	SAM investment Manzanilo.B.V	53.3
Samsung C&T Corporation	Samsung C&T (KL) Sdn.,Bhd.	100.0
Samsung C&T Corporation	Samsung C&T Malaysia SDN. BHD	100.0
Samsung C&T Corporation	Erdsam Co., Ltd.	100.0
Samsung C&T Corporation	Samsung Chemtech Vina LLC	51.7
Samsung C&T Corporation	Samsung C&T Thailand Co., Ltd	93.0
Samsung C&T Corporation	PT. INSAM BATUBARA ENERGY	90.0
Samsung C&T Corporation	Samsung C&T India Private Limited	100.0
Samsung C&T Corporation	Samsung C&T Corporation India Private Limited	100.0
Samsung C&T Corporation	Malaysia Samsung Steel Center Sdn.Bhd	70.0
Samsung C&T Corporation	Samsung C&T Singapore Pte., Ltd.	100.0
Samsung C&T Corporation	S&G Biofuel PTE.LTD	50.5
Samsung C&T Corporation	SAMSUNG C&T Mongolia LLC.	70.0
Samsung C&T Corporation	Samsung C&T Eng.&Const. Mongolia LLC.	100.0
Samsung C&T Corporation	S&WOO CONSTRUCTION PHILIPPINES,INC.	100.0
Samsung C&T Corporation	VSSC STEEL CENTER LIMITED LIABILITY COMPANY	85.0
Samsung C&T Corporation	Vista Contracting and Investment Global Pte. Ltd.	100.0
Samsung C&T Corporation	SAMSUNG CONST. CO. PHILS.	25.0
Samsung C&T Corporation	CHEIL HOLDING INC.	40.0
Samsung C&T Corporation	Samsung C&T Hongkong Ltd.	100.0
Samsung C&T Corporation	Samsung C&T Taiwan Co., Ltd.	100.0
Samsung C&T Corporation	Samsung Precision Stainless Steel(pinghu) Co.,Ltd.	55.0
Samsung C&T Corporation	SAMSUNG C&T (SHANGHAI) CO., LTD.	100.0
Samsung C&T Corporation	Samsung C&T (Xi'an) Co., Ltd.	100.0
Samsung C&T Corporation	WARIS GIGIH ENGINEERING AND TECHNOLOGY SDN. BHD.	30.0
Samsung C&T Corporation	SAMSUNG C&T CORPORATION SAUDI ARABIA	100.0
Samsung C&T Corporation	SAM Gulf Investment Limited	100.0
Samsung C&T Corporation	Samsung C&T Chile Copper SpA	100.0
Samsung C&T Corporation	SCNT Power Kelar Inversiones Limitada	100.0
Samsung C&T Corporation	Samsung C&T Corporation Rus LLC	100.0

Investor	Investee	Ownership
Samsung C&T Corporation	Samsung SDI America, Inc.	8.3
Samsung C&T Corporation	Samsung SDI(Hong Kong) Ltd.	2.4
Samsung C&T Corporation	Beijing Samsung Real Estate Co.. Ltd	10.0
Samsung C&T Corporation	Cheil Industries Corp., USA	100.0
Samsung C&T Corporation	CHEIL INDUSTRIES ITALY SRL	100.0
Samsung C&T Corporation	Samsung Fashion Trading Co. ,Ltd	100.0
Samsung C&T Corporation	SAMSUNG C&T CORPORATION VIETNAM CO., LTD	100.0
Samsung C&T Corporation	Samsung C&T Corporation UEM Construction JV Sdn Bhd	60.0
Samsung C&T Corporation	iMarket Asia Co., Ltd.	19.3
Samsung Welstory	WELSTORY VIETNAM COMPANY LIMITED	100.0
Samsung Welstory	Shanghai Ever-Hongjun Business Mgt Service Co.,LTD	85.0
Samsung Welstory	Shanghai Welstory Food Company Limited	81.6
MULTICAMPUS	LANGUAGE TESTING INTERNATIONAL, INC.	82.4
Pengtai Greater China Company Limited	PENGTAI CHINA CO.,LTD.	100.0
Pengtai Greater China Company Limited	PengTai Taiwan Co., Ltd.	100.0
PENGTAI CHINA CO.,LTD.	PENGTAI E-COMMERCE CO.,LTD	100.0
PENGTAI CHINA CO.,LTD.	PENGTAI MARKETING SERVICE CO.,LTD.	100.0
PENGTAI INTERACTIVE ADVERTISING CO.,LTD	Medialytics Inc.	100.0
PENGTAI INTERACTIVE ADVERTISING CO.,LTD	Beijing Pengtai Baozun E-commerce Co., Ltd.	51.0
iMarket Asia Co., Ltd.	iMarket China Co., Ltd.	80.0
Samsung Securities	Samsung Securities (America), Inc.	100.0
Samsung Securities	Samsung Securities (Europe) Limited.	100.0
Samsung Securities	Samsung Securities (Asia) Limited.	100.0
Samsung SDS	iMarket Asia Co., Ltd.	40.6
Samsung SDS	Samsung SDS America, Inc.	100.0
Samsung SDS	SAMSUNG SDS GSCL Canada., Ltd.	100.0
Samsung SDS	Neo EXpress Transportation (NEXT) Inc.	51.0
Samsung SDS	Samsung SDS Europe, Ltd.	100.0
Samsung SDS	Samsung SDS Global SCL Hungary, Kft.	100.0
Samsung SDS	Samsung SDS Global SCL Slovakia, S.R.O.	100.0
Samsung SDS	Samsung SDS Global SCL Poland Sp. Z.o.o.	100.0
Samsung SDS	Samsung GSCL Sweden AB	100.0
Samsung SDS	Samsung SDS Global SCL France SAS	100.0
Samsung SDS	Samsung SDS Global SCL Greece Societe Anonyme	100.0
Samsung SDS	Samsung SDS Global SCL Italy S.R.L. A Socio Unico	100.0
Samsung SDS	Samsung SDS Global Supply Chain Logistics Spain S.L.U	100.0
Samsung SDS	Samsung SDS Global SCL Netherlands Cooperatief U.A.	100.0
Samsung SDS	Samsung SDS Global SCL Germany GmbH	100.0
Samsung SDS	Samsung SDS Global SCL Romania S.R.L	100.0
Samsung SDS	Samsung SDS Asia Pacific Pte, Ltd.	100.0
Samsung SDS	Samsung Data Systems India Private Limited	100.0
Samsung SDS	Samsung SDS Vietnam Co., Ltd.	100.0
Samsung SDS	PT. Samsung SDS Global SCL Indonesia	100.0
Samsung SDS	Samsung SDS Global SCL Philippines Co., Ltd.Inc.	100.0
Samsung SDS	Samsung SDS Global SCL Thailand Co.,Ltd	100.0
Samsung SDS	Samsung SDS Global SCL Malaysia SDN.BHD.	100.0
Samsung SDS	SAMSUNG SDS Global SCL Austraila Pty.,Ltd.	100.0
Samsung SDS	SDS-ACUTECH CO., Ltd.	50.0
Samsung SDS	ALS SDS Joint Stock Company	51.0
Samsung SDS	SDS-MP Logistics Joint Stock Company	51.0
Samsung SDS	Samsung SDS China Co., Ltd.	100.0
Samsung SDS	Samsung SDS Global SCL Hong Kong Co., Ltd.	100.0
Samsung SDS	SAMSUNG SDS Global SCL Egypt	100.0
Samsung SDS	Samsung SDS Global SCL South Africa (PTY) Ltd.	100.0
Samsung SDS	Samsung SDS Global SCL Nakliyat ve Lojistik Anonim Sirketi	100.0

Investor	Investee	Ownership
Samsung SDS	Samsung SDS Global Supply Chain Logistics Middle East DWC-LLC	100.0
Samsung SDS	Samsung SDS Latin America Solucoes Em Tecnologia Ltda.	99.7
Samsung SDS	INTE-SDS Logistics S.A. de C.V.	51.0
Samsung SDS	Samsung SDS Rus Limited Liability Company	100.0
Miracom	MIRACOM INC ASIA PACIFIC LIMITED	100.0
Samsung SDS America, Inc.	Samsung SDS Mexico, S.A. DE C.V.	99.0
Samsung SDS America, Inc.	Samsung SDS Global SCL Panama S. A.	100.0
Samsung SDS America, Inc.	Samsung SDS Global SCL Chile Limitada	100.0
Samsung SDS America, Inc.	Samsung SDS Global SCL Peru S.A.C.	100.0
Samsung SDS America, Inc.	Samsung SDS Global SCL Colombia S.A.S.	100.0
Samsung SDS America, Inc.	Samsung SDS Latin America Solucoes Em Tecnologia Ltda.	0.3
Samsung SDS Europe, Ltd.	Samsung SDS Global SCL Netherlands Cooperatief U.A.	0.0
Samsung SDS Global SCL Netherlands Cooperatief U.A.	Samsung SDS Global SCL Poland Sp. Z.o.o.	0.0
Samsung SDS Global SCL Netherlands Cooperatief U.A.	Samsung SDS Global SCL Greece Societe Anonyme	0.0
Samsung SDS Global SCL Netherlands Cooperatief U.A.	Samsung SDS Global SCL Romania S.R.L	0.0
Samsung SDS Global SCL Netherlands Cooperatief U.A.	Samsung SDS Rus Limited Liability Company	0.0
Samsung SDS China Co., Ltd.	Samsung SDS Global Development Center Xi'an	100.0
Samsung SDS China Co., Ltd.	Samsung SDS Global SCL Beijing Co., Ltd	100.0
Samsung Engineering	Samsung Engineering America Inc.	100.0
Samsung Engineering	Samsung Engineering Hungary Ltd.	100.0
Samsung Engineering	Samsung Engineering Italy S.R.L.	100.0
Samsung Engineering	Samsung Engineering (Malaysia) SDN. BHD.	100.0
Samsung Engineering	PT Samsung Engineering Indonesia Co., Ltd.	100.0
Samsung Engineering	Samsung Engineering (Thailand) Co., Ltd.	81.0
Samsung Engineering	Samsung Engineering India Private Limited	100.0
Samsung Engineering	Samsung Engineering Vietnam Co., Ltd.	100.0
Samsung Engineering	Samsung Engineering Construction(Shanghai) Co., Ltd	100.0
Samsung Engineering	Samsung Engineering Construction Xi' an Co., Ltd.	100.0
Samsung Engineering	Samsung Saudi Arabia Co., Ltd.	100.0
Samsung Engineering	Muharraq Wastewater Services Company W.L.L.	99.8
Samsung Engineering	Muharraq STP Company B.S.C.	6.6
Samsung Engineering	Muharraq Holding Company 1 Ltd.	65.0
Samsung Engineering	Samsung Ingenieria Mexico Construccion Y Operacion S.A. De C.V.	99.9
Samsung Engineering	Samsung Engineering Trinidad Co., Ltd.	100.0
Samsung Engineering	Samsung Ingenieria Manzanillo, S.A. De C.V.	99.9
Samsung Engineering	Grupo Samsung Ingenieria Mexico, S.A. De C.V.	100.0
Samsung Engineering	Samsung Ingenieria Energia S.A. De C.V.	100.0
Samsung Engineering	Samsung Engineering Bolivia S.A	100.0
Samsung Engineering	Samsung Ingenieria DUBA S.A. de C.V.	100.0
Samsung Engineering	Samsung Engineering Kazakhstan L.L.P.	100.0
Samsung Engineering America Inc.	SEA Construction, LLC	100.0
Samsung Engineering America Inc.	SEA Louisiana Construction, L.L.C.	100.0
Samsung Engineering (Malaysia) SDN. BHD.	Muharraq Wastewater Services Company W.L.L.	0.3
Samsung Engineering India Private Limited	Samsung Saudi Arabia Co., Ltd.	0.0
Samsung Saudi Arabia Co., Ltd.	Samsung EPC Company Ltd.	75.0
Muharraq Holding Company 1 Ltd.	Muharraq Holding Company 2 Ltd.	100.0
Muharraq Holding Company 2 Ltd.	Muharraq STP Company B.S.C.	89.9
Samsung Ingenieria DUBA S.A. de C.V.	Asociados Constructores DBNR, S.A. de C.V.	49.0
S1 Corporation	S-1 CORPORATION HUNGARY LLC	100.0
S1 Corporation	S-1 CORPORATION VIETNAM CO., LTD	100.0
S1 Corporation	Samsung Beijing Security Systems	100.0
Cheil Worldwide	PENGTAI INTERACTIVE ADVERTISING CO.,LTD	100.0

Investor	Investee	Ownership
Cheil Worldwide	Cheil USA Inc.	100.0
Cheil Worldwide	Cheil Central America Inc.	100.0
Cheil Worldwide	Iris Worldwide Holdings Limited	100.0
Cheil Worldwide	CHEIL EUROPE LIMITED	100.0
Cheil Worldwide	Cheil Germany GmbH	100.0
Cheil Worldwide	Cheil France SAS	100.0
Cheil Worldwide	CHEIL SPAIN S.L	100.0
Cheil Worldwide	Cheil Benelux B.V.	100.0
Cheil Worldwide	Cheil Nordic AB	100.0
Cheil Worldwide	Cheil India Private Limited	100.0
Cheil Worldwide	Cheil (Thailand) Ltd.	100.0
Cheil Worldwide	Cheil Singapore Pte. Ltd.	100.0
Cheil Worldwide	CHEIL VIETNAM COMPANY LIMITED	99.0
Cheil Worldwide	Cheil Integrated Marketing Philippines, Inc.	100.0
Cheil Worldwide	CHEIL MALAYSIA SDN. BHD.	100.0
Cheil Worldwide	Cheil New Zealand Limited	100.0
Cheil Worldwide	CHEIL CHINA	100.0
Cheil Worldwide	Cheil Hong Kong Ltd.	100.0
Cheil Worldwide	Caishu (Shanghai) Business Consulting Co., Ltd	100.0
Cheil Worldwide	Cheil MEA FZ-LLC	100.0
Cheil Worldwide	Cheil South Africa (Pty) Ltd	100.0
Cheil Worldwide	CHEIL KENYA LIMITED	99.0
Cheil Worldwide	Cheil Communications Nigeria Ltd.	99.0
Cheil Worldwide	Cheil Worldwide Inc./Jordan LLC.	100.0
Cheil Worldwide	Cheil Ghana Limited	100.0
Cheil Worldwide	Cheil Egypt LLC	99.9
Cheil Worldwide	Cheil Brasil Comunicacoes Ltda.	100.0
Cheil Worldwide	Cheil Mexico, S.A. de C.V.	98.0
Cheil Worldwide	Cheil Chile SpA.	100.0
Cheil Worldwide	Cheil Peru S.A.C.	100.0
Cheil Worldwide	CHEIL ARGENTINA S.A.	98.0
Cheil Worldwide	Cheil Rus LLC	100.0
Cheil Worldwide	Cheil Ukraine LLC	100.0
Cheil Worldwide	Cheil Kazakhstan LLC	100.0
Hotel Shilla	Samsung Hospitality America Inc.	100.0
Hotel Shilla	Shilla Travel Retail Pte. Ltd.	100.0
Hotel Shilla	Samsung Shilla Business Service Beijing Co., Ltd.	100.0
Hotel Shilla	Shilla Travel Retail Hong Kong Limited	100.0
Hotel Shilla	Shilla Travel Retail Taiwan Limited	64.0
HDC Shilla Duty Free LTD	HDC SHILLA (SHANGHAI) CO., LTD	100.0
SBTM	Samsung Hospitality U.K. Inc.	100.0
SBTM	Samsung Hospitality Europe GmbH	100.0
SBTM	SAMSUNG HOSPITALITY ROMANIA SRL	100.0
SBTM	Samsung Hospitality Vietnam Co., Ltd.	99.0
SBTM	Samsung Hospitality Philippines Inc.	100.0
SBTM	Samsung Hospitality India Private Limited	100.0
Samsung Venture Investment	Samsung Venture Investment (Shanghai) Co., Ltd.	100.0
Iris Americas, Inc.	Iris (USA) Inc.	100.0
Iris Americas, Inc.	Iris Atlanta, Inc.	100.0
Iris Americas, Inc.	Iris Experience, Inc.	100.0
Iris Americas, Inc.	Iris Latin America, Inc.	100.0
Iris Americas, Inc.	Iris Worldwide San Diego, Inc.	100.0
Iris Americas, Inc.	89 Degrees, Inc.	100.0
Iris Latin America, Inc.	Irisnation Latina No.2, S. de R.L. de C.V.	0.0
Iris Latin America, Inc.	Irisnation Latina, S. de R.L. de C.V.	0.0

Investor	Investee	Ownership
Iris Canada Holdings Ltd	Pricing Solutions Ltd	100.0
Cheil USA Inc.	The Barbarian Group LLC	100.0
Cheil USA Inc.	McKinney Ventures LLC	100.0
Cheil USA Inc.	Cheil India Private Limited	0.0
Cheil USA Inc.	Cheil Mexico, S.A. de C.V.	2.0
Iris Worldwide Holdings Limited	Iris Nation Worldwide Limited	100.0
Iris Nation Worldwide Limited	Iris Americas, Inc.	100.0
Iris Nation Worldwide Limited	Irisnation Latina No.2, S. de R.L. de C.V.	100.0
Iris Nation Worldwide Limited	Irisnation Latina, S. de R.L. de C.V.	100.0
Iris Nation Worldwide Limited	Iris Canada Holdings Ltd	100.0
Iris Nation Worldwide Limited	Iris London Limited	100.0
Iris Nation Worldwide Limited	Iris Promotional Marketing Ltd	100.0
Iris Nation Worldwide Limited	Iris Ventures 1 Limited	98.6
Iris Nation Worldwide Limited	Founded Partners Limited	100.0
Iris Nation Worldwide Limited	Iris Products (Worldwide) Limited	100.0
Iris Nation Worldwide Limited	Iris Korea Limited	100.0
Iris Nation Worldwide Limited	Iris Digital Limited	100.0
Iris Nation Worldwide Limited	Iris Amsterdam B.V.	100.0
Iris Nation Worldwide Limited	Iris Ventures (Worldwide) Limited	100.0
Iris Nation Worldwide Limited	Iris Culture Limited	100.0
Iris Nation Worldwide Limited	Concise Consultants Limited	100.0
Iris Nation Worldwide Limited	Atom42 Ltd	100.0
Iris Nation Worldwide Limited	WDMP Limited	49.0
Iris Nation Worldwide Limited	Pricing Solutions (UK) Limited	100.0
Iris Nation Worldwide Limited	Iris Services Limited Dooel Skopje	100.0
Iris Nation Worldwide Limited	Irisnation Singapore Pte. ltd.	100.0
Iris Nation Worldwide Limited	Iris Worldwide Integrated Marketing Private Limited	100.0
Iris Nation Worldwide Limited	Iris Sydney PTY Ltd	100.0
Iris Nation Worldwide Limited	Iris Worldwide (Thailand) Limited	100.0
Iris Nation Worldwide Limited	Iris Beijing Advertising Company Limited	100.0
Iris London Limited	Iris Partners LLP	100.0
Iris Promotional Marketing Ltd	Holdings BR185 Limited	100.0
Iris Ventures 1 Limited	Iris Germany GmbH	100.0
Founded Partners Limited	Founded, Inc.	100.0
Iris Germany GmbH	Pepper NA, Inc.	100.0
Iris Germany GmbH	Pepper Technologies Pte. Ltd.	100.0
CHEIL EUROPE LIMITED	Beattie McGuinness Bungay Limited	100.0
CHEIL EUROPE LIMITED	Cheil Italia S.r.l	100.0
Cheil Germany GmbH	Cheil Austria GmbH	100.0
Cheil Germany GmbH	Centrade Integrated SRL	100.0
Centrade Integrated SRL	Centrade Cheil HU Kft.	100.0
Centrade Integrated SRL	Centrade Cheil Adriatic D.O.O.	100.0
Cheil India Private Limited	Experience Commerce Software Private Limited	100.0
Cheil Singapore Pte. Ltd.	Pengtai Greater China Company Limited	95.7
Cheil Singapore Pte. Ltd.	PT. CHEIL WORLDWIDE INDONESIA	100.0
Cheil Integrated Marketing Philippines, Inc.	Cheil Philippines Inc.	30.0
Shilla Travel Retail Pte. Ltd.	Shilla Retail Plus Pte. Ltd.	100.0
Cheil Hong Kong Ltd.	Pengtai Greater China Company Limited	3.1
Samsung Shilla Business Service Beijing Co., Ltd.	Tianjin Samsung International Travel Service Co., Ltd	100.0
Shilla Travel Retail Hong Kong Limited	Shilla Retail Limited	100.0
Shilla Travel Retail Hong Kong Limited	Shilla Travel Retail Duty Free HK Limited	100.0
Cheil MEA FZ-LLC	One Agency FZ-LLC	100.0
Cheil MEA FZ-LLC	One RX Project Management Design and Production Limited Company	0.0
Cheil MEA FZ-LLC	Cheil Egypt LLC	0.1
Cheil South Africa (Pty) Ltd	CHEIL KENYA LIMITED	1.0

Investor	Investee	Ownership
Cheil South Africa (Pty) Ltd	Cheil Communications Nigeria Ltd.	1.0
One Agency FZ-LLC	One RX India Private Limited	100.0
One Agency FZ-LLC	One RX Project Management Design and Production Limited Company	100.0
One Agency FZ-LLC	ONE RX INTERIOR DECORATION L.L.C	100.0
One Agency FZ-LLC	ONE AGENCY PRINTING L.L.C	100.0
One Agency FZ-LLC	One Agency South Africa (Pty) Ltd	100.0
ONE RX INTERIOR DECORATION L.L.C	One RX India Private Limited	0.0
Holdings BR185 Limited	Brazil 185 Participacoes Ltda	100.0
Brazil 185 Participacoes Ltda	Iris Router Marketing Ltda	100.0
Cheil Brasil Comunicacoes Ltda.	CHEIL ARGENTINA S.A.	2.0

※ Percent of ownership as of December 31, 2021 based on common shares

C. Related statute & regulation

Restrictions on cross-holdings within Samsung Group are in accordance with the Monopoly Regulation and Fair Trade Act

(1) Date of announcement by authorities of companies deemed Samsung Group companies for the current year: May 1, 2021

(2) Summary of Regulation

- Restriction on cross-holdings
- Restriction on debt guarantee between affiliates
- Restriction on affiliate voting rights of financial & insurance companies
- Decision making of board committee and public disclosure of large-scale inter-affiliate transactions
- Public disclosure of important matters of unlisted companies
- Other public disclosures related to Group status

D. Concurrent position with other affiliates

[As of December 31, 2021]

		Concurrent position		
Name	**Position**	**Name of company**	**Position**	**Full/part time**
Kye-hyun Kyung	President	Samsung Electro-mechanics	Representative Director	Full time
Hark-kyu Park	President	Samsung Display	Non-Executive director	Part time
Yong-kwan Kim	Executive VP	Samsung Medison	Representative Director	Full time
Yeon-sung Kim	Executive VP	Samsung Electronics Sales	Auditor	Part time
		Samsung Electronics Logitech	Auditor	Part time
		Samsung Electronics Service	Auditor	Part time
Sung-won Son	Executive VP	Samsung Medison	Auditor	Part time
Khi-jae Cho	Executive VP	Samsung Display	Auditor	Part time
Eung-joon Chi	VP	SEMES	Auditor	Part time
Hyung-joon Moon	VP	STECO	Non-Executive director	Part time
Sung-wuk Kang	VP	Samsung Venture Investment	Auditor	Part time
Han-jong Yoo	VP	Samsung Global Research	Auditor	Part time
Myeong-cheol Kim	VP	SEMES	Non-Executive director	Part time
Doug-yong Sung	VP	SEMES	Non-Executive director	Part time
Yong-joo Kim	VP	STM	Internal Director	Part time

E. Equity investments in other corporations

The total book value of equity investments in other corporations as of December 31, 2021 is KRW 57,890 billion (for the purpose of management participation, etc.)

(As of December 31, 2021) (KRW Million)

Investment Purpose	No. of investees			Invested amount			
	Listed	Unlisted	Total	Beginning Balance	Increase(decrease)		Ending Balance
					Acquisition (Disposal)	Valuation gain(loss)	
Management Participation	20	78	98	58,020,727	-168,190	-84,078	57,768,459
General Investment	-	-	-	-	-	-	-
Simple Investment	4	38	42	109,571	-911	13,147	121,807
	24	116	140	58,130,298	-169,101	-70,931	57,890,266

X. Transactions with Affiliates and Subsidiaries

1. Credit offerings for affiliates and subsidiaries

As of December 31, 2021, SEC provides a debt guarantee for financing of subsidiaries, including Samsung Electronics America, Inc. (SEA) and other subsidiaries as listed below.

(USD thousand)

Company	Relationship	Creditor	Type	Purpose	Guarantee start date	Guarantee expiry date	Limit of guarantee		Transactions			Interest Rate (%)
							Beginning of period	End of period	Beginning of period	Increase/ decrease	End of period	
SEA	Subsidiary	BOA etc.	Payment guarantee	Operating fund	Apr 16, 2021	Dec 16, 2022	1,328,000	1,328,000	-	-	-	
SEM	Subsidiary	BBVA etc.	Payment guarantee	Operating fund	Mar 28, 2021	Dec 16, 2022	485,000	906,000	-	-	-	
SAMCOL	Subsidiary	Citibank etc.	Payment guarantee	Operating fund	Jun 14, 2021	Dec 16, 2022	310,000	310,000	117,109	-117,109	-	
SEDA	Subsidiary	BRADESCO etc.	Payment guarantee	Operating fund	Sep 30, 2021	Dec 16, 2022	559,000	409,000	-	-	-	
SECH	Subsidiary	Citibank etc.	Payment guarantee	Operating fund	Jun 14, 2021	Dec 16, 2022	142,000	62,000	-	-	-	
SEPR	Subsidiary	BBVA etc.	Payment guarantee	Operating fund	Jun 01, 2021	Dec 16, 2022	230,000	150,000	-	-	-	
SSA	Subsidiary	SCB etc.	Payment guarantee	Operating fund	Jun 14, 2021	Dec 16, 2022	318,000	318,000	-	-	-	
SEMAG	Subsidiary	SocGen etc.	Payment guarantee	Operating fund	Nov 09, 2021	Dec 16, 2022	110,000	110,000	-	-	-	
SETK	Subsidiary	BNP etc.	Payment guarantee	Operating fund	Jun 14, 2021	Dec 16, 2022	837,000	807,000	169,280	-67,005	102,275	19.9%
SETK-P	Subsidiary	BNP etc.	Payment guarantee	Operating fund	Nov 09, 2021	Dec 16, 2022	-	130,000	-	33,334	33,334	25.6%
SECE	Subsidiary	Citibank etc.	Payment guarantee	Operating fund	Jul 19, 2021	Dec 16, 2022	74,434	73,722	-	-	-	
SEEG	Subsidiary	HSBC	Payment guarantee	Operating fund	Jun 14, 2021	Jun 13, 2022	85,000	85,000	-	-	-	
SEIN	Subsidiary	BNP etc.	Payment guarantee	Operating fund	Jun 14, 2021	Nov 08, 2022	145,000	70,000	-	-	-	
SJC	Subsidiary	Mizuho Bank etc.	Payment guarantee	Operating fund	Apr 30, 2021	Dec 16, 2022	916,062	877,579	-	-	-	
SEUC	Subsidiary	Credit Agricole etc.	Payment guarantee	Operating fund	Jun 14, 2021	Dec 16, 2022	150,000	150,000	-	-	-	
SEDAM	Subsidiary	Citibank etc.	Payment guarantee	Operating fund	Jun 14, 2021	Dec 16, 2022	222,000	141,000	-	-	-	
SECA	Subsidiary	BoA	Payment guarantee	Operating fund	Nov 09, 2021	Nov 08, 2022	70,000	70,000	-	-	-	
SELA	Subsidiary	Citibank	Payment guarantee	Operating fund	Dec 17, 2021	Dec 16, 2022	120,000	120,000	-	-	-	
SEEH	Subsidiary	HSBC etc.	Payment guarantee	Operating fund	Jun 14, 2021	Dec 16, 2022	653,000	712,400	-	-	-	
SERK	Subsidiary	SOCGEN etc.	Payment guarantee	Operating fund	Jun 14, 2021	Dec 16, 2022	269,800	290,000	-	-	-	
SELV	Subsidiary	Citibank	Payment guarantee	Operating fund	Dec 17, 2021	Dec 16, 2022	10,000	10,000	-	-	-	
SEIL	Subsidiary	Citibank	Payment guarantee	Operating fund	Dec 17, 2021	Dec 16, 2022	-	15,600	-	10,947	10,947	1.35%
SAPL	Subsidiary	BOA etc.	Payment guarantee	Operating fund	Jun 14, 2021	Dec 16, 2022	395,000	345,000	-	-	-	
SEV	Subsidiary	SCB	Payment guarantee	Operating fund	Nov 09, 2020	Feb 28, 2021	15,000	-	-	-	-	
SAVINA	Subsidiary	HSBC	Payment guarantee	Operating fund	Jun 14, 2021	Jun 13, 2022	71,000	51,000	-	-	-	
SET	Subsidiary	SCB	Payment guarantee	Operating fund	Nov 09, 2020	Feb 28, 2021	30,000	-	-	-	-	
SCIC	Subsidiary	HSBC etc.	Payment guarantee	Operating fund	Jun 14, 2021	Dec 16, 2022	300,000	300,000	-	-	-	
SME	Subsidiary	SCB	Payment guarantee	Operating fund	Nov 09, 2021	Nov 08, 2022	110,000	110,000	-	-	-	
SAMEX	Subsidiary	Citibank	Payment guarantee	Operating fund	Dec 17, 2021	Dec 16, 2022	5,000	5,000	-	-	-	
SEASA	Subsidiary	Citibank	Payment guarantee	Operating fund	Dec 17, 2021	Dec 16, 2022	2,000	2,000	-	-	-	
SSAP	Subsidiary	SCB	Payment guarantee	Operating fund	Nov 09, 2021	Nov 08, 2022	30,000	35,000	-	-	-	
SEPM	Subsidiary	HSBC	Payment guarantee	Operating fund	Jun 14, 2021	Jun 13, 2022	35,000	35,000	-	-	-	
SESAR	Subsidiary	HSBC	Payment guarantee	Operating fund	Jun 14, 2021	Jun 13, 2022	50,000	50,000	-	-	-	
AdGear Technologies Inc.	Subsidiary	BOA	Payment guarantee	Operating fund	Nov 09, 2021	Nov 08, 2022	2,000	2,000	-	-	-	

Harman International Industries, Inc.	Subsidiary	JP Morgan	Payment guarantee	Operating fund	Jun 14, 2021	Jun 13, 2022	100,000	100,000	-	-	-	
Harman International Japan Co., Ltd.	Subsidiary	MUFG	Payment guarantee	Operating fund	Nov 09, 2021	Nov 08, 2022	25,000	25,000	-	-	-	
Harman RUS CIS LLC	Subsidiary	SocGen	Payment guarantee	Operating fund	Nov 09, 2021	Nov 08, 2022	15,000	15,000	-	-	-	
Harman Holding Limited	Subsidiary	HSBC	Payment guarantee	Operating fund	Jun 14, 2021	Jun 13, 2022	30,000	30,000	-	-	-	
Harman do Brasil Industria Eletronica e Participacoes Ltda.	Subsidiary	SocGen	Payment guarantee	Operating fund	Nov 09, 2021	Nov 08, 2022	15,000	15,000	-	-	-	
Harman da Amazonia Industria Eletronica e Participacoes Ltda.												
Total							8,264,296	8,265,301	286,389	-139,833	146,556	

Separate basis.
See 『1. Subsidiaries subject to consolidated financial statements (detailed)』 in 『XII. Appendix』 for names of subsidiaries.
The approval decision is resolved by the Management Committee when the guarantee amount per transaction is between 0.1% and/or less than 2.5%, and by the Board of Directors when the guarantee amount per transaction is 2.5% and above.
SEC receives fees on the debt it guarantees depending on the maturity date of each debt guarantee, general loan interest rate, etc.
The Company claimed approximately USD 266 thousand in guarantee fees in 2021 but has not yet received it as of December 31, 2021.

2. Acquisitions and disposals of assets with affiliates and subsidiaries

In 2021, the Company sold assets to affiliates, including Samsung China Semiconductor LLC. (SCS), to increase production capacity of such affiliates. Also, the Company acquired assets including facility equipment from affiliates to improve efficiency of domestic production.

(KRW mil)

Company	Relationship	Transaction type	Transaction date[1)]	Asset	Purpose of transaction	Amount[2)]	Gain or loss on disposal
SCS	Affiliates	Asset sale/purchase	Dec 28, 2021	Machinery, etc.	Enhance capacity and production efficiency	199,913	119,712
SESS	Affiliates	Asset sale/purchase	Oct 19, 2021	Machinery, etc.	Enhance capacity and production efficiency	14,451	775
SAS	Affiliates	Asset sale/purchase	Oct 22, 2021	Machinery, etc.	Enhance capacity and production efficiency	8,694	730
SEHC	Affiliates	Asset sale/purchase	Dec 09, 2021	Machinery, etc	Enhance capacity and production efficiency	4,122	81
SIEL	Affiliates	Asset sale	Jun 14, 2021	Machinery, etc.	Enhance capacity and production efficiency	2,609	356
Samsung Bioepis	Affiliates	Asset sale	May 13, 2021	Machinery, etc.	Enhance capacity and production efficiency	2,371	51
SEV	Affiliates	Asset sale/purchase	Dec 01, 2021	Machinery, etc.	Enhance capacity and production efficiency	2,033	625
SEVT	Affiliates	Asset sale/purchase	Dec 24, 2021	Machinery, etc.	Enhance capacity and production efficiency	1,797	208
Samsung SDI	Affiliates	Asset sale	Feb 17, 2021	Machinery, etc.	Enhance capacity and production efficiency	269	181
SEDA	Affiliates	Asset sale	Jul 23, 2021	Machinery, etc.	Enhance capacity and production efficiency	403	170
SEIN	Affiliates	Asset purchase	Jan 11, 2021	Machinery, etc.	Enhance capacity and production efficiency	162	-
TSEC	Affiliates	Asset purchase	Mar 24, 2021	Machinery, etc.	Enhance capacity and production efficiency	102	-

Separate basis; acquisitions and disposals of assets listed above are not subject to a resolution of the Board.
See 『1. Subsidiaries subject to consolidated financial statements (detailed)』 in 『XII. Appendix』 for names of subsidiaries.
1) Most recent transaction.
2) Properly calculated by an appropriate method based upon market value assessment. Transaction was made under normal conditions (eg, terms of cash payment within the 15th, 30th of the following month of transaction).

3. Business transactions with affiliates and subsidiaries

In 2021, the Company had transactions such as sales and purchases with affiliates, including Samsung Electronics America, Inc. (SEA).

(KRW mil)

Company	Relationship	Type of transaction	Date	Details	Amount
SEA	Affiliates	Sales, purchases, etc.	Jan–Dec 2021	HHPs and home appliances	33,025,957
SSI	Affiliates	Sales, purchases, etc.	Jan– Dec 2021	Semiconductors	32,303,859
SEVT	Affiliates	Sales, purchases, etc.	Jan– Dec 2021	HHPs	30,527,566
SSS	Affiliates	Sales, purchases, etc.	Jan– Dec 2021	Semiconductors	25,687,821
SEV	Affiliates	Sales, purchases, etc.	Jan– Dec 2021	HHPs	22,040,207

Separate basis; Transactions worth 5% and above of revenue of the current business year are subject to public disclosure
See 『1. Subsidiaries subject to consolidated financial statements (detailed)』 in 『XII. Appendix』 for names of subsidiaries.

4. Transactions with stakeholders other than affiliates and subsidiaries

As of December 31, 2021, the Company's outstanding loan amount is KRW 114.6 billion related to support for supplier companies for product competitiveness and mutual development as well as home loan and educational expenses for employee welfare.

(KRW mil)

Company	Relationship	Loans			
		Account title	Transaction		
			Beginning of period (Jan 1, 2021)	Change	End of period (Dec 31, 2021)
Elentec Co., Ltd., etc.	Partner company and employee	Short-term loans	32,818	10,181	42,999
Bumjin I&D, etc.	Partner company and employee	Long-term loans	81,283	-9,679	71,604
Total			114,101	502	114,603

Separate basis; amounts reflect the discounted present value of debts before accounting for impaired debts (impairment losses).

XI. Other Information

1. Changes in public disclosure

- N/A

2. Contingent liabilities

A. Litigation

The Company is involved in various claims, disputes, and investigations conducted by regulatory bodies, which arose during the normal course of business with numerous entities. Although the outflow of resources and timing of these matters are uncertain, as of the reporting date, the Company believes the outcome will not have a material impact on the financial position of the Company.

B. Guarantees

- Domestic: Not applicable
- Overseas:

(USD thousand)

Company	Relationship	Creditor	Guarantee	Transactions				Limit of guarantee
			Expiry date	Beginning of period	Increase	Decrease	End of period	
SEA	Subsidiary	BOA etc.	16-Dec-22	-	-	-	-	1,328,000
SEM	Subsidiary	BBVA etc.	16-Dec-22	-	-	-	-	906,000
SAMCOL	Subsidiary	Citibank etc.	16-Dec-22	117,109	-	-117,109	-	310,000
SEDA	Subsidiary	BRADESCO etc.	16-Dec-22	-	-	-	-	409,000
SECH	Subsidiary	Citibank etc.	16-Dec-22	-	-	-	-	62,000
SEPR	Subsidiary	BBVA etc.	16-Dec-22	-	-	-	-	150,000
SSA	Subsidiary	SCB etc.	16-Dec-22	-	-	-	-	318,000
SEMAG	Subsidiary	SocGen etc.	16-Dec-22	-	-	-	-	110,000
SETK	Subsidiary	BNP etc.	16-Dec-22	169,280	-	-67,005	102,275	807,000
SETK-P	Subsidiary	BNP etc.	16-Dec-22	-	33,334	-	33,334	130,000
SECE	Subsidiary	Citibank etc.	16-Dec-22	-	-	-	-	73,722
SEEG	Subsidiary	HSBC	13-Jun-22	-	-	-	-	85,000
SEIN	Subsidiary	BNP etc.	08-Nov-22	-	-	-	-	70,000
SJC	Subsidiary	Mizuho Bank etc.	16-Dec-22	-	-	-	-	877,579
SEUC	Subsidiary	Credit Agricole etc.	16-Dec-22	-	-	-	-	150,000
SEDAM	Subsidiary	Citibank etc.	16-Dec-22	-	-	-	-	141,000
SECA	Subsidiary	BoA	08-Nov-22	-	-	-	-	70,000
SELA	Subsidiary	Citibank	16-Dec-22	-	-	-	-	120,000
SEEH	Subsidiary	HSBC etc.	16-Dec-22	-	-	-	-	712,400
SERK	Subsidiary	SOCGEN etc.	16-Dec-22	-	-	-	-	290,000
SELV	Subsidiary	Citibank	16-Dec-22	-	-	-	-	10,000
SEIL	Subsidiary	Citibank	16-Dec-22	-	10,947	-	10,947	15,600
SAPL	Subsidiary	BOA etc.	16-Dec-22	-	-	-	-	345,000
SEV	Subsidiary	SCB	28-Feb-21	-	-	-	-	-
SAVINA	Subsidiary	HSBC	13-Jun-22	-	-	-	-	51,000
SET	Subsidiary	SCB	28-Feb-21	-	-	-	-	-
SCIC	Subsidiary	HSBC etc.	16-Dec-22	-	-	-	-	300,000
SME	Subsidiary	SCB	08-Nov-22	-	-	-	-	110,000
SAMEX	Subsidiary	Citibank	16-Dec-22	-	-	-	-	5,000
SEASA	Subsidiary	Citibank	16-Dec-22	-	-	-	-	2,000
SSAP	Subsidiary	SCB	08-Nov-22	-	-	-	-	35,000
SEPM	Subsidiary	HSBC	13-Jun-22	-	-	-	-	35,000
SESAR	Subsidiary	HSBC	13-Jun-22	-	-	-	-	50,000
AdGear Technologies Inc.	Subsidiary	BOA	08-Nov-22	-	-	-	-	2,000
Harman International Industries, Inc.	Subsidiary	JP Morgan	13-Jun-22	-	-	-	-	100,000
Harman International Japan Co., Ltd.	Subsidiary	MUFG	08-Nov-22	-	-	-	-	25,000
Harman RUS CIS LLC	Subsidiary	SocGen	08-Nov-22	-	-	-	-	15,000
Harman Holding Limited	Subsidiary	HSBC	13-Jun-22	-	-	-	-	30,000

Harman do Brasil Industria Eletronica e Participacoes Ltda. Harman da Amazonia Industria Eletronica e Participacoes Ltda.	Subsidiary	SocGen	08-Nov-22	-	-	-	-	15,000
Harman Finance International, SCA	Subsidiary	JP Morgan etc.	27-May-22	430,499	-	-34,195	396,304	396,304
SDN	Subsidiary	SIEL	22-Nov-24	273,243	297,878	-	571,121	671,908
Total				990,131	342,159	-218,309	1,113,981	9,333,513

※ Information above are prepared on a consolidated basis. Debt guarantees for Harman Finance International, SCA, and SDN are provided by Harman International Industries, Inc. and Samsung Display Co., Ltd., respectively.

※ SEC requires Board approval for individual guarantees exceeding 2.5% of total equity. When the guarantee amount is between 0.1% and/or less than 2.5%, the approval decision is delegated to the Management Committee. Samsung Display Co., Ltd requires Board approval for individual guarantees over KRW 10,000 million.

※ SEC claims fees on the debt guarantees depending on the maturity date of each debt guarantee, general loan interest rate, etc.
In 2021, the Company claimed approximately USD 266,000 as guarantee fee and, as of the reporting date, has not collected the amount.
In 2021, Samsung Display Co., Ltd. claimed approximately USD 2,529,000 as guarantee fee to SDN and, as of the reporting date, has not collected the amount.

Refer to the notes to the consolidated financial statements for the information on contingent liabilities.

3. Sanctions and others

A. Sanctions of investigative and judicial agencies

[Summary]

(KRW mil)

Date	Agency	Subject	Punishment or measure	Amount of monetary sanction	Amount of embezzlement/breach of trust	Relevant laws
Apr 18, 2019.	Seoul Central District Court	Employees of SEC	Fine	100	-	Article 14 Paragraph 4 and Article 68 Subparagraph 4 of the Monopoly Regulation and Fair Trade Act
Dec 9, 2019	Seoul Central District Court (Appeal in progress)	Employees of SEC	Imprisonment	-	-	Article 155 Paragraph 1, Article 31 Paragraph 1, and Article 30 of the Criminal Act
Feb 14, 2020	Suwon District Court	SEC and employees of SEC	Fine	12	-	Articles 23, 24, 29, 67, 68, 70, 71, etc., of the former Occupational Safety and Health Act
Jan 25, 2021	Seoul High Court (Retrial)	Employees of SEC	Imprisonment	-	Approximately 8,681	Act on the Aggravated Punishment, etc. of Specific Economic Crimes
Feb 4, 2021	Supreme Court of Korea	Employees of SEC	Imprisonment	-	-	Articles 90, 81, etc., of the Trade Union and Labor Relations Adjustment Act
		Subsidiary and employees (Samsung Electronics Service)	Fine, Imprisonment	50	-	Articles 90, 81, etc., of the Trade Union and Labor Relations Adjustment Act, Article 10 of the Punishment of Tax Offenses Act

The Fair Trade Commission on November 21, 2018, filed a complaint against Chairman Kun-hee Lee for omitting Samoo Architects & Engineers and Seoyoung Engineering from Samsung affiliates when submitting required materials in 2014 under Article 14 Paragraph 4 of the Monopoly Regulation and Fair Trade Act, and the prosecution filed a summary indictment.

Chairman Kun-hee Lee on April 18, 2019, was ordered to pay a fine of KRW 100 million by the Seoul Central District Court, and the fine was subsequently paid.

On December 9, 2019, the Seoul Central District Court ruled on allegations that an SEC executive ordered executives and employees of Samsung Biologics and Samsung Bioepis to hide or destroy evidence related to the alleged fraudulent accounting. For violating Article 30, Article 31 Paragraph 1, and Article 155 Paragraph 1 of the Criminal Act, prison sentences were handed down to Executive Vice President K (27 service years) of 1 year and 6 months; Executive Vice President L (31 service years) of 1 year and 6 months; Executive Vice President M (9 service years) of 2 years; Vice President N (16 service years) of 1 year and 6 months and a 3-year suspended sentence; Vice President O (10 service years) of 1 year and 6 months and a 3-year suspended sentence.

An appeal against the decision has been filed. The Company will check on future developments of the court proceedings and relevant matters.

On February 14, 2020, regarding matters related to a CO_2 leak accident at the Giheung plant on September 4, 2018, the Suwon District Court ordered the Company to pay a fine of KRW 7 million and Executive Vice President P (27 service years), the person in general charge of safety and health, to pay KRW 5 million for violating Article 23 (Safety Measures), Article 24 (Health Measures), and Article 29 (Safety and Health Measures in Contracting) of the former Occupational Safety and Health Act, and the fines were subsequently paid.

To prevent recurrences and comply with the relevant law, the Company has strengthened the capabilities of its employees and partner companies to guarantee safety and health.

Regarding matters related to the allegations of violation of the Act on the Aggravated Punishment, etc., of Specific Economic Crimes (embezzlement) by five of the Company's executives (Vice Chairman Jae-yong Lee, former Vice Chairman Gee-sung Choi, former President Choong-ki Chang, former President Sang-jin Park, and former Senior Vice President Seong-soo Hwang) in the case of an influence-peddling scandal involving South Korea's president, the Supreme Court of Korea on August 29, 2019 rejected part of a lower court's ruling and ordered a retrial to the Seoul High Court. On January 18, 2021 at the retrial, the Seoul High Court sentenced Vice Chairman Jae-yong Lee, former Vice Chairman Gee-sung Choi, and former President Choong-ki Chang each to 2 years and 6 months in prison. Former President Sang-jin Park and former Senior Vice President Seong-soo Hwang each received sentences of 2 years and 6 months in prison and a 4-year suspended sentence. The judgements were confirmed on January 25, 2021.

To prevent recurrences, the Company has strengthened its process regarding external contributions and newly established the Samsung Compliance Committee, an external and independent organization.

On February 4, 2021, the Supreme Court dismissed an appeal regarding the violation of Articles 90 and 81 of the Trade Union and Labor Relations Adjustment Act by SEC and employees of SEC and confirmed the sentences of 1 year and 4 months for Executive Vice President A (29 service years), 1 year and 2 months and a 2-year suspended sentence for former Executive Vice President B, 10 months and a 2-year suspended sentence for Executive Vice President C (34 service years), 1 year and a 2-year suspended sentence for former Executive Vice President D, 1 year for Senior Vice President E (32 service years), 1 year and 2 months and a 2-year suspended sentence for Senior Vice President F (24 service years), 10 months and a 2-year suspended sentence for Vice President G (27 service years), 10 months and a 2-year suspended sentence for Vice President H (18 service years) as ordered by the Seoul High Court on August 10, 2020; and SEC and former SEC Chairman of the Board (39 service years) were pronounced not guilty. Moreover, regarding the violation of Articles 90 and 81 of the Trade Union and Labor Relations Adjustment Act and violation of Article 10 of the Punishment of Tax Offenses Act with regard to receiving fake tax invoices (amount of violation approximately KRW 1,678 million) by Samsung Electronics Service and employees, the court issued a penalty of KRW 50 million for Samsung Electronics Service (amount of tax collected is approximately KRW 97 million), and confirmed sentencing of prison terms for Samsung Electronics Service's former CEO (4 service years) of 1 year and 4 months, Senior Vice President I (11 service years) of 1 year, Vice President J (21 service years) of 10 months and a 2-year suspended sentence.

To prevent recurrence, the Company has specified the guarantee of labor's three primary rights in the code of conduct and provides education on the prevention of unfair labor practices to all employees.

B. Sanctions of administrative agencies

(1) Sanctions of Fair Trade Commission (FTC)

[Summary]

(KRW mil)

Date	Agency	Subject	Punishment or measure	Amount of monetary sanction	Reasons and relevant laws
Oct 4, 2018	FTC	SEC	Corrective order, penalty surcharge	488	Article 3 (Prohibition, etc. against Unfair Labeling or Advertising) Paragraph 1 Subparagraph 2 of the Act on Fair Labeling and Advertising and Article 3 Paragraph 2 of the Enforcement Decree of the same Act
Nov 21, 2018	FTC	Employees of SEC	Prosecution charge	-	Article 14 (Designation of Business Groups Subject to Limitations on Cross Shareholding) Paragraph 4 of the Monopoly Regulation and Fair Trade Act
Aug 23, 2019	FTC	SEC	Corrective measure, fine	0.5	Article 5 Paragraph 4 (Duty to Provide Online Completion Service) and Article 10 Paragraph 1 (Cybermall Operators' Indication Duty) of the Act on the Consumer Protection in Electronic Commerce, etc.
Jun 22, 2021	FTC	SEC and employees of SEC	Prosecution charge	-	Article 23 (Prohibition on Unfair Trade Practices) Paragraph 1 Subparagraph 7 of the Monopoly Regulation and Fair Trade Act
Aug 27, 2021	FTC	SEC	Corrective measure, penalty surcharge	101,217	Article 23 (Prohibition on Unfair Trade Practices) Paragraph 1 Subparagraph 7 of the Monopoly Regulation and Fair Trade Act
		Subsidiary (Samsung Display)	Corrective measure, penalty surcharge	22,857	Article 23 (Prohibition on Unfair Trade Practices) Paragraph 1 Subparagraph 7 of the Monopoly Regulation and Fair Trade Act
Nov 17, 2021	FTC	Subsidiary (Samsung Electronics Service CS)	Fine	2.4	Article 11-4 (Disclosure of Status of Business Groups) of the Monopoly Regulation and Fair Trade Act

On October 4, 2018, regarding matters related to the advertising of the Company's air purifying products, including air purifiers, the Fair Trade Commission issued a corrective order against the Company and ordered the Company to pay a penalty surcharge of KRW 488 million for violating Article 3 (Prohibition, etc., against Unfair Labeling or Advertising) Paragraph 1 Subparagraph 2 of the Act on Fair Labeling and Advertising and Article 3 Paragraph 2 of the Enforcement Decree of the same Act, and the Company has subsequently paid the fine. In litigation to cancel the order, the Supreme Court on March 11, 2021 ruled partially in favor of the Company.

The Fair Trade Commission on November 21, 2018, filed a complaint against Chairman Kun-hee Lee for omitting Samoo Architects & Engineers and Seoyoung Engineering from Samsung affiliates when submitting required materials in 2014 under Article 14 (Designation of Business Groups Subject to Limitations on Cross Shareholding) Paragraph 4 of the Monopoly Regulation and Fair Trade Act.

※ Please refer to 『A. Sanctions of investigative and judicial agencies』 for more information, such as the details of the punishment.

On August 23, 2019, regarding matters related to Milk Music, the Fair Trade Commission issued corrective measures against the Company and ordered the Company to pay a fine of KRW 0.5 million under the Act on the Consumer Protection in Electronic Commerce, etc., for violating Article 5 Paragraph 4 (Duty to Provide Online Completion Service) and Article 10 Paragraph 1 (Cybermall Operators' Indication Duty). The Company subsequently paid the fine.

On June 22, 2021, the Fair Trade Commission, regarding matters related to food service transactions with Samsung Welstory, filed a complaint against the Company and the former Head of Future Strategy Office Gee-sung Choi, a retiree, for violating Article 23 (Prohibition on Unfair Trade Practices) Paragraph 1 Subparagraph 7 of the Monopoly Regulation and Fair Trade Act.

On August 27, 2021, the Fair Trade Commission, regarding matters related to food service transactions with Samsung Welstory, issued corrective measures and ordered Samsung Electronics and Samsung Display to pay penalties (SEC: KRW 101.217 billion; SD: 22.857 billion) for violating Article 23 Paragraph 1 Subparagraph 7 of the Act of the Monopoly Regulation and Fair Trade Act. The administrative litigation against the disposition is in progress, and on January 27, 2022, the decision to suspend the execution of the corrective measures was finalized.

To ensure compliance with regulations on fair trade and labeling and advertising, the Company has strengthened its internal management standard and it provides preventive education to employees to prevent unfair trade practices and advertising.

On November 5, 2021, the Fair Trade Commission, regarding a voluntary correction disclosure of Status of Large Business Groups (omission of member of the Board of Directors) of the Company's subsidiary, Samsung Electronics Service CS, ordered the company to pay a fine of KRW 2.4 million for violating Article 11-4 (Disclosure of Status of Business Groups) of the Monopoly Regulation and Fair Trade Act, and on November 17, 2021, the company has subsequently paid the fine.

To prevent recurrences and comply with the relevant law, Samsung Electronics Service CS has strengthened its internal management standard, including adding more people in charge.

(2) Sanctions of other administrative or public agencies (including financial supervision and tax authorities)

[Summary]

(KRW mil)

Date	Agency	Subject	Punishment or measure	Amount of monetary sanction	Reasons and relevant laws
Jan 18, 2019	Yongin Fire Station	SEC (Giheung site)	Fine	0.5	Article 20 (Fire Safety Control of Specific Objects of Fire Service) Paragraph 6 of the Act on Fire Prevention and Installation, Maintenance, and Safety Control of Firefighting Systems
Jan 3, 2019–Dec 14, 2020	Ministry of Employment and Labor	SEC (Pyeongtaek, Onyang, Cheonan, Giheung/ Hwaseong sites)	Fine	14.1	Article 48 (Submission of Hazard Prevention Plans) Paragraph 1 of the former Occupational Safety and Health Act, Article 46 (Implementation of Process-Safety Reports) Paragraph 1, etc., of the Occupational Safety and Health Act
Dec 2, 2019–Dec 28, 2020	Ministry of Employment and Labor	SEC (Gwangju site)	Fine	386.3	Article 41 (Preparation and Keeping of Material Safety Data Sheets) Paragraph 3, Article 10 (Record and Report of Industrial Accidents) Paragraph 2, etc., of the former Occupational Safety and Health Act, Article 57 (Prohibition on Concealing Occurrence of Industrial Accidents and Reporting Thereof) Paragraph 3, Article 164 (Retention of Documents) Paragraph 1, etc., of the Occupational Safety and Health Act
Mar 2, 2021	Ministry of Environment	SEC (Gwangju site)	Cancellation of designation of green enterprise	-	Article 16-3 (Cancellation of Designation of Green Enterprise) Paragraph 1 Subparagraph 1 of the Environmental Technology and Industry Support Act
Aug 10, 2021	Ministry of Justice	SEC	Fine	0.1	Article 19 (Obligation to Report by Employers of Aliens) of the Immigration Act
Jul 8, 2020	Korea Communications Commission	Subsidiary (Samsung Electronics Sales)	Corrective order, fine	36	Article 3 (Prohibition of Discriminative Subsidy Payment) Paragraph 1 and Article 4 (Restriction on Payment of Excessive Subsidies and Public Announcement) Paragraph 5 of the Mobile Device Distribution Improvement Act
Sep 18, 2020	Ministry of Employment and Labor	Subsidiary (Samsung Electronics Sales)	Suspension of construction work order, fine	5	Article 55 (Measures for Suspension of Work by the Minister of Employment and Labor in Cases of Serious Accidents) and Article 68 (Safety and Health Coordinators) Paragraph 1 of the Occupational Safety and Health Act

Date	Agency	Subject	Punishment or measure	Amount of monetary sanction	Reasons and relevant laws
Apr 1, 2021	Ministry of Employment and Labor	Subsidiary (Samsung Electronics Service CS)	Fine	1	Article 15 (Reporting, etc. on Insured Status) of the Employment Insurance Act
Sep 29, 2021	Ministry of Employment and Labor	Subsidiary (Samsung Electronics Service)	Partial suspension of work order, fine	14	Article 16 (Supervisors) Paragraph 1, Article 41 (Measures for Preventing Health Impairments Caused by Abusive Language of Customers) Paragraph 7, Article 53 (Corrective Measures by Minister of Employment and Labor) Paragraph 3, and Article 114 (Posting of Material Safety Data Sheets and Education) Paragraph 3 of the Occupational Safety and Health Act
Nov 23, 2021	Ministry of Employment and Labor	Subsidiary (Samsung Display)	Fine	0.2	Article 46 (Implementation of Process-Safety Reports) Paragraph 1 of the Occupational Safety And Health Act

With regards to a CO_2 leak accident at the Giheung plant on September 4, 2018, pursuant to the results of a special investigation by the Yongin Fire Station conducted from November 27 through December 6, 2018, the Company was ordered to pay a fine of KRW 0.5 million for violating Article 20 Paragraph 6 of the Occupational Safety and Health Act on January 18, 2019, and the Company has subsequently paid the fine.

To prevent recurrence and strengthen compliance, the Company has built a legal safety assessment evaluation system and conducts regular assessment.

Pursuant to the results of the 2nd process safety management (PSM) inspection on the Pyeongtaek site (P1-2) by the Ministry of Employment and Labor over September 10 through September 13, 2018, the Company was ordered to pay a fine of KRW 10 million for violating Article 48 (Submission, etc. of Plans for Prevention of Harm and Dangers) Paragraph 1 of the former Occupational Safety and Health Act on January 3, 2019 and has subsequently paid the fine.

Pursuant to results of monitoring the implementation of a PSM system on the Onyang site by the Ministry of Employment and Labor on February 19, 2020, the Company was ordered to pay a fine of KRW 0.2 million for violating Article 46 (Implementation of Process-Safety Reports) Paragraph 1, etc., of the Occupational Safety and Health Act on February 25, 2020 and has subsequently paid the fine.

Pursuant to results of monitoring the implementation of a PSM system on the Cheonan site by the Ministry of Employment and Labor from May 26–28, 2020, the Company was ordered to pay a fine of KRW 0.9 million for violating Article 46 (Implementation of Process-Safety Reports) Paragraph 1, etc., of the Occupational Safety and Health Act on June 29, 2020 and has subsequently paid the fine.

Pursuant to results of monitoring the implementation of a PSM system on the Pyeongtaek site by the Ministry of Employment and Labor from November 16–18, 2020, the Company was ordered to pay a fine of KRW 2.1 million for violating Article 46 (Implementation of Process-Safety Reports) Paragraph 1, etc., of the Occupational Safety and Health Act on November 26, 2020 and has subsequently paid the fine.

Pursuant to results of monitoring the implementation of a PSM system on the Giheung·Hwaseong site by the Ministry of Employment and Labor from December 7–11, 2020, the Company was ordered to pay a fine of KRW 0.9 million for violating Article 46 (Implementation of Process-Safety Reports) Paragraph 1, etc. of the Occupational Safety and Health Act on December 14, 2020 and has subsequently paid the fine.

The Company took measures regarding the violations above and submitted a report on improvements to the Ministry of Employment and Labor. We also established a PSM Innovation Organization and a PSM Management System which manages activities related to approval, design, 12 key tasks, expertise improvement, etc. We also foster development of on-site process safety experts and conduct voluntary process safety evaluation.

Following the investigation on MSDS warning signs compliance on November 28, 2019 at Gwangju office by the Ministry of Employment and Labor, the Company on December 2, 2019, was ordered to pay a fine of KRW 1.4 million for violating Article 41 (Preparation, Keeping, etc. of Material Safety Data Sheets) Paragraph 3, etc., of the Occupational

Safety and Health Act, and has subsequently paid the fine. (Paragraph 3 has since been deleted.) We conducted a company-wide investigation on the handling space of chemical substances and implemented relevant improvement measures. In addition, we are improving the prior evaluation process on new G-EHS chemical substances and providing education for supervisors in departments handling chemical substances.

Regarding the industrial incident at Gwangju site on May 19, 2020, the Company delayed the submission of industrial accident questionnaire to the Gwangju Regional Employment and Labor Office of the Ministry of Employment and Labor and as a result was ordered to pay a fine of KRW 7 million for violating Article 57 (Prohibition of Concealment; Reporting of Incidents) Paragraph 3 of Occupational Safety and Health Act on June 26, 2020, and the Company has subsequently paid the fine.
To prevent the recurrence and strengthen compliance, the Company has provided special education for the on-site environment and safety managers and supervisors.

With regards to the investigation from August 18, 2020 to January 18, 2021 by the Gwangju Regional Employment and Labor Office of Ministry of Employment and Labor on the Gwangju operation, the Company was ordered to pay the following fines regarding industrial incidents that have taken place since 2015: KRW 6 million for violating Article 10 (Recording and Reporting of Industrial Accidents) Paragraph 2 of the Occupational Safety and Health Act on September 1, 2020 (Paragraph 2 has since been deleted); KRW 60.4 million and 11.5 million, respectively, for violating Article 57 (Prohibition of Concealment; Reporting of Incidents) Paragraph 3 and Article 164 (Preservation of Documents) Paragraph 1 of the Occupational Safety and Health Act on September 10 and 23, 2020. The Company has subsequently paid the fines. Other fines include: KRW 20 million for violating Article 57 (Prohibition of Concealment; Reporting of Incidents) Paragraph 3 of the Occupational Safety and Health Act on October 19, 2020; and KRW 280 million for violating Article 10 (Prohibition of Concealment; Reporting of Incidents) Paragraph 2 of the former Occupational Safety and Health Act on December 28, 2020. The Company subsequently paid the fines.

To prevent the recurrence and strengthen compliance, the Company has provided special education for the on-site environment and safety managers and supervisors.

On March 2, 2021, Yeongsangang River Basin Environmental Office of Ministry of Environment, based on its air pollutant measurement, cancelled the Green Enterprise designation on our Gwangju site in pursuant to Article 16-3 (Cancellation of Designation of Green Enterprise) Paragraph 1 Subparagraph 1 of the Environmental Technology and Industry Support Act.

On August 10, 2021, the Suwon Immigration Office ordered the Company to pay a fine of KRW 100,000 for violating the obligation to report changes to the employment status of non-Korean employees under Article 19 (Obligation to Report by Employers of Aliens) Paragraph 1 of the Immigration Act and the Company has subsequently paid the fine.
To strengthen compliance of the deadline for reporting changes in employment of non-Korean employees no longer employed by the Company, the Company has improved the exit process.

Korea Communications Commission ordered Samsung Electronics Sales to implement corrective measures and to pay a fine of KRW 36 million for violating Article 3 (Prohibition of Discriminative Subsidy Payment) Paragraph 1 and Article 4 (Restriction on Payment of Excessive Subsidies and Public Announcement) Paragraph 5 of the Mobile Device Distribution Improvement Act on July 8, 2020 and have subsequently paid the fine.
In order to prevent reoccurrences and comply with the relevant law, Samsung Electronics Sales strengthened its internal management standard, provided education for executives and employees.

Regarding a fatal accident on September 16, 2020 during the construction of an elevator wall structure, part of the construction process of newly-opening Hongdae branch of Samsung Digital Plaza, a site inspection was conducted on September 17, 2020 and Seoul West District Office of Seoul Regional Employment and Labor Office of Ministry of Employment and Labor on September 18, 2020 ordered Samsung Electronics Sales to suspend construction in pursuant to Article 55 (Suspension, etc. of Work on Occurrence of Serious Accidents) of the Occupational Safety and Health Act. In addition, Samsung Electronics Sales was ordered to pay a fine of KRW 5 million for violating Article 68 (Safety and Health Coordinator) Paragraph 1 of the Occupational Safety and Health Act and has subsequently paid the fine, and the Company appointed a safety and health coordinator.

To prevent reoccurrences and comply with the relevant law, Samsung Electronics Sales provided a special training for on-site safety managers and supervisors.

On April 1, 2021, Samsung Electronics Service CS was ordered by the Jungbu Regional Employment and Labor Office of Ministry of Employment and Labor to pay a fine of KRW 1 million for the delayed report of the attainment of the employment insurance, violating Article 15 (Reporting, etc. on Insured Status) of the Employment Insurance Act, and the Company has subsequently paid the fine.

To prevent reoccurrences and strengthen compliance, Samsung Electronics Service CS is monitoring the revision of the Employment Insurance Act periodically and providing education for managers.

Regarding an electrocution accident of a worker who was repairing a washing machine on September 28, 2021, the Southern Seoul District Office of the Seoul Regional Employment and Labor Office of the Ministry of Employment and Labor ordered Samsung Electronics Service on September 29, 2021 to partially suspend work in pursuant to Article 53 (Corrective Measures by Minister of Employment and Labor) of the Occupational Safety and Health Act.

In response, Samsung Electronics Service submitted plans to improve safety and health measures for all of its domestic worksites, and the order of partial suspension was withdrawn on November 10, 2021.

Moreover, on November 15, 2021, Samsung Electronics Service was ordered to pay fines of KRW 14 million in total for violating Article 16 Paragraph 1, Article 41 Paragraph 7, and Article 114 Paragraph 3 of the Occupational Safety and Health Act, and on December 28, 2021, it has subsequently paid the fine.

Pursuant to results of monitoring the implementation of a PSM system at the Giheung site by the Ministry of Employment and Labor from November 15–16, 2021, Samsung Display was ordered to pay a fine of KRW 0.16 million for violating Article 46 (Implementation of Process-Safety Reports) Paragraph 1, etc., of the Occupational Safety and Health Act on November 23, 2021 and has subsequently paid the fine.

C. Sanctions from Korea Exchange

- N/A

D. Return of short-swing profits

- N/A

4. Subsequent events and other matters

A. Subsequent events

- N/A

B. External contributions

Contribution	Amount	Details	Date of Board approval
Management plans for Social Contribution Fund for 2019	KRW 11.73 billion	· The Social Contribution Fund consists of voluntary contributions of employees and matching funds raised by SEC. SEC plans to contribute KRW 11.73 billion in matching funds for 2019. · The contribution will be used for domestic and overseas volunteer programs as well as and local social contribution activities.	Jan 31, 2019
Contribution to Samsung Dream Scholarship Foundation	KRW 1.12 billion	· The contribution was made to support education of low-income high school students.	
Sponsoring the WorldSkills Competition	EUR 1.5 million (approximately KRW 1.95 billion)	· The contribution was made to support the Organizing Committee of WorldSkills International in WorldSkills Kazan 2019 as the top sponsor.	Feb 26, 2019
Donation to Chung-nam Samsung Institute	KRW 2.991 billion	· The contribution was made to improve education of the region.	
Donation to Foundation of Samsung Welfare, etc.	KRW 73.0 billion	· The contribution was made to support Dream Class, a program to support learning for underprivileged middle school students (Samsung Welfare Foundation, KRW 19.5 billion) · The contribution was made to improve facilities and research infrastructure at Samsung Medical Center and support research for MERS vaccine development (Samsung Life Public Welfare Foundation, KRW 31.0 billion) · The contribution was made for the Ho-Am Prize (Ho-Am Foundation, KRW 5.0 billion) · The contribution was made to provide funds for legal expenses for faculty members and Samsung scholarships for students (Sungkyunkwan University, KRW 17.5 billion)	Apr 30, 2019
Contribution to the Korea Occupational Safety & Health Agency	KRW 31.0 billion	· The fund is for building an electronics industry health and safety center and establishing health and safety infrastructure.	
Performance incentive to suppliers of the DS division	KRW 77.45 billion	· The contribution was provided to 296 primary and secondary suppliers of the DS division to prevent work accidents, improve productivity, and promote co-prosperity of the Company and its partner companies.	
Financial support for startup program at Daegu, Gyeongbuk Creative Innovation Center	KRW 12.0 billion	· Vitalize startup ecosystem and contribute to job creation to nurture startups in Korea · Donation to Daegu Gyeongbuk University Start-up ※ Daegu Gyeongbuk University Start-up established a fund with the donation from Samsung Electronics.	Jul 31, 2019
Donation to Heemang 2020 Nanum Campaign	KRW 31.0 billion	· The contribution was made to Community Chest of Korea to fulfill corporate social responsibilities and help the marginalized.	Nov 29, 2019
Contribution to Samsung Dream Scholarship Foundation	KRW 1.12 billion	· The contribution was made to support education of low-income high school students.	Jan 30, 2020
Management plans for Social Contribution Fund for 2020	KRW 11.89 billion	· The Social Contribution Fund consists of voluntary contributions of employees and matching funds raised by SEC. SEC plans to contribute KRW 11.89 billion in matching funds for 2020. · The contribution was made to support adolescent education.	Feb 21, 2020
Donation to Chung-nam Samsung Institute	KRW 2.576 billion	· The contribution was made to improve education of the region.	
Donation to support emergency relief related to	KRW 23.0 billion	· The contribution was made to support emergency relief measures for persons and communities impacted by COVID-19.	Feb 26, 2020

Contribution	Amount	Details	Date of Board approval
COVID-19			
Donation to Samsung Welfare Foundation, etc.	KRW 51.8 billion	· The contribution was made to support Dream Class, a program to support learning for underprivileged middle school students (Samsung Welfare Foundation, KRW 10.6 billion) · The contribution was made to improve facilities and research infrastructure at Samsung Medical Center and support research for MERS vaccine development (Samsung Life Public Welfare Foundation, KRW 26.5 billion) · The contribution was made for the Ho-Am Prize (Ho-Am Foundation) · The contribution was made to provide funds for legal expenses for faculty members and Samsung scholarships for students (Sungkyunkwan University, KRW 14.7 billion)	Apr 29, 2020
Performance incentive to suppliers of the DS division	Approximately KRW 62.0 billion	· The incentive was provided to prevent safety incidents at sites, enhance productivity, and promote co-growth with suppliers · For the first and secondary suppliers of the DS division stationed at the sites	
Donation to Ho-Am Foundation	KRW 4.1 billion	· The contribution was made to help award those with significant contributions in the field of academia, art, and human welfare	May 27, 2020

Contribution	Amount	Details	Date of Board approval
Donation to Heemang 2021 Nanum Campaign	KRW 33.8 billion	· The contribution was made to Community Chest of Korea to fulfill corporate social responsibilities and help the marginalized.	Nov 30, 2020
Contribution to the United Nations Development Programme (Samsung Global Goals)	USD 1,421,154 (approximately KRW 1.57 billion)	· The contribution was made to the UNDP (United Nations Development Programme) for relief activities in different countries.	
Management plans for Social Contribution Fund for 2021	KRW 11.61 billion	· The Fund consists of voluntary contributions of employees and matching funds raised by SEC. SEC plans to contribute KRW 11.61 billion in matching funds in 2021. · The contribution will be used for educating adolescents and vulnerable population.	Feb 16, 2021
Donation to Chung-nam Samsung Institute	KRW 2.446 billion	· The contribution was made to improve education of the region.	
Donation to Samsung Welfare Foundation, etc.	KRW 60.1 billion	· The contribution was made to support Dream Class, a program to support learning for underprivileged middle school students (Samsung Welfare Foundation, KRW 11.5 billion) · The contribution was made to support facilities and research infrastructure at Samsung Medical Center and support the operation of emergency helicopters (Samsung Life Public Welfare Foundation, KRW 29.9 billion) · The contribution was made to provide funds for legal expenses for faculty members and Samsung scholarships for students (Sungkyunkwan University, KRW 15 billion) · The contribution was made to help award those with significant contributions in the field of academia, art, and human welfare (Ho-Am Foundation, KRW 3.7 billion)	Apr 29, 2021
Performance incentive to suppliers of the DS division	Approximately KRW 63.2 billion	· The incentive was provided to prevent safety incidents at sites, enhance productivity, and promote co-growth with suppliers · For the first and secondary suppliers of the DS division stationed at the sites	
Sponsoring the WorldSkills Competition	EUR 1.5 million (approximately KRW 2.09 billion)	· The contribution was made to support WorldSkills International and WorldSkills Shanghai 2020.	Oct 28, 2021
Contribution to Joint Investment Technology Development Agreement Fund	KRW 15 billion	· Participated in Joint Investment Technology Development Agreement Fund supervised by the Ministry of SMEs and Startups. · The contribution was made to establish an agreement fund with the Ministry of SMEs and Startups, which will be allocated to chosen SMEs based on evaluations of tasks related to robotics, AI, biohealth, system semiconductors, and domestic production of materials, parts, and equipment.	Oct 28, 2021
Donation to Heemang 2022 Nanum Campaign	KRW 25.6 billion	· The contribution was made to Community Chest of Korea to fulfill corporate social responsibilities and help the marginalized.	Nov 30, 2021
Contribution to the United Nations Development Programme (Samsung Global Goals)	USD 2,689,094 (approximately KRW 3.20 billion)	· The contribution was made to the UNDP (United Nations Development Programme) for relief activities in different countries.	Nov 30, 2021

External contributions are based on a resolution of the Board.

C. Acquisition and divestments

The major divestment and transfer of business transactions in the past three business years on a parent basis (separate basis) are as follows. For information on the business combinations and divestitures of subsidiaries, please refer to the notes on the business combination and assets held for sale (assets of disposal group) of the consolidated financial statements.

[PLP Business]

(1) Details of acquisition

In accordance to the resolution of the Board of Directors on April 30, 2019, the Company acquired PLP business from Samsung Electro-Mechanics Co., Ltd. (location: South Korea; CEO: Kyehyun Kyung) at the price of KRW 785,000 million on June 1, 2019 to strengthen its semiconductor competitiveness through securing next-generation packaging technology.

Details of the above statement can be found in the "Business Acquisition from Related Parties", published in DART (http://dart.fss.or.kr/) on April 30, 2019.

(KRW 100 mil)

	Account	Forecast		Actual			
		1st Year	2nd Year	1st Year		2nd Year	
				Actual	Difference	Actual	Difference
PLP Business	Sales	101	219	-	-	-	-
	Operating Income	-1,273	-2,155	-1,095	14%	-44	98%
	Net Income	-1,273	-2,155	-1,095	14%	-2,146	0%

※ No third-party sales is recognized from PLP business as its products are internally transferred within the Company's manufacturing process.

※ Actual operating income and net income for first year of acquisition (seven month period ended December 31, 2019) differs by 14% from the forecast due to several factors such as reduction in wages.

※ Actual operating income for the second year (the year ended December 31, 2020) of acquisition differs by 98% from the forecast due to several factors such as reduction in wages.

D. Green management

The Company is actively securing "Designation of Green Enterprise" and "Green Technology Certifications" to follow the Low Carbon Green Growth policy of the Korean government. In particular, greenhouse gas emission and energy consumption generated at our operations are reported to the government, required by relevant law. Also, relevant information are provided transparently to stakeholders through the Sustainability Report, etc.

(Designation of Green Enterprise)

The Company strives to fulfill its responsibility as an eco-friendly enterprise by reducing pollutants, conserving resources and energy, establishing/utilizing a green management system, etc. As of December 31, 2021 (on a separate basis), our business sites in Suwon, Gumi, Giheung, Hwaseong, Pyeongtaek, and Onyang have been designated as green enterprises

in accordance with Article 16-2 (Designation, etc., of Green Enterprise) of the Environmental Technology and Industry Support Act. In March, the Green Enterprise designation was cancelled for Gwangju site in pursuant to Article 16-3 (Cancellation of Designation of Green Enterprise) Paragraph 1 Subparagraph 1 of the Environmental Technology and Industry Support Act.

(Green Technology Certification)

The Company is acquiring Green Technology Certifications in accordance with Article 32 (Standardization and Certification and Green Technology Green Industries) Paragraph 2 of the Framework Act on Low Carbon Green Growth. By concentrating on developing eco-friendly products and expanding the supply of these products with our "Planet First" strategy, which strives to conduct business activities in a manner that respect people and the nature, the Company, as of December 31, 2021, has secured 10 valid Green Technology Certifications since the certification system was introduced in 2010. In addition, the Company has acquired 'Green Technology' product certificates for 136 models of commercialized products.

Certified Green Technologies as of December 31, 2021 are as follows:

Division	Certified Green Technologies	No.
CE	Technology to: 1) enhance energy efficiency of dryers using high-efficiency heat pump and heat exchanger; and 2) reduce stand-by power use by monitors etc.	9
IM	Technology to reduce stand-by power use by laptops utilizing high-efficiency power conversion technology	1

Separate basis.

(Greenhouse gas emission and energy consumption management)

The Company is a "controlled entity" according to Article 42 (Coping with Climate Change and Management of Targets for Energy) Paragraph 6 of the Framework Act on Low Carbon, Green Growth. Thus, the Company has been reporting the amount of greenhouse gas emission and energy consumption, verified by a third-party, to the authorities and disclosing it to stakeholders according to Article 44 (Reporting on Quantity of Greenhouse Gases Emitted and Quantity of Energy Consumed) of the same Act since May 2011.

The reported amount of greenhouse gas emission and energy use on a separate basis are provided below:

(Unit: tCO_2-eq, TJ)

	2021	2020	2019
Greenhouse gas (tCO_2-eq)	14,420,000	12,532,779	11,143,405
Energy (TJ)	187,000	177,122	161,123

Separate basis.
Domestic manufacturing facilities, office buildings, buildings owned by the Company, leased buildings, etc.
Reported Greenhouse gas emission excludes ozone depletion substances (ODS).
Amounts may differ based on the result of governmental evaluations on emissions.

From 2015, in accordance with Article 8 (Designation of Business Entities Eligible for Allocation) of the Act on the Allocation and Trading of Greenhouse-Gas Emission Permits, the Company is an eligible business entity under the Act.

XII. Appendix

1. Subsidiaries subject to consolidated financial statements (detailed)

As of December 31, 2021, Samsung Electronics' consolidated subsidiaries numbered 228 with the addition of 5 subsidiaries and reduction of 18 subsidiaries when compared to totals as of December 31, 2020. Below is the list of consolidated subsidiaries.

(KRW mil)

Subsidiary	Date established	Major business	Assets as of Dec 31, 2021	Ownership	Classified as major subsidiary (Y/N)
Samsung Electronics America, Inc. (SEA)	Jul 1978	Electronic goods sales	42,982,054	Over 50%	Y
Samsung International, Inc. (SII)	Oct 1983	Electronic goods production	2,064,637	Over 50%	Y
Samsung Mexicana S.A. de C.V (SAMEX)	Mar 1988	Electronic goods production	63,019	Over 50%	N
Samsung Electronics Home Appliances America, LLC (SEHA)	Aug 2017	Home appliance production	763,537	Over 50%	Y
Samsung Research America, Inc (SRA)	Oct 1988	R&D	748,415	Over 50%	Y
Samsung Next LLC (SNX)	Aug 2016	Subsidiary management (overseas)	177,851	Over 50%	Y
Samsung Next Fund LLC (SNXF)	Aug 2016	Tech/emerging-tech venture firm investments	248,020	Over 50%	Y
NeuroLogica Corp.	Feb 2004	Medical device production and sales	211,236	Over 50%	Y
Samsung HVAC America, LLC	Jul 2001	Air conditioner sales	59,622	Over 50%	N
Joyent, Inc.	Mar 2005	Cloud services	180,789	Over 50%	Y
Dacor Holdings, Inc.	Dec 1998	Subsidiary management (overseas)	27,464	Over 50%	N
Dacor, Inc.	Mar 1965	Home appliance production and sales	27,441	Over 50%	N
Dacor Canada Co.	Jun 2001	Home appliance sales	-	Over 50%	N
SmartThings, Inc.	Apr 2012	Smart home platform	179,239	Over 50%	Y
TeleWorld Solutions, Inc. (TWS)	May 2002	Network equipment installation and optimization	26,061	Over 50%	N
Samsung Semiconductor, Inc. (SSI)	Jul 1983	Semiconductor and display panel sales	13,744,799	Over 50%	Y
Samsung Austin Semiconductor LLC. (SAS)	Feb 1996	Semiconductor production	8,705,085	Over 50%	Y
Samsung Oak Holdings, Inc. (SHI)	Jun 2016	Subsidiary management (overseas)	380,569	Over 50%	Y
SEMES America, Inc.	Oct 1998	Semiconductor equipment services	2,070	Over 50%	N
Samsung Electronics Canada, Inc. (SECA)	Jul 1980	Electronic goods sales	1,861,549	Over 50%	Y
AdGear Technologies Inc.	Aug 2010	Digital advertising platform	103,625	Over 50%	Y
Samsung Eletronica da Amazonia Ltda. (SEDA)	Jan 1995	Electronic goods production and sales	4,589,505	Over 50%	Y
Samsung Electronics Mexico S.A. de C.V. (SEM)	Jul 1995	Electronic goods sales	1,417,629	Over 50%	Y
Samsung Electronics Digital Appliance Mexico, S.A. de C.V. (SEDAM)	Dec 2012	Home appliance production	944,189	Over 50%	Y
Samsung Electronics Latinoamerica (Zona Libre), S. A. (SELA)	Apr 1989	Electronic goods sales	1,247,421	Over 50%	Y
Samsung Electronics Latinoamerica Miami, Inc. (SEMI)	May 1995	Electronic goods sales	434,912	Over 50%	Y
Samsung Electronica Colombia S.A. (SAMCOL)	Mar 1997	Electronic goods sales	601,744	Over 50%	Y
Samsung Electronics Argentina S.A. (SEASA)	Jun 1996	Marketing and services	72,793	Over 50%	N
Samsung Electronics Chile Limitada (SECH)	Dec 2002	Electronic goods sales	737,184	Over 50%	Y

Subsidiary	Date established	Major business	Assets as of Dec 31, 2021	Ownership	Classified as major subsidiary (Y/N)
Samsung Electronics Peru S.A.C. (SEPR)	Apr 2010	Electronic goods sales	363,052	Over 50%	Y
Samsung Electronics Venezuela, C.A. (SEVEN)	May 2010	Marketing and services	5	Over 50%	N
Samsung Electronics Panama. S.A. (SEPA)	Jul 2012	Consulting	3,022	Over 50%	N
Harman International Industries, Inc.	Jan 1980	Subsidiary management (overseas)	16,641,325	Over 50%	Y
Harman Becker Automotive Systems, Inc.	Jun 1981	Audio product production, sales, and R&D	7,888,591	Over 50%	Y
Harman Connected Services, Inc.	Feb 2002	Connected Service Provider	2,115,037	Over 50%	Y
Harman Connected Services Engineering Corp.	Sep 2004	Connected Service Provider	225	Over 50%	N
Harman da Amazonia Industria Eletronica e Participacoes Ltda.	Jul 2005	Audio product production and sales	53,360	Over 50%	N
Harman de Mexico, S. de R.L. de C.V.	Feb 1997	Audio product production	135,106	Over 50%	Y
Harman do Brasil Industria Eletronica e Participacoes Ltda.	Nov 1958	Audio product sales and R&D	230,102	Over 50%	Y
Harman Financial Group LLC	Jun 2004	Management Company	22,651	Over 50%	N
Harman International Industries Canada Ltd.	May 2005	Audio product sales	180	Over 50%	N
Harman International Mexico, S. de R.L. de C.V.	Dec 2014	Audio product sales	22,143	Over 50%	N
Harman KG Holding, LLC	Mar 2009	Subsidiary management (overseas)	-	Over 50%	N
Harman Professional, Inc.	Jul 2006	Audio product sales and R&D	810,140	Over 50%	Y
Beijing Integrated Circuit Industry International Fund, L.P	Dec 2014	Venture firm investments	13,192	Over 50%	N
China Materialia New Materials 2016 Limited Partnership	Sep 2017	Venture firm investments	7,200	Over 50%	N
Samsung Electronics (UK) Ltd. (SEUK)	Jul 1995	Electronic goods sales	2,925,062	Over 50%	Y
Samsung Electronics Ltd. (SEL)	Jan 1999	Subsidiary management (overseas)	7,030	Over 50%	N
Samsung Semiconductor Europe Limited (SSEL)	Apr 1997	Semiconductor and display panel sales	95,032	Over 50%	Y
Samsung Electronics GmbH (SEG)	Dec 1984	Electronic goods sales	2,289,391	Over 50%	Y
Samsung Electronics Holding GmbH (SEHG)	Feb 1982	Subsidiary management (overseas)	395,130	Over 50%	Y
Samsung Semiconductor Europe GmbH (SSEG)	Dec 1987	Semiconductor and display panel sales	1,200,667	Over 50%	Y
Samsung Electronics France S.A.S (SEF)	Jan 1988	Electronic goods sales	1,727,313	Over 50%	Y
Samsung Electronics Italia S.P.A. (SEI)	Apr 1991	Electronic goods sales	1,477,767	Over 50%	Y
Samsung Electronics Iberia, S.A. (SESA)	Jan 1989	Electronic goods sales	1,208,209	Over 50%	Y
Samsung Electronics Portuguesa, Unipessoal, Lda. (SEP) (Formerly Samsung Electronics Portuguesa S.A.)	Sep 1982	Electronic goods sales	271,224	Over 50%	Y
Samsung Electronics Hungarian Private Co. Ltd. (SEH)	Oct 1989	Electronic goods production and sales	2,504,075	Over 50%	Y
Samsung Electronics Europe Logistics B.V. (SELS)	May 1991	Logistics	2,305,275	Over 50%	Y
Samsung Electronics Benelux B.V. (SEBN)	Jul 1995	Electronic goods sales	2,612,357	Over 50%	Y
Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	Oct 2008	Subsidiary management (overseas)	14,651,496	Over 50%	Y
Samsung Electronics Nordic Aktiebolag (SENA)	Mar 1992	Electronic goods sales	1,408,535	Over 50%	Y
Samsung Electronics Slovakia s.r.o (SESK)	Jun 2002	TV and monitor production	1,644,977	Over 50%	Y
Samsung Display Slovakia s.r.o. (SDSK)	Mar 2007	Display panel processing	28,711	Over 50%	N
Samsung Electronics Polska, SP.Zo.o (SEPOL)	Apr 1996	Electronic goods sales	1,141,465	Over 50%	Y

Subsidiary	Date established	Major business	Assets as of Dec 31, 2021	Ownership	Classified as major subsidiary (Y/N)
Samsung Electronics Poland Manufacturing SP.Zo.o (SEPM)	Feb 2010	Home appliance production	525,067	Over 50%	Y
Samsung Electronics Romania LLC (SEROM)	Sep 2007	Electronic goods sales	353,140	Over 50%	Y
Samsung Electronics Austria GmbH (SEAG)	Jan 2002	Electronic goods sales	536,140	Over 50%	Y
Samsung Electronics Switzerland GmbH (SESG)	May 2013	Electronic goods sales	354,611	Over 50%	Y
Samsung Electronics Czech and Slovak s.r.o. (SECZ)	Jan 2010	Electronic goods sales	320,233	Over 50%	Y
Samsung Electronics Baltics SIA (SEB)	Oct 2001	Electronic goods sales	156,054	Over 50%	Y
Samsung Electronics Greece S.M.S.A (SEGR)	Apr 2010	Electronic goods sales	145,588	Over 50%	Y
Samsung Electronics Air Conditioner Europe B.V. (SEACE)	Apr 2017	Air conditioner sales	167,050	Over 50%	Y
Samsung Nanoradio Design Center (SNDC)	Feb 2004	R&D	29,111	Over 50%	N
Samsung Denmark Research Center ApS (SDRC)	Sep 2012	R&D	28,330	Over 50%	N
Samsung Cambridge Solution Centre Limited (SCSC)	Sep 2012	R&D	165,106	Over 50%	Y
Zhilabs, S.L.	Nov 2008	Network solution R&D and sales	14,277	Over 50%	N
Foodient Ltd.	Mar 2012	R&D	4,489	Over 50%	N
Samsung Electronics Rus Company LLC (SERC)	Oct 2006	Electronic goods sales	1,714,693	Over 50%	Y
Samsung Electronics Rus Kaluga LLC (SERK)	Jul 2007	TV production	1,338,993	Over 50%	Y
Samsung Electronics Ukraine Company LLC (SEUC)	Sep 2008	Electronic goods sales	322,369	Over 50%	Y
Samsung Electronics Central Eurasia LLP (SECE)	Sep 2008	Electronic goods sales	570,861	Over 50%	Y
Samsung Electronics Overseas B.V. (SEO)	Jan 1997	Electronic goods sales	1,863	Over 50%	N
Samsung R&D Institute Rus LLC (SRR)	Nov 2011	R&D	49,064	Over 50%	N
Samsung Electronics Caucasus Co. Ltd (SECC)	Oct 2014	Marketing	2,199	Over 50%	N
AKG Acoustics GmbH	Mar 1947	Audio product production and sales	330,677	Over 50%	Y
AMX UK Limited	Mar 1993	Audio product sales	-	Over 50%	N
Harman Audio Iberia Espana Sociedad Limitada	Nov 2012	Audio product sales	1,116	Over 50%	N
Harman Automotive UK Limited	Oct 2012	Audio product production	-	Over 50%	N
Harman Becker Automotive Systems GmbH	Jul 1990	Audio product production, sales, and R&D	3,805,205	Over 50%	Y
Harman Becker Automotive Systems Italy S.R.L.	Dec 2005	Audio product sales	1,222	Over 50%	N
Harman Becker Automotive Systems Manufacturing Kft	Aug 1994	Audio product R&D and production	3,127,200	Over 50%	Y
Harman Belgium SA	Apr 1967	Audio product sales	1,969	Over 50%	N
Harman Connected Services AB.	Oct 1984	Connected Service Provider	17,747	Over 50%	N
Harman Finland Oy	Jul 1998	Connected Service Provider	-	Over 50%	N
Harman Connected Services GmbH	Dec 2005	Connected Service Provider	45,171	Over 50%	N
Harman Connected Services Poland Sp.Zo.o	Jun 2007	Connected Service Provider	8,256	Over 50%	N
Harman Connected Services UK Ltd.	Sep 2008	Connected Service Provider	60,540	Over 50%	N
Harman Consumer Nederland B.V.	Dec 1995	Audio product sales	460,178	Over 50%	Y
Harman Deutschland GmbH	Mar 1998	Audio product sales	13,272	Over 50%	N

Subsidiary	Date established	Major business	Assets as of Dec 31, 2021	Ownership	Classified as major subsidiary (Y/N)
Harman Finance International GP S.a.r.l	Apr 2015	Subsidiary management (overseas)	-	Over 50%	N
Harman France SNC	Nov 1995	Audio product sales	154,903	Over 50%	Y
Harman Holding Gmbh & Co. KG	Jun 2002	Management Company	5,256,219	Over 50%	Y
Harman Hungary Financing Ltd.	Jun 2012	Financing Company	35,823	Over 50%	N
Harman Inc. & Co. KG	Jun 2012	Subsidiary management (overseas)	4,247,706	Over 50%	Y
Harman International Estonia OU	May 2015	R&D	193	Over 50%	N
Harman International Industries Limited	Mar 1980	Audio product sales and R&D	78,684	Over 50%	Y
Harman International Romania SRL	Feb 2015	R&D	17,632	Over 50%	N
Harman Finance International, SCA	Apr 2015	Financing Company	486,810	Over 50%	Y
Harman International s.r.o	Feb 2015	Audio product production	69	Over 50%	N
Harman Management GmbH	Apr 2002	Subsidiary management (overseas)	-	Over 50%	N
Harman Professional Kft	Dec 2014	Audio product R&D and production	54,034	Over 50%	N
Harman Professional Denmark ApS	Jul 1987	Audio product sales and R&D	47,985	Over 50%	N
Red Bend Software Ltd.	Aug 2004	Software design	-	Over 50%	N
Red Bend Software S.A.S	Oct 2002	Software design	7,784	Over 50%	N
Studer Professional Audio GmbH	Nov 2003	Audio product sales and R&D	8,725	Over 50%	N
Harman Connected Services OOO	Nov 1998	Connected Service Provider	17,799	Over 50%	N
Harman RUS CIS LLC	Aug 2011	Audio product sales	155,602	Over 50%	Y
Samsung Gulf Electronics Co., Ltd.(SGE)	May 1995	Electronic goods sales	1,776,336	Over 50%	Y
Samsung Electronics Turkey (SETK)	Dec 1984	Electronic goods sales	422,159	Over 50%	Y
Samsung Electronics Industry and Commerce Ltd. (SETK-P)	Feb 2021	Electronic goods production	131,811	Over 50%	Y
Samsung Electronics Levant Co.,Ltd. (SELV)	Jul 2009	Electronic goods sales	349,640	Over 50%	Y
Samsung Electronics Maghreb Arab (SEMAG)	Nov 2009	Electronic goods sales	322,510	Over 50%	Y
Samsung Electronics Egypt S.A.E (SEEG)	Jul 2012	Electronic goods production and sales	946,599	Over 50%	Y
Samsung Electronics Israel Ltd. (SEIL)	Sep 2012	Marketing	14,889	Over 50%	N
Samsung Electronics Tunisia S.A.R.L (SETN)	Sep 2012	Marketing	5,206	Over 50%	N
Samsung Electronics Pakistan(Private) Ltd. (SEPAK)	Nov 2012	Marketing	3,343	Over 50%	N
Samsung Electronics Saudi Arabia Ltd. (SESAR)	Nov 2019	Electronic goods sales	440,098	Over 50%	Y
Samsung Semiconductor Israel R&D Center, Ltd. (SIRC)	Oct 2007	R&D	150,482	Over 50%	Y
Corephotonics Ltd.	Jan 2012	R&D	12,963	Over 50%	N
Samsung Electronics South Africa(Pty) Ltd. (SSA)	Jun 1994	Electronic goods sales	500,605	Over 50%	Y
Samsung Electronics South Africa Production (pty) Ltd. (SSAP)	Jul 2014	TV and monitor production	92,169	Over 50%	Y
Samsung Electronics West Africa Ltd. (SEWA)	Mar 2010	Marketing	23,034	Over 50%	N
Samsung Electronics East Africa Ltd. (SEEA)	Dec 2011	Marketing	16,851	Over 50%	N
Global Symphony Technology Group Private Ltd.	Jan 2002	Subsidiary management (overseas)	51,892	Over 50%	N

Subsidiary	Date established	Major business	Assets as of Dec 31, 2021	Ownership	Classified as major subsidiary (Y/N)
Harman Connected Services Morocco	Apr 2012	Connected Service Provider	921	Over 50%	N
Harman Industries Holdings Mauritius Ltd.	Oct 2009	Subsidiary management (overseas)	87,624	Over 50%	Y
Red Bend Ltd.	Feb 1998	Audio product production	109,755	Over 50%	Y
Samsung Asia Pte. Ltd. (SAPL)	Jul 2006	Subsidiary management (overseas)	14,683,789	Over 50%	Y
Samsung Electronics Singapore Pte. Ltd. (SESP)	Oct 2020	Electronic goods sales	669,485	Over 50%	Y
Samsung Malaysia Electronics (SME) Sdn. Bhd. (SME)	May 2003	Electronic goods sales	625,662	Over 50%	Y
Samsung Electronics Display (M) Sdn. Bhd. (SDMA)	Mar 1995	Electronic goods production	24,681	Over 50%	N
Samsung Electronics (M) Sdn. Bhd. (SEMA)	Sep 1989	Home appliance production	263,523	Over 50%	Y
Samsung Vina Electronics Co., Ltd. (SAVINA)	Jan 1995	Electronic goods sales	105,109	Over 50%	Y
Samsung Electronics Vietnam Co., Ltd. (SEV)	Mar 2008	Electronic goods production	13,023,272	Over 50%	Y
Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	Mar 2013	Telecom product production	17,521,446	Over 50%	Y
Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	Feb 2015	Electronic goods production and sales	3,129,104	Over 50%	Y
Samsung Display Vietnam Co., Ltd. (SDV)	Jul 2014	Display panel production	6,821,066	Over 50%	Y
PT Samsung Electronics Indonesia (SEIN)	Aug 1991	Electronic goods production and sales	1,139,901	Over 50%	Y
PT Samsung Telecommunications Indonesia (STIN)	Mar 2003	Electronic goods sales and service	63,990	Over 50%	N
Thai Samsung Electronics Co., Ltd. (TSE)	Oct 1988	Electronic goods production and sales	3,018,358	Over 50%	Y
Laos Samsung Electronics Sole Co., Ltd (LSE)	Sep 2016	Marketing	1,064	Over 50%	N
Samsung Electronics Philippines Corporation (SEPCO)	Mar 1996	Electronic goods sales	358,559	Over 50%	Y
Samsung Electronics Australia Pty. Ltd. (SEAU)	Nov 1987	Electronic goods sales	765,487	Over 50%	Y
Samsung Electronics New Zealand Limited (SENZ)	Sep 2013	Electronic goods sales	181,670	Over 50%	Y
Samsung India Electronics Private Ltd. (SIEL)	Aug 1995	Electronic goods production and sales	7,765,019	Over 50%	Y
Samsung Display Noida Private Limited (SDN)	Jul 2019	Display panel production	657,924	Over 50%	Y
Samsung R&D Institute India-Bangalore Private Limited (SRI-Bangalore)	May 2005	R&D	477,710	Over 50%	Y
Samsung R&D Institute BanglaDesh Limited (SRBD)	Aug 2010	R&D	18,277	Over 50%	N
Samsung Nepal Services Pvt, Ltd (SNSL)	Nov 2017	Service	385	Over 50%	N
Samsung Japan Corporation (SJC)	Dec 1975	Semiconductor and display panel sales	1,311,938	Over 50%	Y
Samsung R&D Institute Japan Co. Ltd. (SRJ)	Aug 1992	R&D	161,184	Over 50%	Y
Samsung Electronics Japan Co., Ltd. (SEJ)	Sep 2008	Electronic goods sales	880,101	Over 50%	Y
Harman Connected Services Corp. India Pvt. Ltd.	Apr 2002	Connected Service Provider	311,892	Over 50%	Y
Harman International (India) Private Limited	Jan 2009	Audio product sales and R&D	361,520	Over 50%	Y
Harman International Industries PTY Ltd.	Dec 2014	Subsidiary management (overseas)	-	Over 50%	N
Harman International Japan Co., Ltd.	Jun 1991	Audio product sales and R&D	63,699	Over 50%	N
Harman Singapore Pte. Ltd.	Aug 2007	Audio product sales	10,738	Over 50%	N
Samsung (CHINA) Investment Co., Ltd. (SCIC)	Mar 1996	Electronic goods sales	13,599,093	Over 50%	Y
Samsung Electronics Hong Kong Co., Ltd. (SEHK)	Sep 1988	Electronic goods sales	1,788,990	Over 50%	Y

Subsidiary	Date established	Major business	Assets as of Dec 31, 2021	Ownership	Classified as major subsidiary (Y/N)
Samsung Electronics Taiwan Co., Ltd. (SET)	Nov 1994	Electronic goods sales	2,033,992	Over 50%	Y
Tianjin Samsung Electronics Co., Ltd. (TSEC)	Apr 1993	TV and monitor production	551,511	Over 50%	Y
Suzhou Samsung Electronics Co., Ltd. (SSEC)	Apr 1995	Home appliance production	670,959	Over 50%	Y
Samsung Suzhou Electronics Export Co., Ltd. (SSEC-E)	Apr 1995	Home appliance production	559,267	Over 50%	Y
Samsung Electronics Suzhou Computer Co., Ltd. (SESC)	Sep 2002	Electronic goods production and R&D	147,973	Over 50%	Y
Tianjin Samsung Telecom Technology Co., Ltd. (TSTC)	Mar 2001	Telecom product production	654,546	Over 50%	Y
Beijing Samsung Telecom R&D Center (SRC-Beijing)	Sep 2000	R&D	157,755	Over 50%	Y
Samsung Electronics China R&D Center (SRC-Nanjing)	May 2004	R&D	81,122	Over 50%	Y
Samsung Mobile R&D Center China- Guangzhou (SRC-Guangzhou)	Jan 2010	R&D	106,664	Over 50%	Y
Samsung R&D Institute China-Shenzhen (SRC-Shenzhen)	Mar 2013	R&D	42,903	Over 50%	N
Shanghai Samsung Semiconductor Co., Ltd. (SSS)	Oct 2001	Semiconductor and display panel sales	7,765,126	Over 50%	Y
Samsung (China) Semiconductor Co., Ltd. (SCS)	Sep 2012	Semiconductor production	19,049,536	Over 50%	Y
Samsung SemiConductor Xian Co., Ltd. (SSCX)	Apr 2016	Semiconductor and display panel sales	1,154,516	Over 50%	Y
Samsung Electronics Suzhou Semiconductor Co., Ltd. (SESS)	Dec 1994	Semiconductor processing	1,477,600	Over 50%	Y
Tianjin Samsung LED Co., Ltd. (TSLED)	May 2009	LED production	567,151	Over 50%	Y
Samsung Semiconductor (China) R&D Co., Ltd. (SSCR)	Apr 2003	R&D	68,955	Over 50%	N
Samsung Display Dongguan Co., Ltd. (SDD)	Nov 2001	Display panel production	2,149,277	Over 50%	Y
Samsung Display Tianjin Co., Ltd. (SDT)	Jun 2004	Display panel production	1,546,613	Over 50%	Y
SEMES (XIAN) Co., Ltd.	Jul 2013	Semiconductor equipment services	3,491	Over 50%	N
Harman (China) Technologies Co., Ltd.	Mar 2011	Audio product production	140,969	Over 50%	Y
Harman (Suzhou) Audio and Infotainment Systems Co., Ltd.	Mar 2013	Audio product sales	5,791	Over 50%	N
Harman Automotive Electronic Systems (Suzhou) Co., Ltd.	Sep 2006	Audio product R&D and production	313,303	Over 50%	Y
Harman Commercial (Shanghai) Co., Ltd.	Oct 2010	Audio product sales	247	Over 50%	N
Harman Connected Services Solutions (Chengdu) Co., Ltd.	Aug 2007	Connected Service Provider	14,865	Over 50%	N
Harman Holding Limited	May 2007	Audio product sales	567,202	Over 50%	Y
Harman International (China) Holdings Co., Ltd.	Jun 2009	Audio product sales and R&D	697,932	Over 50%	Y
Harman Technology (Shenzhen) Co., Ltd.	Sep 2004	Audio product sales and R&D	28,762	Over 50%	N
Samsung Semiconductor Investment L.P. Ⅰ	Dec 2021	Tech/emerging-tech venture firm investments	18,409	Over 50%	N
Samsung Display	Apr 2012	Display panel production and sales	54,967,156	Over 50%	Y
SU Materials	Aug 2011	Display panel component production	34,863	Over 50%	N
STECO	Jun 1995	Semiconductor component production	153,976	Over 50%	Y
SEMES	Jan 1993	Semiconductor/FPD manufacturing equipment production and sales	1,931,476	Over 50%	Y
Samsung Electronics Service	Oct 1998	Electronics goods repair services	553,466	Over 50%	Y
Samsung Electronics Service CS	Oct 2018	Customer management services	20,082	Over 50%	N
Samsung Electronics Sales	Jul 1996	Electronic goods sales	1,374,619	Over 50%	Y

Subsidiary	Date established	Major business	Assets as of Dec 31, 2021	Ownership	Classified as major subsidiary (Y/N)
Samsung Electronics Logitech	Apr 1998	Total logistics services	386,841	Over 50%	Y
Samsung Medison	Jul 1985	Medical device production and sales	451,830	Over 50%	Y
Mirero System	Jan 1994	Semiconductor software development and supply	31,668	Over 50%	N
Dowoo Insys	Mar 2010	Display panel component production	62,894	Over 50%	N
GF Co., Ltd.	Oct 2015	Display panel component production	6,826	Over 50%	N
Harman Korea	Jan 2005	Semiconductor software development and supply	21,682	Over 50%	N
SVIC #21 Venture Capital Union	Nov 2011	Tech/emerging-tech venture firm investments	123,575	Over 50%	Y
SVIC #22 Venture Capital Union	Nov 2011	Tech/emerging-tech venture firm investments	93,345	Over 50%	Y
SVIC #26 Venture Capital Union	Nov 2014	Tech/emerging-tech venture firm investments	81,623	Over 50%	Y
SVIC #28 Venture Capital Union	Feb 2015	Tech/emerging-tech venture firm investments	498,438	Over 50%	Y
SVIC #29 Venture Capital Union	Apr 2015	Tech/emerging-tech venture firm investments	42,774	Over 50%	N
SVIC #32 Venture Capital Union	Aug 2016	Tech/emerging-tech venture firm investments	355,271	Over 50%	Y
SVIC #33 Venture Capital Union	Nov 2016	Tech/emerging-tech venture firm investments	396,087	Over 50%	Y
SVIC #37 Venture Capital Union	Nov 2017	Tech/emerging-tech venture firm investments	77,214	Over 50%	Y
SVIC #40 Venture Capital Union	Jun 2018	Tech/emerging-tech venture firm investments	43,552	Over 50%	N
SVIC #42 Venture Capital Union	Nov 2018	Tech/emerging-tech venture firm investments	15,429	Over 50%	N
SVIC #43 Venture Capital Union	Dec 2018	Tech/emerging-tech venture firm investments	8,066	Over 50%	N
SVIC #45 Venture Capital Union	May 2019	Tech/emerging-tech venture firm investments	169,143	Over 50%	Y
SVIC #48 Venture Capital Union	Dec 2019	Tech/emerging-tech venture firm investments	75,736	Over 50%	Y
SVIC #52 Venture Capital Union	May 2021	Tech/emerging-tech venture firm investments	9,102	Over 50%	N
SVIC #55 Venture Capital Union	Sep 2021	Tech/emerging-tech venture firm investments	85,899	Over 50%	Y
SVIC #56 Venture Capital Union	Nov 2021	Tech/emerging-tech venture firm investments	22,404	Over 50%	N
Private Equity Fund for Semiconductor Growth	Mar 2017	Semiconductor industry investments	74,436	Over 50%	N
Private Equity Fund for Co-existence of System Semiconductor Firms	Apr 2020	Semiconductor industry investments	79,710	Over 50%	Y

Companies with over KRW 75 billion in total assets as of December 31, 2020 are classified as major subsidiaries.
See 『II. Businesses Overview』 for detailed information about major business segments.

(Changes in subsidiaries)

	Americas	Europe/ CIS	MEA/ Africa	Asia ex China	China	Domestic	Total	Increase	Decrease
As of Dec 31, 2018	56	79	21	35	36	25	252	-	-
Changes in 2019	(2)	(4)	(2)	(5)	(2)	3	(12)	**[Europe/CIS: 1]** Foodient Ltd. **[MEA/Africa: 2]** Corephotonics Ltd. Samsung Electronics Saudi Arabia Ltd. (SESAR) **[Asia ex China: 1]** Samsung Display Noida Private Limited (SDN) **[Domestic: 4]** SVIC #45 Venture Capital Union SVIC #48 Venture Capital Union Dowoo Insys GF Co., Ltd.	**[Americas: 2]** Harman Investment Group, LLC Red Bend Software Inc. **[Europe/CIS: 5]** Samsung France Research Center SARL (SFRC) Innoetics E.P.E. Duran Audio B.V. Harman International SNC Harman Professional France SAS **[MEA/Africa: 4]** Broadsense Ltd. iOnRoad Ltd iOnRoad Technologies Ltd Towersec Ltd. **[Asia ex China: 6]** Harman Connected Services Japan Co., Ltd. Red Bend Software Japan Co., Ltd. Studer Japan Ltd. Harman International Singapore Pte. Ltd. AMX Products And Solutions Private Limited Samsung Medison India Private Ltd. (SMIN) **[China: 2]** Samsung Electronics (Beijing) Service Company Limited (SBSC) Harman Connected Services Solutions (Beijing) Co., Ltd. **[Domestic: 1]** Red Bend Software Inc.
As of Dec 31 2019	54	75	19	30	34	28	240	-	-
Changes in 2020	1	-	-	-	(1)	1	1	**[Americas: 4]** TeleWorld Solutions, Inc. (TWS) TWS LATAM B, LLC TWS LATAM S, LLC SNB Technologies, Inc. Mexico, S.A. de C.V **[Asia ex China: 1]** Samsung Electronics Singapore Pte. Ltd. (SESP) **[Domestic: 1]** Private Equity Fund for Co-existence of System Semiconductor Firms	**[Americas: 3]** Harman Connected Services South America S.R.L. EverythingDacor.com, Inc. Distinctive Appliances of California, Inc. **[Asia ex China: 1]** Martin Professional Pte. Ltd. **[China: 1]** Samsung Tianjin Mobile Development Center (SRC-Tianjin)
As of Dec 31 2020	55	75	19	30	33	29	241	-	-
Changes in 2021	(9)	(4)	1	-	(3)	2	(13)	**[China: 1]** Samsung Semiconductor Investment L.P. Ⅰ **[MEA/Africa: 1]** Samsung Electronics Industry and Commerce Ltd. (SETK-P) **[Domestic: 3]** SVIC #52 Venture Capital Union SVIC #55 Venture Capital Union SVIC #56 Venture Capital Union	**[Americas: 9]** Viv Labs. Inc. Stellus Technologies, Inc. SigMast Communications Inc. Prismview, LLC Zhilabs, Inc. TWS LATAM B, LLC TWS LATAM S, LLC SNB Technologies, Inc. Mexico, S.A. de C.V・RT SV CO-INVEST, LP **[Europe/CIS: 4]** Arcam Limited A&R Cambridge Limited Harman Connected Services Limited Martin Manufacturing (UK) Ltd. **[China: 4]** Samsung Suzhou Module Co., Ltd. (SSM) Samsung Suzhou LCD Co., Ltd. (SSL)

	Americas	Europe/ CIS	MEA/ Africa	Asia ex China	China	Domestic	Total	Increase	Decrease
									Samsung Electronics Huizhou Co., Ltd.(SEHZ) Shenzhen Samsung Electronics Telecommunication Co., Ltd.(SSET) **[Domestic: 1]** SVIC #27 Venture Capital Union
As of Dec 31 2021	46	71	20	30	30	31	228	-	-

2. Affiliates & subsidiaries (detailed)

A. Domestic Affiliates

As of December 31, 2021, Samsung Group is comprised of 59 domestic affiliates. Among Samsung Group's 59 domestic affiliates, sixteen (16) affiliates including Samsung Electronics are listed, and forty-four (43) affiliates are unlisted.

[As of December 31, 2021]

Listing	No. of affiliates	Name of affiliates
Listed	**16**	Samsung C&T; Samsung Electronics; Samsung SDI; Samsung Electro-mechanics; Samsung Fire & Marine Insurance; Samsung Heavy Industries; Samsung Life Insurance; Multicampus; Samsung Securities; Samsung SDS; Samsung Card; Samsung Engineering; S1; Cheil Worldwide; Hotel Shilla; Samsung Biologics
Unlisted	**43**	Seoul Lakeside CC; Samwoo Architects & Engineers; CVnet Corporation; Samsung Bioepis; Samsung Display; Samsung Corning Advanced Glass; SU Materials; STECO; SEMES; Samsung Electronics Service; Samsung Electronics Sales; Samsung Electronics Logitech; Suwon Samsung Bluewings FC; Samsung Medison; Samsung Claim Adjustment Service; Samsung Fire & Marine Insurance Service; Samsung Fire & Marine Insurance Financial Service; Samsung Electronics Service CS; Samsung Futures; Samsung Asset Management; Samsung Life Service; Samsung SRA Asset Management; Samsung Life Financial Service; SD Flex; Cheil Fashion Retail Co., Ltd.; Samsung Welstory; SECUI; STM; S-Core; OpenHands; Miracom; Samsung Card Customer Service; Human TSS; S-1CRM; Shilla HM; HDC Shilla Duty Free LTD; Samsung global research(SGR); Samsung Lions; Samsung Venture Investment Corporation; Samsung Active Asset Management; Samsung Hedge Asset Management; Harman International Korea; SBTM
Total	**59**	

B. Foreign Affiliates

[As of December 31, 2021]

Listing	No. of affiliates	Name of affiliates	Country
Unlisted	576	SAMOO HU Designer and Engineering Services Limited	Hungary
		SAMOO DESIGNERS & ENGINEERS INDIA PRIVATE LIMITED	India
		SAMOO (KL) SDN. BHD.	Malaysia
		Meadowland Distribution	USA
		Samsung Green repower, LLC	USA
		Samsung Solar Construction Inc.	USA
		QSSC, S.A. de C.V.	Mexico
		Samsung Solar Energy LLC	USA
		Equipment Trading Solutions Group, LLC	USA
		FLOWFY COMMERCE SERVICE LLC	USA
		SP Armow Wind Ontario LP	Canada
		SRE GRW EPC GP Inc.	Canada
		SRE GRW EPC LP	Canada
		SRE SKW EPC GP Inc.	Canada
		SRE SKW EPC LP	Canada
		SRE WIND PA GP INC.	Canada
		SRE WIND PA LP	Canada
		SRE GRS Holdings GP Inc.	Canada
		SRE GRS Holdings LP	Canada
		SRE K2 EPC GP Inc.	Canada
		SRE K2 EPC LP	Canada
		SRE KS HOLDINGS GP INC.	Canada
		SRE KS HOLDINGS LP	Canada
		SP Belle River Wind LP	Canada
		SRE Armow EPC GP Inc.	Canada
		SRE Armow EPC LP	Canada
		North Kent Wind 1 LP	Canada
		SRE Wind GP Holding Inc.	Canada
		South Kent Wind LP Inc.	Canada
		Grand Renewable Wind LP Inc.	Canada
		SRE North Kent 2 LP Holdings LP	Canada
		SRE Solar Development GP Inc.	Canada
		SRE Solar Development LP	Canada
		SRE Windsor Holdings GP Inc.	Canada
		SRE Southgate Holdings GP Inc.	Canada
		SRE Solar Construction Management GP Inc.	Canada
		SRE Solar Construction Management LP	Canada
		SRE BRW EPC GP INC.	Canada
		SRE BRW EPC LP	Canada
		SRE North Kent 1 GP Holdings Inc	Canada
		SRE North Kent 2 GP Holdings Inc	Canada
		SRE Belle River GP Holdings Inc	Canada

Listing	No. of affiliates	Name of affiliates	Country
		SRE NK1 EPC GP Inc	Canada
		SRE NK1 EPC LP	Canada
		SRE Summerside Construction GP Inc.	Canada
		SRE Summerside Construction LP	Canada
		Monument Power, LLC	USA
		PLL Holdings LLC	USA
		PLL E&P LLC	USA
		Parallel Petroleum LLC	USA
		Grand Renewable Solar GP Inc.	Canada
		KINGSTON SOLAR GP INC.	Canada
		SP Armow Wind Ontario GP Inc	Canada
		South Kent Wind GP Inc.	Canada
		Grand Renewable Wind GP Inc.	Canada
		North Kent Wind 1 GP Inc	Canada
		SP Belle River Wind GP Inc	Canada
		Samsung Solar Energy 1 LLC	USA
		Samsung Solar Energy 2 LLC	USA
		Samsung Solar Energy 3, LLC	USA
		CS SOLAR LLC	USA
		SST SOLAR, LLC	USA
		POSS-SLPC, S.R.O	Slovakia
		Solluce Romania 1 B.V.	Romania
		S.C. Otelinox S.A	Romania
		LJG GREEN SOURCE ENERGY ALPHA S.R.L.	Romania
		WARIS GIGIH ENGINEERING AND TECHNOLOGY SDN. BHD.	Malaysia
		Samsung Chemtech Vina LLC	Vietnam
		Samsung C&T Thailand Co., Ltd	Thailand
		PT. INSAM BATUBARA ENERGY	Indonesia
		Malaysia Samsung Steel Center Sdn.Bhd	Malaysia
		S&G Biofuel PTE.LTD	Singapore
		PT. Gandaerah Hendana	Indonesia
		PT. Inecda	Indonesia
		SAMSUNG CONST. CO. PHILS.	Philippines
		SAMSUNG TRADING (SHANGHAI) CO., LTD	China
		Samsung Precision Stainless Steel(pinghu) Co.,Ltd.	China
		Samsung Japan Corporation	Japan
		Samsung R&D Institute Japan Co. Ltd.	Japan
		Samsung Electronics America, Inc.	USA
		Samsung Electronics Canada, Inc.	Canada
		Samsung Electronics Mexico S.A. De C.V.	Mexico
		Samsung Electronics Ltd.	United Kingdom
		Samsung Electronics (UK) Ltd.	United Kingdom
		Samsung Electronics Holding GmbH	Germany
		Samsung Electronics Iberia, S.A.	Spain
		Samsung Electronics France S.A.S	France
		Samsung Electronics Hungarian Private Co. Ltd.	Hungary
		Samsung Electronics Italia S.P.A.	Italy
		Samsung Electronics Europe Logistics B.V.	Netherlands

Listing	No. of affiliates	Name of affiliates	Country
		Samsung Electronics Benelux B.V.	Netherlands
		Samsung Electronics Overseas B.V.	Netherlands
		Samsung Electronics Polska, SP.Zo.o	Poland
		Samsung Electronics Portuguesa, Unipessoal, Lda.	Portugal
		Samsung Electronics Nordic Aktiebolag	Sweden
		Samsung Electronics Austria GmbH	Austria
		Samsung Electronics Slovakia s.r.o	Slovakia
		Samsung Electronics Europe Holding Cooperatief U.A.	Netherlands
		Samsung Electronics Display (M) Sdn. Bhd.	Malaysia
		Samsung Electronics (M) Sdn. Bhd.	Malaysia
		Samsung Vina Electronics Co., Ltd.	Vietnam
		Samsung Asia Pte. Ltd.	Singapore
		Samsung India Electronics Private Ltd.	India
		Samsung R&D Institute India-Bangalore Private Limited	India
		Samsung Electronics Australia Pty. Ltd.	Australia
		PT Samsung Electronics Indonesia	Indonesia
		Thai Samsung Electronics Co., Ltd.	Thailand
		Samsung Malaysia Electronics (SME) Sdn. Bhd.	Malaysia
		Samsung Electronics Hong Kong Co., Ltd.	Hong Kong
		Suzhou Samsung Electronics Co., Ltd.	China
		Samsung (CHINA) Investment Co., Ltd.	China
		Samsung Electronics Suzhou Semiconductor Co., Ltd.	China
		Tianjin Samsung Electronics Co., Ltd.	China
		Samsung Electronics Taiwan Co., Ltd.	Taiwan
		Tianjin Samsung Telecom Technology Co., Ltd.	China
		Shanghai Samsung Semiconductor Co., Ltd.	China
		Samsung Electronics Suzhou Computer Co., Ltd.	China
		Samsung Semiconductor (China) R&D Co., Ltd.	China
		Samsung (China) Semiconductor Co., Ltd.	China
		Samsung SemiConductor Xian Co., Ltd.	China
		Samsung Gulf Electronics Co., Ltd.	Utd.Arab Emir.
		Samsung Electronics Egypt S.A.E	Egypt
		Samsung Electronics South Africa(Pty) Ltd.	South Africa
		Samsung Electronics Latinoamerica(Zona Libre), S. A.	Panama
		Samsung Eletronica da Amazonia Ltda.	Brazil
		Samsung Electronics Argentina S.A.	Argentina
		Samsung Electronics Chile Limitada	Chile
		Samsung Electronics Rus Company LLC	Russian Fed.
		Samsung Electronics Rus Kaluga LLC	Russian Fed.
		Tianjin Samsung LED Co., Ltd.	China
		Samsung Biologics America, Inc.	USA
		Samsung Bioepis United States Inc.	USA
		SAMSUNG BIOEPIS UK LIMITED	United Kingdom
		Samsung Bioepis NL B.V.	Netherlands
		Samsung Bioepis CH GmbH	Switzerland
		Samsung Bioepis PL Sp z o.o.	Poland
		SAMSUNG BIOEPIS AU PTY LTD	Australia
		SAMSUNG BIOEPIS NZ LIMITED	New Zealand

Listing	No. of affiliates	Name of affiliates	Country
		SAMSUNG BIOEPIS TW Limited	Taiwan
		Samsung Bioepis HK Limited	Hong Kong
		SAMSUNG BIOEPIS IL LTD	Israel
		SAMSUNG BIOEPIS BR PHARMACEUTICAL LTDA	Brazil
		Intellectual Keystone Technology LLC	USA
		Samsung Display Slovakia, s.r.o.	Slovakia
		Samsung Display Vietnam Co., Ltd.	Vietnam
		Samsung Display Noida Private Limited	India
		Samsung Display Dongguan Co., Ltd.	China
		Samsung Display Tianjin Co., Ltd.	China
		Novaled GmbH	Germany
		SEMES America, Inc.	USA
		SEMES (XIAN) Co., Ltd.	China
		NeuroLogica Corp.	USA
		Dacor Holdings, Inc.	USA
		Samsung HVAC America, LLC	USA
		SmartThings, Inc.	USA
		Samsung Oak Holdings, Inc.	USA
		Joyent, Inc.	USA
		TeleWorld Solutions, Inc.	USA
		Samsung Semiconductor, Inc.	USA
		Samsung Research America, Inc	USA
		Samsung Electronics Home Appliances America, LLC	USA
		Samsung International, Inc.	USA
		Harman International Industries, Inc.	USA
		Dacor, Inc.	USA
		Dacor Canada Co.	Canada
		Samsung Austin Semiconductor LLC.	USA
		AdGear Technologies Inc.	Canada
		SAMSUNG NEXT LLC	USA
		SAMSUNG NEXT FUND LLC	USA
		Samsung Mexicana S.A. de C.V	Mexico
		Samsung Electronics Digital Appliance Mexico, SA de CV	Mexico
		Harman International Japan Co., Ltd.	Japan
		Harman International Industries Canada Ltd.	Canada
		Harman Becker Automotive Systems, Inc.	USA
		Harman Professional, Inc.	USA
		Harman Connected Services, Inc.	USA
		Harman Financial Group LLC	USA
		Harman Belgium SA	Belgium
		Harman France SNC	France
		Red Bend Software SAS	France
		Harman Inc. & Co. KG	Germany
		Harman KG Holding, LLC	USA
		Harman Becker Automotive Systems Italy S.R.L.	Italy
		Harman Finance International, SCA	Luxembourg
		Harman Finance International GP S.a.r.l	Luxembourg
		Harman Industries Holdings Mauritius Ltd.	Mauritius

Listing	No. of affiliates	Name of affiliates	Country
		Harman International Mexico, S. de R.L. de C.V.	Mexico
		Harman International Estonia OU	Estonia
		AMX UK Limited	United Kingdom
		Harman Singapore Pte. Ltd.	Singapore
		Harman da Amazonia Industria Eletronica e Participacoes Ltda.	Brazil
		Harman do Brasil Industria Eletronica e Participacoes Ltda.	Brazil
		Harman Connected Services Engineering Corp.	USA
		Harman Connected Services AB.	Sweden
		Harman Connected Services UK Ltd.	United Kingdom
		Harman Connected Services Corp. India Pvt. Ltd.	India
		Global Symphony Technology Group Private Ltd.	Mauritius
		Harman International (India) Private Limited	India
		Harman de Mexico, S. de R.L. de C.V.	Mexico
		Samsung Semiconductor Europe Limited	United Kingdom
		Samsung Semiconductor Europe GmbH	Germany
		Samsung Electronics GmbH	Germany
		Samsung Electronics Czech and Slovak s.r.o.	Czech Republic
		SAMSUNG ELECTRONICS BALTICS SIA	Latvia
		Samsung Electronics West Africa Ltd.	Nigeria
		Samsung Electronics East Africa Ltd.	Kenya
		Samsung Electronics Saudi Arabia Ltd.	Saudi Arabia
		Samsung Electronics Israel Ltd.	Israel
		Samsung Electronics Tunisia S.A.R.L	Tunisia
		Samsung Electronics Pakistan(Private) Ltd.	Pakistan
		Samsung Electronics South Africa Production (pty) Ltd.	South Africa
		Samsung Electronics Turkey	Turkey
		Samsung Electronics Industry and Commerce Ltd.	Turkey
		Samsung Semiconductor Israel R&D Center, Ltd.	Israel
		Samsung Electronics Levant Co.,Ltd.	Jordan
		Samsung Electronics Maghreb Arab	Morocco
		Samsung Electronics Venezuela, C.A.	Venezuela
		Samsung Electronics Peru S.A.C.	Peru
		Samsung Electronics Ukraine Company LLC	Ukraine
		Samsung R&D Institute Rus LLC	Russian Fed.
		Samsung Electronics Central Eurasia LLP	Kazakhstan
		Samsung Electronics Caucasus Co. Ltd	Azerbaijan
		Corephotonics Ltd.	Israel
		Samsung Nanoradio Design Center	Sweden
		Harman Professional Denmark ApS	Denmark
		Studer Professional Audio GmbH	Switzerland
		Martin Professional Japan Ltd.	Japan
		Harman International s.r.o	Czech Republic
		Harman International Romania SRL	Romania
		Harman Becker Automotive Systems GmbH	Germany
		Harman Deutschland GmbH	Germany
		Harman Becker Automotive Systems Manufacturing Kft	Hungary
		Harman RUS CIS LLC	Russian Fed.
		Harman Holding Gmbh & Co. KG	Germany

Listing	No. of affiliates	Name of affiliates	Country
		Harman Management Gmbh	Germany
		Harman Hungary Financing Ltd.	Hungary
		Harman Connected Services OOO	Russian Fed.
		Harman Professional Kft	Hungary
		Harman Consumer Nederland B.V.	Netherlands
		Red Bend Ltd.	Israel
		Harman International Industries Limited	United Kingdom
		AKG Acoustics Gmbh	Austria
		Harman Audio Iberia Espana Sociedad Limitada	Spain
		Harman Holding Limited	Hong Kong
		Harman Finland Oy	Finland
		Harman Connected Services GmbH	Germany
		Harman Connected Services Poland Sp.zoo	Poland
		Harman Connected Services Solutions (Chengdu) Co., Ltd.	China
		Harman Automotive UK Limited	United Kingdom
		Harman International Industries PTY Ltd.	Australia
		Harman Connected Services Morocco	Morocco
		Samsung Electronics Switzerland GmbH	Switzerland
		Samsung Electronics Romania LLC	Romania
		Zhilabs, S.L.	Spain
		Porta Nuova Varesine Building 2 S.r.l.	Italy
		Samsung Electronics Poland Manufacturing SP.Zo.o	Poland
		Samsung Electronics Greece S.M.S.A	Greece
		Samsung Electronics Air Conditioner Europe B.V.	Netherlands
		FOODIENT LTD.	United Kingdom
		Samsung Denmark Research Center ApS	Denmark
		Samsung Cambridge Solution Centre Limited	United Kingdom
		iMarket Asia Co., Ltd.	Hong Kong
		Samsung Electronics Japan Co., Ltd.	Japan
		Samsung Electronics Singapore Pte. Ltd.	Singapore
		Samsung Electronics New Zealand Limited	New Zealand
		Samsung Electronics Philippines Corporation	Philippines
		Samsung R&D Institute BanglaDesh Limited	Bangladesh
		Samsung Electronics Vietnam Co., Ltd.	Vietnam
		Samsung Electronics Vietnam THAINGUYEN Co., Ltd.	Vietnam
		Samsung Electronics HCMC CE Complex Co., Ltd.	Vietnam
		Samsung Nepal Services Pvt, Ltd	Nepal
		PT Samsung Telecommunications Indonesia	Indonesia
		Laos Samsung Electronics Sole Co., Ltd	Laos
		Samsung Suzhou Electronics Export Co., Ltd.	China
		Samsung Mobile R&D Center China-Guangzhou	China
		Samsung R&D Institute China-Shenzhen	China
		Beijing Samsung Telecom R&D Center	China
		Samsung Electronics China R&D Center	China
		Harman (Suzhou) Audio and Infotainment Systems Co., Ltd.	China
		Harman Technology (Shenzhen) Co., Ltd.	China
		Harman (China) Technologies Co., Ltd.	China
		Harman Commercial (Shanghai) Co., Ltd.	China

Listing	No. of affiliates	Name of affiliates	Country
		Harman International (China) Holdings Co., Ltd.	China
		Harman Automotive Electronic Systems (Suzhou) Co., Ltd.	China
		Red Bend Software Ltd.	United Kingdom
		Samsung Electronics Latinoamerica Miami, Inc.	USA
		Samsung Electronica Colombia S.A.	Colombia
		Samsung Electronics Panama. S.A.	Panama
		Samsung SDI Japan Co., Ltd.	Japan
		Samsung SDI America, Inc.	USA
		Samsung SDI Hungary., Zrt.	Hungary
		Samsung SDI Europe GmbH	Germany
		Samsung SDI Battery Systems GmbH	Austria
		Samsung SDI Vietnam Co., Ltd.	Vietnam
		Samsung SDI Energy Malaysia Sdn, Bhd.	Malaysia
		Samsung SDI India Private Limited	India
		Samsung SDI(Hong Kong) Ltd.	Hong Kong
		Samsung SDI China Co., Ltd.	China
		Samsung SDI-ARN (Xi'An) Power Battery Co., Ltd.	China
		Samsung SDI（Tianjin）Battery Co.,Ltd.	China
		SAMSUNG SDI WUXI CO.,LTD.	China
		Tianjin Samsung SDI Co., Ltd.	China
		Samsung Electro-Machanics Japan Co., Ltd.	Japan
		Samsung Electro-Mechanics America, Inc.	USA
		Samsung Electro-Mechanics GmbH	Germany
		Samsung Electro-Mechanics(Thailand) Co., Ltd.	Thailand
		Samsung Electro-Mechanics Philippines, Corp.	Philippines
		Calamba Premier Realty Corporation	Philippines
		Samsung Electro-Mechanics Pte Ltd.	Singapore
		Samsung Electro-Mechanics Vietnam Co., Ltd.	Vietnam
		Samsung Electro-Mechanics Software India Bangalore Private Limited	India
		Dongguan Samsung Electro-Mechanics Co., Ltd.	China
		Tianjin Samsung Electro-Mechanics Co., Ltd.	China
		Samsung High-Tech Electro-Mechanics(Tianjin) Co., Ltd.	China
		Samsung Electro-Mechanics (Shenzhen) Co., Ltd.	China
		Kunshan Samsung Electro-Mechanics Co., Ltd.	China
		Batino Realty Corporation	Philippines
		Samsung Fire & Marine Management Corporation	USA
		SAMSUNG FIRE & MARINE INSURANCE COMPANY OF EUROPE LTD.	United Kingdom
		PT. Asuransi Samsung Tugu	Indonesia
		SAMSUNG VINA INSURANCE COMPANY LIMITED	Vietnam
		Samsung Reinsurance Pte. Ltd.	Singapore
		Samsung Property & Casualty Insurance Company(China), Ltd	China
		Samsung Fire & Marine Insurance Management Middle East Limited	Utd.Arab Emir.
		Camellia Consulting Corporation	USA
		Samsung Heavy Industries India Pvt.Ltd.	India
		SAMSUNG HEAVY INDUSTRIES (M) SDN.BHD	Malaysia
		Samsung Heavy Industries(Ningbo) Co., Ltd	China
		Samsung Heavy Industries(Rongcheng) Co., Ltd	China
		Rongcheng Gaya Heavy Industries Co., Ltd	China

Listing	No. of affiliates	Name of affiliates	Country
		SAMSUNG HEAVY INDUSTRIES NIGERIA LIMITED	Nigeria
		Samsung Heavy Industries Mozambique LDA	Mozambique
		Samsung Heavy Industries Rus LLC	Russian Fed.
		SHI - MCI FZE	Nigeria
		THAI SAMSUNG LIFE INSURANCE CO., LTD.	Thailand
		Beijing Samsung Real Estate Co.. Ltd	China
		Samsung Asset Management (New York), Inc.	USA
		Samsung Global SME Private Equity Manager Fund Co., Ltd.	Cayman Islands
		Samsung Asset Management(London) Ltd.	United Kingdom
		Samsung Private Equity Manager I Co., Ltd.	Cayman Islands
		Samsung Asset Management (Hong Kong) Ltd.	Hong Kong
		Samsung Asset Management (Beijing) Ltd.	China
		Samsung C&T Japan Corporation	Japan
		Samsung C&T America Inc.	USA
		Samsung E&C America, INC.	USA
		Samsung Renewable Energy Inc.	Canada
		Samsung C&T Oil & Gas Parallel Corp.	USA
		Samsung C&T Lima S.A.C.	Peru
		Samsung C&T Deutschland GmbH	Germany
		Samsung C&T U.K. Ltd.	United Kingdom
		Samsung C&T ECUK Limited	United Kingdom
		Whessoe engineering Limited	United Kingdom
		SAM investment Manzanilo.B.V	Netherlands
		Samsung C&T (KL) Sdn.,Bhd.	Malaysia
		Samsung C&T Malaysia SDN. BHD	Malaysia
		Erdsam Co., Ltd.	Hong Kong
		Samsung C&T India Private Limited	India
		Samsung C&T Corporation India Private Limited	India
		Samsung C&T Singapore Pte., Ltd.	Singapore
		SAMSUNG C&T Mongolia LLC.	Mongolia
		Samsung C&T Eng.&Const. Mongolia LLC.	Mongolia
		S&WOO CONSTRUCTION PHILIPPINES,INC.	Philippines
		VSSC STEEL CENTER LIMITED LIABILITY COMPANY	Vietnam
		Vista Contracting and Investment Global Pte. Ltd.	Singapore
		CHEIL HOLDING INC.	Philippines
		Samsung C&T Hongkong Ltd.	Hong Kong
		Samsung C&T Taiwan Co., Ltd.	Taiwan
		SAMSUNG C&T (SHANGHAI) CO., LTD.	China
		Samsung C&T (Xi'an) Co., Ltd.	China
		SAMSUNG C&T CORPORATION SAUDI ARABIA	Saudi Arabia
		SAM Gulf Investment Limited	Utd.Arab Emir.
		Samsung C&T Chile Copper SpA	Chile
		SCNT Power Kelar Inversiones Limitada	Chile
		Samsung C&T Corporation Rus LLC	Russian Fed.
		Cheil Industries Corp., USA	USA
		CHEIL INDUSTRIES ITALY SRL	Italy
		Samsung Fashion Trading Co. ,Ltd	China
		SAMSUNG C&T CORPORATION VIETNAM CO., LTD	Vietnam

Listing	No. of affiliates	Name of affiliates	Country
		Samsung C&T Corporation UEM Construction JV Sdn Bhd	Malaysia
		WELSTORY VIETNAM COMPANY LIMITED	Vietnam
		Shanghai Ever-Hongjun Business Mgt Service Co.,LTD	China
		Shanghai Welstory Food Company Limited	China
		LANGUAGE TESTING INTERNATIONAL, INC.	USA
		PENGTAI CHINA CO.,LTD.	China
		PengTai Taiwan Co., Ltd.	Taiwan
		PENGTAI E-COMMERCE CO.,LTD	China
		PENGTAI MARKETING SERVICE CO.,LTD.	China
		Medialytics Inc.	China
		Beijing Pengtai Baozun E-commerce Co., Ltd.	China
		iMarket China Co., Ltd.	China
		Samsung Securities (America), Inc.	USA
		Samsung Securities (Europe) Limited.	United Kingdom
		Samsung Securities (Asia) Limited.	Hong Kong
		Samsung SDS America, Inc.	USA
		SAMSUNG SDS GSCL Canada., Ltd.	Canada
		Neo EXpress Transportation (NEXT) Inc.	USA
		Samsung SDS Europe, Ltd.	United Kingdom
		Samsung SDS Global SCL Hungary, Kft.	Hungary
		Samsung SDS Global SCL Slovakia, S.R.O.	Slovakia
		Samsung SDS Global SCL Poland Sp. Z.o.o.	Poland
		Samsung GSCL Sweden AB	Sweden
		Samsung SDS Global SCL France SAS	France
		Samsung SDS Global SCL Greece Societe Anonyme	Greece
		Samsung SDS Global SCL Italy S.R.L. A Socio Unico	Italy
		Samsung SDS Global Supply Chain Logistics Spain S.L.U	Spain
		Samsung SDS Global SCL Netherlands Cooperatief U.A.	Netherlands
		Samsung SDS Global SCL Germany GmbH	Germany
		Samsung SDS Global SCL Romania S.R.L	Romania
		Samsung SDS Asia Pacific Pte, Ltd.	Singapore
		Samsung Data Systems India Private Limited	India
		Samsung SDS Vietnam Co., Ltd.	Vietnam
		PT. Samsung SDS Global SCL Indonesia	Indonesia
		Samsung SDS Global SCL Philippines Co., Ltd.Inc.	Philippines
		Samsung SDS Global SCL Thailand Co.,Ltd	Thailand
		Samsung SDS Global SCL Malaysia SDN.BHD.	Malaysia
		SAMSUNG SDS Global SCL Austraila Pty.,Ltd.	Australia
		SDS-ACUTECH CO., Ltd.	Thailand
		ALS SDS Joint Stock Company	Vietnam
		SDS-MP Logistics Joint Stock Company	Vietnam
		Samsung SDS China Co., Ltd.	China
		Samsung SDS Global SCL Hong Kong Co., Ltd.	Hong Kong
		SAMSUNG SDS Global SCL Egypt	Egypt
		Samsung SDS Global SCL South Africa (PTY) Ltd.	South Africa
		Samsung SDS Global SCL Nakliyat ve Lojistik Anonim Sirketi	Turkey
		Samsung SDS Global Supply Chain Logistics Middle East DWC-LLC	Utd.Arab Emir.
		Samsung SDS Latin America Solucoes Em Tecnologia Ltda.	Brazil

Listing	No. of affiliates	Name of affiliates	Country
		INTE-SDS Logistics S.A. de C.V.	Mexico
		Samsung SDS Rus Limited Liability Company	Russian Fed.
		MIRACOM INC ASIA PACIFIC LIMITED	Hong Kong
		Samsung SDS Mexico, S.A. DE C.V.	Mexico
		Samsung SDS Global SCL Panama S. A.	Panama
		Samsung SDS Global SCL Chile Limitada	Chile
		Samsung SDS Global SCL Peru S.A.C.	Peru
		Samsung SDS Global SCL Colombia S.A.S.	Colombia
		Samsung SDS Global Development Center Xi'an	China
		Samsung SDS Global SCL Beijing Co., Ltd	China
		Samsung Engineering America Inc.	USA
		Samsung Engineering Hungary Ltd.	Hungary
		Samsung Engineering Italy S.R.L.	Italy
		Samsung Engineering (Malaysia) SDN. BHD.	Malaysia
		PT Samsung Engineering Indonesia Co., Ltd.	Indonesia
		Samsung Engineering (Thailand) Co., Ltd.	Thailand
		Samsung Engineering India Private Limited	India
		Samsung Engineering Vietnam Co., Ltd.	Vietnam
		Samsung Engineering Construction(Shanghai) Co., Ltd	China
		Samsung Engineering Construction Xi' an Co., Ltd.	China
		Samsung Saudi Arabia Co., Ltd.	Saudi Arabia
		Muharraq Wastewater Services Company W.L.L.	Bahrain
		Muharraq STP Company B.S.C.	Bahrain
		Muharraq Holding Company 1 Ltd.	Utd.Arab Emir.
		Samsung Ingenieria Mexico Construccion Y Operacion S.A. De C.V.	Mexico
		Samsung Engineering Trinidad Co., Ltd.	Trinidad,Tobago
		Samsung Ingenieria Manzanillo, S.A. De C.V.	Mexico
		Grupo Samsung Ingenieria Mexico, S.A. De C.V.	Mexico
		Samsung Ingenieria Energia S.A. De C.V.	Mexico
		Samsung Engineering Bolivia S.A	Bolivia
		Samsung Ingenieria DUBA S.A. de C.V.	Mexico
		Samsung Engineering Kazakhstan L.L.P.	Kazakhstan
		SEA Construction, LLC	USA
		SEA Louisiana Construction, L.L.C.	USA
		Samsung EPC Company Ltd.	Saudi Arabia
		Muharraq Holding Company 2 Ltd.	Utd.Arab Emir.
		Asociados Constructores DBNR, S.A. de C.V.	Mexico
		S-1 CORPORATION HUNGARY LLC	Hungary
		S-1 CORPORATION VIETNAM CO., LTD	Vietnam
		Samsung Beijing Security Systems	China
		PENGTAI INTERACTIVE ADVERTISING CO.,LTD	China
		Cheil USA Inc.	USA
		Cheil Central America Inc.	USA
		Iris Worldwide Holdings Limited	United Kingdom
		CHEIL EUROPE LIMITED	United Kingdom
		Cheil Germany GmbH	Germany
		Cheil France SAS	France
		CHEIL SPAIN S.L	Spain

Listing	No. of affiliates	Name of affiliates	Country
		Cheil Benelux B.V.	Netherlands
		Cheil Nordic AB	Sweden
		Cheil India Private Limited	India
		Cheil (Thailand) Ltd.	Thailand
		Cheil Singapore Pte. Ltd.	Singapore
		CHEIL VIETNAM COMPANY LIMITED	Vietnam
		Cheil Integrated Marketing Philippines, Inc.	Philippines
		CHEIL MALAYSIA SDN. BHD.	Malaysia
		Cheil New Zealand Limited	New Zealand
		CHEIL CHINA	China
		Cheil Hong Kong Ltd.	Hong Kong
		Caishu (Shanghai) Business Consulting Co., Ltd	China
		Cheil MEA FZ-LLC	Utd.Arab Emir.
		Cheil South Africa (Pty) Ltd	South Africa
		CHEIL KENYA LIMITED	Kenya
		Cheil Communications Nigeria Ltd.	Nigeria
		Cheil Worldwide Inc./Jordan LLC.	Jordan
		Cheil Ghana Limited	Ghana
		Cheil Egypt LLC	Egypt
		Cheil Brasil Comunicacoes Ltda.	Brazil
		Cheil Mexico, S.A. de C.V.	Mexico
		Cheil Chile SpA.	Chile
		Cheil Peru S.A.C.	Peru
		CHEIL ARGENTINA S.A.	Argentina
		Cheil Rus LLC	Russian Fed.
		Cheil Ukraine LLC	Ukraine
		Cheil Kazakhstan LLC	Kazakhstan
		Samsung Hospitality America Inc.	USA
		Shilla Travel Retail Pte. Ltd.	Singapore
		Samsung Shilla Business Service Beijing Co., Ltd.	China
		Shilla Travel Retail Hong Kong Limited	Hong Kong
		Shilla Travel Retail Taiwan Limited	Taiwan
		HDC SHILLA (SHANGHAI) CO., LTD	China
		Samsung Hospitality U.K. Inc.	United Kingdom
		Samsung Hospitality Europe GmbH	Germany
		SAMSUNG HOSPITALITY ROMANIA SRL	Romania
		Samsung Hospitality Vietnam Co., Ltd.	Vietnam
		Samsung Hospitality Philippines Inc.	Philippines
		Samsung Hospitality India Private Limited	India
		Samsung Venture Investment (Shanghai) Co., Ltd.	China
		Iris (USA) Inc.	USA
		Iris Atlanta, Inc.	USA
		Iris Experience, Inc.	USA
		Iris Latin America, Inc.	USA
		Iris Worldwide San Diego, Inc.	USA
		89 Degrees, Inc.	USA
		Irisnation Latina No.2, S. de R.L. de C.V.	Mexico
		Irisnation Latina, S. de R.L. de C.V.	Mexico

Listing	No. of affiliates	Name of affiliates	Country
		Pricing Solutions Ltd	Canada
		The Barbarian Group LLC	USA
		McKinney Ventures LLC	USA
		Iris Nation Worldwide Limited	United Kingdom
		Iris Americas, Inc.	USA
		Iris Canada Holdings Ltd	Canada
		Iris London Limited	United Kingdom
		Iris Promotional Marketing Ltd	United Kingdom
		Iris Ventures 1 Limited	United Kingdom
		Founded Partners Limited	United Kingdom
		Iris Products (Worldwide) Limited	United Kingdom
		Iris Korea Limited	United Kingdom
		Iris Digital Limited	United Kingdom
		Iris Amsterdam B.V.	Netherlands
		Iris Ventures (Worldwide) Limited	United Kingdom
		Iris Culture Limited	United Kingdom
		Concise Consultants Limited	United Kingdom
		Atom42 Ltd	United Kingdom
		WDMP Limited	United Kingdom
		Pricing Solutions (UK) Limited	United Kingdom
		Iris Services Limited Dooel Skopje	Macedonia
		Irisnation Singapore Pte. ltd.	Singapore
		Iris Worldwide Integrated Marketing Private Limited	India
		Iris Sydney PTY Ltd	Australia
		Iris Worldwide (Thailand) Limited	Thailand
		Iris Beijing Advertising Company Limited	China
		Iris Partners LLP	United Kingdom
		Holdings BR185 Limited	Brit.Virgin Is.
		Iris Germany GmbH	Germany
		Founded, Inc.	USA
		Pepper NA, Inc.	USA
		Pepper Technologies Pte. Ltd.	Singapore
		Beattie McGuinness Bungay Limited	United Kingdom
		Cheil Italia S.r.l	Italy
		Cheil Austria GmbH	Austria
		Centrade Integrated SRL	Romania
		Centrade Cheil HU Kft.	Hungary
		Centrade Cheil Adriatic D.O.O.	Serbia/Monten.
		Experience Commerce Software Private Limited	India
		Pengtai Greater China Company Limited	Hong Kong
		PT. CHEIL WORLDWIDE INDONESIA	Indonesia
		Cheil Philippines Inc.	Philippines
		Shilla Retail Plus Pte. Ltd.	Singapore
		Tianjin Samsung International Travel Service Co., Ltd	China
		Shilla Retail Limited	Macau
		Shilla Travel Retail Duty Free HK Limited	Hong Kong
		One Agency FZ-LLC	Utd.Arab Emir.
		One RX Project Management Design and Production Limited Company	Turkey

Listing	No. of affiliates	Name of affiliates	Country
		One RX India Private Limited	India
		ONE RX INTERIOR DECORATION L.L.C	Utd.Arab Emir.
		ONE AGENCY PRINTING L.L.C	Utd.Arab Emir.
		One Agency South Africa (Pty) Ltd	South Africa
		Brazil 185 Participacoes Ltda	Brazil
		Iris Router Marketing Ltda	Brazil

3. Equity investments in other corporations (detailed)

The total book value of equity investments in other corporations as of December 31, 2021 is KRW 57,890 billion (for the purpose of management participation, etc.).

[As of December 31, 2021]

(1,000 shares, KRW million, %)

Listing	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Listed	Samsung Electro-Mechanics	1977.01	Management Participation	250	17,693	23.7	445,244	-	-	-	17,693	23.7	445,244	9,957,485	917,737
Listed	Samsung SDI	1977.01	Management Participation	304	13,463	19.6	1,242,605	-	-	-	13,463	19.6	1,242,605	25,833,193	1,250,402
Listed	Samsung Heavy Industries	1977.09	Management Participation	125	100,693	16.0	708,882	33,334	196,670	-145,617	134,027	15.2	759,935	12,138,596	-1,452,070
Listed	Hotel Shilla	1979.12	Management Participation	252	2,005	5.1	164,988	-	-	-8,620	2,005	5.1	156,368	2,656,450	27,065
Listed	Cheil Worldwide	1988.09	Management Participation	185	29,038	25.2	491,599	-	-	-	29,038	25.2	491,599	2,572,977	168,144
Listed	Samsung SDS	1992.07	Management Participation	6,160	17,472	22.6	560,827	-	-	-	17,472	22.6	560,827	10,517,432	633,381
Listed	Samsung BioLogics	2011.04	Management Participation	30,000	20,837	31.5	443,193	-	-	-	20,837	31.5	443,193	7,967,751	396,856
Unlisted	Samsung Display	2012.04	Management Participation	16,009,547	221,969	84.8	18,509,307	-	-	-	221,969	84.8	18,509,307	54,967,156	2,770,060
Unlisted	STECO	1995.06	Management Participation	24,000	2,590	70.0	35,861	-	-	-	2,590	70.0	35,861	153,976	9,630
Unlisted	SEMES	1992.12	Management Participation	1,000	2,173	91.5	71,906	-	-	-	2,173	91.5	71,906	1,931,476	264,309
Unlisted	Samsung Electronics Service	1998.01	Management Participation	30,000	6,000	99.3	48,121	-	-	-	6,000	99.3	48,121	553,466	10,060
Unlisted	Samsung Electronics Sales	2000.12	Management Participation	3,100	1,767	100.0	247,523	-	-	-	1,767	100.0	247,523	1,374,619	7,448
Unlisted	Samsung Electronics Logitech	1999.04	Management Participation	76	1,011	100.0	46,669	-	-	-	1,011	100.0	46,669	386,841	6,076
Unlisted	Samsung Medison	2011.02	Management Participation	286,384	87,350	68.5	302,283	-	-	66,886	87,350	68.5	369,169	451,830	58,928
Unlisted	Samsung Global Research	1991.05	Management Participation	320	3,576	29.8	24,942	-	-	-	3,576	29.8	24,942	174,402	164
Unlisted	Samsung Venture Investment	1999.11	Management Participation	4,900	980	16.3	22,060	-	-	138	980	16.3	22,198	186,149	39,250
Unlisted	SVIC #21	2011.11	Management Participation	19,800	1	99.0	80,888	-1	-75,181	-	0	99.0	5,707	123,575	98,824
Unlisted	SVIC #22	2011.11	Management Participation	19,800	1	99.0	93,624	-0	-18,166	-	1	99.0	75,458	93,345	30,312

Listing	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	SVIC #26	2014.11	Management Participation	19,800	2	99.0	98,577	-0	-2,134	-	2	99.0	96,443	81,623	-435
Unlisted	SVIC #27	2014.09	Management Participation	5,940	0	99.0	43,785	-0	-43,785	-	-	-	-	-	-
Unlisted	SVIC #28	2015.02	Management Participation	7,425	2	99.0	168,980	-1	-99,270	-	1	99.0	69,710	498,438	231,970
Unlisted	SVIC #32	2016.08	Management Participation	19,800	2	99.0	182,606	-0	-11,465	-	2	99.0	171,141	355,271	75,710
Unlisted	SVIC #33	2016.11	Management Participation	4,950	2	99.0	173,307	-0	-6,333	-	2	99.0	166,974	396,087	60,496
Unlisted	SVIC #42	2018.11	Management Participation	4,950	0	99.0	11,048	0	7,609	-	0	99.0	18,657	15,429	-741
Unlisted	SVIC #45	2019.05	Management Participation	19,800	1	99.0	113,417	1	59,625	-	2	99.0	173,042	169,143	7,121
Unlisted	SVIC #52	2021.05	Management Participation	9,900	-	-	-	0	9,900	-	0	99.0	9,900	9,102	-1,532
Unlisted	SVIC #56	2021.11	Management Participation	22,084	-	-	-	0	22,084	-	0	99.0	22,084	22,404	-112
Unlisted	Semiconductor Growth Fund	2017.03	Management Participation	500	50,000,000	66.7	50,000	-	-	-	50,000 000	66.7	50,000	74,436	-646
Unlisted	System LSI Mutual benefit private equity trust	2020.04	Management Participation	25,000	25,000,000	62.5	25,000	25,000,000	25,000	-	50,000,000	62.5	50,000	79,710	-330
Listed	iMarket Korea	2000.12	Management Participation	1,900	647	1.8	5,658	-	-	1,268	647	1.9	6,926	1,120,160	44,499
Listed	KT Skylife	2001.12	Simple Investment	3,344	240	0.5	2,114	-	-	80	240	0.5	2,194	1,275,645	62,309
Listed	Yongpyong Resort	2007.05	Simple Investment	1,869	400	0.8	1,702	-	-	256	400	0.8	1,958	911,905	-17,562
Listed	ATech Solution	2009.11	Simple Investment	26,348	1,592	15.9	19,263	-	-	6,925	1,592	15.9	26,188	199,851	5,464
Listed	Wonik Holdings	2013.12	Management Participation	15,411	1,759	2.3	11,153	-	-	-2,392	1,759	2.3	8,761	1,946,027	148,039
Listed	Wonik IPS	2016.04	Management Participation	16,214	1,851	3.8	81,904	-	-	-3,609	1,851	3.8	78,295	1,167,586	145,117
Listed	Dongjin Semichem	2017.11	Management Participation	48,277	2,468	4.8	90,078	-	-	35,785	2,468	4.8	125,863	1,186,189	102,879
Listed	Soulbrain Holdings	2017.11	Management Participation	30,752	462	2.2	20,825	-	-	-4,849	462	2.2	15,976	1,339,378	1,444,437
Listed	Soulbrain	2020.07	Management Participation	24,866	373	4.8	101,668	-	-	2,315	373	4.8	103,983	717,745	64,883
Listed	S&S Tech	2020.08	Management Participation	65,933	1,716	8.0	74,651	-	-	-11,498	1,716	8.0	63,153	197,438	11,499
Listed	YIK Corp	2020.08	Management Participation	47,336	9,602	11.9	60,010	-	-	-480	9,602	11.7	59,530	467,841	51,189

Listing	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Listed	KCTech	2020.11	Management Participation	20,720	1,022	4.9	31,433	-	-	-6,849	1,022	4.9	24,584	452,895	42,011
Listed	Iotvacuum	2020.11	Management Participation	18,990	1,268	7.7	24,086	-	-	-2,282	1,268	7.1	21,804	266,645	19,187
Listed	NEW POWER PLASMA	2020.11	Management Participation	12,739	2,141	4.9	14,109	-	-	-386	2,141	4.9	13,723	477,500	28,000
Listed	FineSemitech	2021.03	Management Participation	43,009	-	-	-	1,523	43,009	-4,402	1,523	7.0	38,607	343,722	28,700
Listed	DNF	2021.08	Management Participation	20,964	-	-	-	810	20,964	-2,455	810	7.0	18,509	190,023	10,306
Listed	Marvell	2021.10	Simple Investment	11,705	-	-	-	173	11,705	6,258	173	-	17,963	26,103,337	-488,761
Unlisted	The Korea Economic Daily	1987.05	Simple Investment	150	72	0.4	365	-	-	-	72	0.4	365	441,164	41,109
Unlisted	Korea Business Banking	1995.01	Simple Investment	5,000	1,000	17.2	3,040	-	-	-76	1,000	17.2	2,964	85,896	1,150
Unlisted	Cyber Bank	2000.12	Simple Investment	8,000	1,083	7.5	-	-	-	-	1,083	7.5	-	-	-
Unlisted	FineChips	2001.12	Simple Investment	10	2	3.2	10	-	-	-	2	3.2	10	12,090	1,187
Unlisted	Inkel	2006.11	Simple Investment	130	-	-	-	-	-	-	-	-	-	60,103	-1,142
Unlisted	Intellectual Discovery	2011.05	Simple Investment	5,000	357	10.7	1,922	-	-	-	357	10.7	1,922	61,020	9,249
Unlisted	Maltani Corp.	2012.04	Simple Investment	16,544	45	15.0	9,121	-	-	-296	45	15.0	8,825	66,859	-1,581
Unlisted	Pantech	2013.06	Simple Investment	53,000	53,000	10.0	-	-	-	-	53,000	10.0	-	43,812	-16,267
Unlisted	AI Research Institute	2016.07	Simple Investment	3,000	600	14.3	3,000	-	-	-	600	14.3	3,000	9,040	-3,519
Unlisted	Mico Ceramics	2020.11	Management Participation	21,667	747	15.7	21,667	-	-	2,969	747	13.7	24,636	143,870	9,419
Unlisted	Shinsung Eng & Construction	2010.07	Simple Investment	1	-	-	-	-	-	-	-	-	-	165,328	3,411
Unlisted	Woobang	2010.07	Simple Investment	-	1	-	-	-	-	-	1	-	-	603,062	56,443
Unlisted	Sambo Computer	2012.09	Simple Investment	-	-	-	-	-	-	-	-	-	-	58,956	2,112
Unlisted	Daewoo Development	2012.12	Simple Investment	-	-	-	-	-	-	-	-	-	-	333,750	12,414
Unlisted	Daewoo Songdo Development	2012.12	Simple Investment	-	9	-	-	-	-	-	9	-	-	19,369	-350
Unlisted	Zyle Motor Sales	2012.12	Simple Investment	-	1	-	-	-	-	-	1	-	-	350,007	5,097

Listing	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	Sungwon Construction	2014.04	Simple Investment	-	1	-	-	-	-	-	1	-	-	27,744	-627
Unlisted	Inhee	2014.04	Simple Investment	-	-	0.1	-	-	-	-	-	0.1	-	2,232	-128
Unlisted	Point Anybeam	2019.12	Simple Investment	61	12	3.5	61	-	-	-	12	3.5	61	1,392	133
Unlisted	JNT	2011.02	Simple Investment	1,800	-	24.0	1,758	-	-	-	-	24.0	1,758	3,501	-2
Unlisted	Daishin Aju IB	2011.08	Simple Investment	258	-	3.0	681	-	-423	-	-	3.0	258	5,120	6,250
Unlisted	TS	2011.11	Simple Investment	1,700	-	20.5	-	-	-	-	-	-	-	-	-
Unlisted	L&S	2012.07	Simple Investment	848	-	7.5	309	-	-308	-	-	7.5	1	53,924	-967
Unlisted	KTCNP-GC	2013.12	Simple Investment	960	-	3.6	1,816	-	-	-	-	3.6	1,816	82,189	-15,438
Unlisted	POSCO Social Enterprise Fund	2013.12	Simple Investment	600	-	10.0	240	-	-180	-	-	10.0	60	726	324
Unlisted	SEA	1978.07	Management Participation	59,362	492	100.0	17,166,557	-	-	-	492	100.0	17,166,557	42,982,054	823,914
Unlisted	SECA	1992.08	Management Participation	3,823	-	100.0	90,922	-	-	-	-	100.0	90,922	1,861,549	9,679
Unlisted	SEDA	1994.01	Management Participation	13,224	77,205, 709	87.0	647,620	-	-	-	77,205, 709	87.0	647,620	4,589,505	490,202
Unlisted	SEM	1995.07	Management Participation	3,032	3,837	63.6	165,638	-	-	-	3,837	63.6	165,638	1,417,629	74,731
Unlisted	SELA	1989.04	Management Participation	319	40	100.0	86,962	-	-	-	40	100.0	86,962	687,592	30,921
Unlisted	SEASA	1996.06	Management Participation	4,696	21,854	98.0	6,779	-	-	-	21,854	98.0	6,779	72,793	8,097
Unlisted	SECH	2002.12	Management Participation	597	-	4.1	597	-	-	-	-	4.1	597	737,184	69,566
Unlisted	SEUK	1995.07	Management Participation	33,908	109,546	100.0	433,202	-	-	-	109,546	100.0	433,202	2,925,062	241,403
Unlisted	SEL	1998.12	Management Participation	8,280	4,393	100.0	-	-	-	-	4,393	100.0	-	7,030	-
Unlisted	SEHG	1982.02	Management Participation	28,042	-	100.0	354,846	-	-	-	-	100.0	354,846	395,130	113,378
Unlisted	SEF	1991.08	Management Participation	230	2,700	100.0	234,115	-	-	-	2,700	100.0	234,115	1,727,313	73,640
Unlisted	SEI	1993.05	Management Participation	862	677	100.0	143,181	-	-	-	677	100.0	143,181	1,477,767	55,657
Unlisted	SESA	1989.01	Management Participation	3,276	8,021	100.0	142,091	-	-	-	8,021	100.0	142,091	1,208,209	46,703

Listing	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	SEP	1982.09	Management Participation	204	1,751	100.0	37,616	-	-	-	1,751	100.0	37,616	271,224	7,183
Unlisted	SEH	1991.05	Management Participation	1,954	753	100.0	650,157	-	-	-	753	100.0	650,157	2,504,075	157,616
Unlisted	SELS	1991.05	Management Participation	18,314	1,306	100.0	24,288	-	-	-	1,306	100.0	24,288	2,305,275	13,943
Unlisted	SEBN	1995.07	Management Participation	236	539,138	100.0	914,751	-	-	-	539,138	100.0	914,751	2,612,357	284,816
Unlisted	SEEH	2008.01	Management Participation	4,214	-	100.0	1,369,992	-	-	-	-	100.0	1,369,992	14,651,496	24,527
Unlisted	SENA	1992.03	Management Participation	392	1,000	100.0	69,372	-	-	-	1,000	100.0	69,372	1,408,535	43,962
Unlisted	SESK	2002.06	Management Participation	8,976	-	55.7	263,767	-	-	-	-	55.7	263,767	1,644,977	77,453
Unlisted	SEPOL	1996.04	Management Participation	5,462	106	100.0	78,267	-	-	-	106	100.0	78,267	1,141,465	61,622
Unlisted	SEAG	2002.01	Management Participation	40	-	100.0	32,162	-	-	-	-	100.0	32,162	536,140	22,163
Unlisted	SERC	2006.01	Management Participation	24,877	-	100.0	188,290	-	-	-	-	100.0	188,290	1,714,693	93,530
Unlisted	SERK	2007.07	Management Participation	4,600	-	100.0	204,555	-	-	-	-	100.0	204,555	1,338,993	77,697
Unlisted	SEO	1997.01	Management Participation	120	-	100.0	-10,043	-	-	-	-	100.0	-10,043	1,863	-166
Unlisted	SGE	1995.05	Management Participation	827	-	100.0	32,836	-	-	-	-	100.0	32,836	1,776,336	30,755
Unlisted	SEEG	2012.07	Management Participation	23	-	0.1	39	-	-	-	-	0.1	39	946,599	56,203
Unlisted	SSA	1998.12	Management Participation	263	2,000	100.0	32,622	-	-	-	2,000	100.0	32,622	500,605	37,741
Unlisted	SAPL	2006.07	Management Participation	793	877,133	100.0	981,483	-	-	-	877,133	100.0	981,483	669,485	20,355
Unlisted	SME	2003.05	Management Participation	4,796	17,100	100.0	7,644	-	-	-	17,100	100.0	7,644	625,662	19,314
Unlisted	SDMA	1995.03	Management Participation	21,876	71,400	75.0	18,741	-	-	-	71,400	75.0	18,741	24,681	-716
Unlisted	SEMA	1989.09	Management Participation	4,378	16,247	100.0	103,402	-	-	-	16,247	100.0	103,402	263,523	19,651
Unlisted	SAVINA	1995.01	Management Participation	5,839	-	100.0	28,365	-	-	-	-	100.0	28,365	105,109	26,857
Unlisted	SEIN	1991.08	Management Participation	7,463	46	100.0	118,909	-	-	-	46	100.0	118,909	1,139,901	48,291
Unlisted	TSE	1988.01	Management Participation	1,390	11,020	91.8	279,163	-	-	-	11,020	91.8	279,163	3,018,358	142,191

Listing	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	SEAU	1987.11	Management Participation	392	53,200	100.0	111,964	-	-	-	53,200	100.0	111,964	765,487	36,687
Unlisted	SIEL	1995.08	Management Participation	5,414	216,787	100.0	75,263	-	-	-	216,787	100.0	75,263	7,765,019	522,672
Unlisted	SRI-B	2005.05	Management Participation	7,358	17	100.0	31,787	-	-	-	17	100.0	31,787	477,710	52,314
Unlisted	SJC	1975.12	Management Participation	273	1,560	100.0	253,108	-	-	-	1,560	100.0	253,108	1,311,938	19,009
Unlisted	SRJ	1992.08	Management Participation	3,120	122	100.0	117,257	-	-	-	122	100.0	117,257	161,184	3,222
Unlisted	SCIC	1996.03	Management Participation	23,253	-	100.0	640,452	-	-	-	-	100.0	640,452	13,599,093	451,062
Unlisted	SEHK	1988.09	Management Participation	349	274,250	100.0	79,033	-	-	-	274,250	100.0	79,033	1,788,990	21,613
Unlisted	SET	1994.11	Management Participation	456	27,270	100.0	112,949	-	-	-	27,270	100.0	112,949	2,033,992	50,966
Unlisted	SEHZ	1992.12	Management Participation	792	-	89.6	255,535	-	-255,535	-	-	-	-	-	-
Unlisted	TSEC	1993.04	Management Participation	15,064	-	48.2	103,134	-	-	-	-	48.2	103,134	551,511	82,218
Unlisted	SSEC	1995.04	Management Participation	32,128	-	69.1	130,551	-	-	-	-	69.1	130,551	670,959	77,078
Unlisted	SESC	2002.09	Management Participation	5,471	-	73.7	34,028	-	-	-	-	73.7	34,028	147,973	14,071
Unlisted	TSTC	2001.03	Management Participation	10,813	-	90.0	260,092	-	-	-	-	90.0	260,092	654,546	8,285
Unlisted	SSET	2002.02	Management Participation	6,009	-	100.0	41,182	-	-41,182	-	-	-	-	-	-
Unlisted	SSS	2001.01	Management Participation	1,200	-	100.0	19,189	-	-	-	-	100.0	19,189	7,765,126	325,397
Unlisted	SCS	2012.09	Management Participation	111,770	-	100.0	5,275,760	-	-	-	-	100.0	5,275,760	19,049,536	1,708,832
Unlisted	SSCX	2016.04	Management Participation	1,141	-	100.0	1,141	-	-	-	-	100.0	1,141	1,154,516	46,597
Unlisted	SESS	1994.12	Management Participation	18,875	-	100.0	504,313	-	-	-	-	100.0	504,313	1,477,600	94,586
Unlisted	TSLED	2012.04	Management Participation	119,519	-	100.0	119,519	-	-	-	-	100.0	119,519	567,151	-35,518
Unlisted	SSCR	2006.09	Management Participation	3,405	-	100.0	9,332	-	-	-	-	100.0	9,332	68,955	7,843
Unlisted	TSST Japan	2004.03	Management Participation	1,639	30	49.0	-	-	-	-	30	49.0	-	237	-33
Unlisted	STE	1996.01	Management Participation	4,206	2	49.0	-	-	-	-	2	49.0	-	6,643	-

Listing	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	Semiconductor Portal	2002.12	Simple Investment	38	-	1.2	10	-	-	-	-	1.2	10	2,041	60
Unlisted	Nanosys	2010.08	Simple Investment	4,774	1,747	1.3	2,387	253	-	-	2,000	0.8	2,387	144,024	-10,951
Unlisted	One-Blue	2011.07	Management Participation	1,766	-	16.7	1,766	-	-	-	-	16.7	1,766	21,163	564
Unlisted	TidalScale	2013.08	Simple Investment	1,112	2,882	4.3	1,112	-	-	-	2,882	4.3	1,112	6,173	-7,641
Unlisted	Sentiance	2012.12	Simple Investment	3,422	7	7.2	3,422	-	-	-	7	7.2	3,422	13,840	-2,927
Unlisted	Mantis Vision	2014.01	Simple Investment	1,594	355	2.1	1,980	-	-	-	355	2.1	1,980	31,758	-20,478
Unlisted	Leman	2014.08	Simple Investment	1,019	17	3.4	1,019	-	-	-	17	3.4	1,019	3,602	-3,363
Unlisted	Keyssa	2016.01	Simple Investment	3,332	1,235	1.9	3,332	-	-	-	1,235	1.9	3,332	6,371	-16,193
Unlisted	SensiFree	2016.01	Simple Investment	2,111	666	9.5	2,111	-	-	-	666	9.5	2,111	1,119	-1,710
Unlisted	Unispectral	2016.02	Simple Investment	1,112	2,308	7.9	2,130	-	-	-	2,308	7.9	2,130	3,357	-2,757
Unlisted	Quobyte	2016.04	Simple Investment	2,865	729	11.8	2,865	-	-	-	729	11.8	2,865	2,391	-82
Unlisted	Afero	2016.05	Simple Investment	5,685	723	5.5	5,685	-	-	-	723	5.5	5,685	59,600	-6,289
Unlisted	Graphcore	2016.06	Simple Investment	3,494	12,000	3.3	3,494	-	-	-	12,000	1.4	3,494	279,496	-148,852
Unlisted	Soundhound	2016.12	Simple Investment	7,059	306	1.1	7,059	-	-	-	306	1.1	7,059	119,637	-38,507
Unlisted	Aimotive	2017.12	Simple Investment	3,302	2	3.2	3,302	-	-	-	2	3.2	3,302	47,351	-8,200
Unlisted	Fasetto	2019.01	Simple Investment	6,701	475	5.2	12,554	-	-	-	475	5.2	12,554	4,129	-7,665
Unlisted	Innovium	2020.09	Simple Investment	11,705	987	0.9	11,705	-987	-11,705	-	-	-	-	-	-

※ Based on separate financial statements

※ Ownership percentage is calculated based on the number of common shares issued

※ The Company measures fair value of financial instruments (equity shares) in accordance with K-IFRS. The Company annually evaluates if there is indication of impairment that investment in subsidiaries or affiliates may be impaired, and estimates the recoverable amount of assets with indication of impairment.

※ Financial stats of Sungwon Construction is as of December 31 2016, financial stats of Daewoo Songdo Development is as of December 31 2017,

financial stats of Mantis Vision, Soundhound are as of December 31 2018, due to difficulties in obtaining the most recent financial data

4. R&D results (detailed)

CE Division	
Research project	**Details**
Visual Display	
QLED 8K TV February 2019–June 2020	□ Flat QLED 8K TV (65/75/85”) - Blends well with walls: flat design and Infinity screen; no border between screen and bezel—a world’s first. - Innovative form factor: metal stand which gives a floating impression - QLED 8K enables picture quality close to real life, high resolution via AI upscaling, True Reality picture quality in any given environment - Multi-sound channel and Object Tracking Sound+ synchronize video and sound, maximizing surround sound experience - Wide range of content, multimedia experiences, and entertainment-specific functions provide convenient and colorful experiences
Neo QLED 8K March 2021–June 2021	□ Ultra high-resolution, slim 8K TV based on Mini LED technology (65・75・85") - Q900 (65 ・ 75 ・ 85") / Q800 (65 ・ 75 ・ 85") / Q700 (65 ・ 75 ") - QLED 8K resolution offers viewing experience as if looking at real-life objects, with enhanced contrast of sophisticated Mini LED
Neo QLED 4K March 2021-September 2021	□ Mini LED-based products come in 3 series and up to 7 sizes (43・50・55・65・75・85・98") - Q85 (55 ・ 65 ・ 75 ・ 85") - Q90 (43 ・ 50 ・ 55 ・ 65 ・ 75 ・ 85 ・ 98") - Q95 (55 ・ 65 ・ 75 ・ 85") □ Slim design by adopting Mini LED, premium look with bezel-less/metal design - New LED with Quantum Nano-Layer Multi-Cell structure, enabling slim design, high luminance efficiency, luminance profile control
QLED 4K TV March 2021	□ Flat QLED 4K TV (43・50・55・60・65・70・75・82・85") □ Specs and features - Flagship QLED maximizes viewing experience with the highest picture quality within 4K (AI/brightness/viewing angle) and sound quality (OTS) - Maximizes immersive experience with the highest level of brightness contrast, free viewing angle, life-like color, and optimal brightness - Optimal viewing experience by identifying user context based on voice recognition and AI technologies
UHD TV March 2021	□ Flat UHD TV (43・50・55・58・65・70・75・82・85") □ Specs and features - UHD Smart TV with slim, bezel-less design provides colors close to real-life - UHD picture quality expresses picture quality of original content through Dynamic Crystal Color and Dual LED - Provides a multi-media screen experience, rich content, and complete smart experience via smart home experience
Lifestyle TV September 2021	□ The SERO (43") - Simple, modern vertical screen that rotates 360 degrees with flat-type speaker - Easily installed in any living space, mobile floor stand included □ The Frame (43・50・55・65・75・85") - Design resembles a real picture frame; completes a picture frame experience - Exhibit various famous paintings and pictures; adopted lifestyle design which blends in with the interior - Additional introduction of 85" to meet the needs for ultra-large Lifestyle products □ The Serif (43・49・55・65") - I-shaped serif font design; distinct from other products; works as beautiful interior design object - Additional introduction of 65" to expand the position of large screen products □ Outdoor TV (55・65・75") - Differentiated product tailored to a lifestyle of relaxing and enjoying entertainment outdoors □ The Premiere (100–130") - Ultra-short-throw laser projector with high-resolution, providing the best Smart UX/OTT experience in the industry - Complements any environment with blended design, can be placed directly in front of a wall and has an easily adjustable screen size. - Complete experience of our TV models including the differentiated picture quality and sound
Sound Bar March 2020	□ Soundbar - Bar-shaped audio product well suited to TVs - Adopted AI solution enabling voice recognition - Adopted 3D surround system, creating enriching sounds close to first-hand experiences

CE Division	
Research project	**Details**
LCD monitor January 2021–June 2021	□ Space monitor - Application of integrated arm stand that minimizes space needed for the monitor □ Neo QLED Gaming monitor (49") - Strengthened black gamut based on enhanced brightness contrast by applying Neo QLED - More immersive gaming experience with 1000R curvature—the world's highest □ High-resolution QHD monitor (34") - Offers picture solution comfortable to the eye with Intelligent Eye Care solution, etc. □ LCD Smart monitor - Enjoy VOD services without using a PC via Smart TV services (Netflix, YouTube, etc.)
Signage October 2019–June 2021	□ LCD-based B2B Smart Signage (LFD, Video Wall, etc.) (49・55・65・75・85・98") □ Indoor/outdoor signage using LED □ All-in-one Kiosk (24"), all additional equipment embedded - Payment platform for developing Tizen payment module and ordering app, antibacterial finishing □ Flip-edu (75・85") interactive feature for education
Home appliances	
Refrigerators August 2021	□ Bespoke refrigerator - T-Type・Kimchi・BMF・Ladder 1Door (24" R/F/Kimchi)・18" New 1Door - Customers can configure designs in many ways, easy design changes - Can set up combinations of fridge/freezer/kimchi refrigerators between similar models, Kitchen Fit models available □ Chef Collection refrigerator - High-end, premium refrigerator - Premium Bespoke design and new CMF - Features water & ice solution: Auto fill pitcher, auto ice maker (dual mode: cocktail Ice, standard Ice) - FDSR energy efficiency grade 1 □ Cube refrigerator - Multi Cube refrigerator: customized design and storage (different temperatures for storing wine, beer, and cosmetic products) - Peltier System identifies and creates optimal temperature (between 5–18℃) - Double Glass System blocks UV and maintains the right temperature - Wi-Fi Control enables real-time monitoring and control - RM (Remote Management) Function: remote assessment and repair, provides information on expiration date of beverages in the fridge □ New TMF in North/Latin America - Strengthened competitiveness and offered differentiation with large capacity (440L/480L), specialized storage compartments, and new design - Flex Zone (fridge 1℃ / chilled -1℃ / soft freezing) & Quick Chill Smart Alarm - Strengthened competitiveness with flat door & Bespoke CMF, capacity (20L more), and optimal size - Dual voltage, auto ice maker, water dispenser, Big Box
Washer September 2021	□ Bespoke washer & dryer - Bespoke flat design that perfectly fits into your space - Korea's highest capacity all-in-one Control UX design - AI clothing care (AI tailored washing and drying) from washing to drying - Hygiene management solution from 99.9% sterilization to dehumidification of laundry room □ Agitator washer - Entrance to the North American market for Agitator (occupied 50% of the Top Loader market) - Implementation of ActiveWave™ Agitator which enables heavy washing along with the reduction of noise, vibration, and entanglement - Implementation of Active Water Jet which enables pretreating of soiled or heavily stained clothes □ Eco-friendly dryer with new refrigerant for Europe - Eco-friendly refrigerant: applied environmentally friendly R290 to reduce GHG emissions - Energy label of A+++: achieved the highest energy rating in Europe - Sensor Dry: senses the degree of dryness during the drying process, capable of automatically adjusting from additional drying to ending the process - Simple UX: improved product usability (delivery of detailed information on drying and customized panel setting) Hygiene Care: eliminates over 99% of three common types of harmful bacteria (Bacillus pyocyaneus, Escherichia coli, and Staphylococcus aureus)

CE Division	
Research project	**Details**
Air conditioner April 2021	□ Wind-Free™ Gallery Floor-standing (56.9・62.6・75.5・81.8・92.5 m^2) - Developed next-gen wind-free platform with the highest level of energy efficiency (56.9 m^2 single duct model achieved energy efficiency grade 2) - Equipped with wind-free panel 1.5 times larger than previous model and strong booster wind - Booster purification: Filter with 99.95% dust collection efficiency, Design resembling that of furniture, fits comfortably into the surroundings □ Wind-Free™ Gallery Wide air conditioner (24.4・29.3・39.6・49.5 m^2) - Secured cost competitiveness by developing new integrated QMD-based platform, strengthened product competitiveness - 12% larger fans cools air faster - Wind-free ultra-energy-efficient technology saves up to 77% on electricity - PM1.0 wind-free filtration system removing particles as small as ultra-fine dust □ Bespoke Window Fit air conditioner (17m^2, green/blue/pink/beige/gray) - Convenient self-installation with the integrated indoor/outdoor unit - Strong rotational cooling with double wings which quickly circulate cold air - Twin inverter compressor that enables low noise and vibration level of 37dB, as quiet as a library - Up to 70% lower power consumption in silent mode
Vacuums May 2021	□ Bespoke Jet stick vacuum (up to 210W suction) - Embedded auto-empty dustbin, smart display of information via LCD Display - Wet Brush dispenses water, thinner cotton-flannel brush □ Jet Bot AI Robot Vacuum - Seamless navigation with the realization of world's best object recognition capability (up to 1 cm3) by developing Active 3D sensor and applying it—a world's first - AI autonomous navigation that recognizes house structure and types of objects - Strong suction with jet cyclone and digital inverter motor - Integrated Clean Station which automatically empties dustbin when the Jet Bot starts charging - More convenient cleaning with SmartThings (AI Smart Control) □ Bespoke slim stick vacuum - Up to 150W suction with a strong cyclone and digital invertor mode - Self-standing, convenient emptying of the dustbin without having to bend over (Pop & Shoot) - Easy cleaning without pressure on the wrist (ergonomic design)
Cooking appliances March 2021	□ Bespoke Qooker - Multi-cook function allows cooking multiple dishes with different heat sources, temperatures, and cooking times. - Cook more than one dish and finish at the same time with Multi-cook mode - Collaborated with eight food companies to apply Qooker-exclusive algorithm - Easy automatic cooking with just one scan using SmartThings - Oven interior material changed from enamel to STS for more heat-efficient, sophisticated design.
Water Purifier March 2021	□ Water Purifier for homes - Modularized water purifier upgradable and customizable to customer's lifestyle; includes auto-care feature - May be modularized to users' needs (ambient/cold/hot water) - Smart AI care, filter received highest number of NSF certification for tankless water purifier - Bespoke water purifier, customized to users' lifestyle and space
Clothing Care Machine February 2019–May 2021	□ Bespoke Air Dresser (18・24") - AI drying and washing cycle syncing - Long clothing care zone, holds 5 hangers, compared to 3 for 18" model - Real-care (inner-garment care, low noise level), real purification with ultra-fine dust filter, real odor elimination with odor decomposing filter, real-sanitization with jet steam, wrinkle care, real dehumidification dehumidifies the room even with the door closed □ Shoe Dresser - Powerful odor elimination with Air Wash and UV odor decomposing filter - Low temperature, delicate drying to make your everyday shoes a pleasure to wear. - 99.9% sterilization with the application of a Xenon UVC disinfection system—a first for home appliances in Korea - Tailored care and management of various types of shoes with Jet Shoe Tree
Air purifier December 2020	□ Bespoke Cube air purifier - Premium air purifier in Bespoke lineup - Use one of the three specialized filters as needed: sterilization, deodorization, pet - Customizable to the space, interior, and lifestyle - Mountable on walls to fit the interior without compromising dust-removing function with cubic filtration feature
Air-purification ventilation system September 2020	□ Air-purification ventilation system - Ventilation capacity 33 m^2, Airflow 40–50CMH - Ventilates and purifies air indoors by linking ventilation system with air-purification module - Individual air-purification for each separate space, circulation & wind-free purification - Sensors detecting CO_2, etc. enables automatic ventilation depending on air quality change

IM Division	
Research project	**Details**
Mobile	
Galaxy Foldable September 2019– August 2021	□ Galaxy Fold (September 2019) - Creating a new market and securing market share by developing world's first in-foldable smart phone - 7.3" QXGA+(1,536×2,152) 1.5R in-foldable display - Secured standard technology by developing hinge for in-foldable phones—a world's first (released Feb 2019) - Offers new user experience tailored to foldable smart phones - Can use up to three apps with multi-active window function, offering unrivaled multitasking environment - When folding or unfolding the phone, provides app using experience with smooth changes between screens with minimal interruption
	□ Galaxy Z flip (February 2020) - Design: New style with innovative foldable display - Screen: Main 6.7" flexible ultra-thin glass (2,636 x 1080) - cover 1.1"super AMOLED (300 x 112) - Size (W x H x D): (unfolded) 73.6mm x 167.3mm x 6.9–7.2mm (folded) 73.6mm x 87.4mm x 15.4–17.3mm - Platform (H/W, S/W): SDM855+, Android 10.0 - Ultra-thin glass technology allows foldable glass display—a first among Galaxy models—and enhances durability - Easy to carry with a new form factor allowing compact size by flip fold - Free-stop feature enables users to freely control the angle of the flip, allowing Flex Mode experience - Screen ratio 21.9:9 enhances suitability of multi active window
	□ Galaxy Z Fold 2 (September 2020) - Screen: Main display 7.6", cover display 6.2" - Size (W x H x D): (folded) 68mm x 159.2mm x 13.8 (~16.8) mm - Platform (H/W, S/W): SDM 865 Plus, Android 10, One UI 2.5 - Supports ultra-high speed 5G and 12MP camera - Infinity Flex Display supports flex mode - Dynamic AMOLED 2X display with 120Hz flexible scan rate - Samsung Ultra Thin Glass - Supports wireless Samsung DeX and UWB - Evolved multi-active window enabling simultaneous use of three apps maximum - Provides app continuity from cover display to main display
	□ Galaxy Z Fold 3 5G (August 2021) - Screen: Main display 7.6", cover display 6.2" - Size (W x H x D): (folded) 158.2mm x 67.1mm x 14.4~16.0mm (unfolded) 158.2mm x 128.1mm x 6.4mm - Platform (H/W, S/W): 5nm 64-bit octa-core processor, Android 11, One UI 3.1.1 - Supports IPX8 rating (water resistance with a depth of up to 1.5m of freshwater for up to thirty minutes), which is a first for a foldable smartphone - Strengthened durability with the application of Armor Aluminum and tempered glass of Corning® Gorilla® Glass Victus™ - Equipped with 7.6" Infinity Flex Display and applied Under Display Camera - Display screen approximately 29% brighter with the new Eco² technology - Main/cover display all support 120Hz screen refresh rate - Applied S-pen for the first time for foldables - Supports both top and bottom half of the screen at any angle with Flex mode panel feature even for apps that are not optimized - Supports Multi Active Window, which splits the screen and allows using up to three apps at once
	□ Galaxy Z Flip 3 5G (August 2021) - Screen: Main display 6.7", cover display 1.9" - Size (W x H x D): (folded) 86.4mm x 72.2mm x 15.9~17.1mm (unfolded) 166mm x 72.2mm x 6.9mm - Platform (H/W, S/W): 5nm 64-bit octa-core processor, Android 11, One UI 3.1.1 - Supports IPX8 rating (water resistance with a depth of up to 1.5m of freshwater for up to thirty minutes), which is a first for a foldable smartphone - Strengthened durability with the application of Armor Aluminum and tempered glass of Corning® Gorilla® Glass Victus™ - Enhanced usability of cover display: allows to scroll through up to 8 lines of notification/message and supports weather, daily step count, and Samsung Pay - Enhanced Flex mode: supports Auto Framing, which automatically adjusts the frame according to the number of people within the frame, and Dual Preview - Main display supports 120Hz screen refresh rate

IM Division	
Research project	**Details**
Galaxy S ~January 2021	□ Galaxy S10e・S10・S10+・S10 5G (5.8/6.1/6.4/6.7") (March 2019, 5G: April 2019) - Design: Full Front Punch Hole Infinity Display - Platform (H/W, S/W): Exynos9820, SDM855, Android 9 - World's first model using commercialized 5G technology - Combination of triple cameras delivers zoom, tele, ultra wide function: wide (12M)+tele (12M)+ultra wide (16M) - Supports HDR10+ video shooting on mobile for the first time in the world - Dynamic AMOLED display delivers near-original colors, supports HDR - On-screen fingerprint recognition sensor using ultrasound
	□ Galaxy S20・S20+・S20 Ultra 5G (March 2020) - Design: Best Fit in hand compact, yet large screen design - Screen: S20 6.2", S20+ 6.7", S20 U 6.9" - Size (W x H x D): S20 69.1mm x 151.7mm x 7.9mm; S20+ 73.7 x 161.9 x 7.8mm; S20 U 76.0 x 166.9 x 8.8mm - Platform (H/W, S/W): Exynos990 ・ SDM865, Android 10.0, One UI 2.1 - Smartphone that will change the future of mobile and pictures: significantly higher resolution and 8K video recording allows taking pictures and videos in unprecedented quality and easy and swift sharing with 5G - Pictures and videos with significantly higher resolution: S20 ・ S20+ 64MP, S20 U 108MP - 100x zoom, the highest space zoom yet in smartphones: S20 U 108MP - Take higher quality, clearer and brighter pictures and videos even at night with three times bigger sensor (using AI technology) - Take videos in 8K, the highest quality yet in smartphones - Super steady feature reduces blur from shaking but captures dynamic movements - Single take allows the best pictures and videos with a single shot
	□ Galaxy S20 FE (October 2020) - Makes S series experience available to more customers - Screen: 6.5" FHD+ sAMOLED Infinity-O (2,400 x 1,080) - Size (W x H x D): 74.5mm x 159.8mm x 8.4mm - Platform (H/W, S/W): Exynos990, SDM865, Android 10.0, One UI 2.5 - New entry-level flagship product equipped with premium features enhances market influence and provides experiences for various functions optimal to customers - Provides major S20 features: 120Hz display, same specs for camera and battery, same AP with flagship models, One UI 2.5 UX
	□ Galaxy S21 5G・S21+ 5G・S21 Ultra 5G (January 2021) - Design: Iconic and premium full metal camera housing, bezel-less design - Screen: S21 5G 6.2", S21+ 5G 6.7", S21 Ultra 5G 6.8" - Size (W x H x D): S21 5G 71.2mm x 151.7mm x 7.9mm, S21+ 5G 75.6mm x 161.5mm x 7.8 mm, S21 Ultra 5G 75.6mm x 165.1mm x 8.9 mm - Platform (H/W, S/W): Exynos2100 | SDM888, Android 11.0, One UI 3.1 - Supports ultra-high speed 5G, Wi-Fi 6E, high-resolution camera ・Camera: S21 Ultra 108MP, S21 ・ S21+ 64MP, Multi Camera Recording function ・Dynamic AMOLED 2X Infinity-O display with maximum adaptive frequency of 120Hz ・Easy registration and finding objects synced with SmartTag ・Supports Digital Car Key service (S21+ 5G ・ S21 Ultra 5G only) ・Supports S Pen (S21 Ultra 5G only)
Galaxy Note ~August 2020	□ Galaxy Note10・10+ (6.3/6.8") (August 2019) - Design: Full Front Punch Hole Infinity Display - Platform (H/W, S/W): Exynos9825, SDM855, Android 9.0 - Upgraded S Pen ・Enhanced usability with higher battery capacity and improved BT latency ・Camera controls (can take pictures, change mode, change zoom, etc.), change volume, run apps, operate stopwatch - Note 10+: Quad camera supports high-resolution and maximum viewing angle shooting under wide range of illuminance ・Wide (12M) + tele (12M) + Ultra Wide (16M) + VGA ※ Note10 has three rear cameras
	□ Galaxy Note20・20 Ultra (6.7・6.9") (August 2020) - Size (W x H x D): Note20 75.2mm x 161.6mm x 8.3 mm, Note20 Ultra 77.2mm x 164.8mm x 8.1 mm - Platform (H/W, S/W): Exynos 990 ・ SDM 865 Plus, Android 10, One UI 2.5 - Supports high-speed 5G and Wi-Fi 6 - First in the Galaxy lineup to support Ultra Wide Band (Note 20 Ultra) - 108MP camera (Note 20 Ultra), 64MP camera (Note 20) - Maximum 120Hz scan rate display (Note 20 Ultra) - First to support wireless Samsung DeX - Supports S pen and Samsung Note; easy-to-use and perfectly resembling pen-writing experience; supports MS Xbox Game

IM Division	
Research project	**Details**
Galaxy Tab ~December 2021	□ Galaxy Tab S7・S7+ (August 2020) - Design: Premium Tablet (display, pen, performance) - Screen: 12.4" WQXGA AMOLED (16:10, 2800x1752/120Hz), 11" WQXGA LTPS TFT (16:10, 2,560x1,600/120Hz) - Size (W x H x D): 285.0mm x 185.0mm x 5.7mm (12.4"), 253.8 x 165.3 x 6.3mm (11") - Platform (H/W, S/W): SDM865+, Android 10, One UI 2.5 - Secured premium competitiveness by developing a thin large-display metal design - The first tablet that supports 5G (mmWave) for global carriers and the four major carriers in the US - Enhanced usability of Samsung Notes with 120Hz display and optimal pen latency (9ms) - N-generation AP maximizes performance (seamless multi-tasking & gaming experience)
	□ Galaxy Tab S7 FE (June 2021) - Screen: 12.4" WQXGA (2560x1600) - Size (W x H x D) & weight: 284.8mm x 185.0mm x 6.3mm, 608g (based on the LTE model) - Immersive display with 12.4" large-screen display and slim bezel - Long play time (10,090mAh, up to 13 hours of video play) - Rich sound with the application of Dolby Atmos - Enhanced usability of Samsung Note ・Simple conversion of handwriting to text ・Direct input with S Pen into the input box - Enhanced function of PENUP Drawing ・Applies layer structure and provides coloring and live drawing - Lightweight keyboard cover (330g) - Delivery of clear voice with 50% reduction of background noise through 3 Mic - Stronger device connectivity ・Second screen: using tablet as a supplementary monitor of PC ・Hands off: sending and continuing what you were doing on your phone to your tablet (Internet, Samsung Notes) ・Copy & paste: copy & paste of texts and images between Phone-Tablet ・Auto switching: auto-buds switching between Phone-Tablet
	☐ Galaxy Tab A8 (December 2021) - Screen: 10.5" WUXGA (1920 x 1200) - Size (W x H x D) & weight: 246.8mm x 161.9mm x 6.9mm, 508 g - Platform(H/W, S/W): UniSOC T618(12nm) processor, Android 11, One UI 3 - Memory : 3GB + 32GB / 4GB + 64GB / 4GB + 128GB, microSD up to 1TB Provides new options of RAM 4GB and ROM 128GB compared to previous model - Established and applied the Company's Tablet Design ID (Samsung Logo, shape and location of camera, symmetrical sides and front & back), same colors as the Tab S8 Flagship Family (Gray, Silver, Pink Gold) - Applies the Company's standard tablet display ratio of 16:10, provides immersive multimedia experience with 10.5" large-screen display and slim bezel - Supports Dolby Atmos and features Quad Speaker, free load of apps that specialize in contents such as Samsung TV Plus (offers free Live Streaming and VOD) - Supports 2 Split Windows and Pop-up view with Multi-Active Window, enhanced multi-tasking experience with the support of Drag & Split function—applied in Fold3—for the first time for tablets - Improved usability for online classes with the support of Screen Recorder for the first time among Tab A series - Wider support of One UI 3.1.1 Galaxy Experience (Copy&Paste, Auto Sync, Auto Switch)
Galaxy A ~December 2021	□ Galaxy A52 LTE・5G (March 2021) - Offers enhanced user experience and increased competitiveness via strengthened core features - Screen: 6.5" FHD+ sAMOLED HID (2,400 x 1,080) - Size (W x H x D): 75.1mm x 159.9mm x 8.4mm - Platform (H/W, S/W): SDM750G (5G)/SDM720G (LTE), Android 11, One UI 3.1 - Supreme smooth UX/Dynamic refresh rate and Brightest (6.5" sAMOLED with 120Hz (5G)/90Hz (LTE), 800nit) - High-resolution 64MP Quad Camera (64M OIS/12M UW/5M Depth/5M Macro) - Powerful AP with High Capacity Battery (4,500mAh)
	□ Galaxy A72 (March 2021) - Offers enhanced user experience and increase competitiveness via strengthened core features - Screen: 6.7" FHD+ sAMOLED HID (2,400 x 1,080) - Size (W x H x D): 77.4mm x 165.0mm x 8.4mm - Platform (H/W, S/W): SDM720G, Android 11, One UI 3.1 - High refresh Rate Brightest Display (6.7" FHD+ sAMOLED with 90Hz, 800nit) - Advanced High-res/Multi Camera, More detail with blur-less (64M OIS/12M UW/8M Tele/5M Macro) - Long-lasting Battery with bigger capacity (5,000mAh)

IM Division	
Research project	**Details**
	□ Galaxy A32 LTE・5G (LTE: March 2021; 5G: January 2021) - Offer enhanced user experience and increase competitiveness by strengthening core features - Screen: LTE 6.4" FHD+ sAMOLED (2,400 x 1,080)/5G 6.5" HD+ TFT (1,600 x 720) - Size (W x H x D): LTE 73.6mm x 158.9mm x 8.4mm/5G 76.1mm x 164.2mm x 9.1mm - Platform (H/W, S/W): LTE MT6769T/5G MT6853V, Android 11, One UI 3.1 - LTE ・Brightest Display: 800nit Super AMOLED ・High Resolution Camera: 64MP Quad (64M W/8M UW/5M Macro/5M Depth) ・High Capacity Battery: 5,000mAh - 5G ・Rich Camera Experience of 48MP Quad, Penta Mode Camera (48M W/8M UW/5M Macro/2M Depth) ・High Capacity Battery: 5000mAh
	□ Galaxy Quantum2 A82 (April 2021) - Screen: 6.7" QHD+ (3,200 x 1,440) - Size (W x H x D) & Weight: 161.9mm x 73.8mm x 8.1mm, 176g - Platform (H/W, S/W): SDM855+, Android 11, One UI 3.1 - Applied QRNG security chip set - Supports expansive large-screen and smooth screen transition of 120Hz - Powerful camera that enables photographing on a professional level (ultra-wide 12MP, main 64MP, close-up 5MP)
	□ Galaxy A03-Core (December 2021) - Screen: 6.5" HD+(1480 x 720) TFT 60Hz - Size (W x H x D) & weight: 164.2mm x 75.9mm x 9.1mm, 211g - Platform(H/W, S/W): 28-nano octa-core processor, Android 11(Android GO) ・Enhanced CPU performance compared to previous model A01-Core (28-nano quad-core processor) - Highly price efficient product that applies large-screen/high-capacity battery to address the entry market ・Enhanced display (5.3"→6.5" HD+) and battery (3,000→5,000mAh) compared to previous model A01-Core
Galaxy Book ~April 2021	□ Galaxy Book Flex 2 (December 2020) - Design: 2-in-1 PC with S Pen, QLED display - Screen: 15.6" QLED FHD (16:9, 1920 x 1080), 13.3" QLED FHD (16:9, 1920 x 1080) - Size (W x H x D): (15.6") 355.0mm x 227.2mm x 14.9mm (13.3") 302.6mm x 202.9mm x 12.9mm - Platform, OS: Intel 11th generation CPU, Windows 10 - QLED: Color Volume 100%, Super Bright Outdoor Mode Max 600nit - S Pen: Samsung Notes, Clip Studio, Gesture - SSD: Powerful performance & Latest Gen4 SSD
	□ Galaxy Book Flex2 5G (December 2020) - 13.3" QLED FHD Up to 600nit Brightness, Color Volume 100% - Size (W x H x D): 304.9mm x 202.3mm x 13.9–14.9mm - Platform, OS: 11th-generation Intel CPU, Intel Iris Xe Graphics, Windows 10 - Supports ultra-fast 5G (Sub-6) Connects to state-of-the art wireless LAN 802.11 ax (Wi-Fi6) - Double Camera ・World-facing camera (13M AF) and front-facing camera (1M) Camera - Long battery life (20 hours battery life, based on MM14) - Comes with S-Pen, allowing quick expression of inspiration (Digitizer) - Stronger connection to Tablets, Phones ・ Link to Windows: Smartphone apps opens seamlessly on PCs ・Samsung Notes: Syncs notes between Phone-Tablet-PC
	□ Galaxy Book Go (April 2021) - 14" FHD (1920 x 1080) - Size (W x H x D) & Weight: 323.9mm x 224.8mm x 14.9mm, 1,380g - Platform: 2nd-generation Snapdragon 7C, Windows 10 - Supports LTE that enables the Internet anywhere anytime - Slim design optimized for portability (14.9mm thick) - Rich sound with the application of Dolby Atmos - Long play time (up to 18 hours of battery life) - Stronger connectivity between Tablet-Phone ・Quick Share: easy share of files between phone and tablet ・Second Screen: using tablet as a supplementary monitor of PC ・Galaxy Book Smart Switch: simple sending of data from the previous notebook ・SmartThings: syncing smart devices

IM Division	
Research project	**Details**
Galaxy Watch August 2021	□ Galaxy Watch3 (August 2020) - Design: Premium smart watch resembling the design of a traditional watch - Display: 1.4" (45mm), 1.2" (41mm) OLED (360 x 360) - Size (W x H x D): 45.0 x 46.2 x 11.1 (45mm) 41.0 x 42.5 x 11.3 (41mm) - Platform (H/W, S/W): Exynos9110, Tizen 5.5 - Expanding portfolio to titanium models (high-end segment) - Identifying and have included differentiated health-related services ・Blood pressure, ECG, fall detection features commercialized globally
	□ Galaxy Watch4 & Galaxy Watch4 Classic (August 2021) - Display: Watch4: (44mm) 1.4” (450 x 450), (40mm) 1.2” (396 x 396); Watch4 Classic: (46mm) 1.4” (450 x 450), (42mm) 1.2” (396 x 396) - Size (W x H x D): Watch4: (44mm) 44.4 x 43.3 x 9.8mm, (40mm) 40.4 x 39.3 x 9.8mm; Watch4 Classic: (46mm) 45.5 x 45.5 x 11.0mm, (42mm) 41.5 x 41.5 x 11.2mm - Platform (H/W, S/W): AP Exynos W920 (5nm 64-bit Dual-Core), Wear OS Powered By Samsung, One UI Watch of Wear OS 3.0 - Memory: improved performance and increased storage with 1.5GB RAM + 16GB ROM - Higher resolution 330 ppi display - Pursuing differentiation by featuring body composition measurement for the first time and enhancing usability - Advanced sleep tracking, including blood oxygen level measurement and snore detection - Wider app ecosystem and enhanced sync experience based on Wear OS ・Provides key services of Google, including Play Store/Google Map/YT Music ・Supports specialized fitness apps and other various service apps
Galaxy buds January 2020–August 2021	□ Galaxy Buds+ (January 2020) - Design: Canal-type TWS (True Wireless Stereo) - Platform (HW, SW): MCU (BCM43015), OS (RTOS), BT 5.0 - Battery: (Earbuds) 85mAh x 2, (cradle) 270mAh - Powerful mid to low keys and highest sound quality with application of 2-way speaker (woofer & tweeter) - 2 outer beamforming mic and 1 inner mic optimizes phone call sound - Improved errors in proximity sensor by adding grip sensor - Longest play time compared to products in the same class, with upgraded battery: 22 hours for streaming (earbuds 11H & cradle 11H)
	□ Galaxy Buds Live (August 2020) - Design: Open-type TWS with innovative design and high-quality sound - Size (W x H x D): (Earbuds)16.5mm x 27.3mm x 14.9mm, (Cradle) 50.0mm x 50.2mm x 27.8mm - Platform (H/W, S/W): BCM43015, RTOS - Ergonomic design that fits ears perfectly, provides all-day comfort sitting softly inside the ear. - Open type Active Noise Cancellation reduces background noises but let you hear what you want to hear. - Large-size 12mm speakers and Bass Duct deliver rich, spacious live sound - Three built-in mics and a Voice Pickup Unit enables the best call quality
	□ Galaxy Buds Pro (January 2021) - Design: Premium TWS, in-ear type with Intelligent ANC feature - Size (W x H x D): (earbuds) 20.5 x 19.5 x 20.8mm, (cradle) 50 x 50.2 x 27.8mm - Platform (H/W, S/W): BCM43015, RTOS - 2Way (woofer + tweeter) 11mm speaker offers enhanced sound quality ・High-quality phone call sound with 3 mics and accelerometer (voice pickup sensor) ・In-ear type, Intelligent ANC and voice detect function instantly switches from ANC to Ambient sound when it hears your voice ・3D Audio provides a truly immersive experience resembling that of a movie theater ・IPx7-level water resistant

IM Division	
Research project	**Details**
	□ Galaxy Buds 2 (August 2021) - Enhanced competitiveness of the Buds mass-market model by enhancing basic functions and adding ANC - Size (W x H x D): (earbuds) 17.0 x 20.9 x 21.1 mm, (cradle) 50.0 x 50.2 x 27.8 mm - BES2500 ZP-83 (BT + Codec + Flash) new low-power management solution* ・Provides ANC ・Play time of up to 29 hours (based on streaming, with ANC off) - Optimized RF frequency performance by applying integrated Touch + BT Antenna FPCB - Enhanced audio performance of canal-type wireless earbuds ・Applied algorithm that maximizes noise cancelling performance by utilizing DNN (DNN + 3-Mic +VPU) * DNN: Deep Neural Network , VPU: Voice Pickup Unit ・Improved latency of switching to Ambient Sound Mode (3.2ms→0.65ms) ・Better low frequency sounds by applying new materials to the woofer cone ・Better noise cancelling of the microphone with the adoption of flawless microphone ・Enhanced ANC and sound quality by changing the density of the ventilation duct and improving the pipe conduit of feedback mic ・Reduced wind noise by maximizing and optimizing the location of the chamber space of the microphone
Network	
RAN S/W Package April 2019–June 2021	□ SVR18.3 5G S/W package (April 2019) - S/W Package to commercialize domestic 5G NR for the first time in the world ・Commercialized 5G NSA by using LTE network links in the Seoul and the capital area ・Supports 5G base station (3.5GHz, 28GHz, 39GHz 5G Massive MIMO) □ SVR21B NR vDU SW PKG (June 2021) - TDD-based C-Band vDU ・Flexible base station upgrade without H/W change and resource allocation * vDU (virtual DU): realizing the function of 5G base station by developing commercial server-based S/W
Core S/W Package March 2020	□ SVR19B 5G core S/W package (March 2020) - Developed containerized-based 5G Core Network Function ・Efficient and quick service distribution and maintenance cost reduction possible by flexibly containerizing host OS resource
Base stations September 2019–October 2021	□ Developed 5G NR DU (September 2019) - New dual CPU based main card and first 5G SoC modem using channel card - Single HW can accommodate a combination of LTE, NR above and NR below products, offering different channels at the same time - Supports high capacity, low power consumption (including power saving) and virtualization/non virtualization S/W structure □ Developed 26GHz 5G NR RFIC Chip (February 2020) - 2nd generation RFIC Chip, following SEC's 1st generation products (28GHz/39GHz) ・2nd generation has improved evm function, power efficiency, and mass production □ Developed FSU10 (May 2020) - FSU (fronthaul switch unit) to support vRAN business - Makes spectrum sharing between LTE and NR (below 6GHz) possible ・One RU fits both LTE DU and NR vRAN via spectrum sharing □ Developed NR Indoor AU (August 2020) - Our first 5G In-building Solution AU product - Small form-factor enables low-power consumption, indoor installation on walls, pillars, and ceilings □ Developed NR C-Band MMU (3.7G 64T64R 200W MMU) (Dec 2020) - First ever TDD-based MMU (Massive MIMO Unit) that operates in C-BAND in North America - Supports broadband IBW 280M, thus any carrier with C-Band across the country may use the product □ Developed MMU Beam Forming SoC (Feb 2021) - SoC performs functions that Beam Forming FPGA, within MMU board, performs - 30% more power efficient than previous model (Maximum power consumption: less than 40W) □ Developed 5 types of ORAN* RU for the US (Sep 2021) - Defined DU-RU standard interface, which allows to connect any vendor DU to any vendor RU - AWS/PCS, two types of 700/850 4T4R 40W, two types of 320W, C-band 8T8R 320W □ AWS/PCS Dualband 16T16R FDD MMU for North America (October 2021) - The Company's first commercialized 16T16R FDD MMU product that applies our in-house-developed chip

DS Division	
Research project	**Details**
Memory	
DRAM for mobile July 2019–November 2021	□ Mass production of 2nd generation 10-nano class (1y) 12Gb LPDDR5 DRAM for mobile, with highest speed and capacity in the world - Next-generation mobile solution with better speed, capacity, and power efficiency - Contributed to introducing 5G smartphones with 1.3 times the speed (5,500Mbps), and 30% lower power consumption - 12Gb LPDDR5-based line up (6GB, 12GB) provided for the first time □ World's first mass production of 16GB LPDDR5 mobile DRAM: highest speed and capacity in the world - Performance improved by 30%, capacity by 2 times, and 20% less power consumption vs 8GB LPDDR4X - Gaming performance (picture quality, haptic feedback) same or better than PCs possible with smartphones □ Development of LPDDR5X DRAM - Improved speed by over 30% and power efficiency by approximately 20% compared to previous model - Based on 14-nano; expansion of application areas that use high performance, low power consumption memory from mobile to server and automotive, with expansion to up to 64GB per memory package
DRAM for server August 2019–March 2021	□ Mass Production of 1st generation 10-nano class (1x) 256GB 3DS DDR4 DRAM for servers, highest capacity in the world - World's first mass production of 256GB DRAM with ultra-high performance and capacity - 2 times the capacity and 30% increase in power efficiency compared to 128GB □ Development of 3rd generation 10-nano class (1z) 8Gb DDR4 DRAM—world's best - Secured ultra-fast, ultra-power-efficient solutions for mass production of DDR5 ・ LPDDR5 - Efficiency up by more than 20% compared to 2nd generation (1y-nano) DRAM - Expand portion of 1z-nano DRAM lineup in the next-generation products by mass production beginning in September in Pyeongtaek □ Development of high-capacity DDR5 memory applying HKMG process—an industry first - Realization of 512GB DDR5 module with the application of High-K Metal Gate and 8-stack TSV - Reduced power consumption by around 13% and more than double performance compared to the existing process - Planning to apply it in the next-generation computing, super computers, and high capacity data centers
HBM DRAM October 2019–August 2021	□ Development of 12-stack 3DS TSV PKG, with world's highest HBM DRAM capacity - Development of highest performance and capacity 12GB HBM DRAM for supercomputers—industry's first - 1.5 times the capacity and convenience of system design improved with 8GB package - Strengthened leadership in next-generation HPC DRAM by breakthrough in package technology - Plan to mass produce 24GB HBM, the industry's highest, to meet customer needs □ Rollout of ultra-fast DRAM for AI and next-generation super computer for the first time in the world (16GB HBM2E 'Flashbolt') - Stacked 8 10-nano (1y) 16Gb DRAM, enabling 16GB, the highest capacity - Able to send 82 Full HD movies (410GB) at 3.2Gb/sec - Continue to lead market expansion by supplying 2nd generation HBM2 and 3rd generation HBM2E at the same time □ Developed world's first AI HBM-PIM with an AI engine - More than two times the performance compared to previous HBM2, system energy reduced by approximately 70%. - Unveiled academic paper in Feb 2021 at conference held by ISSCC, which has the highest reputation in the semiconductor industry - Enables application without changing the system by using existing memory interface - Cooperate with data center and AI customers on standardization of PIM and establishing eco system. □ Expanded memory product lines that integrate an AI engine (performance evaluation of HBM-PIM and development of AXDIMM/LPDDR5-PIM) - Unveiled the case in which the HBM-PIM developed last February was incorporated in the system (integration with the Xilinx Alveo AI accelerator system boosts overall system performance by 2.5 times while reducing energy consumption by more than 60%) - AXDIMM, a DRAM module with an AI engine, offers twice the performance and a 40% decrease in energy usage - Unveiled LPDDR5-PIM that integrated mobile DRAM and PIM technology
eStorage February 2019–March 2020	□ Mass production of next-generation smartphone memory, eUFS 3.0—a world's first - Embedded 5th generation (9x-layers) cell stacked 512Gb 3 bit V-NAND for the first time in the industry - Reading and writing 2 times faster compared to eUFS 2.0 - Securing early foothold and high growth in next-generation ultra-high-resolution mobile market □ Industry's only mass production of 1TB eUFS 2.1, with a writing speed of 1200MB/s - 3 times the performance compared to 512GB eUFS 3.0 (continued writing speed of 410MB/s) - Smartphone memory storage (1200MB/s) is 2 times faster than PC (SSD 540MB/s)
SSD for PC July 2019	□ Mass production of 6th-generation (1xx) 256Gb V-NAND-based PC SSD—fastest in the world - Exclusive mass production of higher than 100 layers cell single process stacked V-NAND - 1.2 times the speed and productivity higher by more than 20% - Lead the storage market with competitive edge in ultra-fast, ultra-power-efficient products

DS Division	
Research project	**Details**
SSD for server August 2019–December 2021	□ Mass production of 5th generation (9x-layer) V-NAND-based 30.72TB NVMe SSD for servers— highest speed and capacity in the world - Secured next-generation SSD solution with improved speed, capacity, and efficiency - Introduced 8GB/s PCIe Gen4 SSD with 2.2 times the speed - Exclusively offers top 3 SW (Never Die SSD, FIP, ML) solution □ Mass production of high-performance OCP SSD specialized for data centers - Mass production of OCP SSD, the first in the industry for 6th-generation V-NAND - Satisfies performance, power efficiency, reliability, and security demanded by the data center industry - Contributes to cost reduction and carbon emission reduction with industry's most power efficient feature □ Mass production of industry's highest performing SAS 24Gbps SSD for server - Supports speed that is around two times faster than the previous generation SSD - Provides high capacity from 800GB to 30.72TB based on 6th generation V-NAND - Expected to reduce server operation cost and carbon emission via a 40% improvement in power efficiency □ Industry's first mass production of next-generation ZNS SSD for company server - Applies ZNS technology, which categorizes and saves data by zone depending on characteristics - Lifespan and maximum utilization of SSD capacity increased compared to existing SSDs - Contributes to enhancing the efficiency of next-generation servers—in areas such as AI, big data, and IoT—as well as storage systems, while expanding the foundation for ZNS SSD through various open source projects □ Development of PCIe 5.0-based high-performance SSD PM1743 - Improved reading/writing speed by approximately twofold and power efficiency by approximately 30% compared to PCIe 4.0-based SSD - Stability of server operation guaranteed with the support of dual-port and application of latest security technologies
Brand SSD January 2020–March 2021	□ Launched 'T7 Touch', premium portable SSD—highest performance in the industry - 5th generation 512Gb V-NAND with world's highest performance and NVMe controller with ultra-fast embedded interface - Supports reading and writing speed of 1,050MB/s and 1,000MB/s, respectively, up to 9.5 times faster than external HDD (110MB/s) and about 2 times faster than the previous model (SEC's portable SSD T5) □ Global launch of high-capacity 4-bit SSD '870 QVO' - Introduced 4 SATA SSD models including 1/2/4TB and 8TB model, the highest in the industry - Provides optimal solution to customers with need for high-performance/high-capacity computing environment, with quick data-process speed close to the maximum speed of SATA interface - Boasts high speed/capacity, reasonable price, launched in 40 countries in several phases □ Global launch of PCIe-Gen4-applied SSD '980 PRO', boasting highest performance in the industry - Provides ultra-high resolution via consumer SSD with the highest-speed in the industry - Continue to lead market for professional PC and workstation used for editing of 8K, 4K videos and games requiring high-specs - 5-year warranty (longest in the industry) □ Global launch of SATA SSD 870 EVO for consumers - Latest V-NAND and controller included, intelligent turbolight technology - Highest durability in the industry, run time enhanced by more than 30% - Five models in 250GB to 4TB range, introduced in steps in Korea, US, Germany, and China □ Launched NVMe SSD 980, which boasts high performance and is economical. - 6th-generation V-NAND, maximum 6 times the speed compared to SATA SSD - DRAM-less design to save cost, applied optimization technology for controllers and firmware - Heat-control feature, applied to high-end products - Power efficiency enhanced by 56%, compared to 970 EVO, allowing "good consumption" for consumers
EUV March 2020-October 2021	□ Supplied 1 million 1st generation 10-nano class (D1x) DRAM modules - Mass production of EUV DRAM—the only company in the industry with EUV DRAM mass production system - Secured 10-nano class advanced process and mass production, enabling next-generation DRAM in a timely manner. - EUV process applied to all 4th generation 10-nano class DRAM, and is now expanding to 5th generation and 6th generation products □ Mass production of 14-nano EUV DDR5 DRAM - Enhanced productivity by approximately 20% with multilayer EUV implementation and realization of industry's highest DRAM bit density - Enhanced speed by twofold compared to DDR4 and improved power consumption by approximately 20% compared to previous process
CXL May 2021-October 2021	□ Development of industry's first CXL-based DRAM memory - Next-generation memory solution to meet the needs of high capacity data centers; overcomes physical limitations of DRAM modules, revolutionary expansion of capacity bandwidth becomes possible - Supports interface converting, error management, etc. through CXL controller - Development of controller and software technology optimized for CXL DRAM memory by collaborating with data centers and server and chipset companies □ Development of industry's first open-source software solution for CXL memory - Enables expansion of system memory's performance/capacity by enabling the main memory and the CXL memory to work seamlessly

DS Division	
Research project	**Details**
Multi-chip June 2021	□ Mass production of industry's best performing uMCP5 (LPDDR5 + UFS3.1) multi-chip package - Speed upgrade by 1.5 times compared to the existing LPDDR4X, 2 times compared to UFS2.2 - Spearhead popularization of 5G by installing them into low- to mid-priced 5G smartphones
Brand Card September 2021	□ Released a new micro SD card product with enhanced performance and stability - 'PRO Plus' provides 1.6 times faster read speed and 1.3 times faster write speed than the previous generation - 'EVO Plus' provides 1.3 times faster read speed than the previous generation - With improved performance and a design that offers better protection against external shocks, not only general consumers but also creators who make high-quality contents, such as 4K UHD videos, are looking forward to it
Automotive December 2021	□ Mass production of memory total solutions for automotives - 256GB SSD and 2GB DDR4/GDDR6 for IVI; 2GB GDDR6 and 128GB UFS for AD - Supplies high performance SSDs and graphics DRAM delivering server-level performance and capacity; and secures high stability that is required in the automotive semiconductor market (operation is guaranteed in the -40℃-105℃ range)

DS Division	
Research project	**Details**
System LSI	
Image Sensor January 2019–September 2021	□ ISOCELL Slim sensor with ultra-small pixel size (3T2, 0.8um/20Mp) - Highest resolution (20Mp) among 1/3.4" sensors, offers high-resolution optimized for bezel-less displays - Tetracell technology for front camera, allowing high performance under low lighting, high magnification for back camera reduces module size, improving picture quality □ Ultra-high resolution ISOCELL Bright sensor (GW1, 0.8um/64Mp) - DCG structure enhances dynamic range - Super PD technology maximizes auto-focus function and enables 480-frames-per-second, full-HD slow motion function - Rich colors by supporting real-time HDR □ High resolution ISOCELL Bright sensor (GM2, 0.8um/48Mp) - Super PD technology maximizes auto-focus function and enables 240-frames-per-second, full-HD slow motion function □ World's first 108Mp ISOCELL Bright sensor (HMX, 0.8um/108Mp) - AI-ISO-applied S/W controls the amount of light, enhancing color reproduction - Can shoot 30 frames per second in 6k - Improved sensitivity with ISOCELL plus and Tetracell technology □ ISOCELL Slim sensor with world's smallest pixel size (GH1, 0.7um/43.7Mp) - Enables easier application of full-screen display set thanks to smaller and thinner module - Supports high-resolution videos and minimizes loss of viewing angle - Improved sensitivity with ISOCELL plus and Tetracell technology □ Industry's first next-generation 108Mp ISOCELL Bright sensor with 2-times the sensitivity enabled by Nonacell technology - Enables preview function without compromising picture quality in 3x magnification, thanks to enhanced zoom feature - Features state-of-the-art technologies: smart ISO, real-time HDR, digital correction of shaking images □ Dual-pixel and Tetracell-technology-based sensors (GN1, 1.2um/50Mp) - Offers images in 100Mp with dual-pixel technology (2 photodiodes in a pixel) - Takes bright, sophisticated images with Tetracell technology (enables 4 times the sensitivity in the dark) □ Established industry's first lineup of 0.7um-pixel-based image sensors (HM2, GW3, GM5, JD1) - Leadership in ultra-small, high-resolution image sensor technology with state-of-the-art 'ISOCELL 2.0' technology and more - (HM2) first to offer 108Mp with 0.7um pixel - (GW3) takes 60-frames-per-second 4K 64Mp images - (GM5) takes 48 Mp images supporting ultra-wide angle and folded zoom - (JD1) ultra-small 32Mp product, optimal for bezel-less design □ Introduced ISOCELL HM3, 108MP premium image sensor (HM3, 0.8um/108Mp) - Concentrated 108 million 0.8 ㎛-size pixels in 1/1.33 inch - Minimizes afterimage with Smart ISO Pro, enabling bright, vivid images - Lens optimal for autofocus with Super PD Plus, enhanced phase detection ability by 50% - Optimal design saves approximately 6% of power under preview mode, compared to previous model □ Introduced image sensor ISOCELL GN2, operating similar to human eyes (GN2, 1.4um/50Mp) - Dual Pixel Pro splits pixels diagonally—a world's first - 1.4um pixel delivers brighter and more vivid images - Staggered HDR saves power by approximately 24% compared to previous model □ Introduced ISOCELL JN1 with the industry's first 0.64um pixel (JN1, 0.64um/50Mp) - Mass production of ultra-small pixel size, applies high-resolution mobile camera slim design - Applies the most advanced image sensor technology that enhances sensitivity in the dark - Cooperation with camera lens module manufacturers, establishes the ecosystem that is compatible with 1/2.8" products □ Released automotive image sensor ISOCELL Auto 4AC (4AC, 3.0um/1.2Mp) - Designed for surround view monitors or rear-view cameras - A safety solution that supports drivers even in tough conditions and minimizes blind spots □ Unveiled a new super-gap mobile image sensor technology (HP1, 0.64um/200Mp and GN5, 1.0um/50Mp) - industry's first "200 million pixels" ISOCELL HP1 - industry's smallest-sized dual pixel image cell ISOCELL GN5

DS Division	
Research project	**Details**
Exynos January 2019–December 2021	□ World's first modem solution for 5G smartphones (Exynos modem 5100, Exynos RF 5500, Exynos SM 5800) - Data transmission 1.7 times faster compared to LTE - New RF ・ SM, improved power efficiency for transmission □ Best-in-class 7-nano 5G modem (Exynos 5123) - Maximum 2 times faster compared to previous model in sub-6GHz 5G network - Achieved maximum speed of 3.0Gbps in 4G network - Supports global Sub-6GHz/mmWave □ SoC for automobile infotainment (Exynos auto V9) - Octa-core CPU simultaneously controls 6 displays and 12 cameras - 3 GPU respectively supports dashboard ・ CID ・ HUD - NPU enables digital recognition of voice ・ face ・ movement - Enhanced stability by securely supporting ASIL-B function □ SoC exclusively for short-distance IoT with low power consumption and enhanced security (Exynos i T100) - Processor ・ memory ・ communications function in a package □ One-chip integrating 5G modem supporting sub-6GHz and AP (Exynos 980) - Supports latest communications feature including EN-DC, Wi-Fi 6 - Enhanced NPU function compared to previous generation and premium products □ Enhanced functions with 5th-generation CPU and premium GPU (Exynos 990) - AI processing higher than 10 TOPS enhanced image analyzing and face recognition function - Supports latest LPDDR5 DRAM and high-resolution camera of 50MP↑ □ Launched Exynos 2100, 5G-integrated premium mobile AP - Applied state-of-the-art 5-nano EUV process and the latest CPU/GPU, enhancing performance significantly - Optimal design improves performance compared to previous model: more than 30% for CPU, more than 40% for GPU - Enhanced on-device AI function, performs 26 trillion operations per second - Saves power consumption by maximum 20%, features its own power management solution AMIGO - Supports ultrahigh-frequency 5G network, operates maximum 6 image sensors □ Released Exynos W920 built on EUV process for wearable devices - Improved performance and power-efficiency by applying advanced 5nm EUV process and design technology - Comes in the smallest package currently available for wearables by applying the most advanced packaging technologies - Boasts 20% more efficient CPU performance and 10 times better graphics performance than its predecessor (Exynos 9110) with the application of the newest ARM cores - Improved power consumption of the processor by 97% under AOD (Always On Display) mode by applying low-power cores for display □ Released Exynos Auto T5123, communications chip for automotives that provide 5G communications service - Supports download speed of 5.1Gb/sec, enables seamless access high-capacity, high-definition content even while driving - Equipped with the latest 5G-based multi-mode communication chip that supports both 5G single net and LTE combined net □ Released Exynos Auto V7, processor for automotive infotainment - Applies the latest automotive technologies, including Neural Processing Unit (NPU), technology that corrects bad pixel and lens distortion of camera sensors, and image compression technology - GPU supports four independent displays, including digital dashboard, Center Information Display (CID), and Head Up Display (HUD), and up to 12 camera sensors - Equipped with security processor which offers technology that safely stores and prevents physical replication of key information of the car

DS Division	
Research project	**Details**
LSI January 2019–December 2021	□ PDIC for TA supporting USB-PD 3.0 standard and high-speed charge protocol (MM101) - Moisture detection, voltage protection function □ World's first one-chip integrating PDIC and SE (SE8A) - Blocks unauthorized products by supporting type-C authorization - Supports advanced security features such as saving security key · authorization certificate, supporting encryption · decryption □ Industry's first integrated power-managing chip for wireless earphones (MUA01, MUB01) - Integrates multiple chips, optimized for small-size batteries - Provides optimal solution for rapidly-growing wireless earphone market □ DDI enables optimized ultra-high resolution for 8K TVs and enhanced transmission efficiency (S6CT93P) - Enhanced signal quality and development efficiency by utilizing equalizer S/W □ Best integrated security solution for mobile (S3K250AF) - Independently developed S/W in H/W security chip, which received EAL 5+ in Common Criteria - Mobile security solution lays the foundation for new mobile services □ Received EAL 6+, the highest rank for mobile device, solution with independently-developed S/W (S3FV9RR) - Useable for various smart devices, as the solution operates independently for various processors - Various functions including H/W secure boot, device authentication offer stronger security □ Power management IC for DDR5 DRAM modules (S2FPD01, S2FPD02, S2FPC01) - Essential for the next-generation device performance improvement and power saving, three types of power management IC - Applies our own technology of reducing power consumption and overheating, improves operational efficiency up to 91% - Continued expansion of the lineup for power management IC for memory and strengthen technology leadership □ Power management IC for processor for automotive infotainment (S2VPS01) - Certified with ASIL-B, a safety standard for automotive systems, and strengthened functional safety - Strengthened stability of the system, including heat prevention and auto-diagnostic functions
Foundry	
Ship eMRAM solution products (based on 28nm FD-SOI process) March 2019	□ Combined low-power process and next-generation embedded memory technology - Maximized power efficiency as the product uses low motion power and eliminates standby power and an erase cycle - Supports record speed about 1000 times faster than the previous eFlash □ Embedded to system semiconductor by using minimum layers - Reduced production costs thanks to a simpler design structure □ Optimal for MCU/IoT/AI thanks to low-power and small size
5nm EUV process April 2019	□ Developed 5nm EUV process with EUV lithography - 25% decrease in logic area efficiency with 20% lower power consumption or 10% higher performance compared to 7nm by optimizing cell architecture - Previous 7nm customers can utilize the same IP in the 5nm EUV process
3D IC packaging technology 'X-Cube' August 2020	□ Developed 3D IC packaging technology 'X-Cube' and the infrastructure for the design - Uses TSV technology to stack different chips individually made from different wafers to make them into one chip · Allows greater flexibility in design by reducing the chip size and using high-capacity memory solution · Significant leaps in data-processing speed and power efficiency of system semiconductors - Design method and tools to apply 'X-Cube' on 5-nano and 7-nano processes have been verified. · Produced industry's first test chip that stacks SRAM on top of EUV 7-nano logic die
2.5D packaging technology 'I-Cube4' May 2021	□ Realized logic chip and four HBM chips into one package to operate it like one semiconductor chip □ Supplied electricity stably and realized ultra-thin electrical wires applying silicon interposer - Applied semiconductor process/manufacturing knowhow that prevents the deformation of thin interposers 100μm thick □ Reduced production time and enhanced yield with our distinctive structure that has excellent thermal release performance
8-nano RF process June 2021	□ Radio Frequency (RF) process for 5G communication that even supports sub-6GHz and millimeter frequency - Provides small, low-power, high quality communication with one-chip solution that supports multi-channel and multi-antenna □ Improved performance of RF with the application of RF-exclusive semiconductor device 'RFeFET (RF extremeFET)' that we developed in house - Maximized electrons' movement characteristics by physically stimulating the neighboring areas of channels, which are electrons' moving path □ Power efficiency increased by 35%, analogue circuit area decreased by 35% compared to the previous generation 14-nano RF process - Total number of transistors of chips decreased with the drastic improvement of RFeFET performance

DS Division	
Research project	**Details**
2.5D packaging technology 'H-Cube' November 2021	□ 2.5D solution 'Hybrid Cube', which applies silicon interposer technology and hybrid-substrate structure - Logic chips and high-bandwidth memory (HBM) are placed on top of a silicon interposer, integrating up to 6HBMs - The hybrid substrate is a dual structure in which the high-end main substrate at the top connects logic/memory chips, and the subsidiary substrate at the bottom that is easy to implement in large-area connects the system board - Minimized the size of the substrate by decreasing the pitch of solder ball, which electrically connects two substrates - Applied chip analysis technology to stably supply power while minimizing signal distortion and loss - Specialized for semiconductors for data center, AI, and network products that require high-performance and large-area packaging technology
Display panel	
Hole in Display OLED for Galaxy S10 March 2019	□ Maximized screen size via world's first commercialization of Flexible Hole in Display - One S10 6.1" 3K QHD+(3,040×1,440) Hole, Two S10+ 6.4" Holes □ Offers a comfortable display by significantly decreasing blue light - Decreased blue light emission 42% from S9 (TUV Rheinland Eye Comfort Certification)
15.6" UHD OLED for NPC May 2019	□ Developed world's first 4K OLED display for NPC - 15.6" UHD (3,840 x 2,160), 16:9 - Blue light reduction, shorter response time, wide field of view allow vivid images
4K high-resolution OLED for smartphones June 2019	□ Developed world's first 4K mobile OLED display - 6.5" UHD (1,644×3,840), 643ppi,16M Color - Offers original cinematic movie ratio of 21:9
Curved LCD for gaming monitors June2019	□ Developed world's first 240Hz Curved LCD display - 27" FHD (1920×1080), 16:9 - High refresh rate of 240Hz, supports G-sync, allowing uninterrupted gaming environment - Curvature of 1500R, wide viewing angle allow highly-immersive gaming experience
Foldable OLED for Galaxy Fold September 2019	□ Display innovation by developing the world's first foldable display - In-foldable AMOLED (radius: 1.5R) - 7.3" QXGA+ (1,536×2,152), 4:3 - Decreased display thickness by approximately 50% (vs existing panels) by developing polymer composite material
Foldable OLED for Galaxy Z Flip February 2020	□ Mass production of world's first glass type window foldable display - 6.7" Full HD+(1,080x 2,640) - Improved durability and applied camera hole (first in foldable phones) by using UTG (ultra-thin glass)
WQ+ high-speed OLED for Galaxy S20 March 2020	□ Maximized touch feature with world's first WQ+ resolution, 120Hz, high speed - S20 6.23"/6.67"/6.87" QHD+(3,200×1,440) - Harmful blue light less than 6.5%, Eye Care Display certified (SGS, international certification institution)
Foldable OLED for Galaxy Z Fold 2 September 2020	□ World's first mass production of foldable display with a 1.4R curvature - 7.6" (2,208 ×1,768) in – foldable - Achieved 1.4R curvature radius via structural design that minimizes folding stress - Improved power efficiency with adaptive frequency (adjusts scan rate from 10-120Hz to screen)
Power-efficient OLED for Galaxy S21 January 2021	□ Mass production of innovative power-efficient, high-luminance OLED displays - S21: 6.24"/6.67"/6.81" QHD+(3,200×1,440) - New organic material improves luminance efficiency: improved power efficiency by 16% compared to previous model - Enhanced luminance and contrast offers good visibility outdoors (Max/HBM 420/800 → 500/1100nit, Peak 1,785nit) → Sunlight Visibility certification by UL (global safety solutions company)
Foldable OLED for Galaxy Z Fold 3 August 2021	□ Application of various new technologies to foldables for the first time - 7.6" QXGA+7.55" (2,208×1,768) - Removed screen blind spots with the Under Panel Camera technology - Reduced battery consumption compared to its predecessor with the Eco² technology

1. General Information

1.1 Company Overview

Samsung Electronics Co., Ltd. ("SEC") was incorporated under the laws of the Republic of Korea in 1969 and listed its shares on the Korea Stock Exchange in 1975. SEC and its subsidiaries (collectively referred to as the "Company") operate four business divisions: DX, DS, SDC and Harman. DX (Device eXperience) division includes digital TVs, refrigerators, mobile phones and communication systems. DS (Device Solutions) division includes memory, foundry, and system LSI. SDC includes display panels products. Harman division includes connected car systems, audio and visual products, enterprise automation solutions and connected services. The Company is domiciled in the Republic of Korea and is located in Suwon, the Republic of Korea.

These consolidated financial statements have been prepared in accordance with Korean International Financial Reporting Standards ("*Korean IFRS*") 1110, *Consolidated Financial Statements*. SEC, as the controlling company, consolidates its 232 subsidiaries, including Samsung Display and Samsung Electronics America. The Company also applies the equity method of accounting for its 37 associates and joint ventures, including Samsung Electro-Mechanics Co., Ltd.

1.2 Consolidated Subsidiaries

The consolidated subsidiaries as of December 31, 2022 are as follows:

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
America	Samsung Electronics America, Inc. (SEA)	Sale of electronic devices	100.0
	Samsung International, Inc. (SII)	Manufacture of electronic devices	100.0
	Samsung Mexicana S.A. de C.V (SAMEX)	Manufacture of electronic devices	100.0
	Samsung Electronics Home Appliances America, LLC (SEHA)	Manufacture of home appliances	100.0
	Samsung Research America, Inc. (SRA)	R&D	100.0
	Samsung Next LLC (SNX)	Management of overseas subsidiaries	100.0
	Samsung Next Fund LLC (SNXF)	Technology business, venture capital investments	100.0
	NeuroLogica Corp.	Manufacture and sale of medical equipment	100.0
	Samsung HVAC America, LLC	Sale of air conditioning products	100.0
	Joyent, Inc.	Cloud services	100.0
	Dacor Holdings, Inc.	Management of overseas subsidiaries	100.0
	Dacor, Inc.	Manufacture and sale of home appliances	100.0
	SmartThings, Inc.	Sale of smart home electronics	100.0
	TeleWorld Solutions, Inc. (TWS)	Installation & optimization of network devices	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
America	Samsung Semiconductor, Inc. (SSI)	Sale of semiconductor and display panels	100.0
	Samsung Austin Semiconductor LLC. (SAS)	Manufacture of semiconductors	100.0
	Samsung Oak Holdings, Inc. (SHI)	Management of overseas subsidiaries	100.0
	SEMES America, Inc.	Semiconductor equipment services	100.0
	Samsung Electronics Canada, Inc. (SECA)	Sale of electronic devices	100.0
	AdGear Technologies Inc.	Digital advertising platforms	100.0
	Samsung Electronica da Amazonia Ltda. (SEDA)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Mexico S.A. de C.V. (SEM)	Sale of electronic devices	100.0
	Samsung Electronics Digital Appliance Mexico, S.A. de C.V. (SEDAM)	Manufacture of home appliances	100.0
	Samsung Electronics Latinoamerica (Zona Libre), S. A. (SELA)	Sale of electronic devices	100.0
	Samsung Electronics Latinoamerica Miami, Inc. (SEMI)	Sale of electronic devices	100.0
	Samsung Electronica Colombia S.A. (SAMCOL)	Sale of electronic devices	100.0
	Samsung Electronics Argentina S.A. (SEASA)	Marketing and services	100.0
	Samsung Electronics Chile Limitada (SECH)	Sale of electronic devices	100.0
	Samsung Electronics Peru S.A.C. (SEPR)	Sale of electronic devices	100.0
	Samsung Electronics Venezuela, C.A. (SEVEN)	Marketing and services	100.0
	Samsung Electronics Panama. S.A. (SEPA)	Consulting	100.0
	Harman International Industries, Inc.	Management of overseas subsidiaries	100.0
	Harman Becker Automotive Systems, Inc.	Manufacture and sale of audio products, R&D	100.0
	Harman Connected Services, Inc.	Connected service provider	100.0
	Harman Connected Services Engineering Corp.	Connected service provider	100.0
	Harman da Amazonia Industria Eletronica e Participacoes Ltda.	Manufacture and sale of audio products	100.0
	Harman de Mexico, S. de R.L. de C.V.	Manufacture of audio products	100.0
	Harman do Brasil Industria Eletronica e Participacoes Ltda.	Sale of audio products, R&D	100.0
	Harman Financial Group LLC	Management company	100.0
	Harman International Industries Canada Ltd.	Sale of audio products	100.0
	Harman International Mexico, S. de R.L. de C.V.	Sale of audio products	100.0
	Harman KG Holding, LLC	Management of overseas subsidiaries	100.0
	Harman Professional, Inc.	Sale of audio products, R&D	100.0
	Beijing Integrated Circuit Industry International Fund, L.P	Venture capital investments	61.4
	China Materialia New Materials 2016 Limited Partnership	Venture capital investments	99.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Europe & CIS	Samsung Electronics (UK) Ltd. (SEUK)	Sale of electronic devices	100.0
	Samsung Electronics Ltd. (SEL)	Management of overseas subsidiaries	100.0
	Samsung Semiconductor Europe Limited (SSEL)	Sale of semiconductor and display panels	100.0
	Samsung Electronics GmbH (SEG)	Sale of electronic devices	100.0
	Samsung Electronics Holding GmbH (SEHG)	Management of overseas subsidiaries	100.0
	Samsung Semiconductor Europe GmbH (SSEG)	Sale of semiconductor and display panels	100.0
	Samsung Electronics France S.A.S (SEF)	Sale of electronic devices	100.0
	Samsung Electronics Italia S.P.A. (SEI)	Sale of electronic devices	100.0
	Samsung Electronics Iberia, S.A. (SESA)	Sale of electronic devices	100.0
	Samsung Electronics Portuguesa, Unipessoal, Lda. (SEP)	Sale of electronic devices	100.0
	Samsung Electronics Hungarian Private Co., Ltd. (SEH)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Europe Logistics B.V. (SELS)	Logistics	100.0
	Samsung Electronics Benelux B.V. (SEBN)	Sale of electronic devices	100.0
	Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	Management of overseas subsidiaries	100.0
	Samsung Electronics Nordic Aktiebolag (SENA)	Sale of electronic devices	100.0
	Samsung Electronics Slovakia s.r.o. (SESK)	Manufacture of TV and monitors	100.0
	Samsung Display Slovakia, s.r.o. (SDSK)	Toll processing of display panels	100.0
	Samsung Electronics Polska, SP.Zo.o (SEPOL)	Sale of electronic devices	100.0
	Samsung Electronics Poland Manufacturing SP.Zo.o (SEPM)	Manufacture of home appliances	100.0
	Samsung Electronics Romania LLC (SEROM)	Sale of electronic devices	100.0
	Samsung Electronics Austria GmbH (SEAG)	Sale of electronic devices	100.0
	Samsung Electronics Switzerland GmbH (SESG)	Sale of electronic devices	100.0
	Samsung Electronics Czech and Slovak s.r.o. (SECZ)	Sale of electronic devices	100.0
	Samsung Electronics Baltics SIA (SEB)	Sale of electronic devices	100.0
	Samsung Electronics Greece S.M.S.A (SEGR)	Sale of electronic devices	100.0
	Samsung Electronics Air Conditioner Europe B.V. (SEACE)	Sale of air conditioning products	100.0
	Samsung Nanoradio Design Center (SNDC)	R&D	100.0
	Samsung Denmark Research Center ApS (SDRC)	R&D	100.0
	Samsung Cambridge Solution Centre Limited (SCSC)	R&D	100.0
	SAMSUNG Zhilabs, S.L.	Development and sale of network solutions	100.0
	Foodient Ltd.	R&D	100.0
	Samsung Electronics Rus Company LLC (SERC)	Sale of electronic devices	100.0
	Samsung Electronics Rus Kaluga LLC (SERK)	Manufacture of TV	100.0
	Samsung Electronics Ukraine Company LLC (SEUC)	Sale of electronic devices	100.0
	Samsung R&D Institute Ukraine (SRUKR)	R&D	100.0
	Samsung Electronics Central Eurasia LLP (SECE)	Sale of electronic devices	100.0
	Samsung Electronics Overseas B.V. (SEO)	Sale of electronic devices	100.0
	Samsung R&D Institute Rus LLC (SRR)	R&D	100.0
	Samsung Electronics Caucasus Co., Ltd. (SECC)	Marketing	100.0
	Samsung Electronics Uzbekistan Ltd. (SEUZ)	Marketing	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Europe & CIS	AKG Acoustics GmbH	Manufacture and sale of audio products	100.0
	Apostera UA, LLC	Connected Service Provider	100.0
	Harman Audio Iberia Espana Sociedad Limitada	Sale of audio products	100.0
	Harman Automotive UK Limited	Manufacture of audio products	100.0
	Harman Becker Automotive Systems GmbH	Manufacture and sale of audio products, R&D	100.0
	Harman Becker Automotive Systems Italy S.R.L.	Sale of audio products	100.0
	Harman Becker Automotive Systems Manufacturing Kft	Manufacture of audio products, R&D	100.0
	Harman Belgium SA	Sale of audio products	100.0
	Harman Connected Services AB.	Connected service provider	100.0
	Harman Finland Oy	Connected service provider	100.0
	Harman Connected Services GmbH	Connected service provider	100.0
	Harman Connected Services Poland Sp.zoo	Connected service provider	100.0
	Harman Connected Services UK Ltd.	Connected service provider	100.0
	Harman Consumer Nederland B.V.	Sale of audio products	100.0
	Harman Deutschland GmbH	Sale of audio products	100.0
	Harman Finance International GP S.a.r.l	Management of overseas subsidiaries	100.0
	Harman France SNC	Sale of audio products	100.0
	Harman Holding GmbH & Co. KG	Management company	100.0
	Harman Hungary Financing Ltd.	Financing company	100.0
	Harman Inc. & Co. KG	Management of overseas subsidiaries	100.0
	Harman International Estonia OU	R&D	100.0
	Harman International Industries Limited	Sale of audio products, R&D	100.0
	Harman International Romania SRL	R&D	100.0
	Harman Finance International, SCA	Financing company	100.0
	Harman Management GmbH	Management of overseas subsidiaries	100.0
	Harman Professional Kft	Manufacture of audio products, R&D	100.0
	Harman Professional Denmark ApS	Sale of audio products, R&D	100.0
	Red Bend Software Ltd.	Software design	100.0
	Red Bend Software SAS	Software design	100.0
	Studer Professional Audio GmbH	Sale of audio products, R&D	100.0
	Harman Connected Services OOO	Connected service provider	100.0
	Harman RUS CIS LLC	Sale of audio products	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Middle East & Africa	Samsung Gulf Electronics Co., Ltd. (SGE)	Sale of electronic devices	100.0
	Samsung Electronics Turkiye (SETK)	Sale of electronic devices	100.0
	Samsung Electronics Industry and Commerce Ltd. (SETK-P)	Manufacture of electronic devices	100.0
	Samsung Electronics Levant Co.,Ltd. (SELV)	Sale of electronic devices	100.0
	Samsung Electronics Maghreb Arab (SEMAG)	Sale of electronic devices	100.0
	Samsung Electronics Egypt S.A.E (SEEG)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Israel Ltd. (SEIL)	Marketing	100.0
	Samsung Electronics Tunisia S.A.R.L (SETN)	Marketing	100.0
	Samsung Electronics Pakistan (Private) Ltd. (SEPAK)	Marketing	100.0
	Samsung Electronics Saudi Arabia Ltd. (SESAR)	Sale of electronic devices	100.0
	Samsung Semiconductor Israel R&D Center, Ltd. (SIRC)	R&D	100.0
	Corephotonics Ltd.	R&D	100.0
	Samsung Electronics South Africa (Pty) Ltd. (SSA)	Sale of electronic devices	100.0
	Samsung Electronics South Africa Production (Pty) Ltd. (SSAP)	Manufacture of TV and monitors	100.0
	Samsung Electronics West Africa Ltd. (SEWA)	Marketing	100.0
	Samsung Electronics East Africa Ltd. (SEEA)	Marketing	100.0
	Global Symphony Technology Group Private Ltd.	Management of overseas subsidiaries	100.0
	Harman Connected Services Morocco	Connected service provider	100.0
	Harman Industries Holdings Mauritius Ltd.	Management of overseas subsidiaries	100.0
	Red Bend Ltd.	Manufacture of audio products	100.0
Asia (Excluding China)	Samsung Asia Pte. Ltd. (SAPL)	Management of overseas subsidiaries	100.0
	Samsung Electronics Singapore Pte. Ltd. (SESP)	Sale of electronic devices	100.0
	Samsung Malaysia Electronics (SME) Sdn. Bhd. (SME)	Sale of electronic devices	100.0
	Samsung Electronics Display (M) Sdn. Bhd. (SDMA)	Manufacture of electronic devices	100.0
	Samsung Electronics (M) Sdn. Bhd. (SEMA)	Manufacture of home appliances	100.0
	Samsung Vina Electronics Co., Ltd. (SAVINA)	Sale of electronic devices	100.0
	Samsung Electronics Vietnam Co., Ltd. (SEV)	Manufacture of electronic devices	100.0
	Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	Manufacture of communication equipment	100.0
	Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	Manufacture and sale of electronic devices	100.0
	Samsung Display Vietnam Co., Ltd. (SDV)	Manufacture of display panels	100.0
	DOWOOINSYS VINA COMPANY LIMITED	Manufacture of display components	100.0
	PT Samsung Electronics Indonesia (SEIN)	Manufacture and sale of electronic devices	100.0
	PT Samsung Telecommunications Indonesia (STIN)	Sale of electronic devices and services	100.0
	Thai Samsung Electronics Co., Ltd. (TSE)	Manufacture and sale of electronic devices	91.8
	Laos Samsung Electronics Sole Co., Ltd. (LSE)	Marketing	100.0
	Samsung Electronics Philippines Corporation (SEPCO)	Sale of electronic devices	100.0
	Samsung Electronics Australia Pty. Ltd. (SEAU)	Sale of electronic devices	100.0
	Samsung Electronics New Zealand Limited (SENZ)	Sale of electronic devices	100.0
	Samsung India Electronics Private Ltd. (SIEL)	Manufacture and sale of electronic devices	100.0
	Red Brick Lane Marketing Solutions Pvt. Ltd.	Marketing	100.0
	Samsung Display Noida Private Limited (SDN)	Manufacture of display panels	100.0
	Samsung R&D Institute India-Bangalore Private Limited (SRI-B)	R&D	100.0
	Samsung R&D Institute BanglaDesh Limited (SRBD)	R&D	100.0
	Samsung Nepal Services Pvt, Ltd. (SNSL)	Service	100.0
	Samsung Japan Corporation (SJC)	Sale of semiconductor and display panels	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Asia (Excluding China)	Samsung R&D Institute Japan Co., Ltd. (SRJ)	R&D	100.0
	Samsung Electronics Japan Co., Ltd. (SEJ)	Sale of electronic devices	100.0
	Harman International Industries PTY Ltd.	Management of overseas subsidiaries	100.0
	Harman Connected Services Corp. India Pvt. Ltd.	Connected service provider	100.0
	Harman International (India) Private Limited	Sale of audio products, R&D	100.0
	Harman International Japan Co., Ltd.	Sale of audio products, R&D	100.0
	Harman Singapore Pte. Ltd.	Sale of audio products	100.0
China	Samsung (CHINA) Investment Co., Ltd. (SCIC)	Sale of electronic devices	100.0
	Samsung Electronics Hong Kong Co., Ltd. (SEHK)	Sale of electronic devices	100.0
	Samsung Electronics Taiwan Co., Ltd. (SET)	Sale of electronic devices	100.0
	Tianjin Samsung Electronics Co., Ltd. (TSEC)	Manufacture of TV and monitors	91.2
	Suzhou Samsung Electronics Co., Ltd. (SSEC)	Manufacture of home appliances	88.3
	Samsung Suzhou Electronics Export Co., Ltd. (SSEC-E)	Manufacture of home appliances	100.0
	Samsung Electronics Suzhou Computer Co., Ltd. (SESC)	R&D	100.0
	Tianjin Samsung Telecom Technology Co., Ltd. (TSTC)	Manufacture of communication equipment	90.0
	Beijing Samsung Telecom R&D Center (SRC-Beijing)	R&D	100.0
	Samsung Electronics China R&D Center (SRC-Nanjing)	R&D	100.0
	Samsung Mobile R&D Center China-Guangzhou (SRC-Guangzhou)	R&D	100.0
	Samsung R&D Institute China-Shenzhen (SRC-Shenzhen)	R&D	100.0
	Shanghai Samsung Semiconductor Co., Ltd. (SSS)	Sale of semiconductor and display panels	100.0
	Samsung (China) Semiconductor Co., Ltd. (SCS)	Manufacture of semiconductors	100.0
	Samsung SemiConductor Xian Co., Ltd. (SSCX)	Sale of semiconductor and display panels	100.0
	Samsung Electronics Suzhou Semiconductor Co., Ltd. (SESS)	Toll processing of semiconductors	100.0
	Tianjin Samsung LED Co., Ltd. (TSLED)	Manufacture of LED	100.0
	Samsung Semiconductor (China) R&D Co., Ltd. (SSCR)	R&D	100.0
	Samsung Display Dongguan Co., Ltd. (SDD)	Manufacture of display panels	100.0
	Samsung Display Tianjin Co., Ltd. (SDT)	Manufacture of display panels	95.0
	SEMES (XIAN) Co., Ltd.	Semiconductor equipment services	100.0
	Samsung Semiconductor Investment L.P. I	Technology business, Venture capital investments	99.0
	Harman (China) Technologies Co., Ltd.	Manufacture of audio products	100.0
	Harman (Suzhou) Audio and Infotainment Systems Co., Ltd.	Sale of audio products	100.0
	Harman Automotive Electronic Systems (Suzhou) Co., Ltd.	Manufacture of audio products, R&D	100.0
	Harman Commercial (Shanghai) Co., Ltd.	Sale of audio products	100.0
	Harman Connected Services Solutions (Chengdu) Co., Ltd.	Connected service provider	100.0
	Harman Holding Limited	Sale of audio products	100.0
	Harman International (China) Holdings Co., Ltd.	Sale of audio products, R&D	100.0
	Harman Technology (Shenzhen) Co., Ltd.	Sale of audio products, R&D	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Domestic	Samsung Display Co., Ltd.	Manufacture and sale of display panels	84.8
	SU Materials	Manufacture of display components	50.0
	STECO Co., Ltd.	Manufacture of semiconductor components	70.0
	SEMES Co., Ltd.	Manufacture and sale of semiconductor/FPD	91.5
	Samsung Electronics Service Co., Ltd.	Repair services for electronic devices	99.3
	Samsung Electronics Service Customer Satisfaction Co., Ltd.	Call center for repair services for electronic devices	100.0
	Samsung Electronics Sales Co., Ltd.	Sale of electronic devices	100.0
	Samsung Electronics Logitech Co., Ltd.	General logistics agency	100.0
	Samsung Medison Co., Ltd.	Manufacture and sale of medical equipment	68.5
	Stella Forest of Hope	Manufacture of food	100.0
	Mirero System Co., Ltd.	Development and supply of semiconductor process defect and quality control software	99.9
	Dowooinssys Co., Ltd.	Manufacture of display components	69.0
	Gf-System Co., Ltd.	Manufacture of display components	100.0
	Harman International Korea	Software development and supply, etc.	100.0
	Samsung Venture Capital Union #21	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #22	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #26	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #28	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #29	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #32	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #33	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #37	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #40	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #42	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #43	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #45	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #48	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #52	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #55	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #56	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #57	Technology business, Venture capital investments	99.0
	Growth type private equity trust specialized in semiconductors	Investment on semiconductor industry	66.7
	System LSI Mutual benefit private equity trust	Investment on semiconductor industry	62.5

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

1.3 Summary of Financial Data of Major Consolidated Subsidiaries

Summary of financial data of major consolidated subsidiaries is as follows:

(1) 2022

(In millions of Korean won)	As of December 31, 2022		For the year ended December 31, 2022	
Major subsidiaries[1]	**Assets**	**Liabilities**	**Sales**	**Profit (loss) for the year**
Samsung Display	57,302,567	7,282,718	30,779,405	4,365,588
Samsung Electronics America, Inc. (SEA)	37,883,156	12,258,315	46,738,920	219,670
Samsung Asia Pte. Ltd. (SAPL)	26,894,611	2,678,285	-	8,699,679
Harman and its subsidiaries[2]	17,102,324	6,380,456	13,211,151	631,019
Samsung (China) Semiconductor Co., Ltd. (SCS)	17,095,000	2,970,835	9,679,757	638,385
Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	15,718,299	2,358,140	36,336,963	2,721,701
Samsung (CHINA) Investment Co., Ltd. (SCIC)	13,830,988	9,764,636	2,865,831	257,878
Samsung Semiconductor, Inc. (SSI)	12,199,102	5,930,369	43,009,331	88,467
Samsung Electronics Vietnam Co., Ltd. (SEV)	10,931,037	1,408,387	23,667,565	1,646,165
Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	10,841,515	6,272,800	-	57,997
Samsung Austin Semiconductor LLC. (SAS)	9,301,017	828,494	3,663,909	208,879
Samsung Display Vietnam Co., Ltd. (SDV)	7,471,680	1,608,448	25,773,970	1,301,926
Samsung India Electronics Private Ltd. (SIEL)	6,772,537	3,571,863	16,180,492	508,510
Shanghai Samsung Semiconductor Co., Ltd. (SSS)	5,067,891	2,858,382	21,370,622	318,578
Samsung Eletronica da Amazonia Ltda. (SEDA)	4,600,508	1,342,517	7,485,104	(38,490)
Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	3,732,057	980,448	6,253,401	386,119
Thai Samsung Electronics Co., Ltd. (TSE)	3,263,473	486,820	4,824,734	168,524
Samsung Electronics (UK) Ltd. (SEUK)	2,819,792	1,708,064	5,929,357	243,396
Samsung Electronics Benelux B.V. (SEBN)	2,377,730	597,044	2,834,008	25,411
Samsung Electronics Hungarian Private Co. Ltd. (SEH)	2,374,317	452,628	3,935,745	199,742
Samsung Electronics Europe Logistics B.V. (SELS)	2,194,975	2,021,491	15,409,984	20,347
Samsung Display Dongguan Co., Ltd. (SDD)	2,135,132	265,835	2,556,608	111,643
SEMES Co., Ltd.	2,065,558	602,323	2,889,238	185,762
Samsung Electronics GmbH (SEG)	1,968,273	1,907,132	6,567,011	3,695
Samsung Electronics Mexico S.A. De C.V. (SEM)	1,816,895	996,002	3,270,016	110,386

[1] Summary of condensed financial information is based on separate financial statements of each subsidiary.
[2] Consolidated financial data of an intermediate company that includes Harman International Industries, Inc. and its subsidiaries.

(2) 2021

(In millions of Korean won)	As of December 31, 2021		For the year ended December 31, 2021	
Major subsidiaries[1]	**Assets**	**Liabilities**	**Sales**	**Profit (loss) for the year**
Samsung Display	54,967,156	9,081,737	28,755,975	2,770,060
Samsung Electronics America, Inc. (SEA)	42,982,054	19,246,751	42,325,524	823,914
Samsung (China) Semiconductor Co., Ltd. (SCS)	19,049,536	5,168,738	7,341,018	1,708,832
Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	17,521,446	3,425,127	32,184,024	2,298,273
Harman and its subsidiaries[2]	15,887,380	6,104,012	10,015,092	357,612
Samsung Asia Pte. Ltd. (SAPL)	14,683,789	58,381	-	4,668,478
Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	14,651,496	8,998,502	-	24,527
Samsung Semiconductor, Inc. (SSI)	13,744,799	7,955,060	33,895,805	74,531
Samsung (CHINA) Investment Co., Ltd. (SCIC)	13,599,093	9,685,278	2,615,685	451,062
Samsung Electronics Vietnam Co., Ltd. (SEV)	13,023,272	2,085,411	21,583,038	1,455,704
Samsung Austin Semiconductor LLC (SAS)	8,705,085	958,537	3,703,472	759,206
Shanghai Samsung Semiconductor Co., Ltd. (SSS)	7,765,126	5,799,690	31,326,186	325,397
Samsung India Electronics Private Ltd. (SIEL)	7,765,019	3,236,745	12,222,643	522,672
Samsung Display Vietnam Co., Ltd. (SDV)	6,821,066	2,486,703	21,722,446	981,311
Samsung Eletronica da Amazonia Ltda. (SEDA)	4,589,505	1,671,097	6,020,523	490,202
Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	3,129,104	919,721	6,551,242	472,666
Thai Samsung Electronics Co., Ltd. (TSE)	3,018,358	474,223	4,443,031	142,191
Samsung Electronics (UK) Ltd. (SEUK)	2,925,062	1,992,367	5,621,922	241,403
Samsung Electronics Benelux B.V. (SEBN)	2,612,357	766,034	2,569,603	284,816
Samsung Electronics Hungarian Private Co., Ltd. (SEH)	2,504,075	641,004	4,357,137	157,616
Samsung Electronics Europe Logistics B.V. (SELS)	2,305,275	2,144,805	14,700,517	13,943
Samsung Electronics GmbH (SEG)	2,289,391	2,228,650	6,385,080	2,158
Samsung Display Dongguan Co., Ltd. (SDD)	2,149,277	339,425	3,987,674	163,637
Samsung International, Inc. (SII)	2,125,719	1,041,168	7,948,982	105,444
Samsung Electronics Taiwan Co., Ltd. (SET)	2,033,992	1,459,353	5,638,204	50,966

[1] Summary of condensed financial information is based on separate financial statements of each subsidiary.
[2] Consolidated financial data of an intermediate company that includes Harman International Industries, Inc. and its subsidiaries.

1.4 Changes in Consolidation Scope

Changes in consolidation scope during the year ended December 31, 2022 are as follows:

Change	Area	Subsidiary	Description
Included	Europe & CIS	Samsung R&D Institute Ukraine (SRUKR)	Establishment
		Samsung Electronics Uzbekistan Ltd. (SEUZ)	Establishment
		Apostera GmbH	Acquisition
		Apostera UA, LLC	Acquisition
	Asia (Excluding China)	DOWOOINSYS VINA COMPANY LIMITED	Establishment
		Red Brick Lane Marketing Solutions Pvt. Ltd.	Acquisition
	Domestic	Samsung Venture Capital Union #57	Establishment
		Stella Forest of Hope	Establishment
Excluded	America	Dacor Canada Co.	Liquidation
	Europe & CIS	AMX UK Limited	Liquidation
		Harman International s.r.o	Liquidation
		Apostera GmbH	Merger

2. Significant Accounting Policies

2.1 Basis of Presentation

The principal accounting policies used to prepare the consolidated financial statements are set out below. Except for the effect of the amendments to the Korean IFRS and new interpretations set out below, the principal accounting policies used to prepare the consolidated financial statements as of and for the year ended December 31, 2022 are consistent with those used to prepare the consolidated financial statements as of and for the year ended December 31, 2021.

The Company maintains its accounting records in Korean won and prepares the statutory financial statements in Korean language (Hangul) in accordance with International Financial Reporting Standards as adopted by the Republic of Korea (“Korean IFRS”). The accompanying consolidated financial statements have been restructured, and translated into English from the Korean language financial statements.

Certain information attached to the Korean language financial statements that are not required for a fair presentation of the Company’s financial position, financial performance or cash flows, are not presented in the accompanying consolidated financial statements.

The consolidated financial statements of the Company have been prepared in accordance with Korean IFRS. These are the standards, subsequent amendments and related interpretations issued by the International Accounting Standards Board (IASB) that have been adopted by the Republic of Korea.

Korean IFRS permits the use of critical accounting estimates in the preparation of the consolidated financial statements and requires management judgments in applying the accounting policies. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements, are disclosed in Note 3.

2.2 Changes in Accounting Policies and Disclosures

(A) New and amended standards adopted by the Company

The Company applied the following amended and/or enacted standards for the first time for their annual reporting period commencing on January 1, 2022:

Amendments to Korean IFRS 1116, Lease

The amendments to Korean IFRS 1116 introduced a practical expedient that provided practical relief to lessees in accounting for rent concessions occurring as a direct consequence of COVID-19. The amendments extend the practical expedient to apply to reduction in lease payments originally due on or before June 30, 2022. The application of amendments does not have a significant impact on the Company's year-end consolidated financial statements.

Amendments to Korean IFRS 1103, Business Combinations

The amendments update Korean IFRS 1103 so that it refers to the amended conceptual framework for financial reporting for assets and liabilities recognized upon business combination, along with adding requirement that for transactions and other events within the scope of IAS 37 or IFRIC 21, an acquirer applies IAS 37 or IFRIC 21 to identify the liabilities it has assumed in a business combination. The amendments also add an explicit statement that an acquirer does not recognize contingent assets acquired in a business combination. The application of amendments does not have a significant impact on the Company's year-end consolidated financial statements.

Amendments to Korean IFRS 1016, Property, Plant and Equipment

The amendments prohibit deducting from the cost of an item of property, plant and equipment any proceeds from selling items produced while bringing that asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Instead, an entity recognizes the proceeds from selling such items, and the cost of producing those items, in profit or loss. The application of amendments does not have a significant impact on the Company's year-end consolidated financial statements.

Amendments to Korean IFRS 1037, Provisions, Contingent Liabilities and Contingent Assets

The amendments specify that the cost of fulfilling a contract comprises the costs that relate directly to the contract, and that costs that relate directly to a contract consist of both the incremental costs of fulfilling that contract and an allocation of other costs that relate directly to fulfilling contracts. The application of the amendments does not have a significant impact on the Company's year-end consolidated financial statements.

(B) New and amended standards not yet adopted by the Company

The amended accounting standards issued that are not mandatory for the annual reporting periods commencing on January 1, 2022 and has not been early adopted by the Company are as follows:

Amendments to Korean IFRS 1001 Presentation of Financial Statements

The amendments clarify that the classification of liabilities as current or non-current is based on the rights that are in existence at the end of the reporting period, specify that classification is unaffected by expectations about whether an entity will exercise its right to defer settlement of a liability, and elucidate that settlement refers to the transfer to the counterparty of cash, equity instruments, other assets or services. The amendments are effective for annual reporting periods beginning on or after January 1, 2023, with earlier application permitted.

Amendments to Korean IFRS 1001 Presentation of Financial Statements

The amendments require companies to define and disclose their 'material' accounting policy information instead of its 'significant' accounting policies. The amendments explain how an entity can identify material accounting policy information. The amendments to K-IFRS 1001 are effective for annual periods beginning on or after January 1, 2023, with earlier application permitted and are applied prospectively.

Amendments to Korean IFRS 1008 Accounting Policies, Changes in Accounting Estimates and Errors

The amendments clarify the definition of a change in accounting estimates, and specify how to distinguish from a change in accounting policies. The amendments are effective for annual periods beginning on or after January, 1 2023 to changes in accounting policies and changes in accounting estimates that occur on or after the beginning of that period, with earlier application permitted.

Amendments to Korean IFRS 1012, Income Taxes

The amendments add to the initial recognition exemption that the initial recognition exemption does not apply to transactions in which equal amounts of deductible and taxable temporary differences arise on initial recognition. The amendments are effective for annual reporting periods beginning on or after January 1, 2023, with earlier application permitted.

2.3 Consolidation

The Company prepares the consolidated financial statements in accordance with Korean IFRS 1110 *Consolidated Financial Statements.*

(A) Subsidiaries

Subsidiaries are all entities (including the special purpose entities) over which the Company has control. The Company controls the corresponding investee when it is exposed, or has rights, to variable returns from its involvement with the investee and has the ability to affect those returns through its power over the investee. Consolidation of a subsidiary begins from the date the Company obtains control of a subsidiary and ceases when the Company loses control of the subsidiary.

The Company applies the acquisition method to account for business combinations. The consideration transferred is measured at the fair values of the assets transferred, and identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are initially measured at their fair values at the acquisition date. The Company recognizes any non-controlling interest in the acquiree on an acquisition-by-acquisition basis in the event of liquidation at the non-controlling interest's proportionate share of the recognized amounts of acquiree's identifiable net assets. Acquisition-related costs are expensed as incurred.

The excess of consideration transferred, of any non-controlling interest in the acquired entity, and acquisition-date fair value of any previous equity interest in the acquired entity over the fair value of the net identifiable assets acquired is recorded as goodwill. If those amounts are less than the fair value of the net identifiable assets of the business acquired, the difference is recognized directly in the profit or loss as a bargain purchase.

Balances of receivables and payables, income and expenses and unrealized gains or losses on transactions between the entities within the Company are eliminated. Accounting policies of subsidiaries are changed where necessary to ensure consistency with the policies adopted by the Company.

(B) Changes in ownership interests in subsidiaries without change of control

Transactions with non-controlling interests that do not result in loss of control are accounted for as equity transactions – that is, as transactions with the owners in their capacity as owners. The difference between the fair value of any consideration paid and the relevant share acquired of the carrying value of net assets of the subsidiary is recorded in equity. Gains or losses on disposals of non-controlling interests are also recorded in equity.

(C) Disposal of subsidiaries

If the Company loses control of a subsidiary, any investment continuously retained in the subsidiary is re-measured at its fair value at the date when control is lost and any resulting differences are recognized in profit or loss. Such fair value becomes the initial carrying amount for the subsequent measurement of the retained interest accounted for as an associate, joint venture, or financial asset. In addition, any amounts previously recognized in other comprehensive income in respect of such entity are accounted as if the Company had directly disposed of the related assets or liabilities. As a result, the previously recognized other comprehensive income are reclassified into profit or loss or equity.

(D) Non-controlling interests

Each component of profit or loss and other comprehensive income is attributed to owners of the parent and to non-controlling interests. Total comprehensive income is attributed to owners of the parent and to non-controlling interests even if this results in a negative balance of non-controlling interests.

(E) Associates

Associates are all entities over which the Company has significant influence but does not have control, generally investees of which from 20% to 50% voting shares are owned by the Company. Investments in associates are accounted for using the equity method of accounting, after initially being recognized at cost. Unrealized gains on transactions between the Company and its associates are eliminated to the extent of the Company's interest in the associates. If the Company's share of losses of an associate equals or exceeds its interest in the associate (including long-term interests that, in substance, form part of the Company's net investment in the associate), the Company discontinues recognizing its share of further losses. After the Company's interest is reduced to zero, additional losses are provided for, and a liability is recognized, only to the extent that the Company has incurred legal or constructive obligations or made payments on behalf of the associate. If there is objective evidence of impairment for the investment in the associate, the Company recognizes the difference between the recoverable amount of the associate and its carrying amount as an impairment loss. If an associate uses accounting policies other than those of the Company for like transactions and events in similar circumstances, adjustments shall be made, if necessary, to make the associate's accounting policies conform to those of the Company when the associate's financial statements are used by the entity in applying the equity method.

(F) Joint arrangements

A joint arrangement of which two or more parties have joint control is classified as either a joint operation or a joint venture. A joint operator has rights to the assets, and obligations for the liabilities, relating to the joint operation and recognizes the assets, liabilities, revenues and expenses relating to its interest in a joint operation. A joint venturer has rights to the net assets relating to the joint venture and accounts for that investment using the equity method.

2.4 Foreign Currency Translation

(A) Functional and presentation currency

Items included in the consolidated financial statements of each of the Company's entities are measured using the currency of the primary economic environment in which each entity operates (the "functional currency"). The consolidated financial statements are presented in Korean won, which is the parent company's functional and presentation currency.

(B) Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions or valuation where items are re-measured. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognized in profit or loss. Exchange differences arising on non-monetary financial assets and liabilities such as equity instruments at fair value through profit or loss and equity instruments at fair value through other comprehensive income are recognized in profit or loss and other comprehensive income, respectively, as part of the fair value gain or loss.

(C) Translation into the presentation currency

The results and financial position of all the foreign entities that have a functional currency different from the presentation currency of the Company are translated into the presentation currency as follows:

- Assets and liabilities for each consolidated statement of financial position presented are translated at the closing rate at the end of the reporting date.
- Income and expenses for each consolidated statement of profit or loss are translated at average exchange rates, unless this average is not a reasonable approximation of the cumulative effect of the rates prevailing on the transaction dates, in which case income and expenses are translated at the as-of rate on the dates of the transactions.
- All resulting exchange differences are recognized in other comprehensive income.

2.5 Cash and Cash Equivalents

Cash and cash equivalents include cash on hand, deposits held at call with banks, and other short-term investment assets with high liquidity that are readily convertible to a known amount of cash and are subject to an insignificant risk of change in value.

2.6 Financial Assets

(A) Classification

From January 1, 2018, the initial application date for Korean IFRS 1109 *Financial Instruments*, the Company classifies its financial assets in the following measurement categories:

- Financial assets measured at fair value (changes in fair value recognized in either other comprehensive income, or profit or loss)
- Financial assets measured at amortized cost.

The classification depends on the Company's business model for managing the financial assets and the contractual terms of the cash flows.

For financial assets measured at fair value, gains and losses will either be recorded in profit or loss or other comprehensive income. For investments in debt instruments, this will depend on the business model in which the investment is held. The Company reclassifies debt investments only when its business model for managing those assets changes.

For investments in equity instruments that are not held for trading, classification will depend on whether the Company has made an irrevocable election at the time of initial recognition to account for the equity investment at fair value through other comprehensive income. Changes in fair value of the investments in equity instruments that are not elected to be accounted for as other comprehensive income are recognized in profit or loss.

(B) Measurement

At initial recognition, the Company measures a financial asset at its fair value. In the case of financial asset not measured at fair value through profit or loss, transaction costs that are directly attributable to the acquisition of the financial asset or the issuance of the financial liabilities are added to its fair value. Transaction costs of financial assets carried at fair value through profit or loss are expensed in profit or loss.

Hybrid (combined) contracts with embedded derivatives are considered in their entirety when determining whether their cash flows solely consist of the payments of principal and interest.

a) Debt instruments

Subsequent measurement of debt instruments depends on the Company's business model for managing the asset and the cash flow characteristics of the asset. The Company classifies its debt instruments into one of the following three measurement categories:

① Financial assets measured at amortized cost

Assets that are held for collection of contractual cash flows where those cash flows represent solely the payments of principal and interest are measured at amortized cost. A gain or loss on a debt investment that is subsequently measured at amortized cost and is not part of a hedging relationship is recognized in profit or loss when the asset is derecognized or impaired. Interest income from these financial assets is included in 'financial income' using the effective interest rate method.

② Financial assets measured at fair value through other comprehensive income

Assets that are held for collection of contractual cash flows and for selling the financial assets, where the assets' cash flows represent solely the payments of principal and interest, are measured at fair value through other comprehensive income. Movements in the carrying amount are taken through other comprehensive income, except for the recognition of impairment loss (reversal of impairment loss), interest income and foreign exchange gains and losses which are recognized in profit or loss. When the financial assets are derecognized, the cumulative gain or loss previously recognized in other comprehensive income is reclassified from equity to profit or loss. Interest income from these financial assets is included in 'financial income' using the effective interest rate method. Foreign exchange gains and losses are presented in 'financial income' or 'financial expenses' and impairment losses are presented in 'other non-operating expenses'.

③ Financial assets measured at fair value through profit or loss

Assets that do not meet the criteria for amortized cost or fair value through other comprehensive income are measured at fair value through profit or loss. A gain or loss on a debt investment that is subsequently measured at fair value through profit or loss and is not part of a hedging relationship is recognized in profit or loss and presented in the consolidated statement of profit or loss within 'other non-operating income' or 'other non-operating expenses' in the year in which it arises.

b) Equity instruments

The Company subsequently measures all equity investments at fair value. Where the Company's management has elected to present fair value gains and losses on equity investments in other comprehensive income, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. When the financial asset is derecognized, the cumulative gain or loss on valuation of financial assets at fair value through other comprehensive income recognized in equity is reclassified to retained earnings. Dividend income from such investments continue to be recognized in profit or loss as 'other non-operating income' when the right to receive the payments is established.

Changes in the fair value of financial assets at fair value through profit or loss are recognized in 'other non-operating income' or 'other non-operating expenses' in the consolidated statements of profit or loss as applicable.

(C) Impairment

The Company assesses on a forward-looking basis the expected credit losses associated with its debt instruments carried at amortized cost and fair value through other comprehensive income. The impairment methodology applied depends on whether there has been a significant increase in credit risk. For trade receivables, the Company applies the simplified approach, which requires expected lifetime losses to be recognized from initial recognition of the receivables.

(D) Recognition and derecognition

Regular way purchases and sales of financial assets are recognized or derecognized on a trade date basis. Financial assets are derecognized when the rights to receive cash flows from the financial assets have expired or have been transferred and the Company has transferred substantially all the risks and rewards of ownership. If a transfer does not result in derecognition because the Company has retained substantially all the risks and rewards of ownership of the transferred asset, the Company continues to recognize the transferred asset in its entirety and recognizes a financial liability for the consideration received. The Company classifies the financial liability as 'borrowings' in the consolidated statement of financial position.

(E) Offsetting of financial instruments

Financial assets and liabilities are offset and the net amount is reported in the statements of financial position when there is a legally enforceable right to offset the recognized amounts and there is an intention to settle on a net basis or realize the assets and settle the liability simultaneously. The legally enforceable right must not be contingent on future events and must be enforceable in the normal course of business, even in the event of default, insolvency or bankruptcy of the Company or the counterparty.

2.7 Trade Receivables

Trade receivables are amounts due from customers for inventories sold or services performed in the ordinary course of business. If collection is expected within one year or less, they are classified as current assets. If collection is expected beyond one year, they are presented as non-current assets. Trade receivables are recognized initially at transaction price and subsequently measured at amortized cost using the effective interest method, less loss allowance, unless the trade receivables bear significant financial component.

2.8 Inventories

Inventories are stated at the lower of cost and net realizable value. Cost is determined using the average cost method, except for materials in transit. The cost of finished goods and work in progress comprises raw materials, direct labor, other direct costs and related production overheads (based on normal operating capacity). It excludes costs of idle plant and abnormal waste. Net realizable value is the estimated selling price in the ordinary course of business, less applicable variable selling expenses.

The Company regularly estimates the changes in future customer demand in the products that may cause a significant change in the valuation allowance and recognizes the valuation allowance if there is any case such as excess, obsolescence and decline in market value. Loss on valuation of inventories is recorded as cost of sales.

2.9 Property, Plant and Equipment

Property, plant and equipment are stated at cost less accumulated depreciation and accumulated impairment losses. Historical cost includes expenditures that are directly attributable to the acquisition. Subsequent costs are included in the asset's carrying amount or recognized as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the cost will flow to the Company and the cost can be measured reliably. The carrying amounts of the replaced parts are derecognized and the repairs and maintenance expenses are recognized in profit or loss in the period they are incurred.

Depreciation on tangible assets is calculated using the straight-line method to allocate the difference between their cost and their residual values over their estimated useful lives. Land is not depreciated. Costs that are directly attributable to the acquisition, construction or production of a qualifying asset, including capitalized interest costs, form part of the cost of that asset and are amortized over the estimated useful lives.

The Company's policy is that property, plant and equipment should be depreciated over the following estimated useful lives:

	Estimated useful lives
Buildings and structures	15, 30 years
Machinery and equipment	5 years
Other	5 years

The depreciation method, residual values and useful lives of property, plant and equipment are reviewed, and adjusted if appropriate, at the end of each reporting period. An asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount. Gains and losses on disposals are determined by comparing the proceeds with the carrying amount and are recognized within the consolidated statement of profit or loss as 'other non-operating income' or 'other non-operating expenses'.

2.10 Borrowing Costs

General and specific borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset are capitalized during the period of time that is required to complete and prepare the asset for its intended use. Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalization. Other borrowing costs are expensed in the period in which they are incurred.

2.11 Intangible Assets

Goodwill represents the excess of the cost of acquisition over the fair value of the Company's share of the net identifiable assets of the acquired subsidiaries, associates, joint ventures and businesses at the date of acquisition. Goodwill on an acquisition of businesses is included in intangible assets and goodwill on an acquisition of associates and joint ventures' shares is included in the investments in associates and joint ventures.

Intangible assets, except for goodwill, are initially recognized at their historical cost and carried at cost less accumulated amortization and accumulated impairment losses.

Internally generated development costs are the aggregate costs recognized after meeting the asset recognition criteria, including technical feasibility, and determined to have future economic benefits. Membership rights and certain trademarks are regarded as intangible assets with an indefinite useful life and not amortized because there is no foreseeable limit to the period over which the assets are expected to be utilized. However, the Company records impairment based on its reasonable estimation of the benefits associated with the membership rights and assessment of impairment indicators, such as a decline in the market value. Intangible assets with definite useful lives such as trademarks, licenses, and other intangible assets, are amortized using the straight-line method over their estimated useful lives.

The Company's policy is that intangible assets should be amortized over the following estimated useful lives:

	Estimated useful lives
Development costs	2 years
Trademarks, licenses and other intangible assets	3 - 25 years

2.12 Impairment of Non-Financial Assets

Goodwill or intangible assets with indefinite useful lives are not subject to amortization and are tested annually for impairment. Assets that are subject to amortization are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and value in use. For the purposes of assessing impairment, assets are grouped at the lowest level for which there are separately identifiable cash flows (cash-generating units). Non-financial assets other than goodwill that suffered an impairment are reviewed for possible reversal of the impairment at the end of each reporting period.

2.13 Assets Held-for-Sale (Disposal Group)

Non-current assets (or disposal groups) are classified as assets held-for-sale when their carrying amount is to be recovered principally through a sale transaction and the sale is considered highly probable. The assets are measured at the lower of their carrying amount and the fair value less costs to sell. Gain or loss on disposal is determined by comparing the proceeds with the carrying amount of relevant assets, and is recognized in the statements of profit or loss as 'other non-operating income' or 'other non-operating expenses'.

2.14 Financial Liabilities

(A) Classification and measurement

The Company shall classify all financial liabilities as financial liabilities measured subsequently at amortized cost, except for the following:

- Financial liabilities at fair value through profit or loss. Such liabilities, including derivatives that are liabilities, shall be subsequently measured at fair value.
- Financial liabilities that arise when a transfer of a financial asset does not qualify for derecognition or when the continuing involvement approach applies. Such financial liabilities are measured based on the methodology described in Note 2.6 Financial Assets.
- Financial guarantee contracts. After the initial recognition, an issuer of such a contract shall subsequently measure it at the higher of:
  (a) The amount of the loss allowance determined based on the expected credit losses.
  (b) The amount initially recognized less the cumulative amount of income recognized in accordance with the principles of Korean IFRS 1115 *Revenue from Contracts with Customers*, when appropriate.
- Commitments to provide loan at below-market interest rate. An issuer of such a commitment shall subsequently measure it at the higher of:
  (a) The amount of the loss allowance determined based on the expected credit losses.
  (b) The amount initially recognized less the cumulative amount of income recognized in accordance with the principles of Korean IFRS 1115 *Revenue from Contracts with Customers*, when appropriate.
- Contingent consideration recognized by an acquirer in a business combination to which Korean IFRS 1103 *Business Combinations* applies. Such contingent consideration shall subsequently be measured at fair value with changes recognized in profit or loss.

(B) Derecognition

Financial liabilities are removed from the consolidated statements of financial position when it is extinguished; for example, when the obligation specified in the contract is discharged or cancelled or expired or when the terms of an existing financial liability are substantially modified. The difference between the carrying amount of a financial liability extinguished or transferred to another party and the consideration paid (including any non-cash assets transferred or liabilities assumed) is recognized in profit or loss.

2.15 Trade Payables

Trade payables are amounts due to suppliers for inventories purchased or services received in the ordinary course of business. If payment is expected to be made within 12 months, they are classified as current liabilities. If not, they are presented as non-current liabilities. Non-current trade payables are recognized initially at fair value and subsequently measured at amortized cost using the effective interest method.

2.16 Borrowings

Borrowings are recognized initially at fair value, net of transaction costs, and are subsequently measured at amortized cost. Any difference between cost and the redemption value is recognized in the consolidated statement of profit or loss over the period of the borrowings using the effective interest method. If the Company has an indefinite right to defer payment for a period longer than 12 months after the end of the reporting date, such liabilities are recorded as non-current liabilities, otherwise, they are recorded as current liabilities.

2.17 Provisions and Contingent Liabilities

A provision is recognized when the Company has present legal or constructive obligation as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation. Provisions are not recognized for future operating losses.

Provisions are measured at present value of the expenditures expected to be required to settle the obligation using a pre-tax rate that reflects the current market assessments of the time value of money and the risks specific to the obligation. The increase in the provision due to the passage of time is recognized as interest expense.

The Company discloses a contingent liability if there is a possible obligation from past events in which the existence may only be identified through the occurrence of uncertain future events; or there is a present obligations that the possibility on the outflow of economic resources is uncertain; or the amount of economic resources required to settle the present obligation cannot be reasonably estimated.

2.18 Employee Benefits

The Company has a variety of retirement pension plans including a defined benefit plan and a defined contribution plan.

A defined contribution plan is a pension plan under which the Company pays fixed contributions into a separate fund. The Company has no legal or constructive obligation to pay further contributions if the fund does not hold sufficient assets to pay all employees the benefits relating to employee service received in the current and prior periods. For a defined contribution plans, the Company pays contributions to annuity plans that are managed either publicly or privately on a mandatory, contractual or voluntary basis. The Company has no further future payment obligations once the contributions have been paid. The contributions are recognized as employee benefit expense when they are due. Prepaid contributions are recognized as an asset to the extent that a cash refund or a reduction in the future payments is available.

A defined benefit plan is a pension plan that is not a defined contribution plan. Typically, a defined benefit plan establishes an amount of pension benefit that an employee will receive upon retirement, usually dependent on one or more factors such as age, years of service and compensation. The liability (asset) recognized in the consolidated statement of financial position with respect to the defined benefit pension plan is the present value of the defined benefit obligation at the end of the reporting period less the fair value of plan assets. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using the interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid and that have the terms to maturity approximating to the terms of the related pension obligation.

Actuarial gains and losses resulting from the changes in actuarial assumptions, and the differences between the previous actuarial assumptions and what has actually occurred, are recognized in other comprehensive income in the period in which they were incurred. When plan amendments, curtailments and settlements occur, past service costs or gain or loss from settlements are immediately recognized in profit or loss.

2.19 Financial Guarantee Contract

Financial guarantee contracts are contracts that require the issuer to make specified payments to reimburse the holder for a loss it incurs because a specified debtor fails to make payments when due.

The liability is initially measured at fair value and then subsequently measured at the higher of the following, and is recognized in the consolidated statements of financial position within 'other financial liabilities':

- the amount determined in accordance with the expected credit loss model and
- the amount initially recognized less the cumulative amount of income recognized in accordance with Korean IFRS 1115 *Revenue from Contracts with Customers*, where appropriate.

2.20 Current and Deferred Tax

The tax expense for the year comprises current and deferred tax. Current and deferred tax is recognized in profit or loss, except to the extent that it relates to the items recognized in other comprehensive income or directly in equity. The tax expense is calculated on the basis of the tax laws enacted or substantively enacted at the end of the reporting period.

Deferred tax is recognized for temporary differences arising between the tax bases of assets and liabilities and their carrying amounts as expected tax consequences at the recovery or settlement of the carrying amounts of those assets and liabilities. However, deferred tax assets and liabilities are not recognized if they arise from initial recognition of an asset or liability in a transaction other than a business combination that, at the time of the transaction, affects neither the accounting nor taxable profit. Deferred tax assets are recognized only to the extent that it is probable that a future taxable profit will be available against which the temporary differences can be utilized.

A deferred tax liability is recognized for taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint ventures, except to the extent that the Company is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. In addition, a deferred tax asset is recognized for deductible temporary differences arising from such investments to the extent that it is probable the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset the current tax assets against the current tax liabilities and when the deferred income tax assets and liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities with an intention to settle the balances on a net basis.

2.21 Derivative Instruments

The Company initially recognizes rights and obligations from derivative contracts as assets and liabilities at fair value. Gain or loss arising from these contracts are recognized in profit or loss. Qualified hedged amount from cash flow hedge and hedge of a net investment in a foreign operation is deferred in equity.

The Company applies cash flow hedge accounting to hedge the price risk associated with inventory purchase and other. The effective portion of changes in fair value of derivatives that are designated and qualify as cash flow hedges is recognized in other comprehensive income, and the ineffective portion is recognized in financial income or expenses.

2.22 Dividend

Dividend is recognized as a liability when approved by the Company's shareholders.

2.23 Share Capital

Ordinary shares and preference shares with no repayment obligations are classified as equity. When the Company or a subsidiary acquires the Company's ordinary shares, the acquisition costs, including direct transaction costs, are deducted from equity until the redemption or reissuance as treasury shares. Consideration received on the reissuance of treasury shares is credited to equity attributable to owners of the parent company.

2.24 Revenue Recognition

Revenue mainly comprises the fair value of the consideration received or receivable for the sale of goods in the ordinary course of the Company's activities. Revenue is shown net of value-added tax, returns, sales incentives and discounts and after eliminating intercompany transactions.

The Company applied Korean IFRS 1115 *Revenue from Contracts with Customers* to the annual period beginning January 1, 2018. The Company shall recognize revenue in accordance with Korean IFRS 1115 *Revenue from Contracts with Customers* by applying the following 5 steps: ① Identify the contracts with the customers, ② Identify the separate performance obligations, ③ Determine the transaction price of the contract, ④ Allocate the transaction price to each of the separate performance obligations, and ⑤ Recognize the revenue as each performance obligation is satisfied.

(A) Identification of performance obligations

The Company exports various products and merchandise in accordance with Incoterms Group C trading conditions (Incoterms CIF and other). Since the seller provides the shipping service after the control of the product or merchandise has been transferred to the customer, the shipping service (including insurance) is recognized as a separate performance obligation.

(B) Performance obligations satisfied over time

The Company delivers products to customers and installs them in accordance with the system air conditioner contracts awarded by the Public Procurement Service. According to Korean IFRS 1115 *Revenue from Contracts with Customers* the Company should recognize revenue over time if the Company creates or enhances an asset (for example, work in progress) that the customer controls as the asset is created or enhanced. The Company recognizes the revenue from system air conditioner installation over time as the customer controls the outcome of the service.

(C) Variable consideration

The Company estimates amount of variable consideration by using the 'expected value method' or the 'most likely amount method', depending on which method the Company expects to better predict the amount of consideration. The Company recognizes revenue only to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognized will not occur, and classifies the amount which the Company does not expect to be entitled as contract liabilities.

The Company measures refund liability at the amount of consideration received for which the Company does not expect to be entitled. The Company has a right to recover the product from the customer when the customer exercises his right of return and recognizes an asset and a corresponding adjustment to cost of sales. The asset is measured with reference to the former carrying amount of the product less the costs to recover the products.

(D) Allocation of the transaction price

The transaction price in an arrangement must be allocated to each separate performance obligation based on the relative standalone selling prices of the goods or services being provided to a customer. The Company determines the standalone selling price for each separate performance obligation by using methods such as the 'adjusted market assessment approach'.

2.25 Leases

A lease is a contract, whereby the lessor conveys to the lessee, the right to control the use of an identified asset for a period of time in exchange for consideration.

At inception of a contract, the Company assesses whether the contract is, or contains, a lease. However, the Company did not reassess all contracts at initial application of Korean IFRS 1116 *Leases* because the Company applied the practical expedient to contracts entered into before January 1, 2019.

For a contract that is, or contains, a lease, both lessee and lessor account for each lease component within the contract as a lease separately from the non-lease components of the contract. In lessee accounting, however, the Company does not account for them separately but instead applies the practical expedient to account for each lease component and any associated non-lease components as a single lease component.

(A) Lessee accounting

The Company recognizes a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments at the commencement date of the lease.

The right-of-use asset is initially measured at cost and subsequently measured at cost less accumulated depreciation and accumulated impairment losses, adjusted for the remeasurement of lease liability. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term from the commencement date of the lease and is classified as 'property, plant and equipment' in the consolidated financial statements.

At the commencement date, the lease liability is measured at the present value of the lease payments that are not paid at that date. When measuring the present value, the lease payments are discounted using the interest rate implicit in the lease. If such implicit rate cannot be readily determined, the Company uses the Company's incremental borrowing rate. The lease liability is subsequently increased by the amount of interest expenses recognized on the lease liability and reduced by the lease payments made. Lease liabilities are remeasured when the future lease payments are changed due to the following:

- Changes in an index or rate
- Changes in amounts expected to be payable by the lessee under the residual value guarantees
- Changes in the assessment of whether a purchase option or an option to renew is reasonably certain to be exercised, or
- Changes in the assessment of whether it is reasonably certain that an option to terminate the lease will not be exercised.

Lease liabilities are classified as 'current portion of long-term liabilities' and/or 'long-term borrowings' in the consolidated financial statements.

The Company elected the practical expedient for short-term leases (leases that have a lease term of 12 months or less at the commencement date) and leases of low-value assets (leases for which the underlying asset is valued at USD 5,000 or less), and the lease payments are recognized as an expense on a straight-line basis over the lease term.

(B) Lessor accounting

The accounting treatment as a lessor did not change significantly from the Korean IFRS 1116 *Leases* initially applied on January 1, 2019.

The Company classifies a lease as a finance lease if it transfers substantially all the risks and rewards incidental to ownership at the inception of the lease. A lease other than a finance lease is classified as an operating lease. Lease income from operating leases is recognized in income on a straight-line basis over the lease term. Initial direct costs incurred by the lessor in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognized as an expense over the lease term on the same basis as the lease income.

2.26 Government Grants

Government grants are recognized at their fair values when there is reasonable assurance that the grant will be received and the Company will comply with the conditions attached to it. Government grants relating to costs are deferred and recognized in the consolidated statements of profit or loss over the period necessary to match the costs they are intended to compensate. Government grants relating to assets are recognized in liabilities as deferred income government grants, and depreciated over the expected lives of the related assets, and are credited to the consolidated statements of profit or loss.

2.27 Earnings per Share

Basic earnings per share is calculated by dividing the net profit for the period available to the ordinary shareholders by the weighted-average number of ordinary shares outstanding during the year.

Diluted earnings per share is calculated by dividing the profit for the year attributable to owners of the parent company from the consolidated statements of profit or loss by the weighted-average number of ordinary shares outstanding and potential dilutive shares. Potential dilutive shares are used in the calculation of dilutive earnings per share only when they have dilutive effects.

2.28 Reportable Segments

Reportable segments are disclosed in a manner consistent with the reporting provided to the chief operating decision-maker. The chief operating decision-maker is responsible for making strategic decisions on resource allocation and assessing performance of the reportable segments. The Management Committee, which makes strategic decisions, is regarded as the chief operating decision-maker.

2.29 Convenience Translation into United States Dollar Amounts

The Company operates primarily in Korean won and its official accounting records are maintained in Korean won. The US dollar amounts provided in the consolidated financial statements represent supplementary information solely for the convenience of the reader. All Korean won amounts are expressed in US dollar at the rate of ₩ 1,291.1 to USD 1, the average exchange rate for the year ended December 31, 2022. Such presentation is not in accordance with generally accepted accounting principles, and should not be construed as a representation that the Korean won amounts shown could be readily converted, realized or settled in US dollar at this or at any other rate.

2.30 Approval of the Consolidated Financial Statements

These consolidated financial statements were approved by the Board of Directors on January 31, 2023, and may be modified and approved at the Annual General Shareholders' Meetings.

3. Critical Accounting Estimates and Assumptions

The Company makes estimates and assumptions concerning the future. The estimates and assumptions are continuously assessed, considering historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. The resulting accounting estimates will, by definition, seldom equal the related actual results. In particular, the spread of COVID-19 in the year ended December 31, 2020 may result in changes to the Company's assumptions and estimates but its potential financial impact cannot be reasonably estimated as of the reporting date.

The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are addressed below.

(A) Revenue recognition

A refund liability and a right to the returned goods are recognized for the products expected to be returned at the time of sale. Accumulative experience is used to estimate such returns at the time of sale at a portfolio level (through expected value method), and the Company's revenue is affected by the changes in expected return rate.

Sales of goods are recognized based on the considerations specified in the contract, net of sales incentives, when control of the products has transferred. The sales deduction, which affects the Company's revenue, is reasonably estimated based on the historical experience and past contracts.

(B) Provision for warranty

The Company recognizes provision for warranty on products sold. The Company accrues provision for warranty based on the best estimate of amounts necessary to settle future and existing claims at the end of each reporting period. The amounts are estimated based on the past experience.

(C) Fair value of financial instruments

The fair value of financial instruments that are not traded in an active market is determined by using a variety of methods and assumptions that are mainly based on market conditions existing at the end of each reporting period.

(D) Impairment of financial assets

The loss allowance for financial assets are based on assumptions about risk of default and expected loss rates. The Company uses judgement in making these assumptions and selecting the inputs to the impairment calculation based on the Company's past history, existing market conditions as well as forward looking estimates at the end of each reporting period.

(E) Lease

In determining the lease term, the Company considers all facts and circumstances that create an economic incentive to exercise an extension option, or not to exercise a termination option. Extension options (or periods after termination options) are only included in the lease term if the lease is reasonably certain to be extended (or not terminated).

The lease term is reassessed if an option is actually exercised (or not exercised) or the Company becomes obliged to exercise (or not exercise) it. The Company reassesses whether it is reasonably certain to exercise an extension option (or not to exercise such option) upon the occurrence of either a significant event or a significant change in circumstances that is within the control of the lessee.

(F) Net defined benefit liabilities (assets)

The net defined benefit liabilities (assets) depend on a number of factors that are determined on an actuarial basis using a number of assumptions including the discount rate. Any changes in these assumptions will impact the carrying amount of the net defined benefit liability. The Company, in consideration of the interest rates of high-quality corporate bonds, determines the appropriate discount rate at the end of each year. This is the interest rate that is used to determine the present value of estimated future cash outflows expected to be required to settle the net defined benefit liabilities (assets). The principal actuarial assumptions associated with the net defined benefit liabilities (assets) are based on the current market expectations.

(G) Impairment of goodwill and intangible assets that have an indefinite useful life

At the end of each reporting period, the Company tests whether goodwill and intangible assets that have an indefinite useful life have become impaired by comparing the carrying amounts of assets or cash-generating units to the recoverable amounts. The recoverable amounts of assets or cash-generating units have been determined based on value-in-use calculations, and these calculations are based on estimates.

(H) Income taxes

Income taxes on the Company's taxable income from operating activities are subject to various tax laws and determinations of each tax authority across various countries throughout the world. There is uncertainty in determining the eventual tax effects on the taxable income from operating activities. The Company has recognized current tax and deferred tax at the end of the fiscal year based on the best estimate of future taxes payable as a result of operating activities. However, the resulting deferred income tax assets and liabilities may not equal the actual future taxes payable and such difference may impact the current tax and deferred income tax assets and liabilities upon the determination of eventual tax effects.

Regarding taxes payable in Korea, if a certain portion of taxable income is not used for investments or for increases in wages or dividends, in accordance with the *Tax System For Recirculation of Corporate Income*, the Company is liable to pay additional income tax calculated based on the Korean tax law. The current and deferred taxes at the end of the fiscal year are based on the best estimate of future taxes payable, which can differ from the actual future taxes payable as a result of changes in investments, wages and dividends; this results in an additional uncertainty in measuring the final tax effects.

The Company assesses uncertainty over a tax treatment. When the Company concludes it is not probable that the taxation authority will accept an uncertain tax treatment, the Company will reflect the effect of uncertainty for each uncertain tax treatment by using either of the following methods, depending on which method the Company expects to better predict the resolution of the uncertainty:

- The most likely amount: the single most likely amount in a range of possible outcomes.
- The expected value: the sum of the probability-weighted amounts in a range of possible outcomes.

4. Financial Instruments by Category

(A) Categorizations of financial assets and liabilities as of December 31, 2022 and 2021 are as follows:

(1) As of December 31, 2022

(In millions of Korean won)	Financial assets measured at amortized cost	Financial assets measured at fair value through other comprehensive income	Financial assets measured at fair value through profit or loss	Other financial assets[1]	Total
Financial assets					
Cash and cash equivalents	49,680,710	-	-	-	49,680,710
Short-term financial instruments	65,102,886	-	-	-	65,102,886
Short-term financial assets at amortized cost	414,610	-	-	-	414,610
Short-term financial assets at fair value through profit or loss	-	-	29,080	-	29,080
Trade receivables	35,721,563	-	-	-	35,721,563
Financial assets at fair value through other comprehensive income	-	11,397,012	-	-	11,397,012
Financial assets at fair value through profit or loss	-	-	1,405,468	-	1,405,468
Other	9,945,209	-	334,263	61,404	10,340,876
Total	160,864,978	11,397,012	1,768,811	61,404	174,092,205

[1]Other financial assets include derivatives designated as hedging instruments which are not subject to categorizations.

(In millions of Korean won)	Financial liabilities measured at amortized cost	Financial liabilities measured at fair value through profit or loss	Other financial liabilities[1]	Total
Financial liabilities				
Trade payables	10,644,686	-	-	10,644,686
Short-term borrowings	1,577,958	-	3,569,357	5,147,315
Other payables	16,328,237	-	-	16,328,237
Current portion of long-term liabilities	215,143	-	874,019	1,089,162
Debentures	536,093	-	-	536,093
Long-term borrowings	33,846	-	3,526,826	3,560,672
Long-term other payables	2,289,236	-	-	2,289,236
Other	12,047,761	334,415	27,353	12,409,529
Total	43,672,960	334,415	7,997,555	52,004,930

[1] Other financial liabilities include collateralized borrowings, lease liabilities and derivatives designated as hedging instruments, which are not subject to categorizations.

(2) As of December 31, 2021

(In millions of Korean won)	Financial assets measured at amortized cost	Financial assets measured at fair value through other comprehensive income	Financial assets measured at fair value through profit or loss	Other financial assets[1]	Total
Financial assets					
Cash and cash equivalents	39,031,415	-	-	-	39,031,415
Short-term financial instruments	81,708,986	-	-	-	81,708,986
Short-term financial assets at amortized cost	3,369,034	-	-	-	3,369,034
Short-term financial assets at fair value through profit or loss	-	-	40,757	-	40,757
Trade receivables	40,713,415	-	-	-	40,713,415
Financial assets at fair value through other comprehensive income	-	13,965,839	-	-	13,965,839
Financial assets at fair value through profit or loss	-	-	1,525,344	-	1,525,344
Other	8,711,973	-	279,127	49,089	9,040,189
Total	173,534,823	13,965,839	1,845,228	49,089	189,394,979

[1] Other financial assets include derivatives designated as hedging instruments which are not subject to categorizations.

(In millions of Korean won)	Financial liabilities measured at amortized cost	Financial liabilities measured at fair value through profit or loss	Other financial liabilities[1]	Total
Financial liabilities				
Trade payables	13,453,351	-	-	13,453,351
Short-term borrowings	2,131,692	-	11,556,101	13,687,793
Other payables	14,126,970	-	-	14,126,970
Current portion of long-term liabilities	518,065	-	811,903	1,329,968
Debentures	508,232	-	-	508,232
Long-term borrowings	1,500	-	2,864,656	2,866,156
Long-term other payables	2,562,158	-	-	2,562,158
Others	10,444,290	323,526	13,868	10,781,684
Total	43,746,258	323,526	15,246,528	59,316,312

[1] Other financial liabilities include collateralized borrowings, lease liabilities, and derivatives designated as hedging instruments, which are not subject to categorizations.

(B) Net gains or losses on each category of financial assets and liabilities for the years ended December 31, 2022 and 2021 are as follows:

(1) 2022

(In millions of Korean won)	**Financial assets measured at amortized cost**	**Financial assets measured at fair value through other comprehensive income**	**Financial assets measured at fair value through profit or loss**	**Other financial assets[1]**	**Total**
Financial assets					
Gain (loss) on valuation (other comprehensive income)	-	(1,969,498)	-	53,180	(1,916,318)
Gain (loss) on valuation/disposal (profit or loss)	(36,550)	-	83,332	474	47,256
Reclassification from other comprehensive income to profit or loss	-	-	-	310	310
Interest income	2,720,213	-	266	-	2,720,479
Foreign exchange differences (profit or loss)	(822,011)	-	-	-	(822,011)
Dividend income	-	413,467	1,134	-	414,601
Impairment/reversal (profit or loss)	(19,124)	-	-	-	(19,124)

[1] Other financial assets include derivatives designated as hedging instruments which are not subject to categorizations.

(In millions of Korean won)	**Financial liabilities measured at amortized cost**	**Financial liabilities measured at fair value through profit or loss**	**Other financial liabilities[1]**	**Total**
Financial liabilities				
Gain (loss) on valuation (other comprehensive income)	-	-	(10,621)	(10,621)
Gain (loss) on valuation/disposal (profit or loss)	-	(91,056)	(45)	(91,101)
Reclassification from other comprehensive income to profit or loss	-	-	59	59
Interest expense	(322,529)	-	(440,486)	(763,015)
Foreign exchange differences (profit or loss)	574,771	-	155,952	730,723

[1] Other financial liabilities include collateralized borrowings, lease liabilities, and derivatives designated as hedging instruments, which are not subject to categorizations.

(2) 2021

(In millions of Korean won)	**Financial assets measured at amortized cost**	**Financial assets measured at fair value through other comprehensive income**	**Financial assets measured at fair value through profit or loss**	**Other financial assets[1]**	**Total**
Financial assets					
Gain (loss) on valuation (other comprehensive income)	-	2,980,896	-	27,715	3,008,611
Gain (loss) on valuation/disposal (profit or loss)	(1,969)	-	420,100	437	418,568
Reclassification from other comprehensive income to profit or loss	-	-	-	(148)	(148)
Interest income	1,278,051	-	227	-	1,278,278
Foreign exchange differences (profit or loss)	29,834	-	-	-	29,834
Dividend income	-	133,532	2,308	-	135,840
Impairment/reversal (profit or loss)	(27,194)	-	-	-	(27,194)

[1] Other financial assets include derivatives designated as hedging instruments which are not subject to categorizations.

(In millions of Korean won)	**Financial liabilities measured at amortized cost**	**Financial liabilities measured at fair value through profit or loss**	**Other financial liabilities[1]**	**Total**
Financial liabilities				
Gain on valuation (other comprehensive loss)	-	-	22,695	22,695
Gain (loss) on valuation/disposal (profit or loss)	-	(65,368)	-	(65,368)
Reclassification from other comprehensive income to profit or loss	-	-	(121)	(121)
Interest expense	(213,477)	-	(218,063)	(431,540)
Foreign exchange differences (profit or loss)	362,820	-	3,447	366,267

[1] Other financial liabilities include collateralized borrowings, lease liabilities, and derivatives designated as hedging instruments, which are not subject to categorizations.

5. Transfer of Financial Assets

Trade receivables of the Company have been discounted through factoring agreements with banks during the years ended December 31, 2022 and 2021. Trade receivables provided as collaterals in such factoring transactions do not meet the requirements for asset derecognition as risks and rewards are not substantially transferred in the event of a debtor default due to the recourse obligation, etc. Financial liabilities recognized in relation to these transactions are included as 'short-term borrowings' on the consolidated statements of financial position (refer to Note 12).

The following table presents a breakdown of discounted trade receivables as of December 31, 2022 and 2021:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Carrying amount of the discounted trade receivables[1]	3,569,357	11,556,101
Carrying amount of the related borrowings	3,569,357	11,556,101

[1] The discounted trade receivables include the intercompany balances.

6. Financial Assets at Fair Value

(A) Details of financial assets at fair value as of December 31, 2022 and 2021 are as follows:

(1) Financial assets at fair value through other comprehensive income

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Non-current portion		
Equity instruments	11,397,012	13,965,839

(2) Financial assets at fair value through profit or loss

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Current portion		
Debt instruments	29,080	40,757
Non-current portion		
Equity instruments	773,063	905,094
Debt instruments	632,405	620,250
Subtotal	1,405,468	1,525,344
Total	1,434,548	1,566,101

(B) Changes in financial assets at fair value for the years ended December 31, 2022 and 2021 are as follows:

(1) Financial assets at fair value through other comprehensive income

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	13,965,839	12,575,216
Acquisition	35,013	1,146,868
Disposal	(20,913)	(3,551,604)
Fair value valuation gain (loss)	(2,636,448)	3,653,253
Other	53,521	142,106
Balance as of December 31	11,397,012	13,965,839

(2) Financial assets at fair value through profit or loss

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	1,525,344	1,202,969
Acquisition	158,244	208,262
Disposal	(80,718)	(142,406)
Fair value valuation gain (loss)	(198,594)	275,447
Other	1,192	(18,928)
Balance as of December 31	1,405,468	1,525,344

(C) Changes in gain (loss) on valuation of financial assets at fair value through other comprehensive income for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	6,222,980	7,071,415
Fair value valuation gain (loss)	(2,636,448)	3,653,253
Reclassification to retained earnings due to disposals	49,946	(4,501,688)
Balance as of December 31	3,636,478	6,222,980
Income tax effects on equity and non-controlling interests	(887,369)	(1,606,341)
Total	2,749,109	4,616,639

(D) Details of listed equity securities of financial assets at fair value as of December 31, 2022 and 2021 are as follows:

	December 31, 2022				December 31, 2021
(In millions of Korean won, number of shares and percentage)	**Number of shares owned**	**Percentage of ownership[1] (%)**	**Acquisition cost**	**Carrying amount (Market value)**	**Carrying amount (Market value)**
Samsung Heavy Industries	134,027,281	15.2	932,158	684,879	759,935
Hotel Shilla	2,004,717	5.1	13,957	166,592	156,368
iMarket Korea	647,320	1.9	324	6,538	6,926
SFA	3,644,000	10.2	38,262	132,642	131,366
Wonik Holdings	3,518,342	4.6	30,821	13,536	17,521
Wonik IPS	3,701,872	7.5	32,428	91,621	156,589
ASML Holding N.V.	6,297,787	1.5	363,012	4,287,121	5,974,280
Wacom Co., Ltd.	8,398,400	5.1	62,013	46,750	79,256
BYD Company Limited	2,380,100	0.1	79,049	110,971	118,862
Corning Incorporated	80,000,000	9.5	3,980,636	3,238,205	3,530,893
Other			563,635	742,890	1,155,113
Total			6,096,295	9,521,745	12,087,109

[1] Ownership represents the Company's ownership of the total ordinary shares issued by each entity.

7. Trade and Non-Trade Receivables

(A) Trade and non-trade receivables as of December 31, 2022 and 2021 are as follows:

	December 31, 2022		December 31, 2021	
(In millions of Korean won)	**Trade**	**Non-trade**	**Trade**	**Non-trade**
Receivables	36,238,032	7,051,536	41,250,034	5,572,176
Less: Loss allowance	(312,221)	(78,101)	(310,880)	(72,805)
Subtotal	35,925,811	6,973,435	40,939,154	5,499,371
Less: Non-current portion	(204,248)	(824,226)	(225,739)	(1,002,114)
Current portion	35,721,563	6,149,209	40,713,415	4,497,257

(B) Movements in the loss allowance for receivables for the years ended December 31, 2022 and 2021 are as follows:

	2022		2021	
(In millions of Korean won)	**Trade**	**Non-trade**	**Trade**	**Non-trade**
Balance as of January 1	310,880	72,805	318,731	59,487
Bad debt expense (reversal)	8,784	7,312	17,990	9,009
Write-off	(3,557)	(6,154)	(19,095)	(2,424)
Other	(3,886)	4,138	(6,746)	6,733
Balance as of December 31	312,221	78,101	310,880	72,805

(C) The details of trade and non-trade receivables classified by past due date to measure expected credit losses as of December 31, 2022 and 2021 are as follows:

	December 31, 2022		December 31, 2021	
(In millions of Korean won)	**Trade**	**Non-trade**	**Trade**	**Non-trade**
Receivables not past due	33,177,298	5,890,018	39,677,264	5,125,414
Past due[1]:				
Less than 31 days overdue	2,206,622	981,889	1,229,479	196,783
31 days to 90 days overdue	642,859	52,972	36,545	51,804
Over 90 days overdue	211,253	126,657	306,746	198,175
Subtotal	3,060,734	1,161,518	1,572,770	446,762
Total	36,238,032	7,051,536	41,250,034	5,572,176

[1] The Company does not consider trade and non-trade receivables that are overdue for less than or equal to 31 days as impaired.

(D) The maximum exposure to current credit risk is equivalent to the carrying amount of receivables as of December 31, 2022. The Company has in place insurance contracts covering the Company's major receivables.

8. Inventories

Inventories as of December 31, 2022 and 2021 are as follows:

	December 31, 2022			December 31, 2021		
(In millions of Korean won)	**Gross amount**	**Valuation allowance**	**Carrying amount**	**Gross amount**	**Valuation allowance**	**Carrying amount**
Finished goods	17,526,178	(1,493,952)	16,032,226	13,000,200	(719,621)	12,280,579
Work in process	21,612,965	(1,535,446)	20,077,519	13,967,331	(493,713)	13,473,618
Raw materials and supplies	16,268,974	(1,289,694)	14,979,280	14,864,486	(679,645)	14,184,841
Materials in transit	1,098,841	-	1,098,841	1,445,366	-	1,445,366
Total	56,506,958	(4,319,092)	52,187,866	43,277,383	(1,892,979)	41,384,404

The inventories recognized as expense for the year ended December 31, 2022, amount to ₩ 186,396,549 million (2021: ₩ 164,319,031 million). The amount includes loss on valuation of inventories.

9. Investments in Associates and Joint Ventures

(A) Changes in investments in associates and joint ventures for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	8,932,251	8,076,779
Acquisition	1,006,998	47,090
Disposal	(20,894)	(34,664)
Share of profit	1,090,643	729,614
Other[1]	(115,129)	113,432
Balance as of December 31	10,893,869	8,932,251

[1] Other consists of dividends, impairment, and reclassification.

(B) Major investments in associates and joint ventures as of December 31, 2022 are as follows:

(1) Investments in associates

Investee	**Nature of relationship with associate**	**Percentage of ownership (%)[1]**	**Principal business location**	**Fiscal period-end**
Samsung Electro-Mechanics Co., Ltd.	Manufacture and supply electronic components including passive components, circuit boards, and modules	23.7	Korea	December
Samsung SDS Co., Ltd.	Provide IT services including computer programming, system integration and management and logistical services	22.6	Korea	December
Samsung Biologics Co., Ltd.	New business investment	31.2	Korea	December
Samsung SDI Co., Ltd.[2]	Manufacture and supply electronic components including secondary cell batteries	19.6	Korea	December
Cheil Worldwide, Inc.	Advertising agency	25.2	Korea	December

[1] Ownership represents the Company's ownership of the total ordinary shares issued by each entity.
[2] The Company's ownership of ordinary shares outstanding is 20.6%.

(2) Investments in joint ventures

Investee	**Nature of relationship with joint venture**	**Percentage of ownership (%)[1]**	**Principal business location**	**Fiscal period-end**
Samsung Corning Advanced Glass, LLC	Manufacture and supply industrial glass devices	50.0	Korea	December

[1] Ownership represents the Company's ownership of the total ordinary shares issued by each entity.

(C) Details of investments in associates and joint ventures as of December 31, 2022 and 2021 are as follows:

(1) Investments in associates

(In millions of Korean won)	December 31, 2022		
Investee	**Acquisition cost**	**Net asset value of equity shares[1]**	**Carrying amount**
Samsung Electro-Mechanics	359,237	1,765,507	1,764,249
Samsung SDS	147,963	1,857,481	1,870,338
Samsung Biologics	1,424,358	2,804,547	2,808,673
Samsung SDI	1,242,605	3,318,875	2,691,223
Cheil Worldwide	506,162	347,510	649,161
Other	645,255	718,801	907,333
Total	4,325,580	10,812,721	10,690,977

[1] The Company's portion of net asset value of associates is based on the Company's percentage of ownership.

(In millions of Korean won)	December 31, 2021		
Investee	**Acquisition cost**	**Net asset value of equity shares [1]**	**Carrying amount**
Samsung Electro-Mechanics	359,237	1,573,570	1,556,386
Samsung SDS	147,963	1,632,847	1,652,155
Samsung Biologics	443,193	1,571,809	1,577,664
Samsung SDI	1,242,605	2,960,235	2,529,650
Cheil Worldwide	506,162	320,301	621,292
Other	644,903	578,547	793,748
Total	3,344,063	8,637,309	8,730,895

[1] The Company's portion of net asset value of associates is based on the Company's percentage of ownership.

(2) Investments in joint ventures

(In millions of Korean won)	December 31, 2022		
Investee	**Acquisition cost**	**Net asset value of equity shares [1]**	**Carrying amount**
Samsung Corning Advanced Glass	215,000	137,727	137,745
Other	259,994	67,632	65,147
Total	474,994	205,359	202,892

[1] The Company's portion of net asset value of joint ventures is based on the Company's percentage of ownership.

(In millions of Korean won)	December 31, 2021		
Investee	**Acquisition cost**	**Net asset value of equity shares [1]**	**Carrying amount**
Samsung Corning Advanced Glass	215,000	135,584	135,580
Other	259,994	67,517	65,776
Total	474,994	203,101	201,356

[1] The Company's portion of net asset value of joint ventures is based on the Company's percentage of ownership.

(D) Details of the valuation of investments in associates and joint ventures using the equity method are as follows:

(1) For the year ended December 31, 2022

(In millions of Korean won)	**Balance as of January 1**	**Share of profit (loss)**	**Share of other comprehensive income**	**Other[1]**	**Balance as of December 31**
Samsung Electro-Mechanics	1,556,386	242,139	2,880	(37,156)	1,764,249
Samsung SDS	1,652,155	241,962	18,154	(41,933)	1,870,338
Samsung Biologics	1,577,664	250,028	(183)	981,164	2,808,673
Samsung SDI	2,529,650	194,242	(19,207)	(13,462)	2,691,223
Cheil Worldwide	621,292	55,476	1,140	(28,747)	649,161
Samsung Corning Advanced Glass	135,580	1,999	144	22	137,745
Other	859,524	104,797	(53,438)	61,597	972,480
Total	8,932,251	1,090,643	(50,510)	921,485	10,893,869

[1] Other consists of acquisitions, disposals, dividends, impairment and reclassification.

(2) For the year ended December 31, 2021

(In millions of Korean won)	**Balance as of January 1**	**Share of profit**	**Share of other comprehensive income**	**Other[1]**	**Balance as of December 31**
Samsung Electro-Mechanics	1,333,819	207,949	51,702	(37,084)	1,556,386
Samsung SDS	1,525,857	137,926	30,305	(41,933)	1,652,155
Samsung Biologics	1,453,012	124,979	(327)	-	1,577,664
Samsung SDI	2,326,037	128,483	88,594	(13,464)	2,529,650
Cheil Worldwide	586,057	47,619	12,008	(24,392)	621,292
Samsung Corning Advanced Glass	123,356	12,376	(129)	(23)	135,580
Other	728,641	70,282	29,826	30,775	859,524
Total	8,076,779	729,614	211,979	(86,121)	8,932,251

[1] Other consists of acquisitions, disposals, dividends, impairment, and reclassification.

(E) Summary of the condensed financial information of major associates and joint ventures

(1) Summary of condensed financial information of major associates and dividends received from associates as of December 31, 2022 and 2021, and for the years ended December 31, 2022 and 2021 are as follows:

	2022				
(In millions of Korean won)	**Samsung Electro-Mechanics**	**Samsung SDS**	**Samsung Biologics**	**Samsung SDI**	**Cheil Worldwide**
1. Condensed financial information					
Condensed statements of financial position :					
Current assets	4,888,319	8,005,764	6,457,657	9,651,702	2,193,979
Non-current assets	6,108,852	3,946,660	10,124,394	20,605,823	557,466
Current liabilities	2,525,123	2,493,323	4,181,542	8,006,939	1,335,643
Non-current liabilities	778,563	992,132	3,416,034	5,033,084	194,373
Non-controlling interests	154,991	243,777	-	731,779	9,388
Condensed statements of comprehensive income:					
Revenue	9,441,276	17,234,750	3,001,295	20,124,070	4,253,367
Profit from continuing operations, net of tax [1]	993,519	1,099,745	798,056	1,952,149	193,732
Profit from discontinued operation, net of tax[1]	-	-	-	-	-
Other comprehensive income (loss)[1]	(9,601)	80,368	6,995	(139,877)	(1,122)
Total comprehensive income[1]	983,918	1,180,113	805,051	1,812,272	192,610
2. Details of adjustments from the carrying amount of investments in associates					
Net assets (a)	7,538,494	8,223,192	8,984,475	16,485,723	1,212,041
Ownership percentage (b)[2]	23.4%	22.6%	31.2%	20.1%	28.7%
Net assets of equity shares (a x b)	1,765,507	1,857,481	2,804,547	3,318,875	347,510
Goodwill	7,081	26,801	3,645	-	298,779
Intercompany transactions and other[3]	(8,339)	(13,944)	481	(627,652)	2,872
Carrying amount of associates	1,764,249	1,870,338	2,808,673	2,691,223	649,161
3. Dividends from associates					
Dividends	37,155	41,933	-	13,463	28,748

[1] Profit (loss) attributable to owners of the investee

[2] Ownership percentage includes ordinary and preference shares.

[3] Consists of unrealized gains and losses and other differences.

(In millions of Korean won)	2021				
	Samsung Electro-Mechanics	**Samsung SDS**	**Samsung Biologics**	**Samsung SDI**	**Cheil Worldwide**
1. Condensed financial information					
Condensed statements of financial position:					
Current assets	4,598,269	7,575,968	2,823,175	7,444,907	2,018,598
Non-current assets	5,343,105	2,941,464	5,146,835	18,388,286	523,513
Current liabilities	2,234,657	2,370,290	1,107,295	6,461,286	1,224,222
Non-current liabilities	835,592	703,442	1,871,614	4,175,208	190,622
Non-controlling interests	152,177	214,980	-	492,435	10,125
Condensed statements of comprehensive income:					
Revenue	9,675,036	13,630,002	1,568,007	13,553,220	3,325,712
Profit from continuing operations, net of tax [1]	1,055,411	611,171	393,589	1,169,801	165,485
Loss from discontinued operation, net of tax[1]	(162,966)	-	-	-	-
Other comprehensive income (loss)[1]	151,809	134,163	(1,270)	623,792	32,535
Total comprehensive income[1]	1,044,254	745,334	392,319	1,793,593	198,020
2. Details of adjustments from the carrying amount of investments in associates					
Net assets (a)	6,718,948	7,228,720	4,991,101	14,704,264	1,117,142
Ownership percentage (b)[2]	23.40%	22.60%	31.50%	20.10%	28.70%
Net assets of equity shares (a x b)	1,573,570	1,632,847	1,571,809	2,960,235	320,301
Goodwill	7,081	26,801	3,645	-	298,779
Intercompany transactions and other[3]	(24,265)	(7,493)	2,210	(430,585)	2,212
Carrying amount of associates	1,556,386	1,652,155	1,577,664	2,529,650	621,292
3. Dividends from associates					
Dividends	24,770	41,933	-	13,463	24,392

[1] Profit (loss) attributable to owners of the investee.
[2] Ownership percentage includes ordinary and preference shares.
[3] Consists of unrealized gains and losses and other differences.

(2) Summary of condensed financial information of major joint ventures and dividends received from joint ventures as of December 31, 2022 and 2021, and for the years ended December 31, 2022 and 2021 are as follows:

	Samsung Corning Advanced Glass	
(In millions of Korean won)	**2022**	**2021**
1. Condensed financial information		
Condensed statements of financial position:		
Current assets	170,103	163,083
Non-current assets	125,507	141,411
Current liabilities	19,794	31,779
Non-current liabilities	363	1,547
Condensed statements of comprehensive income:		
Revenue	133,634	204,130
Profit from continuing operations, net of tax[1]	3,998	24,753
Profit (loss) from discontinued operations, net of tax[1]	-	-
Other comprehensive income (loss)[1]	288	(305)
Total comprehensive income[1]	4,286	24,448
2. Details of adjustments from the carrying amount of investments in joint ventures		
Net assets (a)	275,453	271,168
Ownership percentage (b)	50.00%	50.00%
Net assets of equity shares (a x b)	137,727	135,584
Intercompany transactions and other[2]	18	(4)
Carrying amount of joint ventures	137,745	135,580
3. Dividends from joint ventures		
Dividends	-	-

[1] Profit (loss) attributable to owners of the parent company.
[2] Consists of unrealized gains and losses and other differences.

(3) Profit (loss) attributable to owners of the parent company from associates and joint ventures which are not individually material for the years ended December 31, 2022 and 2021 are as follows:

	2022		2021	
(In millions of Korean won)	**Associates**	**Joint ventures**	**Associates**	**Joint ventures**
Profit from continuing operations	102,930	1,867	68,646	1,636
Other comprehensive income (loss)	(50,761)	(2,677)	29,258	568
Total comprehensive income (loss)	52,169	(810)	97,904	2,204

(F) Details of marketable investments in associates as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won and number of shares)	December 31, 2022		December 31, 2021
	Number of shares held	**Market value**	**Market value**
Samsung Electro-Mechanics	17,693,084	2,308,947	3,494,384
Samsung SDS	17,472,110	2,149,070	2,734,385
Samsung Biologics	22,217,309	18,240,411	18,815,659
Samsung SDI	13,462,673	7,956,440	8,818,051
Cheil Worldwide	29,038,075	669,328	663,520

(G) Other matters

On July 12, 2018, the Korea Securities and Futures Commission determined an initial measure following an investigation relating to Samsung Biologics Co., Ltd., an associate of the Company, and its accounting for its investment in Samsung Bioepis Co., Ltd, a joint venture between Biogen Therapeutics Inc. and Samsung Biologics Co., Ltd. This measure included a recommendation to dismiss the director in charge, prosecution charges, and external auditor designation by the regulator, on the basis that the Joint Venture Agreement was not disclosed in the notes to the financial statements. On November 14, 2018, the Korea Securities and Futures Commission determined a second measure which included a penalty of ₩ 8,000 million, a recommendation to dismiss the CEO, a requirement to restate its financial statements, and further prosecution charges.

To prove justification of its accounting treatment, Samsung Biologics Co., Ltd. filed a suit for cancellation of the aforementioned measures to the Seoul Administrative Court, which is currently in progress. On September 24, 2021, the Seoul Administrative Court announced a decision to cancel the first measure charged by the Korea Securities and Futures Commission, and suspended its execution until the final rulings of the appeal. On October 16, 2021, the Korea Securities and Futures Commission appealed and the litigation is in progress at Seoul High Court. Samsung Biologics Co., Ltd. also filed for suspending the execution of the initial and second measures. On January 22, 2019 and February 19, 2019, the Seoul Administrative Court pronounced decisions to suspend the second and initial measure, respectively, until the final rulings. The Korea Securities and Futures Commission immediately appealed against the decisions but the appeals were dismissed by the Seoul High Court on May 13, 2019 and May 24, 2019, in relation to the second and first measures, respectively. On May 23, 2019 and June 10, 2019, the Korea Securities and Futures Commission re-appealed against the dismissals relating to the second and first measures, respectively. On September 6, 2019 and October 11, 2019, the Supreme Court of Korea dismissed the Korea Securities and Futures Commission's re-appeal relating to the second and first measures, respectively, and confirmed the decision to suspend the execution of these measures.

Although the future outcome of the administrative litigation cannot be estimated, should Samsung Biologics Co., Ltd. be required to restate its financial statements to amend its historical accounting treatment relating to its investment in Samsung Bioepis Co., Ltd., the Company's share of profit or loss relating to its equity method investment, the amount of investment in associates, and retained earnings, for the years ended December 31, 2015 and onwards, and the profit on disposal of investment for the year ended December 31, 2016, may be impacted. Given the timing of completion and the final result of the administrative litigation between Samsung Biologics Co., Ltd. and the Korea Securities and Futures Commission is uncertain and cannot currently be estimated, it is not possible for the Company to recognize the effects of these proceedings in the current period consolidated financial statements.

10. Property, Plant and Equipment

(A) Changes in property, plant and equipment for the years ended December 31, 2022 and 2021 are as follows:

	2022					
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Construction in progress**	**Other**	**Total**
Balance as of January 1	9,830,154	38,869,440	79,526,297	18,009,324	3,693,324	149,928,539
Acquisition cost	9,943,570	62,651,459	274,909,571	18,009,324	11,958,070	377,471,994
Accumulated depreciation and impairment	(113,416)	(23,782,019)	(195,383,274)	-	(8,264,746)	(227,543,455)
Acquisitions and capital expenditures[1]	138,925	5,302,095	31,010,080	16,675,741	2,100,119	55,226,960
Depreciation	(49,516)	(3,533,917)	(30,761,685)	-	(1,606,980)	(35,952,098)
Disposals/scrap	(57,596)	(127,935)	(35,098)	(193)	(34,208)	(255,030)
Impairment (reversal)	-	(2,255)	(11,815)	-	(12,323)	(26,393)
Other[2]	30,200	199,490	(13,148)	(1,077,308)	(15,824)	(876,590)
Balance as of December 31	9,892,167	40,706,918	79,714,631	33,607,564	4,124,108	168,045,388
Acquisition cost	10,024,569	67,713,808	303,000,627	33,607,564	13,248,490	427,595,058
Accumulated depreciation and impairment	(132,402)	(27,006,890)	(223,285,996)	-	(9,124,382)	(259,549,670)

[1] The capitalized borrowing costs are ₩ 41,634 million and interest rate used to calculate the borrowing costs eligible for capitalization is 2.1%~4.1%.
[2] Other includes effects of changes in foreign currency exchange rates and effects of the offset related to government grants.

	2021					
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Construction in progress**	**Other**	**Total**
Balance as of January 1	9,772,156	34,552,004	60,994,130	20,175,917	3,458,685	128,952,892
Acquisition cost	9,850,942	55,026,369	233,056,501	20,175,917	10,496,584	328,606,313
Accumulated depreciation and impairment	(78,786)	(20,474,365)	(172,062,371)	-	(7,037,899)	(199,653,421)
Acquisitions and capital expenditures[1]	117,933	6,608,620	43,862,769	(2,320,520)	1,696,362	49,965,164
Depreciation	(47,517)	(3,174,672)	(26,552,958)	-	(1,510,062)	(31,285,209)
Disposals, scrap	(49,683)	(91,964)	(18,307)	(469)	(6,200)	(166,623)
Impairment (reversal)	-	(12,135)	(131,985)	-	(7,082)	(151,202)
Other[2]	37,265	987,587	1,372,648	154,396	61,621	2,613,517
Balance as of December 31	9,830,154	38,869,440	79,526,297	18,009,324	3,693,324	149,928,539
Acquisition cost	9,943,570	62,651,459	274,909,571	18,009,324	11,958,070	377,471,994
Accumulated depreciation and impairment	(113,416)	(23,782,019)	(195,383,274)	-	(8,264,746)	(227,543,455)

[1] The capitalized borrowing costs are ₩ 24,908 million and interest rate used to calculate the borrowing costs eligible for capitalization is 0.3~1.1%.
[2] Other includes effects of changes in foreign currency exchange rates and effects of the offset related to government grants.

(B) Changes in the right-of-use assets included in the property, plant and equipment for the years ended December 31, 2022 and 2021 are as follows:

	2022				
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Other**	**Total**
Balance as of January 1	525,954	2,841,970	191,059	391,584	3,950,567
Acquisition	32,632	1,542,889	29,098	507,041	2,111,660
Depreciation	(49,516)	(823,543)	(58,000)	(116,287)	(1,047,346)
Cancellation of contracts	(13,741)	(111,145)	(263)	(4,220)	(129,369)
Other[1]	7,874	1,425	13,257	9,541	32,097
Balance as of December 31	503,203	3,451,596	175,151	787,659	4,917,609

[1] Other includes effects of changes in foreign currency exchange rates.

	2021				
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Other**	**Total**
Balance as of January 1	441,603	2,105,360	109,372	313,538	2,969,873
Acquisition	112,419	1,326,322	136,680	173,490	1,748,911
Depreciation	(57,699)	(553,324)	(54,233)	(66,868)	(732,124)
Cancellation of contracts	(398)	(60,742)	(1,265)	(4,790)	(67,195)
Other[1]	30,029	24,354	505	(23,786)	31,102
Balance as of December 31	525,954	2,841,970	191,059	391,584	3,950,567

[1] Other includes effects of changes in foreign currency exchange rates.

(C) Details of depreciation of property, plant and equipment for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Cost of sales	32,285,800	27,868,090
Selling and administrative expenses, and etc.	3,666,298	3,417,119
Total	35,952,098	31,285,209

11. Intangible Assets

(A) Changes in intangible assets for the years ended December 31, 2022 and 2021 are as follows:

	2022					
(In millions of Korean won)	**Intellectual property rights**	**Development cost**	**Membership**	**Goodwill**	**Other**	**Total**
Balance as of January 1	4,153,236	236,910	241,219	5,844,259	9,760,620	20,236,244
External acquisitions	299,484	-	8,905	-	2,375,986	2,684,375
Internally generated/developed	-	-	-	-	-	-
Amortization	(268,070)	(151,892)	-	-	(2,735,599)	(3,155,561)
Disposals/scrap	(50,979)	-	(417)	-	(402)	(51,798)
Impairment (reversal)	-	-	(509)	-	(5,753)	(6,262)
Other[1]	145,079	-	4,356	170,163	191,158	510,756
Balance as of December 31	4,278,750	85,018	253,554	6,014,422	9,586,010	20,217,754

[1] Other includes the cumulative effect of changes in foreign currency exchange rates and others.

	2021					
(In millions of Korean won)	**Intellectual property rights**	**Development cost**	**Membership**	**Goodwill**	**Other**	**Total**
Balance as of January 1	4,033,904	371,391	229,987	5,673,642	8,159,578	18,468,502
External acquisitions	333,073	-	8,757	-	3,648,484	3,990,314
Internally generated/developed	-	193,708	-	-	-	193,708
Amortization	(278,288)	(321,608)	-	-	(2,362,256)	(2,962,152)
Disposals/scrap	(51,236)	-	(195)	-	(1,696)	(53,127)
Impairment (reversal)	(52,101)	-	(1,586)	-	-	(53,687)
Other[1]	167,884	(6,581)	4,256	170,617	316,510	652,686
Balance as of December 31	4,153,236	236,910	241,219	5,844,259	9,760,620	20,236,244

[1] Other includes effects of reclassification of licenses and changes in foreign currency exchange rates.

(B) Goodwill

Goodwill is allocated to each cash-generating unit. Details of goodwill as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
DX segment	1,249,290	1,214,730
DS segment	159,359	160,026
SDC segment	138,754	138,061
Harman segment	4,466,339	4,330,139
Other	680	1,303
Total	6,014,422	5,844,259

Goodwill impairment reviews are performed annually, and the recoverable amounts of cash-generating units have been determined based on the value-in-use calculations, etc. These calculations generally use the pre-tax cash flow projections based on the financial budgets approved by management covering a five-year period, unless it is reasonable to use long-term financial budgets longer than five years in the new technology business. Perpetual cash flows beyond the five-year period are extrapolated using a constant growth rate assumption. The growth rate applied was capped at the long-term average growth rate for the industry.

(C) Details of amortization of intangible assets for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Cost of sales	2,211,481	2,136,937
Selling and administrative expenses and other	944,080	825,215
Total	3,155,561	2,962,152

12. Borrowings

(A) Details of the carrying amounts of borrowings as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**Financial institutions**	**Interest rates (%) as of Dec 31, 2022**	**December 31, 2022**	**December 31, 2021**
Short-term borrowings				
Collateralized borrowings[1]	Woori Bank and others	0.1~16.7	3,569,357	11,556,101
Non-collateralized borrowings	Citibank and others	0.1~38.5	1,577,958	2,131,692
Total			5,147,315	13,687,793
Current portion of long-term borrowings				
Bank borrowings	BNP and others	38.9~53.2	208,915	40,415
Lease liabilities[2]	CSSD and others	3.5	874,019	811,902
Total			1,082,934	852,317
Long-term borrowings				
Bank borrowings	Industrial Bank of Korea and others	1.6~5.9	33,846	1,500
Lease liabilities[2]	CSSD and others	3.5	3,526,826	2,864,656
Total			3,560,672	2,866,156

[1] Collateralized borrowings are secured by trade receivables.

[2] Interest expenses arising from the lease liabilities for the years ended December 31, 2022 and 2021 amount to ₩ 140,111 million and ₩ 106,877 million, respectively, which were determined using the weighted average incremental borrowing rate. The right-of-use assets are pledged as collateral to the lessor in the event of default. Short-term lease payments and low- valued asset lease payments that are not included in measurement of lease liabilities during the years ended December 31, 2022 and 2021 amount to ₩ 211,283 million and ₩ 129,686 million, respectively.

(B) Maturities of long-term borrowings outstanding as of December 31, 2022 are as follows:

(In millions of Korean won)	**Long-term borrowings**
Repayment terms	
2023	208,915
2024	1,000
2025	31,346
2026	-
2027 and thereafter	1,500
Total	242,761

(C) Maturities of lease liabilities outstanding as of December 31, 2022 are as follows:

(In millions of Korean won)	**Lease liabilities**
Repayment terms	
2023	1,021,767
2024	866,188
2025	690,763
2026	582,745
2027 and thereafter	1,905,034
Total	5,066,497

13. Debentures

(A) Details of the carrying amounts of debentures as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**Issue date**	**Due date**	**Interest rates (%) as of Dec 31, 2022**	**December 31, 2022**	**December 31, 2021**
US dollar denominated straight bonds[1]	1997.10.2	2027.10.1	7.7	31,683 (US$ 25 million)	35,565 (US$ 30 million)
US dollar denominated debenture bonds[2]	2015.5.11	2025.5.15	4.2	506,920 (US$ 400 million)	474,200 (US$ 400 million)
EURO denominated debenture bonds[3]	2015.5.27	2022.5.27	2.0	- -	469,819 (EUR 350 million)
Less: Discounts				(543)	(708)
Add: Premium				4,261	7,007
Less: Current portion				(6,228)	(477,651)
Total				536,093	508,232

[1] US dollar denominated straight bonds are repaid annually for twenty years after a ten-year grace period from the date of issuance. Interest is paid semi-annually.

[2] Harman International Industries, Inc. issued US dollar denominated debenture bonds. These debentures are repaid on the date of 10 years maturity and interest is paid semi-annually.

[3] Harman Finance International, SCA issued Euro denominated debenture bonds. These debentures are repaid on the date of 7 years maturity and interest is paid annually. These debentures were fully repaid early on March 1, 2022.

(B) Maturities of debentures outstanding as of December 31, 2022 are as follows:

(In millions of Korean won)	**Debentures**
Repayment terms	
2023	6,337
2024	6,337
2025	513,257
2026	6,337
2027 and thereafter	6,335
Total	538,603

14. Net Defined Benefit Liabilities (Assets)

(A) Details of net defined benefit liabilities (assets) recognized in the statements of financial position as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Present value of funded defined benefit obligations	13,639,460	14,391,209
Present value of unfunded defined benefit obligations	370,848	266,976
Subtotal	14,010,308	14,658,185
Fair value of plan assets	(19,593,910)	(17,001,891)
Total	(5,583,602)	(2,343,706)

(B) The components of defined benefit costs recognized in profit or loss for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Current service cost	1,365,600	1,247,857
Net interest income	(99,356)	(38,326)
Past service cost	(253)	2,718
Other	28,713	3,847
Total	1,294,704	1,216,096

The amount recognized as an expense of defined contribution plans for the years ended December 31, 2022 and 2021 are ₩ 145,395 million and ₩ 144,248 million, respectively.

(C) The expenses related to the defined benefit plans recognized in the statements of profit or loss for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Cost of sales	514,589	480,331
Selling and administrative expenses and other	780,115	735,765
Total	1,294,704	1,216,096

(D) Changes in the defined benefit obligations for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	14,658,185	12,948,999
Current service cost	1,365,600	1,247,857
Interest cost	528,884	396,730
Past service cost	(253)	2,718
Remeasurement:		
Actuarial gains or losses arising from changes in demographic assumptions	34,917	(34,014)
Actuarial gains or losses arising from changes in financial assumptions	(2,496,879)	126,297
Other	521,452	473,668
Benefits paid	(630,019)	(519,043)
Other[1]	28,421	14,973
Balance as of December 31	14,010,308	14,658,185

[1] Other includes effects of changes in foreign currency exchange rates and business combinations.

(E) Changes in the fair value of plan assets for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	17,001,891	13,840,043
Interest income on plan assets	628,240	435,056
Remeasurement of plan assets	(312,565)	(146,239)
Contributions by employer	2,741,417	3,263,765
Benefits paid	(498,246)	(397,678)
Other[1]	33,173	6,944
Balance as of December 31	19,593,910	17,001,891

[1] Other includes effects of changes in foreign currency exchange rates and business combinations.

Expected contributions to post-employment benefit plans to be paid in 2023 as of December 31, 2022 are ₩ 1,940,341 million.

(F) Plan assets as of December 31, 2022 and 2021 consist of the following:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Principal guaranteed fixed income financial instruments and other	18,766,006	16,935,143
Other	827,904	66,748
Total	19,593,910	17,001,891

Plan assets are mostly invested in instruments which have a quoted price in active markets.

(G) The principal actuarial assumptions as of December 31, 2022 and 2021 are as follows:

(In percentage)	**December 31, 2022**	**December 31, 2021**
Discount rate	4.3~6.4	0.2~7.2
Salary growth rate (including the effects of inflation)	2.0~6.4	1.5~10.0

(H) The sensitivity analysis of the defined benefit obligations as of December 31, 2022 and 2021 to changes in the weighted principal assumptions is as follows:

(In percentage)	**December 31, 2022**	**December 31, 2021**
Discount rate		
1% p increase	92	91
1% p decrease	109	110
Salary growth rate		
1% p increase	109	110
1% p decrease	92	91

(I) The weighted average maturity of the defined benefit obligations is 8.38 years as of December 31, 2022.

15. Provisions

Changes in provisions for the year ended December 31, 2022 are as follows:

(In millions of Korean won)	**Warranty (A)**	**Royalty expenses (B)**	**Long-term incentives (C)**	**Other (D, E)**	**Total**
Balance as of January 1	1,978,294	1,561,809	734,283	3,405,480	7,679,866
Charged to profit or loss	2,186,312	629,713	302,229	759,669	3,877,923
Payment	(1,873,519)	(712,635)	(255,658)	(1,070,410)	(3,912,222)
Other[1]	18,639	67,719	2,409	39,091	127,858
Balance as of December 31	**2,309,726**	**1,546,606**	**783,263**	**3,133,830**	**7,773,425**

[1] Other includes effects of changes in foreign currency exchange rates.

(A) The Company accrues warranty reserves for estimated costs of quality assurance, exchanges, repairs, recalls, and future services based on historical experience and terms of warranty programs.

(B) The Company recognizes provisions for the estimated royalty expenses that are under negotiation with counterparties. The timing and amount of payment depend on the settlement of the negotiation.

(C) The Company has a long-term incentive plan for its executives based on a three-year management performance criteria and recognizes a provision for the estimated incentive cost for the accrued period.

(D) The Company records provisions for future expenses expected to be incurred for products that have been discontinued from manufacturing and sales.

(E) The Company makes provisions for the carrying amounts of emission rights held by the Company and the emission in excess of the emission rights for the applicable years. Details of emission rights and liabilities as of December 31, 2022 are as follows:

(1) The amount of emission rights allocated free of charge in the current commitment period and the estimated amount of emission as of December 31, 2022 are as follows:

(In ten thousand metric tons)	**December 31, 2022**
Allocated emission permits[1]	1,754
Estimated volume of emission	1,957

[1]As of December 31, 2022, emission permits allocated to the Company for the remaining plan periods are 4,905 ten thousand tons. (2023: 1,645 ten thousand, 2024: 1,630 ten thousand, 2025: 1,630 ten thousand)

(2) Changes in the emission rights for the year ended December 31, 2022 are as follows:

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	46,073	44,865
Increase	1,872	1,422
Decrease	(28,378)	(214)
Balance as of December 31[1]	19,567	46,073

[1]The quantity of emission right is 6,742 ten thousand ton and there is no emission rights provided as provision of collateral as of December 31, 2022.

(3) Changes in emissions liabilities for the year ended December 31, 2022 are as follows:

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	45,049	31,876
Charged to profit or loss	16,167	13,374
Submission	(28,378)	(201)
Balance as of December 31	32,838	45,049

16. Commitments and Contingencies

(A) Litigation

As of December 31, 2022, the Company is involved in various claims, disputes, and investigations conducted by regulatory bodies that arose during the normal course of business with numerous entities. Although the outflow of resources and timing of these matters are uncertain, the Company believes the outcome will not have a material impact on the financial position of the Company.

(B) Other commitments

(1) As of December 31, 2022, the Company has trade financing agreements, trade notes receivable discounting facilities, and loan facilities with accounts receivable pledged as collateral with 26 financial institutions including Woori Bank, with a combined limit of up to ₩ 21,609,679 million. In addition, the Company has a trade financing agreement (up to ₩ 16,020,930 million) with 23 financial institutions including Shinhan Bank and loan facilities with accounts receivable pledged as collateral and other financial agreements (up to ₩ 1,589,717 million).

(2) As of December 31, 2022, unfulfilled agreements relating to the acquisition of property, plant and equipment and intangible assets amount to ₩ 8,553,336 million.

17. Contract Liabilities

The Company has recognized contract liabilities related to contracts with customers as follows:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Contract liabilities[1]	13,255,682	13,235,108

[1] Contract liabilities include advances received, accrued expenses, other current liabilities and others.

The revenue recognized during the year ended December 31, 2022 in relation to carried-forward contract liabilities as of January 1, 2022 amounts to ₩ 1,051,027 million.

18. Share Capital

As of December 31, 2022, the Company's total number of authorized shares is 25,000,000,000 shares (₩ 100 per share). The Company has issued 5,969,782,550 shares of ordinary shares and 822,886,700 shares of preference shares as of December 31, 2022, excluding the retired shares. As of the December 31, 2022, the number of shares outstanding is the same as the number of shares issued above, and no changes were made to the number of shares outstanding during the years ended December 31, 2022 and 2021. Due to the retirement of shares, the total par value of the shares issued is ₩ 679,267 million (ordinary shares of ₩ 596,978 million and preference shares of ₩ 82,289 million), which does not agree with paid-in capital of ₩ 897,514 million.

19. Retained Earnings

(A) Retained earnings as of December 31, 2022 and 2021 consist of the following:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Discretionary reserve, etc.	192,294,496	170,814,107
Unappropriated retained earnings	145,651,911	122,250,656
Total	337,946,407	293,064,763

(B) Details of interim and year-end dividends are as follows:

(1) Interim dividends (Record date: March 31, June 30 and September 30, 2022 and 2021)

(In millions of Korean won and number of shares)			**2022**	**2021**
1st Quarter	Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
		Preference shares	822,886,700	822,886,700
	Dividend rate (based on par value)		361%	361%
	Dividend amount	Ordinary shares	2,155,092	2,155,092
		Preference shares	297,062	297,062
		Total	2,452,154	2,452,154
2nd Quarter	Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
		Preference shares	822,886,700	822,886,700
	Dividend rate (based on par value)		361%	361%
	Dividend amount	Ordinary shares	2,155,092	2,155,092
		Preference shares	297,062	297,062
		Total	2,452,154	2,452,154
3rd Quarter	Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
		Preference shares	822,886,700	822,886,700
	Dividend rate (based on par value)		361%	361%
	Dividend amount	Ordinary shares	2,155,092	2,155,092
		Preference shares	297,062	297,062
		Total	2,452,154	2,452,154

(2) Year-end dividends (Record date: December 31, 2022 and 2021)

(In millions of Korean won and number of shares)		**2022**	**2021**
Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
	Preference shares	822,886,700	822,886,700
Dividend rate (based on par value)	Ordinary shares	361%	361%
	Preference shares	362%	362%
Dividend amount	Ordinary shares	2,155,092	2,155,092
	Preference shares	297,884	297,884
	Total	2,452,976	2,452,976

20. Other Components of Equity

Other components of equity as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Gain on valuation of financial assets at fair value through other comprehensive income	2,749,109	4,616,639
Share of other comprehensive income of associates and joint ventures	114,987	166,835
Gain (loss) on overseas business translation	1,039,197	(3,824,733)
Remeasurement of net defined benefit liabilities (assets)	(2,051,610)	(3,173,977)
Other	86,645	86,763
Total	1,938,328	(2,128,473)

21. Expenses by Nature

Expenses by nature for the years ended December 31, 2022 and 2021 consist of the following:

(In millions of Korean won)	**2022**	**2021**
Changes in finished goods, work in process, and other	(10,355,548)	(4,517,560)
Raw materials used, merchandise purchased, and other	112,591,917	95,625,437
Wages and salaries	30,078,623	28,207,782
Post-employment benefit	1,440,099	1,360,344
Depreciation	35,952,098	31,285,209
Amortization	3,155,561	2,962,152
Welfare	6,091,626	5,073,002
Utilities	6,142,317	4,928,929
Outsourcing	6,597,467	5,594,602
Advertising	6,112,951	5,376,015
Sales promotion expenses	7,110,649	6,286,159
Other	53,936,970	45,788,872
Total[1]	258,854,730	227,970,943

[1] Equal to the sum of cost of sales and selling and administrative expenses in the consolidated statements of profit or loss.

22. Selling and Administrative Expenses

Selling and administrative expenses for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Selling and administrative expenses		
Wages and salaries	7,763,588	7,245,981
Post-employment benefit	330,115	310,823
Commissions and service charges	7,457,896	6,192,568
Depreciation	1,574,757	1,529,507
Amortization	664,346	543,544
Advertising	6,112,951	5,376,015
Sales promotion expenses	7,110,649	6,286,159
Transportation	3,214,301	2,792,690
Service charges	3,671,913	4,039,642
Other	5,993,246	4,840,946
Subtotal	43,893,762	39,157,875
Research and development expenses		
Total expenses	24,919,198	22,595,434
Capitalized expenses	-	(193,708)
Subtotal	24,919,198	22,401,726
Total	68,812,960	61,559,601

23. Other Non-Operating Income and Expenses

Details of other non-operating income and expenses for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Other non-operating income		
Dividend income	414,601	135,840
Rental income	140,908	132,801
Gain on disposal of property, plant and equipment	159,123	340,400
Other	1,247,439	1,596,654
Total	1,962,071	2,205,695

(In millions of Korean won)	**2022**	**2021**
Other non-operating expenses		
Loss on disposal of property, plant and equipment	61,256	75,586
Donations	305,941	270,927
Other	1,422,979	1,709,458
Total	1,790,176	2,055,971

24. Financial Income and Expenses

Details of financial income and expenses for the years ended December 31, 2022 and 2021 are as follows:

(*In millions of Korean won*)	**2022**	**2021**
Financial income		
Interest income	2,720,479	1,278,278
Interest income from financial assets measured at amortized cost	2,720,213	1,278,051
Interest income from financial assets measured at fair value through profit or loss	266	227
Foreign exchange differences	16,537,855	6,525,676
Gains from derivatives	1,570,661	739,233
Total	20,828,995	8,543,187

(*In millions of Korean won*)	**2022**	**2021**
Financial expenses		
Interest expenses	763,015	431,540
Interest expenses from financial liabilities measured at amortized cost	322,529	213,477
Other financial liabilities	440,486	218,063
Foreign exchange differences	16,809,703	6,486,093
Losses from derivatives	1,454,971	786,921
Total	19,027,689	7,704,554

The Company recognizes foreign exchange gains and losses arising from foreign currency transactions and translation as financial income and expenses.

25. Income Tax Expense

(A) Income tax expense for the years ended December 31, 2022 and 2021 consists of the following:

(In millions of Korean won)	**2022**	**2021**
Current taxes		
Current tax on profits for the year	7,391,099	11,135,521
Adjustments recognize in the current year	(501,683)	(195,237)
Subtotal	6,889,416	10,940,284
Deferred taxes		
Changes in deferred taxes arising from unused tax credits	(1,080,068)	(332,975)
Changes in deferred taxes arising from temporary differences	(15,407,692)	2,172,312
Changes in deferred taxes arising from unused tax losses	160,123	507,313
Other	224,618	157,443
Subtotal	(16,103,019)	2,504,093
Items charged directly to equity	-	-
Income tax expense	(9,213,603)	13,444,377

(B) The tax on the Company's profit before income tax differs from the theoretical amount that would arise using the weighted-average statutory tax rate applicable to profits of the Company as follows:

(In millions of Korean won)	**2022**	**2021**
Profit before income tax	46,440,474	53,351,827
Tax calculated at weighted average of applicable tax rates[1]	13,652,900	15,760,775
Adjustments:		
Permanent differences	(2,090,031)	(464,839)
Temporary differences for which no deferred income tax was recognized	769,211	(80,250)
Tax credits and exemptions	(5,185,576)	(4,627,136)
Results of interest in subsidiaries, etc.	(16,186,745)	2,267,026
Impact of changes in tax rates	(376)	8,691
Other	(172,986)	580,110
Subtotal	(22,866,503)	(2,316,398)
Income tax expense	(9,213,603)	13,444,377

[1] The weighted average of statutory tax rates are applied to the respective profits of the Company applicable to each tax authority as of December 31, 2022 and 2021.

(C) The movement in deferred income tax assets and liabilities resulting from the tax effect of temporary differences for the years ended December 31, 2022 and 2021 are as follows:

(1) 2022

	Temporary differences			Deferred income tax assets (liabilities)		
(In millions of Korean won)	**Balance as of January 1**	**Increase (Decrease)**	**Balance as of December 31**	**Balance as of January 1**	**Increase (Decrease)**	**Balance as of December 31**
Deferred tax arising from temporary differences						
Revaluation of land	(3,406,625)	3,195	(3,403,430)	(936,822)	38,317	(898,505)
Investments in subsidiaries, associates and joint ventures[1]	(126,816,779)	(18,391,837)	(145,208,616)	(20,614,554)	15,654,307	(4,960,247)
Accumulated depreciation and other	(3,814,598)	(3,782,747)	(7,597,345)	(1,771,793)	(794,742)	(2,566,535)
Accrued income	(22,153)	108,861	86,708	6,853	32,827	39,680
Provisions, accrued expenses and other	15,979,455	2,799,841	18,779,296	4,560,874	658,256	5,219,130
Foreign currency translation	62,615	670,489	733,104	12,076	173,824	185,900
Asset impairment losses	1,134,048	(69,523)	1,064,525	258,886	(24,152)	234,734
Other	(492,225)	(1,356,462)	(1,848,687)	(638,757)	(330,945)	(969,702)
Subtotal	(117,376,262)	(20,018,183)	(137,394,445)	(19,123,237)	15,407,692	(3,715,545)
Deferred tax arising from tax losses						
Unused tax losses	2,015,448	(520,129)	1,495,319	436,481	(160,123)	276,358
Deferred tax arising from tax credits						
Unused tax credits	1,687,065	1,243,873	2,930,938	1,666,362	1,080,068	2,746,430
Deferred tax recognized in equity						
Loss (gain) on valuation of financial assets at fair value through other comprehensive income and other	(3,575,094)	(61,384)	(3,636,478)	(3,155,310)	3,104,918	(50,392)
Remeasurement of net defined benefit liabilities (assets)	4,447,510	(1,627,945)	2,819,565	1,238,713	(505,578)	733,135
Subtotal	872,416	(1,689,329)	(816,913)	(1,916,597)	2,599,340	682,743
Deferred tax assets				4,261,214	840,104	5,101,318
Deferred tax liabilities				(23,198,205)	18,086,873	(5,111,332)
Total				(18,936,991)	18,926,977	(10,014)

[1] Deferred tax assets are not recognized if it is probable that the temporary differences will not reverse in the foreseeable future for investments in subsidiaries, associates and joint ventures.

(2) 2021

	Temporary differences			Deferred income tax assets (liabilities)		
(In millions of Korean won)	**Balance as of January 1**	**Increase (Decrease)**	**Balance as of December 31**	**Balance as of January 1**	**Increase (Decrease)**	**Balance as of December 31**
Deferred tax arising from temporary differences						
Revaluation of land	(3,420,886)	14,261	(3,406,625)	(940,744)	3,922	(936,822)
Investments in subsidiaries, associates and joint ventures[1]	(111,924,859)	(14,891,920)	(126,816,779)	(19,172,409)	(1,442,145)	(20,614,554)
Accumulated depreciation and other	(2,285,841)	(1,528,757)	(3,814,598)	(992,777)	(779,016)	(1,771,793)
Accrued income	(139,406)	117,253	(22,153)	(31,486)	38,339	6,853
Provisions, accrued expenses and other	13,121,416	2,858,039	15,979,455	3,764,808	796,066	4,560,874
Foreign currency translation	(24,683)	87,298	62,615	(10,077)	22,153	12,076
Asset impairment losses	1,855,765	(721,717)	1,134,048	453,486	(194,600)	258,886
Other	562,628	(1,054,853)	(492,225)	(21,726)	(617,031)	(638,757)
Subtotal	(102,255,866)	(15,120,396)	(117,376,262)	(16,950,925)	(2,172,312)	(19,123,237)
Deferred tax arising from tax losses						
Unused tax losses	3,618,601	(1,603,153)	2,015,448	943,794	(507,313)	436,481
Deferred tax arising from tax credits						
Unused tax credits	1,328,527	358,538	1,687,065	1,333,387	332,975	1,666,362
Deferred tax recognized in equity						
Loss on valuation of financial assets at fair value through other comprehensive income and other	(1,660,421)	(1,914,673)	(3,575,094)	(909,176)	(2,246,134)	(3,155,310)
Remeasurement of net defined benefit liabilities (assets)	3,735,320	712,190	4,447,510	1,047,075	191,638	1,238,713
Subtotal	2,074,899	(1,202,483)	872,416	137,899	(2,054,496)	(1,916,597)
Deferred tax assets				4,275,000	(13,786)	4,261,214
Deferred tax liabilities				(18,810,845)	(4,387,360)	(23,198,205)
Total				(14,535,845)	(4,401,146)	(18,936,991)

[1] Deferred tax assets are not recognized if it is probable that the temporary differences will not reverse in the foreseeable future for investments in subsidiaries, associates and joint ventures.

The Company assessed that the deferred tax asset is realizable as the estimated average annual taxable income in future years exceeds the tax loss carry forwards and tax credit carry forwards to be reversed in each accounting period. Temporary differences in which deferred tax effects were not recognized due to uncertainty regarding the ultimate realizability of such assets as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Unused tax losses	594,798	706,512
Unused tax credits	46,550	47,929

Expected expiry dates of unused tax losses and credits for which no deferred tax asset is recognized are as follows:

(In millions of Korean won)	**2022**	**2023**	**2024**	**2025 and after**
Unused tax losses	69,464	1,776	-	523,558
Unused tax credits	7,466	4,157	29,972	4,955

(D) Details of the period when the deferred tax assets (liabilities) are recovered (settled) as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Deferred tax assets		
Deferred tax assets to be recovered within 12 months	3,249,661	2,999,046
Deferred tax assets to be recovered after more than 12 months	1,851,657	1,262,168
Subtotal	**5,101,318**	**4,261,214**
Deferred tax liabilities		
Deferred tax liabilities to be settled after more than 12 months	(5,111,332)	(23,198,205)
Total	**(10,014)**	**(18,936,991)**

26. Earnings per Share

(A) Basic earnings per share

Basic earnings per share for the years ended December 31, 2022 and 2021 are calculated as follows:

(1) Ordinary shares

(In millions of Korean won, thousands of number of shares)	**2022**	**2021**
Profit for the year attributable to owners of the parent company	54,730,018	39,243,791
Profit for the year available for ordinary shares	48,099,117	34,488,944
Weighted-average number of ordinary shares outstanding	5,969,783	5,969,783
Basic earnings per ordinary share *(in Korean won)*	8,057	5,777

(2) Preference shares

(In millions of Korean won, thousands of number of shares)	**2022**	**2021**
Profit for the year attributable to owners of the parent company	54,730,018	39,243,791
Profit for the year available for preference shares	6,630,901	4,754,847
Weighted-average number of preference shares outstanding	822,887	822,887
Basic earnings per preference share *(in Korean won)*	8,058	5,778

(B) Diluted earnings per share

The Company does not have dilutive potential ordinary shares and as a result, basic earnings per share and diluted earnings per share are the same for the years ended December 31, 2022 and 2021.

27. Statements of Cash Flows

(A) The Company used the indirect method to present cash flows from operating activities. Adjustments and changes in assets and liabilities arising from operating activities for the years ended December 31, 2022 and 2021 are as follows:

- Adjustments

(In millions of Korean won)	**2022**	**2021**
Adjustments:		
Income tax expense	(9,213,603)	13,444,377
Financial income	(5,778,279)	(2,485,679)
Financial expenses	4,336,254	1,917,705
Post-employment benefits	1,440,099	1,360,344
Depreciation	35,952,098	31,285,209
Amortization	3,155,561	2,962,152
Bad debt expenses	8,784	17,990
Dividend income	(414,601)	(135,840)
Share of profit of associates and joint ventures	(1,090,643)	(729,614)
Gain on disposal of property, plant and equipment	(159,123)	(340,400)
Loss on disposal of property, plant and equipment	61,256	75,586
Loss on valuation of inventories	4,408,767	1,735,741
Others	366,869	(51,938)
Total	33,073,439	49,055,633

- Changes in assets and liabilities arising from operating activities

(In millions of Korean won)	**2022**	**2021**
Changes in assets and liabilities :		
Decrease (increase) in trade receivables	7,856,258	(7,302,604)
Increase in non-trade receivables	(1,524,173)	(204,348)
Decrease (increase) in prepaid expenses	3,506	(204,971)
Increase in inventories	(13,311,072)	(9,712,379)
Increase (decrease) in trade payables	(5,298,547)	1,027,017
Increase (decrease) in other payables	(1,443,409)	1,516,076
Increase (decrease) in advances received	106,977	(24,371)
Increase in withholdings	25,392	275,998
Increase in accrued expenses	919,271	3,340,697
Increase (decrease) in provisions	(34,298)	1,862,320
Payment of post-employment benefits	(707,887)	(606,870)
Increase in plan assets	(2,243,171)	(2,866,087)
Other	(1,347,795)	(3,387,362)
Total	(16,998,948)	(16,286,884)

(B) Significant non-cash investing and financing transactions for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Valuation of financial assets at fair value through other comprehensive income	(2,636,448)	3,653,253
Valuation of investments in associates and joint ventures	(50,510)	211,979
Reclassification of construction in progress to property, plant and equipment	36,047,916	50,451,574
Acquisition of right-of-use assets (New lease contracts established)	2,111,660	1,748,911
Reclassification of current portion of debentures	6,228	477,651
Reclassification of current portion of long-term borrowings	1,082,934	852,317

(C) Changes in liabilities arising from financing activities for the years ended December 31, 2022 and 2021 are as follows:

(1) 2022

(In millions of Korean won)	**As of January 1**	**Cash flows from financing activities**	**Non-cash transactions**		**As of December 31**
			New lease contracts	**Other[1]**	
Short-term borrowings	13,687,793	(8,339,149)	-	(201,329)	5,147,315
Debentures and long-term borrowings	4,704,356	(1,236,468)	2,111,660	(393,621)	5,185,927
Total	18,392,149	(9,575,617)	2,111,660	(594,950)	10,333,242

[1] Other includes amortization and effects of changes in foreign currency exchange rates.

(2) 2021

(In millions of Korean won)	**As of January 1**	**Cash flows from financing activities**	**Non-cash transactions**		**As of December 31**
			New lease contracts	**Other[1]**	
Short-term borrowings	16,553,429	(2,616,943)	-	(248,693)	13,687,793
Debentures and long-term borrowings	3,663,952	(836,470)	1,748,912	127,962	4,704,356
Total	20,217,381	(3,453,413)	1,748,912	(120,731)	18,392,149

[1] Other includes amortization, effects of changes in foreign currency exchange rates.

For the years ended December 31, 2022 and 2021, cash outflows from principal repayment (financial activities) amount to ₩ 998,531 million and ₩ 876,437 million, respectively, and cash outflows due to interest expenses (operating activities) in relation to the lease liabilities amount to ₩ 140,111 million and ₩ 106,877 million, respectively.

(D) The Company reported cash receipts and payments arising from transactions occurring frequently, of large gross amounts, and with short-term maturities, such as short-term financial instruments, borrowings and other, on a net basis. As of December 31, 2022, most of the Company's cash and cash equivalents consist of bank deposits.

28. Financial Risk Management

The Company's financial risk management focuses on minimizing the market risk, credit risk, and liquidity risk arising from operating activities. To mitigate these risks, the Company implements and operates a financial risk policy and program that closely monitors and manages such risks. In addition, the Company uses derivatives to hedge certain risk exposure.

The finance team mainly carries out the Company's financial risk management. After implementing the global financial risk management policies, the finance team periodically measures, evaluates, and hedges the financial risk and also establishes and implements the global financial risk management policy.

The Company also manages the foreign exchange risk by monitoring the foreign exchange rate fluctuations at local finance centers across major regions (United States, United Kingdom, Singapore, China, Brazil, and Russia) and acting as an agent of foreign exchange transactions. In addition, the Company manages the liquidity risk by utilizing a globally integrated finance structure.

The Company's financial assets that are under the financial risk management are comprised of cash and cash equivalents, short-term financial instruments, financial assets at amortized cost, trade receivables and others. The Company's financial liabilities under financial risk management are comprised of trade payables, borrowings, and others.

(A) Market risk

(1) Foreign exchange risk

The Company is exposed to the foreign exchange risk arising from its global operations performed in currencies other than its functional currency. The major currencies that are exposed to the foreign exchange risk are the US dollar, Euro, and Indian Rupee.

The Company focuses on minimizing the impact of the foreign exchange fluctuation by maintaining the equal amount of assets and liabilities denominated in each foreign currency, irrespective of the foreign exchange fluctuation considerations. To prevent the exchange position, the Company's foreign exchange management policy requires the normal business transactions, including imports and exports, as well as the financing transactions such as depositing and borrowing, to be in local currency or for the cash-in currency to be matched up with the cash-out currency. Moreover, the Company periodically evaluates and monitors the foreign exchange risk to efficiently mitigate such risk, and the speculative foreign exchange transactions are strictly prohibited.

As of December 31, 2022 and 2021, when the currency rates change by 5%, the impact on profit or loss (before income tax effects) arising from financial assets and liabilities denominated in foreign currencies other than the functional currency are as follows:

	December 31, 2022		December 31, 2021	
(In millions of Korean won)	**Increase**	**Decrease**	**Increase**	**Decrease**
USD	258,655	(258,655)	250,489	(250,489)
EUR	92,546	(92,546)	107,519	(107,519)
INR	52,096	(52,096)	24,216	(24,216)

(2) Interest rate risk

Risk of changes in interest rates for floating interest rate financial instruments is defined as the risk that the fair value of components of the statements of financial position, and future cash flows of interest income (expenses) of a financial instrument, will fluctuate because of the changes in market interest rates. The Company's position with regard to interest rate risk exposure is mainly driven by its floating interest rate debt obligations and interest-bearing deposits. The Company implemented policies and operates to minimize uncertainty arising from changes in interest rates and financial expenses.

As of December 31, 2022 and 2021, changes in profit or loss (before income tax effects) as a result of a 1%p change in interest rates on floating interest rate financial assets and liabilities are presented below:

	December 31, 2022		December 31, 2021	
(In millions of Korean won)	**Increase**	**Decrease**	**Increase**	**Decrease**
Financial assets	72,750	(72,750)	71,131	(71,131)
Financial liabilities	(8,427)	8,427	(18,779)	18,779
Net effect	64,323	(64,323)	52,352	(52,352)

(3) Price risk

The Company's investment portfolio consists of direct and indirect investments in equity instruments classified as financial assets at fair value through other comprehensive income and financial assets at fair value through profit or loss, which is in line with the Company's strategy.

As of December 31, 2022 and 2021, price fluctuation of marketable equity securities (listed stocks) by 1% would result in changes in other comprehensive income (before income tax) of ₩ 92,073 million and ₩ 116,087 million, respectively, and changes in profit before tax of ₩ 3,144 million and ₩ 4,784 million, respectively.

(B) Credit risk

Credit risk arises during the normal course of transactions and investing activities where clients or other parties fail to discharge an obligation. The Company monitors and sets the client's and the counterparty's credit limits on a periodic basis based on the client's and counterparty's financial conditions, default histories and other important factors. Adequate insurance coverage is maintained for trade receivables related to the trading partners situated in higher risk countries.

Credit risk can arise from transactions with financial institutions which include financial instrument transactions such as cash and cash equivalents, deposits, and derivative instruments. To minimize such risk, the Company transacts only with banks which have strong international credit ratings (S&P A and above), and all new transactions with financial institutions with no prior transaction history are approved, managed and monitored by the Company's finance team and the local finance center. The Company generally enters into a financial agreement with no restrictions, such as debt ratio covenants, provision of collateral and/or repayment of loans/ borrowings. The Company requires separate approvals for contracts with restrictions.

As of December 31, 2022 and 2021, the Company estimates that its maximum exposure to credit risk is the carrying amount of its financial assets, net of impairment losses.

(C) Liquidity risk

Due to large investments made by the Company, maintaining adequate levels of liquidity risk is critical. The Company strives to achieve this goal by periodically forecasting its capital balance, estimating the required cash levels, and managing income and expenses.

The Company manages its liquidity risk by periodically forecasting the projected cash flows. If abnormal signs are identified, the Company works with the local finance center and provides liquidity support by utilizing a globally integrated finance structure, such as Cash Pooling. In addition, the Company maintains a liquidity management process which provides an additional financial support from the local finance center and the Company. The Cash Pooling program allows the sharing of surplus funds among the entities and contributes to minimizing the liquidity risk and strengthening the Company's competitive position by reducing capital operation expenses and financial expenses.

For the need of large scale of liquidity, the Company secures the credit limit for overseas subsidiaries through payment guarantees.

As of December 31, 2022 and 2021, the following table is an undiscounted cash flow analysis for financial liabilities according to their remaining contractual maturity.

	December 31, 2022				
(In millions of Korean won)	**Less than 3 months**	**4 - 6 months**	**7 – 12 months**	**1 - 5 years**	**More than 5 years**
Financial liabilities	42,990,570	733,984	1,925,448	5,402,672	1,562,274

	December 31, 2021				
(In millions of Korean won)	**Less than 3 months**	**4 – 6 months**	**7 - 12 months**	**1 - 5 years**	**More than 5 years**
Financial liabilities	55,185,809	1,814,271	1,674,980	5,462,057	944,232

The table above shows the Company's financial liabilities based on the remaining period at the consolidated statements of financial position date until the contractual maturity date. The amounts disclosed in the table are the contractual undiscounted cash flows.

The Company's derivative financial liabilities of ₩ 119,061 million (December 31, 2021: ₩ 113,590 million) has been included within the less than 3 months bucket. These are the Company's trading portfolio of derivative instruments, on a net settlement term, of which the contractual maturities are not essential for understanding its cash flows. These contracts are managed on a net fair value basis rather than by the maturity date. Net settled derivatives consist of forwards on currency rates used by the Company to manage the exchange rate profile.

Derivatives that are settled on a gross basis by the delivery of underlying items, including derivatives for hedging, will be settled within the next 60 months from the end of the reporting period. These derivatives are not included in the table above.

There is no maximum liquidity risk exposure from those other than the above financial liabilities (e.g., payment and performance guarantees) as of December 31, 2022.

(D) Derivative financial instruments

The Company applies cash flow hedge accounting to hedge the foreign currency risk of forecasted transaction including hedging the price risk associated with inventory. Details of derivative financial instruments that qualify as cash flow hedges as of December 31, 2022 and 2021 are as follows:

	December 31, 2022		December 31, 2021	
(In millions of Korean won)	**Assets**	**Liabilities**	**Assets**	**Liabilities**
Currency forward exchange contracts				
Current items	44,567	11,035	34,075	11,090
Non-current items	15,703	15,813	16,790	3,280
Total	60,270	26,848	50,865	14,370

For the years ended December 31, 2022 and 2021, the Company recognizes the gains and losses relating to the effective portion of changes in fair value of derivatives that are designated and qualify as cash flow hedges in other comprehensive income, which amount to the loss of ₩ 12,893 million (after tax) and gain of ₩ 50,410 million (after tax), respectively, and recognizes the gains and losses relating to the ineffective portion in profit or loss, which amount to the gain of ₩ 611 million (before tax) and loss of ₩ 451 million (before tax), respectively. For the years ended December 31, 2022 and 2021, gains and losses reclassified directly from other comprehensive income to profit or loss amount to the loss of ₩ 4,602 million (after tax) and the gain of ₩ 1,117 million (after tax), respectively and the gains reclassified from other comprehensive income to the carrying amount of inventory amount to the gain of ₩ 55,856 million (after tax) and the gain of ₩ 1,539 million (after tax), respectively.

(E) Capital risk management

The Group manages its capital to ensure that entities in the Group will be able to continue as going concerns while maximising the return to shareholders through the optimisation of the debt and equity balance.

The Company's capital risk management policy has not changed since the prior reporting periods. The Company has maintained an AA- and Aa2 credit ratings from S&P and Moody's, respectively.

The total liabilities to equity ratios as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Total liabilities	93,674,903	121,721,227
Total equity	354,749,604	304,899,931
Debt ratio	26.4%	39.9%

(F) Fair value estimation

(1) Carrying amounts and fair values of financial instruments by category as of December 31, 2022 and 2021 are as follows:

	December 31, 2022		December 31, 2021	
(In millions of Korean won)	**Carrying amount**	**Fair value**	**Carrying amount**	**Fair value**
Financial assets				
Cash and cash equivalents	49,680,710	(*1)	39,031,415	(*1)
Short-term financial instruments	65,102,886	(*1)	81,708,986	(*1)
Short-term financial assets at amortized cost	414,610	(*1)	3,369,034	(*1)
Short-term financial assets at fair value through profit or loss	29,080	29,080	40,757	40,757
Trade receivables	35,721,563	(*1)	40,713,415	(*1)
Financial assets at fair value through other comprehensive income	11,397,012	11,397,012	13,965,839	13,965,839
Financial assets at fair value through profit or loss	1,405,468	1,405,468	1,525,344	1,525,344
Other(*2)	10,340,876	395,667	9,040,189	328,216
Total financial assets	174,092,205		189,394,979	
Financial liabilities				
Trade payables	10,644,686	(*1)	13,453,351	(*1)
Short-term borrowings	5,147,315	(*1)	13,687,793	(*1)
Other payables	16,328,237	(*1)	14,126,970	(*1)
Current portion of long-term liabilities	1,089,162	6,580	1,329,968	554,106
- Current portion of long-term borrowing	1,082,934	(*1)(*3)	852,317	(*1)(*3)
- Current portion of debentures	6,228	6,580	477,651	554,106
Debentures	536,093	521,129	508,232	546,339
Long-term borrowings	3,560,672	(*1)(*3)	2,866,156	(*1)(*3)
Long-term other payables(*2)	2,289,236	(*1)	2,562,158	(*1)
Other(*2)	12,409,529	361,768	10,781,684	337,394
Total financial liabilities	52,004,930		59,316,312	

(*1) Assets and liabilities whose carrying amount is a reasonable approximation of fair value are excluded from the fair value disclosures.

(*2) Assets measured at the cost of ₩ 9,945,209 million (December 31, 2021: ₩ 8,711,973 million) and liabilities measured at the cost of ₩ 12,047,761 million (December 31, 2021: ₩ 10,444,290 million) are excluded as the carrying amount is a reasonable estimation of fair value.

(*3) Lease liabilities, classified under the current portion of long-term liabilities and long-term borrowings, are excluded from the fair value disclosures in accordance with *Korean IFRS 1107.*

(2) Fair value hierarchy classifications of the financial instruments that are measured or disclosed at fair value as of December 31, 2022 and 2021 are as follows:

	December 31, 2022			
(In millions of Korean won)	**Level 1**	**Level 2**	**Level 3**	**Total balance**
1) Assets				
Short-term financial assets at fair value through profit or loss	-	29,080	-	29,080
Financial assets at fair value through other comprehensive income	9,207,295	-	2,189,717	11,397,012
Financial assets at fair value through profit or loss	314,449	-	1,091,019	1,405,468
Other	-	373,176	22,491	395,667
2) Liabilities				
Current portion of debentures	-	6,580	-	6,580
Debentures	-	521,129	-	521,129
Other	-	354,364	7,404	361,768

	December 31, 2021			
(In millions of Korean won)	**Level 1**	**Level 2**	**Level 3**	**Total balance**
1) Assets				
Short-term financial assets at fair value through profit or loss	-	35,620	5,137	40,757
Financial assets at fair value through other comprehensive income	11,608,708	-	2,357,131	13,965,839
Financial assets at fair value through profit or loss	478,401	-	1,046,943	1,525,344
Other	-	307,213	21,003	328,216
2) Liabilities				
Current portion of debentures	-	554,106	-	554,106
Debentures	-	546,339	-	546,339
Other	-	331,956	5,438	337,394

The levels of the fair value hierarchy and its application to financial assets and liabilities are described below.

- Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities
- Level 2: Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly
- Level 3: Inputs for the asset or liability that are not based on observable market data (that is, unobservable inputs)

The fair value of financial instruments traded in active markets is based on quoted market prices at the statements of financial position date. A market is regarded as active if quoted prices are readily and regularly available from an exchange, dealer, broker, industry group, pricing service, or regulatory agency, and those prices represent actual and regularly occurring market transactions on an arm's length basis. The quoted market price used for financial assets held by the Company is the current bid price. These instruments are included in Level 1. The instruments included in Level 1 are listed equity investments, most of which are classified as financial assets at fair value through other comprehensive income.

The fair value of financial instruments that are not traded in an active market (for example, over-the-counter derivatives) is determined by using valuation techniques. These valuation techniques maximize the use of observable market data where it is available and rely as little as possible on the entity-specific estimates. If all significant inputs required for a fair value of an instrument are observable, the instrument is included in Level 2.

If one or more of the significant inputs are not based on observable market data, the instrument is included in Level 3.

The Company performs the fair value measurements required for financial reporting purposes, including Level 3 fair values and discusses valuation processes and results at least once every quarter in line with the Company's quarterly reporting dates. The Company's policy is to recognize transfers between levels at the end of the reporting period, if corresponding events or changes in circumstances have occurred.

Specific valuation techniques used to value financial instruments include:

- Quoted market prices or dealer quotes for similar instruments
- The fair value of forward foreign exchange contracts is determined using forward exchange rates at the statements of financial position date, with the resulting value discounted back to present value

Other techniques, such as discounted cash flow analysis, are used to determine fair value for the remaining financial instruments. For trade and other receivables that are classified as current assets, the book value approximates a reasonable estimate of fair value.

(3) Valuation technique and the inputs

The Company utilizes a present value technique to discount cash flow and others using a proper interest rate for corporate bonds, government and public bonds, and bank debentures that are classified as Level 2 in the fair value hierarchy.

The following table presents the valuation technique and the inputs used for major financial instruments classified as Level 3 as of December 31, 2022.

(In millions of Korean won and percentage)

Classification	Fair value	Valuation technique	Level 3 inputs	Input range (Weighted average)
Financial assets at fair value through other comprehensive income				
Samsung Venture Investment	32,073	Discounted cash flow	Permanent growth rate	-1.0%~1.0%(0.0%)
			Weighted average cost of capital	15.8%~17.8%(16.8%)
MiCo Ceramics Co., Ltd.	29,385	Discounted cash flow	Permanent growth rate	0.0%~1.0%(0.5%)
			Weighted average cost of capital	13.1%~15.1%(14.1%)
TCL China Star Optoelectronics Technology Co., Ltd. (CSOT)	1,244,889	Discounted cash flow and others	Permanent growth rate	-1.0%~1.0%(0.0%)
			Weighted average cost of capital	10.6%~12.6%(11.6%)
China Star Optoelectronics Semiconductor Display Technology Ltd. (CSOSDT)	230,263	Discounted cash flow	Permanent growth rate	-1.0%~1.0%(0.0%)
			Weighted average cost of capital	10.6%~12.6%(11.6%)
Others				
Put option on equity instruments	22,491	Binomial model	Risk-free discount rate	4.0%~4.5%, 2.5%
			Price volatility	22.3%~32.3%(27.3%) 25.3%~35.3%(30.3%)

(4) Changes in Level 3 instruments for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Financial assets		
Balance as of January 1	3,430,214	6,449,139
Acquisitions	207,730	1,075,389
Disposals	(207,252)	(402,782)
Amount recognized in profit or loss	73,782	463,818
Amount recognized in other comprehensive income (loss)	(197,830)	1,543,511
Other	(3,417)	(5,698,861)
Balance as of December 31	3,303,227	3,430,214

(In millions of Korean won)	**2022**	**2021**
Financial liabilities		
Balance as of January 1	5,438	9,248
Amount recognized in profit or loss	1,966	(784)
Other	-	(3,026)
Balance as of December 31	7,404	5,438

(5) Sensitivity analysis for recurring fair value measurements categorized within Level 3

Sensitivity analysis of financial instruments is performed to measure favorable and unfavorable changes in the fair value of financial instruments which are affected by the unobservable parameters, using a statistical technique. When the fair value is affected by more than two input parameters, the amounts represent the most favorable or unfavorable.

The results of the sensitivity analysis for the effect on profit or loss (before tax amount for other comprehensive income or loss) from changes in inputs for major financial instruments which are categorized within Level 3 and subject to sensitivity analysis are as follows:

(In millions of Korean won)	**Favorable changes**		**Unfavorable changes**	
Classification	**Profit or loss**	**Equity**	**Profit or loss**	**Equity**
Financial assets at fair value through other comprehensive income[1]	-	112,515	-	(79,168)
Others[2]	2,669	-	(3,750)	-

[1] For equity securities, changes in fair value are calculated with the correlation between the growth rate (-1%~1%) and the discount rate, which are significant unobservable inputs.

[2] Changes were calculated based on the correlation between the fair value and price volatility (-5%~5%), which is a significant unobservable input.

29. Segment Information

(A) Operating segment information

The chief operating decision-maker has been identified as the Management Committee. The Company determines operating segments based on the units reported to the Management Committee. The Management Committee reviews the operating profits of each operating segment in order to assess the performance and to make strategic decisions regarding the allocation of resources to the segments.

Sales revenue consists mostly of product sales. The operating segments are product-based and are identified based on the internal organization and revenue streams. As of the reporting date, the operating segments are comprised of DX, DS, SDC, Harman, and others.

The segment information for each reporting period is prepared after allocating the intercompany reconciliations to depreciation, amortization of intangible assets and operating profits. Total assets and liabilities of each operating segment are excluded from the disclosure as these have not been provided regularly to the Management Committee.

(1) For the year ended December 31, 2022

(In millions of Korean won)	**DX**	**DS**	**SDC**	**Harman**	**Total**[1]
Net revenue	182,489,720	98,455,270	34,382,619	13,213,694	302,231,360
Depreciation	2,520,708	28,196,959	4,768,498	331,342	35,952,098
Amortization	1,678,572	809,270	237,182	211,549	3,155,561
Operating profit	12,746,074	23,815,810	5,952,973	880,548	43,376,630

[1] Other operating segments are not separately disclosed.

Net revenue by major product for the year ended December 31, 2022 are as follows:

(In millions of Korean won)	**Image devices**	**Mobile devices**	**Memory**	**Display panels**	**Total**[1]
Net revenue	33,279,488	115,425,375	68,534,930	34,382,619	302,231,360

[1] Other products are not separately disclosed.

(2) For the year ended December 31, 2021

(In millions of Korean won)	**DX**	**DS**	**SDC**	**Harman**	**Total**[1]
Net revenue	166,259,437	95,387,173	31,712,526	10,039,922	279,604,799
Depreciation	2,373,076	22,848,912	5,504,216	311,237	31,285,209
Amortization	1,435,220	939,922	239,821	229,772	2,962,152
Operating profit	17,386,554	29,192,021	4,457,365	599,097	51,633,856

[1] Other operating segments are not separately disclosed.

Net revenue by major product for the year ended December 31, 2021 are as follows:

(In millions of Korean won)	**Image devices**	**Mobile devices**	**Memory**	**Display panels**	**Total**[1]
Net revenue	31,497,420	104,680,574	72,602,237	31,712,526	279,604,799

[1] Other products are not separately disclosed.

(B) Regional information

The regional segment information provided to the Management Committee for the reportable segments as of and for the years ended December 31, 2022 and 2021 are as follows:

(1) As of and for the year ended December 31, 2022

(In millions of Korean won)	**Korea**	**America**	**Europe**	**Asia and Africa**	**China**	**Intercompany elimination**	**Consolidated**
Net revenue	48,654,656	118,974,561	50,283,975	48,692,399	35,625,769	-	302,231,360
Non-current assets[1]	144,936,912	14,022,225	5,839,813	9,056,272	15,338,153	(930,233)	188,263,142

[1] Financial instruments, deferred tax assets, investments in associates and joint ventures, and others are excluded from non-current assets.

(2) As of and for the year ended December 31, 2021

(In millions of Korean won)	**Korea**	**America**	**Europe**	**Asia and Africa**	**China**	**Intercompany elimination**	**Consolidated**
Net revenue	43,971,631	97,903,868	50,323,287	41,834,609	45,571,404	-	279,604,799
Non-current assets[1]	127,116,179	10,758,956	5,951,905	9,088,409	18,244,469	(995,135)	170,164,783

[1] Financial instruments, deferred tax assets, investments in associates and joint ventures, and others are excluded from non-current assets.

30. Related Party Transactions

(A) Sale and purchase transactions

Sale and purchase transactions with related parties for the years ended December 31, 2022 and 2021 are as follows:

		2022			
(In millions of Korean won)	**Name of company[1]**	**Sales**	**Disposal of non-current assets**	**Purchases**	**Purchase of non-current assets**
Associates and joint ventures	Samsung SDS	214,105	-	1,865,588	378,770
	Samsung Electro-Mechanics	62,274	767	1,401,483	120
	Samsung SDI	82,062	-	803,556	24,926
	Cheil Worldwide	31,782	-	964,096	361
	Other	1,353,769	-	15,158,969	125,053
	Total	1,743,992	767	20,193,692	529,230
Other related parties	Samsung C&T	51,447	-	433,100	7,423,404
	Other	345,901	188	1,595,487	1,910,813
	Total	397,348	188	2,028,587	9,334,217
Other[2]	Samsung Engineering	1,666	-	53,793	3,249,254
	S-1	13,634	-	510,311	54,069
	Other	166,052	-	550,757	746,749
	Total	181,352	-	1,114,861	4,050,072

[1] Transactions with separate entities that are related parties of the Company.
[2] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

		2021			
(In millions of Korean won)	**Name of company[1]**	**Sales**	**Disposal of non-current assets**	**Purchases**	**Purchase of non-current assets**
Associates and joint ventures	Samsung SDS	142,435	-	1,732,273	569,840
	Samsung Electro-Mechanics	47,031	-	1,525,854	-
	Samsung SDI	76,160	269	671,169	36,180
	Cheil Worldwide	27,740	-	758,877	16
	Other	1,288,094	68	12,361,130	118,099
	Total	1,581,460	337	17,049,303	724,135
Other related parties	Samsung C&T	79,183	32,705	334,386	4,045,297
	Other	352,919	-	1,608,435	633,109
	Total	432,102	32,705	1,942,821	4,678,406
Other[2]	Samsung Engineering	787	-	48,284	2,404,314
	S-1	13,819	-	469,979	35,762
	Other	129,439	2,371	496,451	261,614
	Total	144,045	2,371	1,014,714	2,701,690

[1] Transactions with separate entities that are related parties of the Company.
[2] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

(B) Balances of receivables and payables

Balances of receivables and payables arising from the sales and purchases of goods and services as of December 31, 2022 and 2021 are as follows:

		December 31, 2022	
(In millions of Korean won)	**Name of company**[1]	**Receivables**	**Payables**[2]
Associates and joint ventures	Samsung SDS	49,792	512,022
	Samsung Electro-Mechanics	385	133,952
	Samsung SDI	121,605	92,452
	Cheil Worldwide	223	453,545
	Other	371,575	1,236,016
	Total	543,580	2,427,987
Other related parties	Samsung C&T	217,818	2,783,240
	Other	20,830	250,103
	Total	238,648	3,033,343
Other[3]	Samsung Engineering	331	1,251,039
	S-1	3,839	73,102
	Other	15,647	545,684
	Total	19,817	1,869,825

[1] Balances due from and to separate entities that are related parties of the Company.
[2] Payables and others include lease liabilities.
[3] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

		December 31, 2021	
(In millions of Korean won)	**Name of company**[1]	**Receivables**	**Payables**[2]
Associates and joint ventures	Samsung SDS	64,521	616,949
	Samsung Electro-Mechanics	3,659	176,549
	Samsung SDI	130,638	100,835
	Cheil Worldwide	206	428,090
	Other	397,709	1,361,554
	Total	596,733	2,683,977
Other related parties	Samsung C&T	220,550	1,739,997
	Other	20,306	251,766
	Total	240,856	1,991,763
Other[3]	Samsung Engineering	338	1,151,536
	S-1	2,423	40,558
	Other	48,703	185,256
	Total	51,464	1,377,350

[1] Balances due from and to separate entities that are related parties of the Company.
[2] Payables and others include lease liabilities.
[3] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

(C) For the years ended December 31, 2022 and 2021, the Company invested ₩ 907,958 million and ₩ 47,090 million, respectively, in associates and joint ventures. In addition, the Company recovered ₩ 13,087 million and ₩ 19,169 million of investments in associates and joint ventures for the years ended December 31, 2022 and 2021.

(D) For the year ended December 31, 2022, the Company declared ₩ 1,663,149 million of dividends (₩ 3,527,449 million for the year ended December 31, 2021) to the related parties. In addition, for the year ended December 31, 2022, the Company declared ₩ 128,232 million (₩ 267,738 million for the year ended December 31, 2021) of dividends to the entities that are not related parties of the Company in accordance with *Korean IFRS 1024*, but belong to the same conglomerate according to the Monopoly Regulation and Fair Trade Act. As of December 31, 2022 and 2021, there is no dividend payables to the entities that are not in scope of Korean IFRS 1024.

(E) For the year ended December 31, 2022, the Company entered into lease agreements with its related parties amounted to ₩ 25,243 million (₩ 12,602 million for the year ended December 31, 2021), and the lease payments made to the related parties for the years ended December 31, 2022 and 2021 amounted to ₩ 22,607 million and ₩ 31,893 million, respectively.

(F) Key management compensation

The compensation paid or payable to key management (executive directors) for their services for the years ended December 31, 2022 and 2021 consists of:

(In millions of Korean won)	**2022**	**2021**
Short-term employee benefits	14,768	20,370
Post-employment benefits	612	886
Other long-term employee benefits	5,434	8,092

31. Information for Non-Controlling Interests

(A) Changes in accumulated non-controlling interests

The profit or loss allocated to non-controlling interests and accumulated non-controlling interests of subsidiaries that are material to the Company for the years ended December 31, 2022 and 2021 are as follows:

	Samsung Display Co., Ltd. and its subsidiaries	
(In millions of Korean won)	**2022**	**2021**
Percentage of non-controlling interests	15.2%	15.2%
Balance as of January 1	8,028,555	7,723,784
Profit for the year	853,290	580,164
Dividends	(3,947)	(3,123)
Other	(24,186)	(272,270)
Balance as of December 31	8,853,712	8,028,555

(B) The summarized financial information for each subsidiary with non-controlling interests that are material to the Company before the intercompany eliminations for the years December 31, 2022 and 2021 are as follows:

(1) Summarized consolidated statements of financial position

	Samsung Display Co., Ltd. and its subsidiaries	
(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Current assets	42,082,412	35,220,985
Non-current assets	23,070,658	24,773,119
Current liabilities	6,294,310	7,539,403
Non-current liabilities	1,220,097	1,359,478
Equity attributable to:	57,638,663	51,095,223
Owners of the parent company	57,552,528	51,012,895
Non-controlling interests	86,135	82,328

(2) Summarized consolidated statements of comprehensive income

	Samsung Display Co., Ltd. and its subsidiaries	
(In millions of Korean won)	**2022**	**2021**
Sales	34,298,283	31,557,504
Profit for the year	6,614,496	3,511,314
Other comprehensive income (loss)	(67,942)	1,256,904
Total comprehensive income attributable to:	6,546,554	4,768,218
Owners of the parent company	6,539,633	4,752,963
Non-controlling interests	6,921	15,255

(3) Summarized consolidated statements of cash flows

	Samsung Display Co., Ltd. and its subsidiaries	
(In millions of Korean won)	**2022**	**2021**
Cash flows from operating activities	11,395,827	10,943,029
Cash flows from investing activities	(8,654,933)	(9,927,110)
Cash flows from financing activities	(1,146,117)	(1,284,749)
Effect of exchange rate changes on cash and cash equivalents	(44,426)	52,154
Increase (decrease) in cash and cash equivalents	1,550,351	(216,676)
Cash and cash equivalents at beginning of the year	758,859	975,535
Cash and cash equivalents at end of year	2,309,210	758,859

SAMSUNG ELECTRONICS Co., Ltd.

2022 Business Report

For the year ended December 31, 2022

Certain statements in the document, other than purely historical information, including estimates, projections, statements relating to our business plans, objectives and expected operating results, and the assumptions upon which those statements are based, are “forward-looking statements.” Forward-looking statements are based on current expectations and assumptions that are subject to risks and uncertainties which may cause actual results to differ materially from the forward-looking statements. A detailed discussion of risks and uncertainties that could cause actual results and events to differ materially from such forward-looking statements is included in our financial reports available on our website.

See, also, 『Note on Forward-Looking Statements』 in preamble of 『IV. Management Discussion and Analysis』.

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Certification

Letter of Certification

We, Jong-hee Han and Hark-kyu Park, as a CEO and the executive in charge of reporting, respectively, certify that we have thoroughly reviewed the annual business report of Samsung Electronics Co., Ltd. for the year ended December 31, 2022.

Based on our knowledge, this report does not contain any untrue statements of material facts or omit any material facts; and it does not contain any statements that are intentionally misleading for the users of the information in the report.

We confirm that Samsung Electronics operates the Internal Controls over Financial Reporting, as defined in Article 8 of the Act on External Audit of Stock Companies.

Date: March 7, 2023

Jong-hee Han

Vice Chairman and CEO
Samsung Electronics Co., Ltd.

Executive responsible for reporting: Hark-kyu Park

President and CFO
Samsung Electronics Co., Ltd.

I. Corporate Overview

1. Overview

A. Legal, commercial name:

- Samsung Electronics Co., Ltd.

B. Date of establishment:

- Samsung Electronics Co., Ltd. ("SEC" or "the Company") was established as Samsung Electronics Industry Co., Ltd. on January 13, 1969, and held an initial public offering on June 11, 1975.
- SEC changed its name from Samsung Electronics Industry Co., Ltd. to Samsung Electronics Co., Ltd. following a resolution passed at the Annual General Meeting (AGM) of shareholders on February 28, 1984.

C. Address, phone number, and English language website of the corporate headquarters

- Address: 129, Samsung-ro, Yeongtong-gu, Suwon, Gyeonggi-do, Korea
- Phone Number: +82-31-200-1114
- Website: https://www.samsung.com/sec

D. Core businesses

- The Company (defined below) is comprised of two business divisions – DX (Device eXperience) and DS (Device Solutions) – SDC (Samsung Display and its subsidiaries), which runs display panel business, and Harman (Harman International Industries, Inc. and its subsidiaries), which operates businesses related to automotive electronics components, etc.

SEC is a global electronics firm consisting of its headquarters in Korea and 232 subsidiaries (collectively, "Samsung Electronics", the "Company", or "we") across the world, including 9 regional headquarters for the DX Division, 5 regional headquarters, as well as production and sales subsidiaries, for the DS Division, and subsidiaries of SDC and Harman.

Key products by each organization are set forth below:

Organization	Key products
DX Division	TVs, monitors, refrigerators, washing machines, air conditioners, hand held products (HHPs), telecommunications network systems, computers, etc.
DS Division	DRAM, NAND flash, mobile APs, etc.
SDC	OLED panels for smartphones, etc.
Harman	Digital cockpits, telematics, speakers, etc.

In December 2021, the Company merged the CE and IM Divisions to create the DX Division; and it separated SDC and the DS Division to align with the corporate organizational structure.

[DX Division]

The DX Division manufactures TVs, monitors, refrigerators, washing machines, air conditioners, smartphones, tablets, and wearables. It is leading the global digital market with its differentiated technology, designs, and products, including premium TVs based on leading technologies such as Neo QLED TV; Lifestyle TVs that align with the lifestyles of customers who value experiences; and Bespoke products, which are customized to satisfy various needs of our customers. The Company has maintained its position as the leader in the TV market for 17 straight years. Moreover, for smartphones, a core product of the Division, we have developed a broad lineup ranging from low-end right through to premium models with the Galaxy series. Samsung will continue to innovate in the premium and Lifestyle TV markets while strengthening global sales of Bespoke products.

Through the Galaxy Ecosystem, we will deliver top-notch Multi-Device experiences, allowing convenient and seamless use of not just mobile products, but also TV and home appliance products. At the same time, we will keep fortifying our status and market dominance as a global brand by continually releasing new products that reflect the needs of consumers and current trends; and we will lead the global 5G market based on our end-to-end solutions, which encompass handsets, chipsets, as well as our experience in commercializing initial 5G markets.

[DS Division]

The Memory Business, System LSI Business, Foundry Business, and Display Panel ("DP") Business make up the DS Division. The Memory Business manufactures and sells DRAM and NAND products; the System LSI Business designs and sells mobile application processors ("mobile APs" or "APs") and camera sensor chips; and the Foundry Business is in charge of consignment production of semiconductors.

The Memory Business continues to maintain its position at the top of the global memory market by focusing on qualitative growth, including by applying advanced process technology in DRAM and NAND Flash products; differentiating our products via centering our business portfolio on high-value solutions; and enhancing cost competitiveness.

The System LSI Business has not been complacent, extending its focus from mobile to include automotive chips, and it is expanding its market power through actions such as satisfying demand with differentiated products—such as APs and CISs—based on its advanced manufacturing process technology, and by diversifying foundry suppliers.

The Foundry Business is expanding by securing competitiveness via adopting core technologies and new structures in advanced processes, securing supply continuity of semiconductors amid global supply shortage and actively addressing continued strong demand for legacy processes.

[SDC]

In SDC, the mobile panel business's differentiated technology is a key factor behind the increased adoption of OLED panels, while our release of products in new applications—such as foldable devices, rollable devices, and automotives—has expanded the overall market. Meanwhile, the large panel business is focusing on premium products such as high-definition, ultra-large, Quantum Dot TVs and is enhancing its competitiveness through continuous improvements in technology and productivity.

[Harman]

Harman consists of the automotive component business, which designs and develops connected products and solutions for automakers; and the lifestyle audio business, which provides consumer audio products and professional audio solutions. Harman, as a leader in the automotive component market, supplies car manufacturers with products that apply innovative technologies. And in the audio market, it has been firmly establishing the brand reputation among consumers and audiophiles. Harman has established an internationally renowned brand and it offers diverse product lines, using internal development and strategic acquisitions to strengthen competitiveness in each business area.

☞ See 『II. Businesses Overview』 for more details about each Division.

E. Subsidiaries subject to consolidated accounting (summary)

As of December 31, 2022, and in accordance with Korean International Financial Reporting Standards (K-IFRS) 1110, *Consolidated Financial Statements*, Samsung Electronics, the controlling company, had 232 consolidated subsidiaries, with the addition of 8 subsidiaries and reduction of 4 subsidiary when compared to totals as of December 31, 2021.

Classification	Number of subsidiaries subject to consolidated accounting				Number of major subsidiaries
	As of January 1, 2022	Added	Removed	As of December 31, 2022	
Listed	-	-	-	-	-
Unlisted	228	8	4	232	141
Total	228	8	4	232	141

See 『Appendix-1. Subsidiaries subject to consolidated accounting (detailed)』 for details.

[1H22: Changes in subsidiaries subject to consolidated accounting]

Classification	Subsidiary	Reason
Newly consolidated	Samsung R&D Institute Ukraine (SRUKR)	Establishment
	Samsung Electronics Uzbekistan Ltd. (SEUZ)	Establishment
	Apostera GmbH	Acquisition of shares
	Apostera UA, LLC	Acquisition of shares
	DOWOOINSYS VINA COMPANY LIMITED	Establishment
	Red Brick Lane Marketing Solutions Pvt. Ltd.	Acquisition of shares
	SVIC #57 Venture Capital Union	Establishment
	Stellarforest	Establishment
No longer consolidated	Dacor Canada Co	Liquidation
	AMX UK Limited	Liquidation
	Harman International s.r.o	Liquidation
	Apostera GmbH	Merger

F. Whether the Company is an SME

The Company is not subject to Article 2 of the Framework Act on Small and Medium Enterprises.

Small and medium enterprise	No
Venture company	No
Medium-sized enterprise	No

G. Credit rating

SEC's credit rating is assessed by two external credit ratings agencies. As of December 31, 2022, SEC's credit ratings were Aa2 with a stable investment outlook as rated by Moody's (US); and AA- with a stable investment outlook as rated by S&P (US).

Securities	Date	Ratings	Credit rating agency	Note
Corporate bond (USD denominated; issued in 1997 and expire in 2027)	Jul 2020	AA-	S&P	Regular review
	Sep 2020	Aa3	Moody's	
	Jul 2021	AA-	S&P	
	Aug 2021	Aa3	Moody's	
	Aug 2022	AA-	S&P	
	Sep 2022	Aa2	Moody's	

Credit rating range: Moody's (Aaa-C), S&P (AAA-D)

[Credit ratings definitions]

	Moody's	Definition	S&P	Definition
Investment grade	Aaa	Superior ability to repay debt obligations; lowest level of credit risk	AAA	Extremely strong ability to meet financial commitments; highest rating
	Aa1/Aa2/Aa3	High ability to repay debt obligations; very low credit risk	AA+/AA/AA-	Very strong capacity to meet financial commitments
	A1/A2/A3	Upper-medium ability to repay debt obligations; low credit risk	A+/A/A-	Strong capacity to meet financial commitments; susceptible to adverse effects of changes in economic conditions
	Baa1/Baa2/Baa3	Medium ability to repay debt obligations; moderate credit risk, speculative factors	BBB+/BBB/BBB-	Adequate capacity to meet financial commitments; relatively more susceptible to adverse economic conditions
Speculative grade	Ba1/Ba2/Ba3	Speculative; substantial credit risk	BB+/BB/BB-	Major ongoing uncertainties; exposure to adverse business, financial, or economic conditions can impair ability to meet financial commitments
	B1/B2/B3	Speculative; high credit risk	B+/B/B-	More vulnerable to nonpayment than those rated BB; has capacity to meet financial commitments but adverse financial or economic conditions are likely to impair ability to continue doing so
	Caa	Speculative; very high credit risk	CCC	Vulnerable to nonpayment; dependent upon favorable business, financial, and economic conditions
	Ca	Highly speculative; likelihood of being in or near default; some prospect for recovery of principal and interest	CC	Highly vulnerable to nonpayment; default has not yet occurred but expected to be a virtual certainty
	C	Typically in default; little prospect for recovery of principal or interest	C	Highly vulnerable to nonpayment; obligation is expected to have lower ultimate recovery vis-à-vis higher rated obligations
			D	In default or in breach of imputed promises, upon the filing of a bankruptcy petition or the taking of a similar action

Please refer to 『III. Financial Affairs-7. Matters about financing through the issuance of securities』 for credit ratings on corporate bonds and commercial paper issued by the Company's subsidiaries.

H. Whether the Company is listed (or registered or designated) and matters related to special listed companies

The Company listed on the Korea Stock Exchange on June 11, 1975.

Listed (or registered or designated)	Date listed (or registered or designated)	Special listed company	Subject to regulations for special exception companies
Stock market (KOSPI)	June 11, 1975	No	No

2. Company history

A. Company history

Jan 13, 1969	Samsung Electronics Manufacturing Incorporated
Jun 11, 1975	Listed on the Korea Stock Exchange
Feb 28, 1984	Renamed as Samsung Electronics
Nov 1, 1988	Merged with Samsung Semiconductor and Communications
Apr 1, 2012	Spun off the LCD division (established Samsung Display)
Mar 5, 2017	Released advanced Quantum dot-based QLED TV
Mar 10, 2017	SEA acquired shares of Harman International Industries, Inc. (100%)
Jul 4, 2017	Started operations at semiconductor production fab in Pyeongtaek, the largest such facility in the world
Nov 1, 2017	Sold Printing Solution business
Aug 30, 2018	Launched QLED 8K TVs with Quantum Dot technology
Apr 3, 2019	Launched Galaxy S10 5G, a 5G smartphone
Jun 4, 2019	Released Bespoke, a refrigerator customized to customers' lifestyles
Sep 4, 2019	Unveiled Exynos 980, 5G mobile processor
Sep 6, 2019	Unveiled Galaxy Fold, a foldable phone with a new form factor
Jan 29, 2020	Launched AI-technology-based Grande AI washer/dryer
Feb 4, 2020	Launched world's first ultra-high speed DRAM for AI and next-generation super computers
Feb 11, 2020	Unveiled Galaxy Z Flip, a foldable model with a new form factor
Aug 30, 2020	Started operation of Pyeongtaek Line 2, the world's largest semiconductor line
Jan 7, 2021	Unveiled Neo QLED TV
May 11, 2021	Announced expansion to the global market for Bespoke Home
Jun 3, 2021	Received certification for reducing carbon emissions, water use, and waste discharge for all of our semiconductor worksites, a first in the global semiconductor industry
Aug 11, 2021	Unveiled Galaxy Z Fold 3 and Galaxy Z Flip 3
Oct 12, 2021	Started mass producing highly advanced 14-nano EUV DDR5 DRAM
Nov 9, 2021	Developed industry's first LPDDR5X DRAM
Nov 24, 2021	Announced investment in a new foundry production site in Taylor, Texas, USA
Feb 10, 2022	Unveiled the Galaxy S22 series
Feb 17, 2022	Unveiled the Bespoke Infinite Line
Jun 30, 2022	Began mass production of the world's first 3-nano GAA chips
Aug 10, 2022	Unpacked Galaxy Z Fold 4 and Flip 4
Aug 19, 2022	Held a groundbreaking ceremony for the next-generation semiconductor R&D complex
Sep 15, 2022	Announced a new environmental strategy
Nov 7, 2022	Mass produced 1Tb 8th-generation V-NAND
Dec 21, 2022	Developed highly advanced 12nm-class 16Gb DDR5 DRAM

B. Company location and changes

The Company's head office is located at 129, Samsung-ro, Yeongtong-gu, Suwon, Gyeonggi-do. There were no changes in the Company's head office location over the past five fiscal years.

C. Important changes in management executives

As of December 31, 2022, SEC's Board consisted of five Executive Directors (Jong-hee Han, Kye-hyun Kyung, Tae-moon Roh, Hark-kyu Park and Jung-bae Lee) and six Independent Directors (Han-jo Kim, Sun-uk Kim, Jeong Kim and Jun-sung Kim, Eun-nyeong Heo, Myung-hee Yoo).

Date of change	Type of shareholder meeting	Appointed		Terms expired or dismissed
		Newly appointed	Reappointed	
Mar 23, 2018	AGM	Executive Director Sang-hoon Lee Executive Director Ki-nam Kim Executive Director Hyun-suk Kim Executive Director Dong-jin Koh Independent Director Jeong Kim Independent Director Sun-uk Kim Independent Director Byung-gook Park	-	Executive Director Oh-hyun Kwon Executive Director Boo-keun Yoon (resigned) Executive Director Jong-kyun Shin (resigned) Independent Director Han-joong Kim Independent Director Byeong-gi Lee
Mar 23, 2018	-	CEO Ki-nam Kim CEO Hyun-suk Kim CEO Dong-jin Koh	-	-
Mar 20, 2019	AGM	Independent Director Han-jo Kim Independent Director Curie Ahn	Independent Director Jae-wan Bahk	Independent Director In-ho Lee Independent Director Kwang-soo Song
Oct 26, 2019	-	-	-	Executive Director Jae-yong Lee
Feb 14, 2020	-	-	-	Executive Director Sang-hoon Lee (resigned)
Mar 18, 2020	AGM	Executive Director Jong-hee Han Executive Director Yoon-ho Choi	-	-
Mar 17, 2021	AGM	-	Executive Director Ki-nam Kim Executive Director Hyun-suk Kim Executive Director Dong-jin Koh Independent Director Byung-gook Park Independent Director Jeong Kim Independent Director Sun-uk Kim	-
Mar 17, 2021	-	-	CEO Ki-nam Kim CEO Hyun-suk Kim CEO Dong-jin Koh	-
Dec 31, 2021	-	-	-	Executive Director Yoon-ho Choi (resigned)
Feb 15, 2022	-	CEO Jong-hee Han	-	CEO Ki-nam Kim (resigned) CEO Hyun-suk Kim (resigned) CEO Dong-jin Koh (resigned)
Mar 16, 2022	AGM	Executive Director Kye-hyun Kyung Executive Director Tae-moon Roh Executive Director Hark-kyu Park Executive Director Jung-bae Lee Independent Director Wha-jin Han Independent Director Jun-sung Kim	Independent Director Han-jo Kim	-
Mar 16, 2022	-	-	-	Executive Director Ki-nam Kim (resigned) Executive Director Hyun-suk Kim (resigned) Executive Director Dong-jin Koh (resigned)
Mar 16, 2022	-	CEO Kye-hyun Kyung	-	-
Mar 19, 2022	-	-	-	Independent Director Jae-wan Bahk Independent Director Curie Ahn

Date of change	Type of shareholder meeting	Appointed		Terms expired or dismissed
		Newly appointed	Reappointed	
Apr 20, 2022	-	-	-	Independent Director Wha-jin Han (resigned)
May 17, 2022	-	-	-	Independent Director Byung-gook Park (position vacated)
Nov 3, 2022	EGM	Independent Director Eun-nyeong Heo Independent Director Myung-Hee Yoo	-	-

Mar 23, 2018: Executive Directors Ki-nam Kim, Hyun-suk Kim, and Dong-jin Koh were newly appointed as CEOs at the Board meeting.
Mar 17, 2021: Ki-nam Kim, Hyun-suk Kim, and Dong-jin Koh were appointed as CEO at the Board meeting.
Dec 31, 2021: Yoon-ho Choi resigned from his position as Executive Director.
Feb 15, 2022: Executive Directors Ki-nam Kim, Hyun-suk Kim, and Dong-jin Koh resigned from their positions as CEO; and Executive Director Jong-hee Han was appointed as CEO at the Board meeting held on the same date.
Mar 16, 2022: Kye-hyun Kyung, Tae-moon Roh, Hark-kyu Park, and Jung-bae Lee were newly appointed as Executive Directors; Wha-jin Han and Jun-sung Kim as Independent Directors; and Han-jo Kim was reappointed as Independent Director at the Annual General Meeting of the shareholders.
Mar 16, 2022: Ki-nam Kim, Hyun-suk Kim, and Dong-jin Koh resigned from their position as Executive Director.
Mar 16, 2022: Executive Director Kye-hyun Kyung was appointed as CEO at the Board meeting.
Mar 19, 2022: Jae-wan Bahk and Curie Ahn's terms as Independent Directors expired.
Apr 20, 2022: Wha-jin Han resigned from her position as Independent Director.
May 17, 2022: Independent Director Byung-gook Park passed away.
Nov 3, 2022: Eun-nyeong Heo and Myung-hee Yoo were newly appointed as Independent Directors at the Extraordinary General Meeting of the shareholders.

D. Changes in the major shareholder

The major shareholder changed to Samsung Life Insurance as the shares of the previous major shareholder were inherited by beneficiaries on April 29, 2021.

[As of December 31, 2022]

Date of Change	Name of major shareholder	Number of shares owned	Share ratio	Reason for change	Note
Apr 29, 2021	Samsung Life Insurance	1,263,050,053	21.16%	Shares of the previous major shareholder were inherited by beneficiaries	-

Number of shares owned and share ratio are the sum of those of major shareholder and its related parties, and the number of shares is based on shares with voting rights (including those with limited voting rights in accordance with relevant laws).

☞ Please refer to 『VII. Information on Shareholders』 for details on the major shareholder.

E. Company name changes

In 2018, Harman Connected Services Finland OY, and Harman Professional Singapore Pte. Ltd changed their names to Harman Finland Oy, and Harman Singapore Pte. Ltd., respectively.

In 2019, Samsung Electronics Greece S.A. (SEGR) changed its name to Samsung Electronics Greece S.M.S.A. (SEGR).

In 2021, Samsung Electronics Portuguesa S.A. (SEP) changed its name to Samsung Electronics Portuguesa, Unipessoal, Lda. (SEP).

☞ Details are for SEC and major subsidiaries of SEC. See 『1. Subsidiaries subject to consolidated accounting (detailed)』 in 『XII. Appendix』 for details.

F. Mergers and acquisitions

In 2018, Samsung Electronics America, Inc. merged with Samsung Pay, Inc.; and Harman Connected Services, Inc. merged with Harman Connected Services Holding Corp. In the same year, SEA sold its full stake in NexusDX, Inc.

In 2019, Samsung Electronics Benelux B.V. (SEBN) acquired shares of Corephotonics Ltd. In the same year, SEC acquired a PLP business from affiliate Samsung Electro-Mechanics. In addition, Harman Becker Automotive Systems Manufacturing Kft merged with Duran Audio B.V.; and Samsung (China) Investment Co., Ltd. (SCIC) merged with Samsung Electronics (Beijing) Service Company Limited (SBSC).

In 2021, Samsung Research America, Inc. (SRA) merged with Viv Labs, Inc. Furthermore, Samsung Electronics America, Inc. (SEA) merged with Prismview, LLC.

☞ Details are for SEC and major subsidiaries of SEC. See 『1. Subsidiaries subject to consolidated accounting (detailed)』 in 『XII. Appendix』 for details.

G. Important changes in the Company's business

There were no changes over the past five fiscal years.

H. Other important matters related to the Company's business

In December 2021, the Company merged its CE and IM Divisions to form the DX Division and changed the Mobile Communications Business to the MX Division.
Also, the Company separated SDC and the DS Division in alignment with the corporate organizational structure.

[As of December 2021]

	Before	After
Business organization	CE Division (Visual Display, Digital Appliances, Medical Devices)	DX Division (Visual Display, Digital Appliances, Medical Devices, Mobile eXperience, Network)
	IM Division (Mobile, Network)	
	DS Division (Memory, System LSI, Foundry, DP)	DS Division (Memory, System LSI, Foundry)
		SDC (DP)
	Harman Division	Harman
Regional headquarters	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa
	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)

3. Changes in paid-in capital

There were no changes in paid-in capital over the past five fiscal years.

Due to the retirement of shares, the total par value of the shares issued is KRW 679,267 million (KRW 596,978 million in common stock and KRW 82,289 million in preferred stock), which is not equivalent to paid-in capital of KRW 897,514 million.

(KRW, shares)

Type of stock	Classification	December 31, 2022
Common	Number of issued shares	5,969,782,550
	Par value	100
	Paid-in capital	596,978,255,000
Preferred	Number of issued shares	822,886,700
	Par value	100

Type of stock	Classification	December 31, 2022
	Paid-in capital	82,288,670,000
Total	Paid-in capital	679,266,925,000

4. Stock information

A. Total number of shares

As of December 31, 2022, SEC's issued shares on a cumulative basis totaled 7,780,466,850 registered common shares and 1,194,671,350 registered, non-voting preferred shares; and the Company had canceled 1,810,684,300 common shares and 371,784,650 preferred shares in accordance with resolutions of the Board of Directors (the Board). As of the same date, issued shares and shares outstanding totaled 5,969,782,550 for common shares and 822,886,700 for preferred shares.

[As of December 31, 2022] (Shares)

Classification	Type of stocks			Note
	Common	Preferred	Total	
I. Authorized shares	20,000,000,000	5,000,000,000	25,000,000,000	-
II. Issued shares (cumulative)	7,780,466,850	1,194,671,350	8,975,138,200	-
III. Decrease in number of shares (cumulative)	1,810,684,300	371,784,650	2,182,468,950	-
1. Capital reduction	-	-	-	-
2. Cancellation	1,810,684,300	371,784,650	2,182,468,950	Treasury shares
3. Redemption	-	-	-	-
4. Other	-	-	-	-
IV. Issued shares (II-III)	5,969,782,550	822,886,700	6,792,669,250	-
V. Treasury shares	-	-	-	-
VI. Outstanding shares	5,969,782,550	822,886,700	6,792,669,250	-

Post-split basis; SEC conducted a 50:1 stock split effective from May 3, 2018, lowering par value of every common and preferred share from KRW 5,000 to KRW 100.

B. Treasury shares

In 2018, SEC completed the cancellation of all shares held in treasury as a part of its shareholder return policy, and no acquisition/disposal transaction of treasury shares was made during the reporting period.

[As of Dec 31, 2022] (Shares)

Acquisition method	Share type	Period-start	Change			Period-end
			Acquisition (+)	Disposal (-)	Cancellation (-)	
Intra-market direct acquisition (within dividend related capital gains limit)	Common	-	-	-	-	-
	Preferred	-	-	-	-	-
Acquisition from a trust agreement (within dividend related capital gains limit)	Common	-	-	-	-	-
	Preferred	-	-	-	-	-
Total	Common	-	-	-	-	-
	Preferred	-	-	-	-	-

C. Types of registered stock

SEC has two types of registered equity securities: 1) common stock; 2) non-voting and non-cumulative preferred stock.

The shareholders of preferred stock are entitled to dividend payments of an additional 1% of par value compared to shareholders of common stock.

As of December 31, 2022, the number of issued non-cumulative and non-voting preferred stock totaled 822,886,700.

[Current status of issued preferred stock] (KRW, Shares)

Classification			Contents	
Issued date			Aug 25, 1989 (first issued date)	
Par value per share			100	
Total amount issued (based on par value) / total number of shares issued to date			119,467,000,000	1,194,671,350
Amount to date / number of shares to date			82,289,000,000	822,886,700
Details on stock	Matters on dividend		Entitled to dividend payments of an additional 1% of par value compared to common shares	
	Matters on residuary distribution		-	
	Matters on redemption	Redemption conditions	-	
		Redemption method	-	
		Redemption period	-	

Classification			Contents
		Redemption value per share	-
		Redemption expected within a year	-
	Matters on conversion	Conversion conditions (including changes in conversion ratio)	-
		Conversion period	-
		Types of shares to be issued with the conversion	-
		Number of shares to be issued after the conversion	-
	Matters on voting rights		No voting rights
Other factors to consider when making investment decisions (matters on shareholders' agreement and financial covenants, etc.)			-

Due to the cancellation of shares, the total par value of issued stocks is KRW 82,289 million and is thus different from the paid-in capital (KRW 119,467 million).
The total number of shares issued to date and the number of shares to date above reflect the changes in the number of shares due to the stock split in 2018.

[Preferred stock, by issued date] (KRW, shares)

Date	Change	Details of increase/decrease					
		Type	Number of shares	Par value per share	Total par value	Issue price per share	Total issue price
Aug 25, 1989	Rights issue	Preferred	3,400,000	5,000	17,000,000,000	28,800	97,920,000,000
Aug 25, 1989	Bonus issue	Preferred	340,000	5,000	1,700,000,000	5,000	1,700,000,000
Oct 29, 1990	Exercise of conversion rights	Preferred	371,620	5,000	1,858,100,000	29,600	10,999,952,000
Mar 19, 1991	Exercise of conversion rights	Preferred	40,898	5,000	204,490,000	29,341	1,199,988,218
Mar 30, 1991	Exercise of conversion rights	Preferred	5,112	5,000	25,560,000	29,341	149,991,192
Apr 8, 1991	Exercise of conversion rights	Preferred	1,704	5,000	8,520,000	29,341	49,997,064
May 17, 1991	DR issuance	Preferred	1,907,671	5,000	9,538,355,000	37,973	72,439,990,883
Jul 24, 1991	Exercise of conversion rights	Preferred	34,081	5,000	170,405,000	29,341	999,970,621
Jul 30, 1991	Exercise of conversion rights	Preferred	20,449	5,000	102,245,000	29,341	599,994,109
Jul 31, 1991	Exercise of conversion rights	Preferred	64,754	5,000	323,770,000	29,341	1,899,947,114

Date	Change	Details of increase/decrease					
		Type	Number of shares	Par value per share	Total par value	Issue price per share	Total issue price
Aug 30, 1991	Exercise of conversion rights	Preferred	214,716	5,000	1,073,580,000	29,341	6,299,982,156
Sep 30, 1991	Exercise of conversion rights	Preferred	20,448	5,000	102,240,000	29,341	599,964,768
Jun 17, 1993	DR issuance	Preferred	2,542,372	5,000	12,711,860,000	47,312	120,284,704,064
Oct 29, 1993	Exercise of conversion rights	Preferred	105,999	5,000	529,995,000	28,302	2,999,983,698
Nov 12, 1993	DR issuance	Preferred	2,158,273	5,000	10,791,365,000	55,975	120,809,331,175
Nov 29, 1993	Exercise of conversion rights	Preferred	58,295	5,000	291,475,000	28,302	1,649,865,090
Nov 30, 1993	Exercise of conversion rights	Preferred	19,079	5,000	95,395,000	28,302	539,973,858
Apr 6, 1994	DR issuance	Preferred	1,086,956	5,000	5,434,780,000	74,502	80,980,395,912
Jun 3, 1994	Exercise of conversion rights	Preferred	16,027	5,000	80,135,000	25,809	413,640,843
Jun 6, 1994	Exercise of conversion rights	Preferred	9,072	5,000	45,360,000	25,809	234,139,248
Jun 13, 1994	Exercise of conversion rights	Preferred	17,236	5,000	86,180,000	25,809	444,843,924

Date	Change	Details of increase/decrease					
		Type	Number of shares	Par value per share	Total par value	Issue price per share	Total issue price
Jun 22, 1994	Exercise of conversion rights	Preferred	1,209	5,000	6,045,000	25,809	31,203,081
Jun 27, 1994	Exercise of conversion rights	Preferred	16,632	5,000	83,160,000	25,809	429,255,288
Jun 28, 1994	Exercise of conversion rights	Preferred	54,131	5,000	270,655,000	25,809	1,397,066,979
Jun 29, 1994	Exercise of conversion rights	Preferred	292,127	5,000	1,460,635,000	25,809	7,539,505,743
Jun 30, 1994	Exercise of conversion rights	Preferred	52,922	5,000	264,610,000	25,809	1,365,863,898
Jul 1, 1994	Exercise of conversion rights	Preferred	232,854	5,000	1,164,270,000	25,809	6,009,728,886
Jul 4, 1994	Exercise of conversion rights	Preferred	116,426	5,000	582,130,000	25,809	3,004,838,634
Jul 5, 1994	Exercise of conversion rights	Preferred	188,401	5,000	942,005,000	25,809	4,862,441,409
Jul 6, 1994	Exercise of conversion rights	Preferred	686,164	5,000	3,430,820,000	25,809	17,709,206,676

Date	Change	Details of increase/decrease					
		Type	Number of shares	Par value per share	Total par value	Issue price per share	Total issue price
Jul 7, 1994	Exercise of conversion rights	Preferred	270,349	5,000	1,351,745,000	25,809	6,977,437,341
Jul 8, 1994	Exercise of conversion rights	Preferred	977,068	5,000	4,885,340,000	25,809	25,217,148,012
Jul 12, 1994	Exercise of conversion rights	Preferred	6,048	5,000	30,240,000	25,809	156,092,832
Jul 19, 1994	Exercise of conversion rights	Preferred	68,040	5,000	340,200,000	25,809	1,756,044,360
Jul 20, 1994	Exercise of conversion rights	Preferred	4,232	5,000	21,160,000	25,809	109,223,688
Aug 12, 1994	Exercise of conversion rights	Preferred	944	5,000	4,720,000	25,502	24,073,888
Mar 13, 1995	Bonus issue	Preferred	3,028,525	5,000	15,142,625,000	5,000	15,142,625,000
Mar 13, 1996	Bonus issue	Preferred	5,462,593	5,000	27,312,965,000	5,000	27,312,965,000
Apr 14, 2003	Share cancellation	Preferred	-470,000	5,000	-2,350,000,000	-	-
Jan 15, 2004	Share cancellation	Preferred	-330,000	5,000	-1,650,000,000	-	-
May 4, 2004	Share cancellation	Preferred	-260,000	5,000	-1,300,000,000	-	-
Jan 15, 2016	Share cancellation	Preferred	-1,240,000	5,000	-6,200,000,000	-	-

Date	Change	Details of increase/decrease					
		Type	Number of shares	Par value per share	Total par value	Issue price per share	Total issue price
Apr 20, 2016	Share cancellation	Preferred	-530,000	5,000	-2,650,000,000	-	-
Jul 19, 2016	Share cancellation	Preferred	-320,000	5,000	-1,600,000,000	-	-
Sep 28, 2016	Share cancellation	Preferred	-230,000	5,000	-1,150,000,000	-	-
Apr 12, 2017	Share cancellation	Preferred	-255,000	5,000	-1,275,000,000	-	-
May 2, 2017	Share cancellation	Preferred	-1,614,847	5,000	-8,074,235,000	-	-
Jul 24, 2017	Share cancellation	Preferred	-225,000	5,000	-1,125,000,000	-	-
Oct 25, 2017	Share cancellation	Preferred	-168,000	5,000	-840,000,000	-	-
Jan 30, 2018	Share cancellation	Preferred	-178,000	5,000	-890,000,000	-	-
May 3, 2018	Stock split	Preferred	885,556,420	100	-	-	-
Dec 4, 2018	Share cancellation	Preferred	-80,742,300	100	-8,074,230,000	-	-
Preferred stock total			822,886,700		82,288,670,000		642,261,376,652

5. Changes to Articles of Incorporation

The most recent changes to the Articles of Incorporation took place on March 23, 2018. There were no other changes in the Articles of Incorporation in the past three fiscal years or in 2022 as of the disclosure date of the Korean version of this report. Moreover, changes to the Articles of Incorporation were not included in the agenda for the 54th AGM, which was scheduled to be held after the disclosure date of the Korean version of this report.

For details of the agenda items for the 54th AGM, please refer to the "Announcement of Shareholders' Meeting" disclosed on Financial Supervisory Service's DART (https://dart.fss.or.kr) on February 14, 2023.

II. Businesses Overview

1. Overview

In addition to our headquarters in Korea, Samsung Electronics consists of 232 subsidiaries across the world responsible for sales and production, which include 9 regional headquarters for the Device eXperience (DX) Division, 5 regional headquarters for the Device Solutions (DS) Division, and subsidiaries of Samsung Display (SDC) and Harman.

The Company's business divisions are organized in a two-pronged framework consisting of finished products and component businesses. The finished product business consists of the DX Division, which is responsible for the production and sales of TVs, monitors, refrigerators, washing machines, air conditioners, HHPs, which includes smartphones, as well as network systems, and computers. The component business consists of the DS Division, which manufactures and sells DRAM, NAND flash, and mobile APs, and SDC, which manufactures and sells display panels (DPs), including mobile OLED panels. Harman (acquired in 2017) manufactures and sells products such as Digital cockpits, telematics, and speakers.

In December 2021, the Company merged and restructured the CE and IM Divisions to form the DX Division and renamed the Mobile Communications Business to the Mobile eXperience (MX) Business. Also, SDC and the DS Division have been separated to align with the corporate organizational structure.

☞ See C. Current status of each division and D. Financial summary by organization in 『7. Other information』 for more details about each Division.

The Company's corporate headquarters—which oversees the DX and DS Divisions—as well as 33 consolidated subsidiaries are located in Korea. The Company's corporate headquarters is divided along Divisions and/or Businesses, which are located in Suwon, Gumi, Gwangju, Giheung, Hwaseong, Pyeongtaek, etc. The Company's unlisted domestic subsidiaries include Samsung Display for display panel production, Samsung Electronics Sales for domestic retail sales, Samsung Electronics Service for after-sales services, and Samsung Electronics Logitech for logistics.

We have 199 unlisted overseas subsidiaries for product manufacturing, sales, and R&D, with locations in the US, Europe/CIS, Middle East/Africa, and Asia, etc.

We have 45 subsidiaries in North America, including SEA (New Jersey; responsible for the sales of finished products including TV and HHPs), SII (California; manufacturing of TVs), SSI (California; sales of semiconductors and DPs), SAS (Texas; manufacturing of semiconductor products), SEDA (Brazil; manufacturing of multiple finished products) and Harman (Connecticut; automotive components) in the US.

In Europe and CIS, we operate 72 subsidiaries. These include SEUK (UK), SEG (Germany), SEF (France), SEI (Italy), SERC (Russia) for sales of finished products; SEH (Hungary) and SERK (Russia) for manufacturing TVs, and SEPM (Poland) for manufacturing home appliances.

We have 20 subsidiaries in Middle East and Africa, including SGE (UAE) and SSA (South Africa) for sales of finished products and SEEG (Egypt) and SSAP (South Africa) for manufacturing TVs.

We have 32 subsidiaries in Asia (ex China), including SESP (Singapore), SEAU (Australia), SEPCO (Philippines), and SME (Malaysia), which are responsible for regional sales. In addition, we operate numerous production sites including SEV and SEVT (Vietnam) for HHPs, SEHC (Vietnam) for TVs, SDV (Vietnam) for DPs, and SIEL (India) for multiple products.

We operate 30 subsidiaries in China, including SCIC (Beijing) and SEHK (Hong Kong) for the sales of finished products in those regions; and SSS (Shanghai) and SSCX (Xian) for semiconductors and DPs sales. Production sites for finished

products include SSEC (Suzhou) and semiconductor production facilities are located in SCS (Xian) among others.

The Company' recorded total revenue of KRW 302,231.4 billion as of the year end, is an increase of 8.1% year-on-year. Major customers (listed in alphabetical order) included Apple, Best Buy, Deutsche Telekom, Qualcomm and Verizon.

2. Key products and services

A. Revenue

SEC is involved in the production and sales of finished products, including TVs, refrigerators, washers, air conditioners, HHPs and components such as semiconductors (DRAM, NAND Flash, mobile APs) and display panels. Through Harman, the Company also produces and sells products such as digital cockpits and telematics.

In 2022, reported revenue was KRW 182,489.7 billion (60.4% of total net sales) for DX; KRW 98,455.3 billion (32.6%) for DS; KRW 34,382.6 billion (11.4%) for SDC; and KRW 13,213.7 billion (4.4%) for Harman.

(KRW 100 mil)

Organization	Major products	Revenue	Portion
DX Division	TVs, monitors, refrigerators, washing machines, air conditioners, HHPs, network systems, computers, etc.	1,824,897	60.4%
DS Division	DRAM, NAND flash, mobile APs, etc.	984,553	32.6%
SDC	OLED smartphone panels, etc.	343,826	11.4%
Harman	Digital cockpit, telematics, speakers, etc.	132,137	4.4%
Others	Overlapping internal transactions between Divisions	-263,099	-8.8%
Total		3,022,314	100.0%

Includes inter-divisional transactions.

☞ See 『4. Revenue and long-term contracts』 for information by each product.

B. Average selling price changes

In 2022, TV ASP decreased approximately 7% and HHP ASP increased approximately 5% year-on-year. Memory-product ASP fell approximately 17% year-on-year, and display panel (OLED panels for smartphones) ASP increased approximately 20%. The ASP of digital cockpits declined approximately 0.5% year-on-year.

3. Production materials and production facilities

A. Key production materials

For the DX Division, key materials include mobile AP and camera modules, which are supplied by Qualcomm, Semco, etc., and display panels for TVs and monitors, which are supplied by CSOT, etc. For the DS Division, key materials include chemicals and wafers, supplied by Soulbrain, SK Siltron, etc., and for SDC, key materials include FPCAs and windows, with suppliers such as BH, Apple, etc. For Harman, key materials include SoC (system-on-chip) products and memory products for in-vehicle solutions, which are supplied by Nvidia, Arrow, etc.

(KRW 100 mil)

Organization	Type of purchase	Item	Specific usage	Purchase price	Portion[1)]	Main supplier(s)
DX Division	Production materials	Mobile AP	CPU	93,138	12.8%	Qualcomm, MediaTek, etc.
	Production	Camera module	Camera for HHP	61,180	8.4%	Semco,

Organization	Type of purchase	Item	Specific usage	Purchase price	Portion[1)]	Main supplier(s)
	materials					CammSys, etc
	Production materials	Display panel	Color picture signaler for TV, monitor	60,224	8.3%	CSOT, AUO, BOE, etc.
	Production materials	Others	-	513,278	70.5%	
	Sub total			727,820	100.0%	
DS Division	Production materials	Chemical	Disk processing	28,708	14.7%	Soulbrain, DongWoo Fine-Chem, etc.
	Production materials	Wafer	Semiconductor disk	28,157	14.4%	SK Siltron, Sumco etc.
	Production materials	Others	-	138,263	70.9%	
	Sub total			195,128	100.0%	
SDC	Production materials	FPCA	Circuit	29,795	23.6%	BH, YP Electronics, etc.
	Production materials	Window	Tempered glass	19,367	15.3%	Apple, Biel, etc.
	Production materials	Others	-	77,155	61.1%	
	Sub total			126,317	100.0%	
Harman	Production materials	SoC	Chips for vehicles	8,625	10.7%	Nvidia, Intel, etc.
	Production materials	Others	-	72,038	89.3%	
	Sub total			80,663	100.0%	
Others	Production materials	-	-	589	-	
Total				1,130,517	-	

Purchase price does not include sales between Divisions.
Semco is a subsidiary.
1) Portion of purchase price of each item compared to total purchase price for each Division's raw materials.

B. Production material price trends

On a year-on-year basis, the price of mobile AP and camera modules, which are major production materials for the DX Division, increased approximately 77% and 13%, respectively. The price of TV and monitor display panels, which are also major production materials for the DX Division, decreased approximately 51% year-on-year. The price of wafers for semiconductor disks, which are major production materials for the DS Division, was similar compared to the previous year, and FPCAs for SDC increased approximately 37% year-on-year, respectively. Prices of tempered glass windows also increased approximately 10% compared to last year. For Harman, the price of SoCs decreased approximately 3% and memory for vehicles increased approximately 10%.

C. Production capacity, output, utilization rate

(Capacity)

(1,000 units)

Organization	Item	Capacity		
		2022	2021	2020
DX Division	Image devices	55,747	54,235	51,538
	HHP	332,170	319,550	321,600
DS Division	Memory	1,905,731,836	1,756,009,941	1,230,287,321
SDC	Display panel	2,700	3,604	7,274
Harman	Digital cockpit	11,257	9,066	9,362

Production capacity for major product categories on a consolidated basis.

The DX Divisions' production capacity, by major product, is calculated as follows:

- the average number of lines (x) the average output per hour (x) the average operation hours per day (x) standard days of operation

Memory production capacity for the DS Division is calculated as follows:

- converted output (after packaging, 1Gb equivalent) ÷ the utilization rate

SDC's production capacity is calculated as follows:

- the total producible panel surface area ÷ the dimensions of eighth generation glass (2,200x2,500mm)

Harman's production capacity for Digital cockpit is calculated as follows:

- the number of production (assembly and test) cells for each customer/product (x) the production capacity per hour by production cell (x) the standard operation hours per day (x) standard days of operation

(Output)

In 2022, the DX Division's image device output was 41,802 thousand units (major production sites: Mexico, Vietnam, Brazil, and Hungary), and HHP output was 229,180 thousand units (major production sites: Korea [Gumi], Vietnam, India, and Brazil). The DS Division's memory output (1Gb equivalent) was 1,905,732 million (major production sites: Korea [Hwaseong, Pyeongtaek, etc.] and China). SDC's output of display panels was 2,008 thousand units (major production sites: Korea [Cheonan, Asan]). Harman's Digital cockpit output was 8,334 thousand units.

(1,000 units)

Organization	Item	Output		
		2022	2021	2020
DX Division	Image devices	41,802	44,133	48,244
	HHP	229,180	260,501	249,218
DS Division	Memory	1,905,731,836	1,756,009,941	1,230,287,321
SDC	Display panel	2,008	2,849	5,977
Harman	Digital cockpit	8,334	6,928	6,116

Output for major product categories on a consolidated basis.

(Utilization rate)

DX utilization rates in 2022 were calculated as actual output relative to production capacity. The utilization rates were 75.0% for Image devices and 69.0% for HHPs.

(1,000 units)

Organization	Item	2022		
		Production capacity	Output	Utilization rate
DX Division	Image devices	55,747	41,802	75.0%
	HHP	332,170	229,180	69.0%

The DS Division and SDC respectively operate memory and display panel production in three shifts (24 hours a day). Cumulative operating days including holidays were 365 days in 2022. The utilization rate was calculated as the actual production time relative to the potential production capacity [operating days (x) number of production lines (x) 24 hours].

(Hours)

Organization	Item	2022		
		Potential production time	Actual production time	Utilization rate
DS Division	Memory	83,016	83,016	100%
SDC	Display panel	47,280	47,280	100%

In 2022, Harman's utilization rate was 74.0% and was calculated as actual output relative to production capacity.

(1,000 units)

Organization	Item	2022		
		Production capacity	Output	Utilization rate
Harman	Digital cockpit	11,257	8,334	74.0%

D. Production facilities and investment

(Key facilities for production and operation)

The Company's operational activities include production, development, marketing, and sales. In Korea, operations are located in Suwon, Gumi, Gwangju, Hwaseong, Pyeongtaek, and Asan. Overseas operations in North America, Europe, and China include a total of nine regional headquarters under the DX Division, five regional headquarters under the DS Division, and subsidiaries of SDC and Harman.

[Operations]

Region	Operations	Location
Korea (DX Division, DS Division, SDC – 12 work sites)	Suwon	Suwon
	Seocho	Seoul
	Woomyeon	Seoul
	Giheung	Yongin
	Hwaseong	Hwaseong
	Pyeongtaek	Pyeongtaek
	Cheonan	Cheonan
	Onyang	Onyang
	Asan	Asan
	Gumi1	Gumi
	Gumi2	Gumi
	Gwangju	Gwangju
Overseas (DX Division - 9 regional headquarters)	North America	New Jersey, US
	Europe	Surrey, UK
	China	Beijing, China
	Southeast Asia	Singapore, Singapore
	Southwest Asia	Haryana, India
	CIS	Moscow, Russia
	Middle East	Dubai, UAE
	Africa	Johannesburg, South Africa
	Latin America	Sao Paolo, Brazil
Overseas (DS Division - 5 regional headquarters)	Americas	San Jose, US
	Europe	Eschborn, Germany
	China	Shanghai, China
	Southeast Asia	Singapore, Singapore
	Japan	Tokyo, Japan
Harman	North America HQ	Connecticut, US

Harman's automotive business is mainly based in the US (Novi, MI) and in Germany (Garching), and its Lifestyle business is located in the US (Northridge, CA)

The Company's property, plant and equipment include land, buildings and structures, machinery and equipment, and construction in progress. As of December 31, 2022, the total book value was KRW 168,045.4 billion, which is an increase of KRW 18,116.9 billion from year-end 2021.

(KRW 100 mil)

Classification		Land	Buildings and structures	Machinery and equipment	Under construction	Other tangible assets	Total
Dec 31, 2021	Book value	98,302	388,694	795,263	180,093	36,933	1,499,285
	- Acquisition cost	99,436	626,515	2,749,096	180,093	119,580	3,774,720
	- Accumulated depreciation (including impairment loss)	-1,134	-237,821	-1,953,833	-	-82,647	-2,275,435
Change	General acquisition and capital expenditure	1,389	53,021	310,101	166,757	21,002	552,270
	Depreciation[1)]	-495	-35,339	-307,617		-16,070	-359,521
	Disposal/discard/impairment	-576	-1,302	-469	-2	-465	-2,814
	Others[2)]	302	1,995	-132	-10,772	-159	-8,766
Dec 31, 2022	Book value	98,922	407,069	797,146	336,076	41,241	1,680,454
	- Acquisition cost	100,246	677,138	3,030,006	336,076	132,485	4,275,951
	- Accumulated depreciation (including impairment loss)	-1,324	-270,069	-2,232,860		-91,244	-2,595,497

Market value of major tangible assets is omitted as objective assessment is difficult.
1) Land-depreciation is depreciation expense of right-of-use asset as per K-IFRS 1116 (Lease).
2) Includes effects of FX rates and government subsidies.

(Capex)

The Company's capex in 2022 was KRW 53.1 trillion, with investments concentrating on capacity expansions and migration of advanced nodes as well as on infrastructure for the DS Division and SDC. Amid market uncertainties in 2023, the Company will continue to invest to secure competitiveness for next-generation technology and to prepare for future demand, at the same time, the Company will concentrate on boosting investment efficiency to ensure stable growth.

[Capex, by organization]

(KRW 100 mil)

Organization	Purpose	Period	Assets	Investment
DS division	Establishment, addition, upgrade	January–December 2022	Buildings, facilities, etc.	478,717
SDC	Establishment, addition, upgrade	January–December 2022	Buildings, facilities, etc.	24,958
Other	Establishment, addition, upgrade	January–December 2022	Buildings, facilities, etc.	27,478
Total				531,153

4. Revenue and long-term contracts

A. Revenue

In 2022, the Company recorded total revenue of KRW 302,231.4 billion, an increase of 8.1% year-on-year. By organization, when compared to the same period last year, revenue of the DX Division, DS Division, SDC, and Harman increased by 9.8%, 3.2%, 8.4% and 31.6%, respectively.

(KRW 100 mil)

Organization	Revenue types	Product categories	2022	2021	2020
DX Division	Goods, products, services, other	TVs, monitors, refrigerators, washing machines, air conditioners, HHPs, Network systems, computers, etc.	1,824,897	1,662,594	1,489,135
DS Division	Goods, products, services, other	DRAM, NAND flash, mobile APs, etc.	984,553	953,872	740,540
SDC	Goods, products, services, other	OLED panels for smartphones, etc.	343,826	317,125	305,857
Harman	Goods, products, services, other	Digital cockpit, telematics, speakers, etc.	132,137	100,399	91,837
Others	Overlapping internal transactions between Divisions		-263,099	-237,942	-259,299
Total			3,022,314	2,796,048	2,368,070

Includes inter-divisional transactions.
Figures for 2020 and 2021 were adjusted to align with those of 2022, reflecting the organizational changes in December 2021.

(1) Sales, by major product (on a consolidated basis)

(KRW 100 mil)

Classification	2022	2021	2020
Image devices	332,795	314,974	277,118
Mobile devices	1,154,254	1,046,806	960,217
Memory	685,349	726,022	555,442
Display panels	343,826	317,125	305,857

Includes inter-divisional transactions.

(2) Revenue, by type

(KRW 100 mil)

Classification	2022	2021	2020
Products	2,903,461	2,658,785	2,235,963
Services and other revenue	118,853	137,263	132,107
Total	3,022,314	2,796,048	2,368,070

Other revenue consists of royalty income, etc.

(3) Revenue, by region (on a separate basis)

(KRW 100 mil)

Classification		2022	2021	2020
Domestic		221,799	221,497	198,331
Export	Americas	659,617	583,805	476,768
	Europe	265,147	258,227	235,012
	Asia and Africa	425,114	336,671	315,598
	China	546,998	597,247	437,403
Total		2,118,675	1,997,447	1,663,112

Domestic consumption and exports on a separate basis.

B. Sales channels

(1) Domestic

Seller	Sales channel	Consumer
Manufacturer and buyer	Exclusive agencies	Consumer
	Distributor (general merchandise stores, discount stores, department stores, home-shopping, online, etc.)	
	Telecommunication service provider (SKT Co., Ltd., KT Corp., LG Uplus Corp.)	
	Direct Sales (B2B and online channels)	

(2) Overseas

Seller	Sales channel					Consumer
Production subsidiaries	Regional sales office	Retailer				Consumer
		Dealer		Retailer		
		Distributor	Dealer	Retailer		
		Telecommunication service provider, automotive OEM				
		Direct sales (B2B and online channels)				
	Regional distribution office	Regional sales office	Retailer			
			Dealer	Retailer		
			Distributor	Dealer	Retailer	

(3) Sales ratio (global), by channel

Channel	Wholesale	Retail	Special/direct sales	Others
Ratio	19%	27%	51%	3%

C. Sales methods and conditions

(1) Domestic

Classification	Channel	Collection	Incidental expense sharing
Exclusive	Retailer	Credit specific	Case specific cost sharing as determined by mutual agreement
Distributor	General merchandise store, discount store, department store, home shopping, online, etc.	Case specific and contract specific	Case specific cost sharing as determined by mutual agreement
Telecommunication service provider	SKT Co., Ltd., KT Corp. LG Uplus Corp.	Case specific and contract specific	Case specific cost sharing as determined by mutual agreement (joint marketing)
B2B and online channels	Corporate clients, etc.	Case specific and contract specific	N/A

(2) Overseas

Classification	Channel	Collection	Incidental expense sharing
Retailer	Retail store	Case specific and contract specific	Case specific cost sharing as determined by mutual agreement
Dealer	General merchandise store, discount store, department store	Case specific and contract specific	Case specific cost sharing as determined by mutual agreement
Distributor	Direct sales to local distributors	Case specific and contract specific	Case specific cost sharing as determined by mutual agreement
B2B and online channels	Corporate clients, etc.	Case specific and contract specific	N/A

D. Sales strategy

- Expand market leadership based on premium products
- Provide differentiated value to customers through brand, products, and services
- Strengthen marketing activities to boost demand from customer/market

E. Major customers

In 2022, major customers (listed alphabetically) included Apple, Best Buy, Deutsche Telekom, Qualcomm, and Verizon. Sales to the five major customers accounted for approximately 16% of total sales.

F. Long-term contracts

As of December 31, 2022, there were no long-term contracts that have a significant impact on the Company's financial statement.

5. Risk management and derivative trading

A. Financial risk management policy

The Company's financial risk management focuses on minimizing market risk, credit risk, and liquidity risk arising from operating activities. To mitigate these risks, the Company closely monitors each risk factor and operates corresponding financial risk management policies and program. The Company's use of derivative instruments for hedging risks are included in this program.

The finance team mainly carries out the Company's financial risk management. After implementing the global financial risk management policies, the finance team periodically measures, evaluates, and hedges financial risks.

Meanwhile, the Company manages exchange rate risk via monitoring exchange rates and conducting transactions through local finance centers in each major region (United States, United Kingdom, Singapore, China, Brazil, and Russia). Liquidity risk is managed by managing capital as a whole by each region.

The Company's assets that are under financial risk management consist of cash and cash equivalents, short-term financial instruments, financial assets at amortized cost, trade receivables and others. The Company's liabilities under financial risk management consist of trade payables, borrowings, and others.

B. Major financial risks

(1) Market risk

(Foreign exchange risk)

The Company operates internationally and is exposed to foreign exchange risks as it conducts transactions in currencies other than the functional currency. Major currencies that are exposed to foreign exchange risk include USD, EUR, INR, and others.

The Company focuses on minimizing the impact of foreign exchange fluctuation by maintaining the equal amount of assets and liabilities denominated in each foreign currency, irrespective of foreign exchange fluctuation considerations. To prevent exchange position, the Company's foreign exchange management policy requires normal business transactions, including import and export, as well as financing transactions such as depositing and borrowing, to be in local currency or for the cash-in currency to be matched up with the cash-out currency.

In order to effectively manage foreign exchange risk, the Company periodically monitors and evaluates exchange rate risk and strictly prohibits speculative foreign exchange transactions.

The impacts of a 5% change in currency rates on the profits or losses (before income tax) arising from financial assets and liabilities denominated in foreign currencies other than functional currency as of the reporting date are as follows:

(KRW mil)

Classification	December 31, 2022		December 31, 2021	
	Increase	Decrease	Increase	Decrease
USD	258,655	-258,655	250,489	-250,489
EUR	92,546	-92,546	107,519	-107,519
INR	52,096	-52,096	24,216	-24,216

(Interest rate risk)

Risk of changes in interest rates for floating interest rate financial instruments is defined as the risk that the fair value of components of the consolidated statement of financial position, and future cash flows of interest income (expenses) of a financial instrument, will fluctuate because of changes in market interest rates. The Company's position with regard to interest rate risk exposure is mainly driven by its floating interest rate debt obligations and interest-bearing deposits. The Company implemented policies and operates to minimize uncertainty arising from changes in interest rates and financial expenses.

The impacts of a 1% change in interest rates on profit or loss (before income tax) arising from floating-rate financial assets and liabilities as of the reporting date are as follows:

(KRW mil)

Classification	December 31, 2022		December 31, 2021	
	Increase	Decrease	Increase	Increase
Financial assets	72,750	-72,750	71,131	-71,131
Financial liabilities	-8,427	8,427	-18,779	18,779
Net effect	64,323	-64,323	52,352	-52,352

(Price risk)

The Company's investment portfolio consists of direct and indirect investments in equity securities classified as financial assets at fair value through other comprehensive income and financial assets at fair value through profit or loss, which is in line with the Company's strategy.

As of December 31, 2022, a price fluctuation of marketable equity securities (listed stocks) of 1% changes 'other comprehensive income' (before income tax) by KRW 92,073 million and 'profit before tax' by KRW 3,144 million. The figures as of the same date in 2021 were KRW 116,087 million and KRW 4,784 million, respectively.

(2) Credit risk

Credit risk arises during the normal course of transactions and investing activities where clients or other parties fail to discharge an obligation. The Company sets and manages the client's and counterparty's credit limit, and evaluates their financial credit rating on a periodic basis based on the client's and counterparty's financial conditions, default history and other important factors. Adequate insurance coverage is maintained for trade receivables related to trading partners situated in higher risk countries.

Credit risk can arise from transactions with financial institutions, which include financial instrument transactions such as cash and cash equivalents, savings, and derivative instruments. To minimize such risk, the Company transacts only with banks which have strong international credit rating (S&P A and above), and all new transactions with financial institutions with no prior transaction history are approved, managed and monitored by the Company's finance team and the local finance center. The Company generally enters into a financial agreement with no restrictions, such as debt ratio covenants, provision of collateral, and loans or borrowings repayment. The Company requires separate approval for contracts with restrictions.

The Company estimates that its maximum exposure to credit risk is the carrying amount of its financial assets, net of impairment losses.

(3) Liquidity risk

Due to the nature of the Company's business that requires making large investments, maintaining adequate level of liquidity risk is crucial. The Company maintains and manages adequate level of liquidity by periodically forecasting its capital balances, estimating required cash, managing income and expenses, and others.

The Company effectively manages its liquidity risk by periodically forecasting projected cash flows and by utilizing regional cash pooling, which allows for the use of internal funds when an entity in a region lacks liquidity. The cash-pooling program allows sharing of surplus funds among entities and contributes to minimizing liquidity risk and strengthening the Company's competitive position by reducing capital operation expenses and financial expenses.

In addition, the Company's headquarters provides payment guarantees to overseas subsidiaries to secure credit limit to brace for potential large-scale liquidity needs.

The following table is an undiscounted cash flow analysis for financial liabilities according to their remaining contractual maturity from the end of the reporting date to the contractual maturity date.

(1) As of December 31, 2022

(KRW mil)

	Less than 3 months	~6 months	~12 months	1—5 years	More than 5 years
Financial liabilities	42,990,570	733,984	1,925,448	5,402,672	1,562,274

(2) As of December 31, 2021

(KRW mil)

	Less than 3 months	~6 months	~12 months	1—5 years	More than 5 years
Financial liabilities	55,185,809	1,814,271	1,674,980	5,462,057	944,232

(4) Capital risk

The purpose of capital management is to protect our capability of continuously providing profit to our shareholders and stakeholders and to maintain a sound capital structure. To this end, the Company monitors capital on the basis of credit rating and the ratio of total liabilities to total equity.

As of December 31, 2022, the Company has an AA- and Aa2 credit rating from S&P and Moody's, respectively, and the figures for total liabilities and total equity are as follows:

(KRW mil)

	Dec 31, 2022	Dec 31, 2021
Total liabilities	93,674,903	121,721,227
Total equity	354,749,604	304,899,931
Total liabilities to equity ratio	26.4%	39.9%

C. Derivative instruments and put options

The Company hedges foreign currency positions by trading currency forward contracts of currencies other than won for the purpose of managing foreign exchange risk. Currency forwards are bought through a bank in the purpose of trade and hedging.

As of December 31, 2022, the Company had 2,545 currency forward contracts involving 35 foreign currencies, including USD,EUR, JPY and the book value of assets and liabilities as well as valuation gain and loss were as follows:

(KRW mil)

	Assets	Liabilities	Valuation gain	Valuation loss
Currency forwards	166,087	158,686	1,351,390	1,450,638

Samsung Display (a subsidiary of the Company) may exercise its put option to sell part of its shares of Corning Incorporated back to Corning, according to the stock trade contract with Corning on April 8, 2021.

Furthermore, Samsung Display may exercise its put option to sell all or part of its shares of TCL China Star Optoelectronics Technology Co. Ltd. (CSOT) to TCL Technology Group Corporation (TCL), if CSOT remains unlisted within the listing period, according to the shareholders' agreement executed with TCL and CSOT on April 1, 2021.

Fair value of the above put option as of December 31, 2022 was evaluated by Earnest & Young Global Limited.

6. Major contracts and research and development activities

A. Major contracts

Account	Contract information	Contents
Cisco	Type	Patent cross-license agreement
	Date	Jan 23, 2014
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing
Google	Type	Patent cross-license agreement
	Date	Jan 25, 2014 / indefinite term
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing
	Other	Permanent license contract (including patent applications in the next 10 years)
GlobalFoundries Inc.	Type	Process technology license agreement
	Date	Feb 28, 2014
	Purpose and contents	Expand customer base of 14nm process
InterDigital	Type	Patent license agreement
	Date	Jun 3, 2014
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through patent licensing
Qualcomm	Type	Patent cross-license agreement
	Date	Jan 1, 2018–Dec 31, 2023
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing and signing of covenant not to sue
Apple	Type	Withdrawal of lawsuit agreement
	Date	Jun 26, 2018
	Purpose and contents	Withdraw from all lawsuits in the United States
Nokia	Type	Patent license agreement
	Date	Oct 19, 2018
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through patent licensing
Microsoft	Type	Patent cross-license agreement
	Date	Feb 11, 2019

Account	Contract information	Contents
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing
Google	Type	EMADA
	Date	Feb 27, 2019–Dec 31, 2022 (extended)
	Purpose and contents	Licensing agreement for using Google apps (Play Store, YouTube, etc.) in 31 European countries (EEA)
Huawei	Type	Patent cross-license agreement
	Date	Feb 28, 2019
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing
AMD	Type	Technology licensing agreement
	Date	May 30, 2019
	Purpose and contents	Secure mobile graphics design for mobile products and other applications
Sharp	Type	Patent cross-license agreement
	Date	July 30, 2019
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing
Ericsson	Type	Patent cross-license agreement
	Date	May 7, 2021
	Purpose and contents	Eliminate risk of patent disputes and lawsuits through mutual patent licensing

Information that may be referenced or used in other IP disputes, including contract amount, is excluded.

B. Summary of R&D activities and expenditures

The Company is leading the global market by continuously developing creative and innovative products and the future technology through shifting its way of thinking and understanding customer demand. The Company is doing its utmost to cement its position in the global IT industry and become a worldwide leader in industrial technology by creating and securing next-generation technology.

As of December 31, 2022, the Company's R&D expenses were KRW 24,929.2 billion year-to-date. Among this, KRW 24,919.2 billion was recognized as expenditures, excluding government subsidies and capitalized expenses.

(R&D expenses)

(KRW mil)

		2022	2021	2020
Total R&D expenditures		24,929,171	22,596,487	21,229,200
(Government subsidies)		-9,973	-1,053	-8,228
R&D expenditures		24,919,198	22,595,434	21,220,972
Accounting	Capitalization of development expenses (intangible asset)	-	-193,708	-109,482
	R&D costs (expenses)	24,919,198	22,401,726	21,111,490
R&D expenses/revenue ratio[1)]		8.2%	8.1%	9.0%

On a consolidated basis.
1) Calculated using total R&D expenditures, which includes government subsidies.

C. R&D organization and operations

(Domestic)

The Company operates three levels of R&D organizations: R&D teams of business units under each Division that develop market-ready technologies with a 1–2 year outlook; research institutes of each Division that develop mid- to long-term technology with a 3–5 year outlook; and the Samsung Advanced Institute of Technology, which develops core technology as seeds for future growth engines.

Samsung Advanced Institute of Technology is the central research institute of Samsung Electronics that has been established to lead the Company into the future and serve as an incubator of cutting-edge technology. It has a creative R&D system and provides R&D direction for promising growth sectors at the Company level, exploring future growth engines and strengthening technological competitiveness of core businesses.

(Overseas)

The Company operates R&D organizations in the US (SRA), China (SSCR, SRC-Beijing, SRC-Nanjing, SRC-Guangzhou, SRC-Shenzen), India (SRI-Bangalore and SRI-Delhi), Bangladesh (SRBD), Israel (SRIL and SIRC), Russia (SRR), and Japan (SRJ), to carry out research activities for product development and basic technological research.

The Company has established AI centers in Cambridge (United Kingdom), Moscow (Russia), Toronto (Canada), Montreal (Canada), and New York (United States), so our global team of researchers can collaborate with international experts to strengthen capabilities in AI technology.

As of December 31, 2022.

☞ See 『1. Subsidiaries subject to consolidated financial statements (detailed)』 in 『XII. Appendix』 for more details about the current status of the overseas R&D (companies).

D. R&D results

The Company's key R&D results by organization in 2022 are as follows:

DX Division	
Research project	**Details**
Neo QLED 8K	• Release of ultra-high-definition, slim 8K TV based on mini LED
Neo QLED 4K	• Rollout of three series and seven sizes based on mini LED
Grande AI Washer	• Release of 24kg Grande AI Washer that features a pet-care cycle / 20kg Grande AI Dryer
Galaxy Foldable	• Launch of Galaxy Z Fold 4 • Release of Galaxy Z Flip 4
Galaxy S22	• Rollout of Galaxy S22 · S22+ · S22 Ultra
Galaxy Tab	• Release of Galaxy Tab S8 · S8+ · S8 Ultra
Galaxy A	• Rollout of A73 5G • Release of A53 5G • Launch of A33 5G • Release of Galaxy A23 LTE · 5G • Launch of Galaxy A13 LTE · 5G
Galaxy Book	• Rollout of Galaxy Book2 Pro 360 • Release of Galaxy Book2 Pro • Launch of Galaxy Book2 Go 5G

Wearable	• Rollout of Galaxy Watch 5 • Release of Galaxy Buds 2 Pro
DS Division	
Research project	**Details**
DRAM for mobile	• Development of industry's first LPDDR5X DRAM
Exynos	• Release of Exynos 2200, a premium mobile AP
LSI	• Release of single-chip fingerprint security IC (S3B512C) for biometric payment cards
Foundry	• Adoption of GAA for the 3-nano process for the first time in the world
SDC	
Research project	**Details**
QD-Display	• QD-Display (55" UHD, 65" UHD) for TV • QD-Display (34" QHD) for monitor

Please refer to 『Appendix-4. R&D results (detailed)』 for more details.

7. Other information

A. Intellectual property

Intellectual property activities are an integral part of our R&D strategies—SEC registered its first US patent in 1984 and currently holds 225,910 patents around the world. The Company holds the highest number of its patents in the US and aims to address conflicts in the US more effectively.

(Number of patents registered in each country)

[As of December 31, 2022] (Unit: No. of patents)

	Korea	US	Europe	China	Japan	Others	Total
Number	52,044	88,024	41,915	20,762	8,901	14,264	225,910

In 2022, the Company invested KRW 24.9 trillion in R&D and registered 9,136 domestic and 8,490 US patents.

(Number of patent registrations per year)

(Unit: No. of patents)

	2022	2021	2020
Korea	9,136	8,437	6,648
US	8,490	8,565	8,520

These patents are mostly related to smartphones, smart TVs, memory, and system LSI products for the Company's strategic business products or for future use. These patents not only protect the Company's business but also play a role in keeping similar technology and patents, as well as competitors, in check. Additionally, the Company is focusing on securing early patents in new technologies ahead of others, in order to protect opportunities and have the freedom to operate when entering new businesses.

The Company has signed licensing agreements with Cisco (signed in January 2014), Google (January 2014), Qualcomm (January 2018), Nokia (October 2018), Microsoft (February 2019), Sharp (July 2019), and Ericsson (May 2021) through which the Company has secured an extensive patent protection in mainstay businesses as well as in the fields of new business.

The Company has also been focusing on securing design patents to protect its original design applied to smartphones and smart TVs. In 2022, the Company acquired 468 US design patents, in part for the aforementioned purposes.

B. Environmental regulations

The Company strictly abides by environmental regulations on products and in the workplace, as prescribed by law. In addition, in accordance with "the low carbon green growth policy" of the Korean government, the Company reports "the amount of greenhouse gas emission and energy use" to the government and provides related information to stakeholders by providing various reports, including the Samsung Sustainability Report.

(Environmental regulation of products)

Environmental regulation of products are becoming stricter, reflecting the concerns of governments and regulators about potential direct and indirect impact of products to consumers' health and safety as consumers. Accordingly, the Company is working to minimize the environmental impact throughout the entire life cycle of products from the development stage of components and products to manufacturing, distribution, use, and disposal. The Company offers "Eco-Partner Certification" to suppliers for components free of harmful substances, and runs an "eco-design evaluation" system to reflect eco-friendly elements on products (reduced use of resources, energy and harmful substances, and the use of eco-friendly materials) at the development stage, and operates a "waste electronics collection recycle system" in Europe, North America, Korea, and India for collecting and recycling waste electronics. These activities are in line with domestic and foreign environmental laws on electronics and are a differentiation factor for the Company and its products.

Relevant laws are as follows:

1. law on collection and· recycle of waste electronics (e.g., EU WEEE Directive)
2. limit on the use of harmful substances (e.g., EU RoHS Directive, REACH Regulation)
3. regulation on energy efficiency (e.g., EU ErP Directive)

(Environmental regulations in the workplace)

The Company operates environmental pollution prevention facilities to reduce air pollution, water pollution, and waste disposal, and to minimize the discharge of pollutants, thereby minimizing impact on the surrounding environment.

Environmental management of workplace is supervised by the relevant government authorities. All production facilities, domestic and overseas, have acquired the International Occupational Health and Safety Management System Certification (ISO 14001, ISO 45001) to strengthen compliance.

Major Relevant Domestic and International Laws are as follows:

1. Regulations related to emission of pollutants: Water Quality and Ecosystem Conservation Act, Clean Air Conservation Act, Wastes Control Act, Noise and Vibration Control Act, Environmental Impact Assessment Act
2. Management of greenhouse gas emission: Act on Allocation and Trading of Greenhouse Gas Emission, Framework Act on Low Carbon, Green Growth
3. Others: Toxic Chemicals Control Act, Act on the Registration and Evaluation, etc. of Chemical Substances, Odor Control Law, Soil Environment Conservation Act

(Greenhouse gas emission and energy consumption management)

The Company is a "controlled entity" according to Article 42 (Coping with Climate Change and Management of Targets for Energy) Paragraph 6 of Korea's "Framework Act on Low Carbon, Green Growth". Thus, the Company has been reporting the amount of greenhouse gas emission and energy consumption, verified by a third-party, to the authorities and disclosing it to stakeholders according to Article 44 (Reporting on Quantity of Greenhouse Gases Emitted and Quantity of Energy Consumed) of the same Act since May 2011.

The reported amount of greenhouse gas emission and energy use are provided below:

(Unit: tCO_2-eq, TJ)

	2022	2021	2020
Greenhouse gas (tCO_2-eq)	19,566,237	19,267,835	17,234,522
Energy (TJ)	277,270	274,298	255,990

On a consolidated basis.
Domestic manufacturing facilities, office buildings, buildings owned by the Company, leased buildings, etc.
Reported Greenhouse gas emission excludes ozone depletion substances (ODS).
Amounts may differ based on results of governmental evaluations on emissions.

From 2015, in accordance with the Article 8 (Designation of Business Entities Eligible for Allocation) of the Act on the Allocation and Trading of Greenhouse-Gas Emission Permits, the Company is an eligible business entity under the Act.

C. Current status of each division

[DX Division]

☐ Industry overview

TVs are key products of the DX Division, and the TV industry went through continual technological developments. The black-and-white TV was first developed in 1926, and in 1954, RCA started mass production and sales of 21" color TVs. Such developments have led to the creation of products such as the Trinitron CRT (1967) and flat CRT (1996). As the penetration rate in major countries reached over 90%, the growth of the CRT TV industry stagnated. The industry regained strong growth momentum following the launch of flat panel TVs ("FPTVs") like LCDs and PDPs, especially with the expansion of digital broadcasting. FPTVs replaced CRT sets on the back of their enhanced design, picture quality, etc., combined with releases of competitively priced products.

The year 2010 saw the launch of 3D TVs, and the rise of internet video services along with increased consumer interest in smart devices from 2011 to 2012 led to the birth of the smart TV market. The evolution continued with the launches of Quantum Dot QLED TVs in 2017, boasting significantly enhanced resolution and picture quality, and with commercialization of 8K and Micro LED TVs.

The mobile phone industry started with first generation analogue devices in the early 1980s that only supported voice communication and evolved to second generation digital ones, using technology such as CDMA and GSM, where users could send voice and text messages. Third generation mobile communication standards such as WCDMA allowed users to send photos and videos. Today, fourth generation LTE mobile communication technology with ultra-high-speed data transmission is becoming commonplace and was used in 75% of phones sold in 2021 (*Strategy Analytics*, November 2022).

Fifth generation mobile communication services, which will lead innovation alongside the fourth industrial revolution, was successfully launched in Korea and the US, and is now commercialized globally. As a result, 5G smartphones are accelerating the development of an ecosystem of mashup services and related industries, with the sales increasing sharply to 610 million units in 2021 from 270 million units in 2020 (*Strategy Analytics*, November 2022).

The smartphone industry has grown significantly since 2007. In 2021, the smartphone portion of total HHP sales volume was approximately 77%, and the feature phone portion of the total was approximately 23%, with the latter related to demand in emerging markets (*Strategy Analytics*, December 2022). For 2022, the penetration rate of smartphones is expected to have reached 52%, rising slightly from 51% in 2021 (*Strategy Analytics*, December 2022).
Also, as the smartphone market shows high saturation, the importance of competitive software for applications, UX, games, media, advertisements, digital wallets, AI, security, etc., is rising alongside that of competitive hardware, which includes high-performance APs, large screen AMOLED displays, foldable form factors, multiple cameras, sensors, waterproof & dustproof features, biometric recognition, and more.

☐ Market condition

In 2021, market players continued to strive for innovations in picture quality, sound, and form factor to create demand for premium TVs, but TV demand decreased year-on-year to approximately 213.54 million units due to the impacts of disruptions in global supply chains and logistics. Moreover, in 2022, TV demand declined compared to the previous year, falling to 203.26 million units sold due to the impacts of a decline in real household income triggered by the Russia-Ukraine war, increased supply instability of raw materials and energy, and expanded global inflation (*Omdia*, February 2023).

< Market share of TV >

Product	2022	2021	2020
TV	29.7%	29.5%	31.9%

Global market share in revenue; from Omdia

Moreover, the smartphone market is expected to have declined from 1.36 billion units in 2021 to 1.22 billion units in 2022 due to uncertainties such as continued geopolitical instability and inflation (*Strategy Analytics*, December 2022). Meanwhile, the tablet market grew to 180 million units in 2021 thanks to an increase in contactless demand triggered by COVID-19. It then started trending downward due to weak replacement demand, and it is expected to have dropped slightly to 160 million units in 2022 (*Strategy Analytics*, November 2022).

< Market share of Smartphone >

Product	2022	2021	2020
Smartphone	21.8%	20.0%	19.6%

Global market share in quantity; data from research firm *Strategy Analytics*. (Figure for 2022 is estimate from *Strategy Analytics*.)

☐ Business condition

We have maintained the top position in the overall TV market for seventeen straight years since claiming the number one spot in 2006.

In 2018, we released world's first 8K TV in the global market, once again leading the premium segment in the TV industry. Our QLED lineup includes sizes ranging from mid-sized to ultra-large screens, giving customers a variety of choices. In addition, the significantly improved picture quality was well received by consumers and experts alike. We achieved solid results by introducing ultra-large screens in the UHD lineup as well as in the QLED lineup.

In 2020, we enhanced our leadership and dominance in the market with 4K and 8K QLED TVs and new Lifestyle TVs such as The Terrace, The Premiere and The Sero despite a global economic crisis due to COVID-19.

In 2021, we expanded our premium product lineup by launching Neo QLED TVs featuring significantly upgraded contrast and picture quality. Moreover, the sales portion of Lifestyle products and sound bars has increased, and a rising number of companies have participated in various smart ecosystems, including TV plus, home training, and games. Since 2021, we have been particularly strengthening our efforts toward becoming a more eco-friendly business, from raw materials to packaging, and we are enhancing accessibility to help the visually impaired and hard of hearing to conveniently use our products.

In 2022, we increased our market share in the premium, ultra-large, over 75" TV market centering on innovative Neo QLED 8K technologies and further reinforced our Lifestyle TV lineups by introducing The Freestyle.
In 2023, we will increase our market share by focusing on premium, flagship products, such as Neo QLED and Super Big TVs; and for Lifestyle TVs, we will expand our lineups and improve product performance to continue to provide our customers with products tailored to their needs. Furthermore, in line with the Company's new environmental strategy, we will increase adoption of recycled plastic materials in our eco-friendly remote controls and roll out TV products that apply ultra-low power technologies.

Furthermore, SEC has always been at forefront of the HHP market, and for smartphones in particular, we have maintained leadership in the global market for eleven consecutive years.

To solidify our status in the overall mobile market, we always strive to improve our current products—including tablets, wearables, and accessories—while growing businesses in areas with high potential, such as digital health, digital wallet, etc.

For smartphones, we are establishing optimal portfolios for each region, accounting for varying market conditions and the competitive environment, offering a wide smartphone lineup ranging from mass-market to premium devices. We have been providing premium smartphones and delivering differentiated user experiences that can meet customer needs via our cutting-edge technology, which includes Dynamic AMOLED 2X (120Hz) displays, digital key and content sharing using UWB (ultra wideband), water- and dust-proofing, high-speed cable and wireless charging, ultrasonic fingerprint-on-display (FoD), high-resolution and optical zoom/night mode camera with AI technology, 8K video recording, on top of large-screen Infinity Displays.

In 2019, we secured early leadership in the 5G market with the release of the world's first 5G smartphone while also creating a new market with Galaxy Fold, enabled by foldable displays. In 2020, we continued to lead the foldable market with the launch of Galaxy Z Flip, a new form factor that folds from top down, and a further evolved edition Galaxy Z Fold 2. In 2021, we released the third generation Galaxy Z Series with significantly enhanced durability based on unrivaled craftsmanship, leading the foldable market.

In 2022, the market embraced the releases of Galaxy Z Fold 4 and Galaxy Z Flip 4, which featured further enhancements to the completeness of their respective core experiences—multi-tasking and Flex Mode. We continue to target achieving higher sales of foldable products relative to previous releases of Note models, with our mainstreaming of the new foldable series.

To respond to an ever-changing market as well as customer needs, we are strengthening product competitiveness by introducing innovative features such as 5G, quad cameras, large infinity displays, and high-capacity batteries even to mid-range-and-below products.

In addition, we provide richer experiences for our smartphone users with our Galaxy Eco products, including tablets that help boost productivity via virtual meetings, multitasking, and note-taking with large-screen display and S Pen; and wearables such as smart watches that provide sophisticated fitness and wellness functions—thanks to the adoption of innovative biosensor technologies—and wireless earphones that provide rich, clear sound.

Not content to dwell on our achievements in hardware, we have been focusing on delivering new and helpful services like

Samsung Pay, Samsung Health, and SmartThings. To deliver a consistent and high-quality Multi-Device Experience, we are adding Bixby features to a suite of products in addition to smartphones, including TVs, refrigerators, air conditioners, etc.

Moreover, we are strengthening strategic partnerships to expand our ecosystem, and we are securing new and innovative technologies by sustaining investments in fields with growth potential, including digital health and digital wallets, by utilizing SmartThings, Bixby, and Cloud, and by reinforcing our Service Business.

Furthermore, we continue to innovate eco-friendly technologies, including ones to expand adoption of recycled materials in our products. A prime example is the adoption of materials repurposed from discarded fishing nets in our key products, including Galaxy S22 and S23 series and Galaxy Z Fold 4.

We will continue to leverage our superior R&D capabilities to be fully prepared to keep delivering new value to customers.

[DS Division]

☐ Industry overview

In general, our Semiconductor business is divided into Memory (storage) and System LSI (logical processing). Memory semiconductor is divided into RAM products (random access memory, ones that can be both written on and read) and ROM products (read only memory).

RAM is called volatile memory as the information is deleted when the power is turned off. It is used for temporary loading and storage of application programs. ROM is nonvolatile and holds memory even when power is removed; it is used in input/output system, IC cards, and more.

For System LSI products, there are many categories for various applications. SoCs for mobile devices that are equipped with CPUs, GPUs, ISPs (image signal processors), and modems are our major products. The Company manufactures mobile SoCs for smartphones and tablets, image sensors, and DDIs (display driver ICs) for OLED.

The Foundry Business makes customized semiconductors for other companies based on customer designs. The business resembles OEMs in the traditional manufacturing industry in the sense that companies consign the manufacturing of their products to fabrication plants, also called foundries or fabs. Due to increasing difficulty in semiconductor process and growing investment cost, the number of fabless semiconductor companies is growing, and the Foundry Business is in charge of consignment semiconductor production for such fabless companies.

☐ Market condition

For the memory market, overall memory demand remained weak, as our customers further constrained their spending due to concerns over shrinking consumer sentiment as a result of persistent external uncertainties, such as potential for a global economic recession. Demand from consumer products such as PC and mobile continued to contract, and demand from servers was partially weak due to delays in set builds and an inventory reduction trend.

Amid a likely further slowdown in memory demand led by a the sluggish macro economy, the Company will focus on securing profitability by selling high-value-added, high-capacity products and continuing to lead the memory market with our differentiated, next-generation solution products.

The foundry market was expected to gradually recover from the beginning of 2022 on the back of the alleviated pandemic and easing of COVID-19 restrictions, but growth has been slower than expected in the second half of the year due to the Russia-Ukraine War, China's large-scale lockdown, and accelerated rate hikes in the US. As a result, growth in 1Q23 is projected to decelerate in consideration of weak demand, but we expect the market to gradually rebound from 2H thanks to a boost in demand, including ones related to alleviated monetary tightening in major economies and normalized conditions in the supply chain. Growth in the mid to long term is likely to continue thanks to increased penetration of 5G for mobile and heightened demand for high performance automotive-use SoCs and high performance computing.

< Market share of DRAM >

Product	2022	2021	2020
DRAM	43.0%	43.0%	42.7%

Global market share in revenue; data from research firm *DRAMeXchange*. (Data for 2022 is an estimate from the Company.)

☐ Business condition

In the memory business, in 1Q23, customers may continue to adjust inventories due to weak seasonality and persistent global macro uncertainties. In response, we are thoroughly preparing for DDR5 demand for server and PC following the release of a new CPU and actively addressing demand for high-density products for server and mobile applications. Also,

we are strengthening our competitiveness by increasing the portion of high-value products centering on profitability. Furthermore, we preemptively established mass production of DRAM featuring multi-layer EUV, and by strengthening cost competitiveness via our lineups of advanced products, such as SSDs with 8th-generation V-NAND, we will further solidify our market leadership in next-generation growth sectors.

System LSI is striving to overcome the global market slowdown via stronger cooperation with customers, and it is endeavoring to enhance its technological capabilities and product competitiveness through advanced development of next-generation products. For SoCs, we are strengthening the development of products that apply mobile 5G SoCs and those from advanced nodes based on our technological capabilities in AP and modem. We are expanding our lineups via custom SoCs for mobile and SoCs for automotives; and we are bolstering cooperation with customers for the development of next-generation products.

In the Foundry business, we are leveraging the recent downturn as an opportunity to strengthen our business structure and enable continued growth and to improve our fundamentals. For advanced nodes, aiming to enhance completeness and to increase competitiveness in technology services for our customers, we are focusing our capabilities on the timely development of 2nd generation 3-nano products, and we are preparing to mass produce 2nd and 3rd generation 4-nano products in the first half of 2023 by securing stable yield. Moreover, we will address customer demand through timely additions of capacity via establishing new fabs, including in Pyeongtaek and Taylor, and by improving our supply capabilities. For mature nodes, we are working to enhance the performance, power efficiency, size, and cost efficiency of 8-nano and 14-nano products to upgrade technological competitiveness and leverage the nodes for the long term. Furthermore, along with improving our technological competitiveness, we are increasing penetration into the market for high-performance, low-power semiconductors for HPC, automotives, 5G, IoT, etc. by developing specialty processes that our customers need. Finally, we are reinforcing the structure of the business overall by pushing to diversify our non-mobile customer base to bolster stability and sustain growth in all market conditions.

[SDC]

☐ Industry overview

Display refers to screens in electronic devices. Active matrix technology is most commonly used in displays, including OLED (organic light emitting diode), QD-OLED (quantum dot organic light emitting diode), and TFT-LCD (thin film transistor liquid crystal display).

OLED panels use organic materials, which offer sharp contrast and color, high color gamut, and fast response rates. Such differentiating features provide advantages for use in smartphones where display features (multimedia contents, online experience, etc.) are important, and as a result, OLED adoption in the smartphone market is growing rapidly.

The market had raised concerns over the production of high-resolution, durable panels, but we overcame various technological challenges and advanced the business. OLED panels make up for the shortcomings of LCD panels, and they can be increasingly adopted into other applications in foldables, rollables, automotives, etc. The OLED market is forecasted to keep growing. QD-OLED, a self-emissive display with quantum dots (semiconductor particles a few nanometers in size) in the panel to maximize color gamut and viewing angle, is capturing attention under expectations that it will lead the premium TV and monitor markets.

☐ Market condition

The market for smartphone display panels is expected to have decreased to 1.38 billion units in 2022 from 1.75 billion units in 2021 due to weakening consumer sentiment triggered by inflation and concerns over an economic slowdown. For smartphone-use OLED panels, the market is expected to have declined to 0.57 billion units in 2022 from 0.62 billion units in 2021, but the OLED portion of smartphone panels in 2022 likely increased to 41% from 35% in 2021 (*Omdia January 2023*).

The market size for large display panels is also expected to have declined, falling from 0.98 billion units in 2021 to 0.88 billion units in 2022 amid a slumping market (*Omdia*, January 2023).

< Market share of smartphone panel >

Product	2022	2021	2020
Smartphone panels	56.7%	51.4%	44.8%

Global market share in revenue; figure for 2022 is estimate from research firm *Omdia*.

☐ Business condition

The Company has continued to stay atop the mobile OLED market in terms of market share since it successfully commercialized OLED products in 2007, marking a world's first. We diversified our product group to include displays for foldable products, tablets, watches, laptops, and automotive applications, solidifying our position as the top player in the OLED display market.

With both flexible and rigid OLED, our optimal smartphone product portfolio ranges from mass-market to premium devices as we proactively address customers' specific needs; and we are recognized as having best-in-class technology through our introduction of foldable and OLED IT products with differentiated technologies and designs.

In 2022, a decline in the smartphone market was inevitable due to persistent macro uncertainties. We endeavored to expand the application of new technologies, such as UPC (under panel camera), high refresh rate, and tech related to energy efficiency and performance, in line with the needs of our customers while also enhancing cost competitiveness to continue to increase adoption of OLED panels.

Furthermore, we are diversifying our mobile panel business, which is concentrated on smartphones, to expand into IT, gaming, and automotive products and further solidify our business leadership.

In the large panel business, we will continue to increase our market share in the premium market by expanding the lineup of QD-OLED products and diversifying distributors.

[Harman]

☐ Industry overview

Harman competes in the automotive and lifestyle audio industries.

As consumers want cutting-edge technologies for automotive components (digital cockpit, telematics, car audio, etc.), car makers demand latest technologies in areas such as car sharing and autonomous driving. As a result, competition is particularly fierce in the connectivity and entertainment solution markets between dominant players (e.g., Alpine, Aptiv, Continental, Mitsubishi, and Panasonic).

Harman provides not only system solutions but also audio components (including speakers and amplifiers), and it is another segment where fierce competition between several major players (e.g., Bose, Pioneer, and Panasonic) is expected to drive technological advances as each firm introduces unique sound-management solutions. Competition is expected to remain intense.

Lifestyle audio business has two segments: consumer audio and professional audio solutions. Consumer audio (portable speakers, headphones, connected audio solutions, etc.) is fragmented and a handful of companies (Amazon, Beats, Bose, Ultimate Ears, etc.) are showing early signs of dominance. We expect competition to remain intense as new players try to make inroads, given the saturated market for connected homes and smart speakers. In particular, for True Wireless headphones, for which smartphone manufacturers dominate market share, is expected to grow explosively.

The professional audio solution industry (commercial audio, audio for large venues, etc., special lighting, video control solutions, etc.), led by QSC and Yamaha, is segmented by product and has seen the entrance of numerous companies offering

a wide range of products and applications.

☐ Market condition

The COVID-19 pandemic was projected to ease gradually into the end of 2022, but progress has been slower than expected, while business uncertainties have been mounting due to impacts of the Russia-Ukraine war. Against this backdrop, uncertainties in the macro economy were extremely high in 2022, including increased economic risks stemming from tightened monetary policies from central banks.

Considering such factors, global automobile production in 2023 is forecast to grow 4% year-on-year (*S&P Global Light Vehicle Production Forecast,* December 2022).

< Market share of digital cockpit >

Product	2022	2021	2020
Digital cockpits	24.7%	25.3%	27.5%

Digital cockpits refer to the digital automotive component which enables safe driving environment via infotainment system, etc.
Company estimates based on I.H.S and LMC data (by unit).

☐ Business condition

Harman is positioned to stay at the forefront of the automotive market and plans to continue to leverage its wide variety of brands to outfit vehicles ranging from mass-market thorough to luxury models, while also maintaining the quality that is synonymous with Harman brands. Additionally, Harman's relentless pursuit of innovation in the audio and connectivity spaces will help ensure the development of thriving relationships with automakers.

The same factors that Harman relies on within the automotive market will also be used in the consumer audio and professional audio solution market. Having won three Grammy Awards and two Academy Awards, Harman's brands have earned a strong reputation amongst everyday consumers and audiophiles alike. New offerings in up-and-coming segments such as connected wireless and smart audio continue to help bring in new consumers and further enhance brand reputation.

The COVID-19 pandemic created a challenging business environment, marked by halt in automobile production, a decline in daily travel and thus potential consumers, the closing of retailers, etc. The professional audio solution business, in particular, had adverse impacts of a reduction in the number of large-scale gatherings and events. Harman has adopted various ways to reduce costs from the onset of the COVID-19 pandemic, and we will redirect savings to other investments to compete more effectively in the market.

D. Financial summary, by organization

In 2022 by organization, DX accounted for 60.4% of revenue with reported revenue of KRW 182,489.7 billion; DS contributed approximately 32.6% with revenue of KRW 98,455.3 billion; SDC was responsible for 11.4% with revenue of KRW 34,382.6 billion; and Harman contributed 4.4% with revenue of KRW 13,213.7 billion.

In 2022, DX accounted for 29.4% of total operating profit with an operating profit of KRW 12,746.1 billion; DS contributed 54.9% with KRW 23,815.8 billion; SDC accounted for 13.7% with a total operating profit of KRW 5,953.0 billion; and Harman contributed 2.0% with an operating profit of KRW 880.5 billion.

(KRW 100 mil)

Organization	Classification	2022		2021		2020	
		Amount	Portion of corresponding total	Amount	Portion of corresponding total	Amount	Portion of corresponding total
DX Division	Revenue	1,824,897	60.4%	1,662,594	59.5%	1,489,135	62.9%
	Operating profit	127,461	29.4%	173,866	33.7%	151,520	42.1%
	Total assets	2,279,669	38.6%	2,479,832	42.0%	2,303,623	43.6%
DS Division	Revenue	984,553	32.6%	953,872	34.1%	740,540	31.3%
	Operating profit	238,158	54.9%	291,920	56.5%	188,062	52.2%
	Total assets	2,620,558	44.3%	2,258,223	38.3%	1,885,692	35.7%
SDC	Revenue	343,826	11.4%	317,125	11.3%	305,857	12.9%
	Operating profit	59,530	13.7%	44,574	8.6%	22,369	6.2%
	Total assets	737,798	12.5%	668,836	11.3%	661,929	12.5%
Harman	Revenue	132,137	4.4%	100,399	3.6%	91,837	3.9%
	Operating profit	8,805	2.0%	5,991	1.2%	555	0.2%
	Total assets	171,023	2.9%	158,874	2.7%	147,020	2.8%

Includes inter-divisional transactions.
Figures for 2020 and 2021 were adjusted to align with those of 2022, reflecting the organizational changes in December 2021.

☐ Reasonable allocation of common SG&A (selling general & administrative) expenses and assets

(1) For common SG&A expenses, specific expenses that are allocable to a specific product/model are allocated to Divisions that are responsible for such product/model. However, common expenses that cannot be attributed to a specific product/model category are reasonably allocated throughout the Company based on an allocation standard (expense-to-revenue ratio, number of personnel, etc.).

(2) For common assets, assets that can be directly allocated (inventory assets, fixed assets, investment assets, etc.) are allocated to the corresponding organizational unit. Assets that are commonly managed and cannot be directly allocated are allocated to each Division based on an allocation standard (expense-to-revenue ratio, pre-tax profit, etc.)

III. Financial Affairs

1. Financial statements

A. Consolidated financial statements

(KRW mil)

Classification	54th	53rd	52nd
	December 31, 2022	December 31, 2021	December 31, 2020
Current assets	218,470,581	218,163,185	198,215,579
- Cash and cash equivalents	49,680,710	39,031,415	29,382,578
- Short-term financial instruments	65,102,886	81,708,986	92,441,703
- Other current financial assets	414,610	3,409,791	2,828,562
- Trade receivables	35,721,563	40,713,415	30,965,058
- Inventories	52,187,866	41,384,404	32,043,145
- Others	15,362,946	11,915,174	10,554,533
Non-current assets	229,953,926	208,457,973	180,020,139
- Other non-current financial assets	12,802,480	15,491,183	13,778,185
- Investment in associates and joint ventures	10,893,869	8,932,251	8,076,779
- Property, plant, and equipment	168,045,388	149,928,539	128,952,892
- Intangible assets	20,217,754	20,236,244	18,468,502
- Others	17,994,435	13,869,756	10,743,781
Total assets	448,424,507	426,621,158	378,235,718
Current liabilities	78,344,852	88,117,133	75,604,351
Non-current liabilities	15,330,051	33,604,094	26,683,351
Total liabilities	93,674,903	121,721,227	102,287,702
Equity attributable to owners of the parent company	345,186,142	296,237,697	267,670,331
- Capital stock	897,514	897,514	897,514
- Share premium	4,403,893	4,403,893	4,403,893
- Retained earnings	337,946,407	293,064,763	271,068,211
- Others	1,938,328	-2,128,473	-8,699,287
Non-controlling interests	9,563,462	8,662,234	8,277,685
Total Equity	354,749,604	304,899,931	275,948,016
	Jan–Dec 2022	Jan–Dec 2021	Jan–Dec 2020
Revenue	302,231,360	279,604,799	236,806,988
Operating profit	43,376,630	51,633,856	35,993,876
Profit for the period	55,654,077	39,907,450	26,407,832
- Owners of the parent company	54,730,018	39,243,791	26,090,846
- Non-controlling interests	924,059	663,659	316,986
Basic earnings per share (KRW)	8,057	5,777	3,841
Diluted earnings per share (KRW)	8,057	5,777	3,841
Number of companies subject to consolidation accounting	232	229	242

Data shown in conformity with K-IFRS.
Please refer to the footnotes of the 52nd–54th Consolidated Audit Report for the calculation of basic earnings per share (ordinary shares).

B. Separate financial statements

(KRW mil)

Classification	54th	53rd	52nd
	December 31, 2022	December 31, 2021	December 31, 2020
Current assets	59,062,658	73,553,416	73,798,549
- Cash and cash equivalents	3,921,593	3,918,872	989,045
- Short-term financial instruments	137	15,000,576	29,101,284
- Trade receivables	20,503,223	33,088,247	24,736,740
- Inventories	27,990,007	15,973,053	13,831,372
- Others	6,647,698	5,572,668	5,140,108
Non-current assets	201,021,092	177,558,768	155,865,878
- Other non-current financial assets	1,364,608	1,664,667	1,542,766
- Subsidiary, associate, and joint venture investments	57,397,249	56,225,599	56,587,548
- Property, plant and equipment	123,266,986	103,667,025	86,166,924
- Intangible assets	8,561,424	8,657,456	7,002,648
- Others	10,430,825	7,344,021	4,565,992
Total assets	260,083,750	251,112,184	229,664,427
Current liabilities	46,086,047	53,067,303	44,412,904
Non-current liabilities	45,81,512	4,851,149	1,934,799
Total liabilities	50,667,559	57,918,452	46,347,703
- Capital stock	897,514	897,514	897,514
- Share premium	4,403,893	4,403,893	4,403,893
- Retained earnings	204,388,016	188,774,335	178,284,102
- Others	-273,232	-882,010	-268,785
Total Equity	209,416,191	193,193,732	183,316,724
Evaluation method of subsidiary, associate, and joint venture investment securities	Cost methods	Cost methods	Cost methods
	Jan–Dec 2022	Jan–Dec 2021	Jan–Dec 2020
Revenue	211,867,483	199,744,705	166,311,191
Operating profit	25,319,329	31,993,162	20,518,974
Profit for the period	25,418,778	30,970,954	15,615,018
Basic earnings per share (KRW)	3,742	4,559	2,299
Diluted earnings per share (KRW)	3,742	4,559	2,299

Data shown in conformity with K-IFRS.
Please refer to the footnotes of the 52nd–54th Consolidated Audit Report for the calculation of basic earnings per share (ordinary shares).

2. Consolidated financial statements

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

(In millions of Korean won, in thousands of US dollars (Note 2.29))

	Notes	December 31, 2022	December 31, 2021	December 31, 2022	December 31, 2021
		KRW	KRW	USD	USD
Assets					
Current assets					
Cash and cash equivalents	4, 28	49,680,710	39,031,415	38,477,921	30,229,997
Short-term financial instruments	4, 28	65,102,886	81,708,986	50,422,462	63,283,957
Short-term financial assets at amortized cost	4, 28	414,610	3,369,034	321,117	2,609,331
Short-term financial assets at fair value through profit or loss	4, 6, 28	29,080	40,757	22,523	31,566
Trade receivables	4, 5, 7, 28	35,721,563	40,713,415	27,666,503	31,532,713
Non-trade receivables	4, 7, 28	6,149,209	4,497,257	4,762,589	3,483,145
Prepaid expenses		2,867,823	2,336,252	2,221,141	1,809,437
Inventories	8	52,187,866	41,384,404	40,419,724	32,052,397
Other current assets	4, 28	6,316,834	5,081,665	4,892,415	3,935,772
		218,470,581	**218,163,185**	**169,206,395**	**168,968,315**
Non-current assets					
Financial assets at fair value through other comprehensive income	4, 6, 28	11,397,012	13,965,839	8,827,034	10,816,602
Financial assets at fair value through profit or loss	4, 6, 28	1,405,468	1,525,344	1,088,541	1,181,385
Investment in associates and joint ventures	9	10,893,869	8,932,251	8,437,348	6,918,066
Property, plant and equipment	10	168,045,388	149,928,539	130,151,868	116,120,291
Intangible assets	11	20,217,754	20,236,244	15,658,737	15,673,057
Net defined benefit assets	14	5,851,972	2,809,590	4,532,377	2,176,039
Deferred income tax assets	25	5,101,318	4,261,214	3,950,992	3,300,328
Other non-current assets	4, 7, 28	7,041,145	6,798,952	5,453,397	5,265,819
		229,953,926	**208,457,973**	**178,100,294**	**161,451,587**
Total assets		**448,424,507**	**426,621,158**	**347,306,689**	**330,419,902**

The above consolidated statements of financial position should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

(In millions of Korean won, in thousands of US dollars (Note 2.29))

	Notes	December 31, 2022	December 31, 2021	December 31, 2022	December 31, 2021
		KRW	KRW	USD	USD
Liabilities and Equity					
Current liabilities					
Trade payables	4, 28	10,644,686	13,453,351	8,244,355	10,419,678
Short-term borrowings	4, 5, 12, 28	5,147,315	13,687,793	3,986,617	10,601,254
Other payables	4, 28	17,592,366	15,584,866	13,625,362	12,070,545
Advances received	17	1,314,934	1,224,812	1,018,422	948,622
Withholdings	4, 28	1,298,244	1,294,052	1,005,496	1,002,249
Accrued expenses	4, 17, 28	29,211,487	27,928,031	22,624,421	21,630,379
Current income tax liabilities		4,250,397	6,749,149	3,291,951	5,227,245
Current portion of long-term liabilities	4, 12, 13, 28	1,089,162	1,329,968	843,561	1,030,066
Provisions	15	5,844,907	5,372,872	4,526,905	4,161,312
Other current liabilities	4, 17, 28	1,951,354	1,492,239	1,511,331	1,155,744
		78,344,852	**88,117,133**	**60,678,421**	**68,247,094**
Non-current liabilities					
Debentures	4, 13, 28	536,093	508,232	415,206	393,628
Long-term borrowings	4, 12, 28	3,560,672	2,866,156	2,757,756	2,219,850
Long-term other payables	4, 28	2,753,305	2,991,440	2,132,446	2,316,883
Net defined benefit liabilities	14	268,370	465,884	207,854	360,829
Deferred income tax liabilities	25	5,111,332	23,198,205	3,958,748	17,967,108
Long-term provisions	15	1,928,518	2,306,994	1,493,645	1,786,777
Other non-current liabilities	4, 17, 28	1,171,761	1,267,183	907,535	981,439
		15,330,051	**33,604,094**	**11,873,190**	**26,026,514**
Total liabilities		**93,674,903**	**121,721,227**	**72,551,611**	**94,273,608**

The above consolidated statements of financial position should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

(In millions of Korean won, in thousands of US dollars (Note 2.29))

	Notes	December 31, 2022	December 31, 2021	December 31, 2022	December 31, 2021
		KRW	KRW	USD	USD
Equity attributable to owners of the Company					
Preference shares	18	119,467	119,467	92,528	92,528
Ordinary shares	18	778,047	778,047	602,601	602,601
Share premium		4,403,893	4,403,893	3,410,834	3,410,834
Retained earnings	19	337,946,407	293,064,763	261,740,930	226,979,906
Other components of equity	20	1,938,328	(2,128,473)	1,501,243	(1,648,512)
		345,186,142	**296,237,697**	**267,348,136**	**229,437,357**
Non-controlling interests	31	9,563,462	8,662,234	7,406,942	6,708,937
Total equity		**354,749,604**	**304,899,931**	**274,755,078**	**236,146,294**
Total liabilities and equity		**448,424,507**	**426,621,158**	**347,306,689**	**330,419,902**

The above consolidated statements of financial position should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF PROFIT OR LOSS

(In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	**2022**	**2021**	**2022**	**2021**
		KRW	KRW	USD	USD
Revenue	29	302,231,360	279,604,799	234,079,475	216,555,107
Cost of sales	21	190,041,770	166,411,342	147,188,160	128,886,293
Gross profit		**112,189,590**	**113,193,457**	**86,891,315**	**87,668,814**
Selling and administrative expenses	21, 22	68,812,960	61,559,601	53,295,930	47,678,173
Operating profit	29	**43,376,630**	**51,633,856**	**33,595,385**	**39,990,641**
Other non-operating income	23	1,962,071	2,205,695	1,519,632	1,708,320
Other non-operating expense	23	1,790,176	2,055,971	1,386,499	1,592,358
Share of net profit of associates and joint ventures	9	1,090,643	729,614	844,708	565,089
Financial income	24	20,828,995	8,543,187	16,132,145	6,616,735
Financial expense	24	19,027,689	7,704,554	14,737,026	5,967,210
Profit before income tax		**46,440,474**	**53,351,827**	**35,968,345**	**41,321,217**
Income tax expense	25	(9,213,603)	13,444,377	(7,135,975)	10,412,727
Profit for the year		**55,654,077**	**39,907,450**	**43,104,320**	**30,908,490**
Profit attributable to					
Owners of the Company		54,730,018	39,243,791	42,388,632	30,394,483
Non-controlling interests		924,059	663,659	715,688	514,007
Earnings per share (in Korean won, in US dollars)	26				
- Basic		8,057	5,777	6.24	4.47
- Diluted		8,057	5,777	6.24	4.47

The above consolidated statements of profit or loss should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	**2022**	**2021**	**2022**	**2021**
		KRW	KRW	USD	USD
Profit for the year		**55,654,077**	**39,907,450**	**43,104,320**	**30,908,490**
Other comprehensive income (loss)					
Items that will not be reclassified subsequently to profit or loss:					
Gain (loss) on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	(1,969,498)	2,980,896	(1,525,385)	2,308,717
Share of other comprehensive income (loss) of associates and joint ventures, net of tax	9, 20	(6,318)	51,816	(4,893)	40,132
Remeasurement of net defined benefit liabilities (assets), net of tax	14, 20	1,153,679	(524,606)	893,529	(406,310)
Items that may be reclassified subsequently to profit or loss:					
Share of other comprehensive income (loss) of associates and joint ventures, net of tax	9, 20	(44,192)	160,163	(34,227)	124,047
Gain on overseas business translation, net of tax	20	4,884,886	7,283,620	3,783,365	5,641,195
Gain (loss) on valuation of cash flow hedge derivatives	20	(12,893)	50,410	(9,986)	39,043
Other comprehensive income (loss) for the year, net of tax		**4,005,664**	**10,002,299**	**3,102,403**	**7,746,824**
Total comprehensive income for the year		**59,659,741**	**49,909,749**	**46,206,723**	**38,655,314**
Comprehensive income attributable to:					
Owners of the Company		58,745,107	49,037,912	45,498,335	37,980,071
Non-controlling interests		914,634	871,837	708,388	675,243

The above consolidated statements of comprehensive income should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

(In millions of Korean won)

2021 KRW	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Accumulated other comprehensive income attributable to assets held-for-sale	Equity attributable to owners of the parent company	Non-controlling interests	Total
Balance as of January 1, 2021		**119,467**	**778,047**	**4,403,893**	**271,068,211**	**(8,687,155)**	**(12,132)**	**267,670,331**	**8,277,685**	**275,948,016**
Profit for the year		-	-	-	39,243,791	-	-	39,243,791	663,659	39,907,450
Gain (loss) on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	3,232,934	(359,117)	-	2,873,817	107,079	2,980,896
Share of other comprehensive income (loss) of associates and joint ventures, net of tax	9, 20	-	-	-	-	225,464	-	225,464	(13,485)	211,979
Gain on overseas business translation, net of tax	20	-	-	-	-	7,164,982	-	7,164,982	118,638	7,283,620
Remeasurement of net defined benefit liabilities, net of tax	14, 20	-	-	-	-	(520,552)	-	(520,552)	(4,054)	(524,606)
Gain on valuation of cash flow hedge derivatives	20	-	-	-	-	50,410	-	50,410	-	50,410
Reclassification to held-for-sale		-	-	-	-	(12,132)	12,132	-	-	-
Total comprehensive income for the year		**-**	**-**	**-**	**42,476,725**	**6,549,055**	**12,132**	**49,037,912**	**871,837**	**49,909,749**
Dividends declared	19	-	-	-	(20,480,721)	-	-	(20,480,721)	(32,005)	(20,512,726)
Capital transaction under common control		-	-	-	-	-	-	-	12,553	12,553
Changes in consolidated entities		-	-	-	-	-	-	-	(477,617)	(477,617)
Other		-	-	-	548	9,627	-	10,175	9,781	19,956
Total transactions with owners		**-**	**-**	**-**	**(20,480,173)**	**9,627**	**-**	**(20,470,546)**	**(487,288)**	**(20,957,834)**
Balance as of December 31, 2021		**119,467**	**778,047**	**4,403,893**	**293,064,763**	**(2,128,473)**	**-**	**296,237,697**	**8,662,234**	**304,899,931**

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

(In thousands of US dollars (Note 2.29))

2021 USD	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Accumulated other comprehensive income attributable to assets held-for-sale	Equity attributable to owners of the parent company	Non-controlling interests	Total
Balance as of January 1, 2021		**92,528**	**602,601**	**3,410,834**	**209,943,483**	**(6,728,239)**	**(9,396)**	**207,311,811**	**6,411,102**	**213,722,913**
Profit for the year		-	-	-	30,394,483	-	-	30,394,483	514,007	30,908,490
Gain (loss) on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	2,503,921	(278,138)	-	2,225,783	82,934	2,308,717
Share of other comprehensive income (loss) of associates and joint ventures, net of tax	9, 20	-	-	-	-	174,623	-	174,623	(10,444)	164,179
Gain on overseas business translation, net of tax	20	-	-	-	-	5,549,309	-	5,549,309	91,886	5,641,195
Remeasurement of net defined benefit liabilities, net of tax	14, 20	-	-	-	-	(403,170)	-	(403,170)	(3,140)	(406,310)
Gain on valuation of cash flow hedge derivatives	20	-	-	-	-	39,043	-	39,043	-	39,043
Reclassification to held-for-sale		-	-	-	-	(9,396)	9,396	-	-	-
Total comprehensive income for the year		**-**	**-**	**-**	**32,898,404**	**5,072,271**	**9,396**	**37,980,071**	**675,243**	**38,655,314**
Dividends declared	19	-	-	-	(15,862,406)	-	-	(15,862,406)	(24,788)	(15,887,194)
Capital transaction under common control		-	-	-	-	-	-	-	9,722	9,722
Changes in consolidated entities		-	-	-	-	-	-	-	(369,916)	(369,916)
Other		-	-	-	425	7,456	-	7,881	7,574	15,455
Total transactions with owners		**-**	**-**	**-**	**(15,861,981)**	**7,456**	**-**	**(15,854,525)**	**(377,408)**	**(16,231,933)**
Balance as of December 31, 2021		**92,528**	**602,601**	**3,410,834**	**226,979,906**	**(1,648,512)**	**-**	**229,437,357**	**6,708,937**	**236,146,294**

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

(In millions of Korean won)

2022 KRW	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Accumulated other comprehensive income attributable to assets held-for-sale	Equity attributable to owners of the parent company	Non-controlling interests	Total
Balance as of January 1, 2022		**119,467**	**778,047**	**4,403,893**	**293,064,763**	**(2,128,473)**	**-**	**296,237,697**	**8,662,234**	**304,899,931**
Profit for the year		-	-	-	54,730,018	-	-	54,730,018	924,059	55,654,077
Gain (loss) on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	(38,937)	(1,867,530)	-	(1,906,467)	(63,031)	(1,969,498)
Share of other comprehensive income (loss) of associates and joint ventures, net of tax	9, 20	-	-	-	-	(51,848)	-	(51,848)	1,338	(50,510)
Gain on overseas business translation, net of tax	20	-	-	-	-	4,863,930	-	4,863,930	20,956	4,884,886
Remeasurement of net defined benefit liabilities, net of tax	14, 20	-	-	-	-	1,122,367	-	1,122,367	31,312	1,153,679
Loss on valuation of cash flow hedge derivatives	20	-	-	-	-	(12,893)	-	(12,893)	-	(12,893)
Total comprehensive income for the year		**-**	**-**	**-**	**54,691,081**	**4,054,026**	**-**	**58,745,107**	**914,634**	**59,659,741**
Dividends declared	19	-	-	-	(9,809,437)	-	-	(9,809,437)	(5,523)	(9,814,960)
Capital transactions under common control		-	-	-	-	-	-	-	(176)	(176)
Changes in consolidated entities		-	-	-	-	-	-	-	124	124
Others		-	-	-	-	12,775	-	12,775	(7,831)	4,944
Total transactions with owners		**-**	**-**	**-**	**(9,809,437)**	**12,775**	**-**	**(9,796,662)**	**(13,406)**	**(9,810,068)**
Balance as of December 31, 2022		**119,467**	**778,047**	**4,403,893**	**337,946,407**	**1,938,328**	**-**	**345,186,142**	**9,563,462**	**354,749,604**

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

(In thousands of US dollars (Note 2.29))

2022 USD	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Accumulated other comprehensive income attributable to assets held-for-sale	Equity attributable to owners of the parent company	Non-controlling interests	Total
Balance as of January 1, 2022		**92,528**	**602,601**	**3,410,834**	**226,979,906**	**(1,648,512)**	**-**	**229,437,357**	**6,708,937**	**236,146,294**
Profit for the year		-	-	-	42,388,632	-	-	42,388,632	715,688	43,104,320
Gain (loss) on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	(30,157)	(1,446,410)	-	(1,476,567)	(48,818)	(1,525,385)
Share of other comprehensive income (loss) of associates and joint ventures, net of tax	9, 20	-	-	-	-	(40,156)	-	(40,156)	1,036	(39,120)
Gain on overseas business translation, net of tax	20	-	-	-	-	3,767,134	-	3,767,134	16,231	3,783,365
Remeasurement of net defined benefit liabilities, net of tax	14, 20	-	-	-	-	869,278	-	869,278	24,251	893,529
Loss on valuation of cash flow hedge derivatives	20	-	-	-	-	(9,986)	-	(9,986)	-	(9,986)
Total comprehensive income for the year		**-**	**-**	**-**	**42,358,475**	**3,139,860**	**-**	**45,498,335**	**708,388**	**46,206,723**
Dividends declared	19	-	-	-	(7,597,451)	-	-	(7,597,451)	(4,277)	(7,601,728)
Capital transactions under common control		-	-	-	-	-	-	-	(136)	(136)
Changes in consolidated entities		-	-	-	-	-	-	-	96	96
Others		-	-	-	-	9,895	-	9,895	(6,066)	3,829
Total transactions with owners		**-**	**-**	**-**	**(7,597,451)**	**9,895**	**-**	**(7,587,556)**	**(10,383)**	**(7,597,939)**
Balance as of December 31, 2022		**92,528**	**602,601**	**3,410,834**	**261,740,930**	**1,501,243**	**-**	**267,348,136**	**7,406,942**	**274,755,078**

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF CASH FLOWS

(In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	**2022**	**2021**	**2022**	**2021**
		KRW	KRW	USD	USD
Operating activities					
Profit for the year		55,654,077	39,907,450	43,104,320	30,908,490
Adjustments	27	33,073,439	49,055,633	25,615,519	37,993,797
Changes in assets and liabilities arising from operating activities	27	(16,998,948)	(16,286,884)	(13,165,758)	(12,614,262)
Cash generated from operations		**71,728,568**	**72,676,199**	**55,554,081**	**56,288,025**
Interest received		2,136,795	1,406,706	1,654,957	1,089,500
Interest paid		(714,543)	(434,441)	(553,417)	(336,476)
Dividends received		529,421	299,033	410,039	231,602
Income tax paid		(11,498,895)	(8,842,049)	(8,905,943)	(6,848,204)
Net cash from operating activities		**62,181,346**	**65,105,448**	**48,159,717**	**50,424,447**
Investing activities					
Net decrease in short-term financial instruments		15,214,321	10,917,128	11,783,556	8,455,362
Net decrease (increase) in short-term financial assets at amortized cost		3,050,104	(336,959)	2,362,319	(260,976)
Net decrease in short-term financial assets at fair value through profit or loss		11,677	30,694	9,044	23,773
Disposal of long-term financial instruments		8,272,909	10,216,082	6,407,403	7,912,399
Acquisition of long-term financial instruments		(4,393,754)	(6,981,810)	(3,402,981)	(5,407,442)
Disposal of financial assets at fair value through other comprehensive income		496,090	2,919,888	384,224	2,261,466
Acquisition of financial assets at fair value through other comprehensive income		(37,687)	(1,121,201)	(29,189)	(868,375)
Disposal of financial assets at fair value through profit or loss		166,315	350,212	128,812	271,241
Acquisition of financial assets at fair value through profit or loss		(158,244)	(208,262)	(122,561)	(161,300)
Disposal of investment in associates and joint ventures		13,233	19,169	10,249	14,846
Acquisition of investment in associates and joint ventures		(907,958)	(47,090)	(703,217)	(36,471)
Disposal of property, plant and equipment		217,878	358,284	168,747	277,492
Acquisition of property, plant and equipment		(49,430,428)	(47,122,106)	(38,284,077)	(36,496,272)
Disposal of intangible assets		23,462	1,752	18,171	1,357
Acquisition of intangible assets		(3,696,304)	(2,706,915)	(2,862,803)	(2,096,517)
Cash outflow from business combinations		(31,383)	(5,926)	(24,306)	(4,590)
Cash inflow from sale of assets-held-for-sale		-	661,168	-	512,077
Cash inflow (outflow) from other investing activities		(413,035)	8,129	(319,897)	6,296
Net cash used in investing activities		**(31,602,804)**	**(33,047,763)**	**(24,476,506)**	**(25,595,633)**

The above consolidated statements of changes in equity should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd. and its subsidiaries

CONSOLIDATED STATEMENTS OF CASH FLOWS

(In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	**2022**	**2021**	**2022**	**2021**
		KRW	KRW	USD	USD
Financing activities					
Net decrease in short-term borrowings	27	(8,339,149)	(2,616,943)	(6,458,706)	(2,026,833)
Increase in long-term borrowings	27	271,997	58,279	210,663	45,137
Repayment of debentures and long-term borrowings	27	(1,508,465)	(894,749)	(1,168,313)	(692,987)
Dividends paid		(9,814,426)	(20,510,350)	(7,601,315)	(15,885,353)
Net decrease in non-controlling interests		(6)	(27,270)	(5)	(21,121)
Net cash used in financing activities		**(19,390,049)**	**(23,991,033)**	**(15,017,676)**	**(18,581,157)**
Reclassification to assets held-for-sale		-	139	-	108
Effect of foreign exchange rate changes		(539,198)	1,582,046	(417,611)	1,225,300
Net increase in cash and cash equivalents		**10,649,295**	**9,648,837**	**8,247,924**	**7,473,065**
Cash and cash equivalents					
Beginning of the year		39,031,415	29,382,578	30,229,997	22,756,932
End of the year		**49,680,710**	**39,031,415**	**38,477,921**	**30,229,997**

The above consolidated statements of cash flows should be read in conjunction with the accompanying notes.

3. Notes to consolidated financial statements

1. General Information

1.1 Company Overview

Samsung Electronics Co., Ltd. ("SEC") was incorporated under the laws of the Republic of Korea in 1969 and listed its shares on the Korea Stock Exchange in 1975. SEC and its subsidiaries (collectively referred to as the "Company") operate four business divisions: DX, DS, SDC and Harman. DX (Device eXperience) division includes digital TVs, refrigerators, mobile phones and communication systems. DS (Device Solutions) division includes memory, foundry, and system LSI. SDC includes display panels products. Harman division includes connected car systems, audio and visual products, enterprise automation solutions and connected services. The Company is domiciled in the Republic of Korea and is located in Suwon, the Republic of Korea.

These consolidated financial statements have been prepared in accordance with Korean International Financial Reporting Standards ("*Korean IFRS*") 1110, *Consolidated Financial Statements*. SEC, as the controlling company, consolidates its 232 subsidiaries, including Samsung Display and Samsung Electronics America. The Company also applies the equity method of accounting for its 37 associates and joint ventures, including Samsung Electro-Mechanics Co., Ltd.

1.2 Consolidated Subsidiaries

The consolidated subsidiaries as of December 31, 2022 are as follows:

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
America	Samsung Electronics America, Inc. (SEA)	Sale of electronic devices	100.0
	Samsung International, Inc. (SII)	Manufacture of electronic devices	100.0
	Samsung Mexicana S.A. de C.V (SAMEX)	Manufacture of electronic devices	100.0
	Samsung Electronics Home Appliances America, LLC (SEHA)	Manufacture of home appliances	100.0
	Samsung Research America, Inc. (SRA)	R&D	100.0
	Samsung Next LLC (SNX)	Management of overseas subsidiaries	100.0
	Samsung Next Fund LLC (SNXF)	Technology business, venture capital investments	100.0
	NeuroLogica Corp.	Manufacture and sale of medical equipment	100.0
	Samsung HVAC America, LLC	Sale of air conditioning products	100.0
	Joyent, Inc.	Cloud services	100.0
	Dacor Holdings, Inc.	Management of overseas subsidiaries	100.0
	Dacor, Inc.	Manufacture and sale of home appliances	100.0
	SmartThings, Inc.	Sale of smart home electronics	100.0
	TeleWorld Solutions, Inc. (TWS)	Installation & optimization of network devices	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
	Samsung Semiconductor, Inc. (SSI)	Sale of semiconductor and display panels	100.0
	Samsung Austin Semiconductor LLC. (SAS)	Manufacture of semiconductors	100.0
	Samsung Oak Holdings, Inc. (SHI)	Management of overseas subsidiaries	100.0
	SEMES America, Inc.	Semiconductor equipment services	100.0
	Samsung Electronics Canada, Inc. (SECA)	Sale of electronic devices	100.0
	AdGear Technologies Inc.	Digital advertising platforms	100.0
	Samsung Electronica da Amazonia Ltda. (SEDA)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Mexico S.A. de C.V. (SEM)	Sale of electronic devices	100.0
	Samsung Electronics Digital Appliance Mexico, S.A. de C.V. (SEDAM)	Manufacture of home appliances	100.0
	Samsung Electronics Latinoamerica (Zona Libre), S. A. (SELA)	Sale of electronic devices	100.0
	Samsung Electronics Latinoamerica Miami, Inc. (SEMI)	Sale of electronic devices	100.0
	Samsung Electronica Colombia S.A. (SAMCOL)	Sale of electronic devices	100.0
	Samsung Electronics Argentina S.A. (SEASA)	Marketing and services	100.0
	Samsung Electronics Chile Limitada (SECH)	Sale of electronic devices	100.0
	Samsung Electronics Peru S.A.C. (SEPR)	Sale of electronic devices	100.0
America	Samsung Electronics Venezuela, C.A. (SEVEN)	Marketing and services	100.0
	Samsung Electronics Panama. S.A. (SEPA)	Consulting	100.0
	Harman International Industries, Inc.	Management of overseas subsidiaries	100.0
	Harman Becker Automotive Systems, Inc.	Manufacture and sale of audio products, R&D	100.0
	Harman Connected Services, Inc.	Connected service provider	100.0
	Harman Connected Services Engineering Corp.	Connected service provider	100.0
	Harman da Amazonia Industria Eletronica e Participacoes Ltda.	Manufacture and sale of audio products	100.0
	Harman de Mexico, S. de R.L. de C.V.	Manufacture of audio products	100.0
	Harman do Brasil Industria Eletronica e Participacoes Ltda.	Sale of audio products, R&D	100.0
	Harman Financial Group LLC	Management company	100.0
	Harman International Industries Canada Ltd.	Sale of audio products	100.0
	Harman International Mexico, S. de R.L. de C.V.	Sale of audio products	100.0
	Harman KG Holding, LLC	Management of overseas subsidiaries	100.0
	Harman Professional, Inc.	Sale of audio products, R&D	100.0
	Beijing Integrated Circuit Industry International Fund, L.P	Venture capital investments	61.4
	China Materialia New Materials 2016 Limited Partnership	Venture capital investments	99.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Europe & CIS	Samsung Electronics (UK) Ltd. (SEUK)	Sale of electronic devices	100.0
	Samsung Electronics Ltd. (SEL)	Management of overseas subsidiaries	100.0
	Samsung Semiconductor Europe Limited (SSEL)	Sale of semiconductor and display panels	100.0
	Samsung Electronics GmbH (SEG)	Sale of electronic devices	100.0
	Samsung Electronics Holding GmbH (SEHG)	Management of overseas subsidiaries	100.0
	Samsung Semiconductor Europe GmbH (SSEG)	Sale of semiconductor and display panels	100.0
	Samsung Electronics France S.A.S (SEF)	Sale of electronic devices	100.0
	Samsung Electronics Italia S.P.A. (SEI)	Sale of electronic devices	100.0
	Samsung Electronics Iberia, S.A. (SESA)	Sale of electronic devices	100.0
	Samsung Electronics Portuguesa, Unipessoal, Lda. (SEP)	Sale of electronic devices	100.0
	Samsung Electronics Hungarian Private Co., Ltd. (SEH)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Europe Logistics B.V. (SELS)	Logistics	100.0
	Samsung Electronics Benelux B.V. (SEBN)	Sale of electronic devices	100.0
	Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	Management of overseas subsidiaries	100.0
	Samsung Electronics Nordic Aktiebolag (SENA)	Sale of electronic devices	100.0
	Samsung Electronics Slovakia s.r.o. (SESK)	Manufacture of TV and monitors	100.0
	Samsung Display Slovakia, s.r.o. (SDSK)	Toll processing of display panels	100.0
	Samsung Electronics Polska, SP.Zo.o (SEPOL)	Sale of electronic devices	100.0
	Samsung Electronics Poland Manufacturing SP.Zo.o (SEPM)	Manufacture of home appliances	100.0
	Samsung Electronics Romania LLC (SEROM)	Sale of electronic devices	100.0
	Samsung Electronics Austria GmbH (SEAG)	Sale of electronic devices	100.0
	Samsung Electronics Switzerland GmbH (SESG)	Sale of electronic devices	100.0
	Samsung Electronics Czech and Slovak s.r.o. (SECZ)	Sale of electronic devices	100.0
	Samsung Electronics Baltics SIA (SEB)	Sale of electronic devices	100.0
	Samsung Electronics Greece S.M.S.A (SEGR)	Sale of electronic devices	100.0
	Samsung Electronics Air Conditioner Europe B.V. (SEACE)	Sale of air conditioning products	100.0
	Samsung Nanoradio Design Center (SNDC)	R&D	100.0
	Samsung Denmark Research Center ApS (SDRC)	R&D	100.0
	Samsung Cambridge Solution Centre Limited (SCSC)	R&D	100.0
	SAMSUNG Zhilabs, S.L.	Development and sale of network solutions	100.0
	Foodient Ltd.	R&D	100.0
	Samsung Electronics Rus Company LLC (SERC)	Sale of electronic devices	100.0
	Samsung Electronics Rus Kaluga LLC (SERK)	Manufacture of TV	100.0
	Samsung Electronics Ukraine Company LLC (SEUC)	Sale of electronic devices	100.0
	Samsung R&D Institute Ukraine (SRUKR)	R&D	100.0
	Samsung Electronics Central Eurasia LLP (SECE)	Sale of electronic devices	100.0
	Samsung Electronics Overseas B.V. (SEO)	Sale of electronic devices	100.0
	Samsung R&D Institute Rus LLC (SRR)	R&D	100.0
	Samsung Electronics Caucasus Co., Ltd. (SECC)	Marketing	100.0
	Samsung Electronics Uzbekistan Ltd. (SEUZ)	Marketing	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Europe & CIS	AKG Acoustics GmbH	Manufacture and sale of audio products	100.0
	Apostera UA, LLC	Connected Service Provider	100.0
	Harman Audio Iberia Espana Sociedad Limitada	Sale of audio products	100.0
	Harman Automotive UK Limited	Manufacture of audio products	100.0
	Harman Becker Automotive Systems GmbH	Manufacture and sale of audio products, R&D	100.0
	Harman Becker Automotive Systems Italy S.R.L.	Sale of audio products	100.0
	Harman Becker Automotive Systems Manufacturing Kft	Manufacture of audio products, R&D	100.0
	Harman Belgium SA	Sale of audio products	100.0
	Harman Connected Services AB.	Connected service provider	100.0
	Harman Finland Oy	Connected service provider	100.0
	Harman Connected Services GmbH	Connected service provider	100.0
	Harman Connected Services Poland Sp.zoo	Connected service provider	100.0
	Harman Connected Services UK Ltd.	Connected service provider	100.0
	Harman Consumer Nederland B.V.	Sale of audio products	100.0
	Harman Deutschland GmbH	Sale of audio products	100.0
	Harman Finance International GP S.a.r.l	Management of overseas subsidiaries	100.0
	Harman France SNC	Sale of audio products	100.0
	Harman Holding GmbH & Co. KG	Management company	100.0
	Harman Hungary Financing Ltd.	Financing company	100.0
	Harman Inc. & Co. KG	Management of overseas subsidiaries	100.0
	Harman International Estonia OU	R&D	100.0
	Harman International Industries Limited	Sale of audio products, R&D	100.0
	Harman International Romania SRL	R&D	100.0
	Harman Finance International, SCA	Financing company	100.0
	Harman Management GmbH	Management of overseas subsidiaries	100.0
	Harman Professional Kft	Manufacture of audio products, R&D	100.0
	Harman Professional Denmark ApS	Sale of audio products, R&D	100.0
	Red Bend Software Ltd.	Software design	100.0
	Red Bend Software SAS	Software design	100.0
	Studer Professional Audio GmbH	Sale of audio products, R&D	100.0
	Harman Connected Services OOO	Connected service provider	100.0
	Harman RUS CIS LLC	Sale of audio products	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Middle East & Africa	Samsung Gulf Electronics Co., Ltd. (SGE)	Sale of electronic devices	100.0
	Samsung Electronics Turkiye (SETK)	Sale of electronic devices	100.0
	Samsung Electronics Industry and Commerce Ltd. (SETK-P)	Manufacture of electronic devices	100.0
	Samsung Electronics Levant Co.,Ltd. (SELV)	Sale of electronic devices	100.0
	Samsung Electronics Maghreb Arab (SEMAG)	Sale of electronic devices	100.0
	Samsung Electronics Egypt S.A.E (SEEG)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Israel Ltd. (SEIL)	Marketing	100.0
	Samsung Electronics Tunisia S.A.R.L (SETN)	Marketing	100.0
	Samsung Electronics Pakistan (Private) Ltd. (SEPAK)	Marketing	100.0
	Samsung Electronics Saudi Arabia Ltd. (SESAR)	Sale of electronic devices	100.0
	Samsung Semiconductor Israel R&D Center, Ltd. (SIRC)	R&D	100.0
	Corephotonics Ltd.	R&D	100.0
	Samsung Electronics South Africa (Pty) Ltd. (SSA)	Sale of electronic devices	100.0
	Samsung Electronics South Africa Production (Pty) Ltd. (SSAP)	Manufacture of TV and monitors	100.0
	Samsung Electronics West Africa Ltd. (SEWA)	Marketing	100.0
	Samsung Electronics East Africa Ltd. (SEEA)	Marketing	100.0
	Global Symphony Technology Group Private Ltd.	Management of overseas subsidiaries	100.0
	Harman Connected Services Morocco	Connected service provider	100.0
	Harman Industries Holdings Mauritius Ltd.	Management of overseas subsidiaries	100.0
	Red Bend Ltd.	Manufacture of audio products	100.0
Asia (Excluding China)	Samsung Asia Pte. Ltd. (SAPL)	Management of overseas subsidiaries	100.0
	Samsung Electronics Singapore Pte. Ltd. (SESP)	Sale of electronic devices	100.0
	Samsung Malaysia Electronics (SME) Sdn. Bhd. (SME)	Sale of electronic devices	100.0
	Samsung Electronics Display (M) Sdn. Bhd. (SDMA)	Manufacture of electronic devices	100.0
	Samsung Electronics (M) Sdn. Bhd. (SEMA)	Manufacture of home appliances	100.0
	Samsung Vina Electronics Co., Ltd. (SAVINA)	Sale of electronic devices	100.0
	Samsung Electronics Vietnam Co., Ltd. (SEV)	Manufacture of electronic devices	100.0
	Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	Manufacture of communication equipment	100.0
	Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	Manufacture and sale of electronic devices	100.0
	Samsung Display Vietnam Co., Ltd. (SDV)	Manufacture of display panels	100.0
	DOWOOINSYS VINA COMPANY LIMITED	Manufacture of display components	100.0
	PT Samsung Electronics Indonesia (SEIN)	Manufacture and sale of electronic devices	100.0
	PT Samsung Telecommunications Indonesia (STIN)	Sale of electronic devices and services	100.0
	Thai Samsung Electronics Co., Ltd. (TSE)	Manufacture and sale of electronic devices	91.8
	Laos Samsung Electronics Sole Co., Ltd. (LSE)	Marketing	100.0
	Samsung Electronics Philippines Corporation (SEPCO)	Sale of electronic devices	100.0
	Samsung Electronics Australia Pty. Ltd. (SEAU)	Sale of electronic devices	100.0
	Samsung Electronics New Zealand Limited (SENZ)	Sale of electronic devices	100.0
	Samsung India Electronics Private Ltd. (SIEL)	Manufacture and sale of electronic devices	100.0
	Red Brick Lane Marketing Solutions Pvt. Ltd.	Marketing	100.0
	Samsung Display Noida Private Limited (SDN)	Manufacture of display panels	100.0
	Samsung R&D Institute India-Bangalore Private Limited (SRI-B)	R&D	100.0
	Samsung R&D Institute BanglaDesh Limited (SRBD)	R&D	100.0
	Samsung Nepal Services Pvt, Ltd. (SNSL)	Service	100.0
	Samsung Japan Corporation (SJC)	Sale of semiconductor and display panels	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Asia (Excluding China)	Samsung R&D Institute Japan Co., Ltd. (SRJ)	R&D	100.0
	Samsung Electronics Japan Co., Ltd. (SEJ)	Sale of electronic devices	100.0
	Harman International Industries PTY Ltd.	Management of overseas subsidiaries	100.0
	Harman Connected Services Corp. India Pvt. Ltd.	Connected service provider	100.0
	Harman International (India) Private Limited	Sale of audio products, R&D	100.0
	Harman International Japan Co., Ltd.	Sale of audio products, R&D	100.0
	Harman Singapore Pte. Ltd.	Sale of audio products	100.0
China	Samsung (CHINA) Investment Co., Ltd. (SCIC)	Sale of electronic devices	100.0
	Samsung Electronics Hong Kong Co., Ltd. (SEHK)	Sale of electronic devices	100.0
	Samsung Electronics Taiwan Co., Ltd. (SET)	Sale of electronic devices	100.0
	Tianjin Samsung Electronics Co., Ltd. (TSEC)	Manufacture of TV and monitors	91.2
	Suzhou Samsung Electronics Co., Ltd. (SSEC)	Manufacture of home appliances	88.3
	Samsung Suzhou Electronics Export Co., Ltd. (SSEC-E)	Manufacture of home appliances	100.0
	Samsung Electronics Suzhou Computer Co., Ltd. (SESC)	R&D	100.0
	Tianjin Samsung Telecom Technology Co., Ltd. (TSTC)	Manufacture of communication equipment	90.0
	Beijing Samsung Telecom R&D Center (SRC-Beijing)	R&D	100.0
	Samsung Electronics China R&D Center (SRC-Nanjing)	R&D	100.0
	Samsung Mobile R&D Center China-Guangzhou (SRC-Guangzhou)	R&D	100.0
	Samsung R&D Institute China-Shenzhen (SRC-Shenzhen)	R&D	100.0
	Shanghai Samsung Semiconductor Co., Ltd. (SSS)	Sale of semiconductor and display panels	100.0
	Samsung (China) Semiconductor Co., Ltd. (SCS)	Manufacture of semiconductors	100.0
	Samsung SemiConductor Xian Co., Ltd. (SSCX)	Sale of semiconductor and display panels	100.0
	Samsung Electronics Suzhou Semiconductor Co., Ltd. (SESS)	Toll processing of semiconductors	100.0
	Tianjin Samsung LED Co., Ltd. (TSLED)	Manufacture of LED	100.0
	Samsung Semiconductor (China) R&D Co., Ltd. (SSCR)	R&D	100.0
	Samsung Display Dongguan Co., Ltd. (SDD)	Manufacture of display panels	100.0
	Samsung Display Tianjin Co., Ltd. (SDT)	Manufacture of display panels	95.0
	SEMES (XIAN) Co., Ltd.	Semiconductor equipment services	100.0
	Samsung Semiconductor Investment L.P. I	Technology business, Venture capital investments	99.0
	Harman (China) Technologies Co., Ltd.	Manufacture of audio products	100.0
	Harman (Suzhou) Audio and Infotainment Systems Co., Ltd.	Sale of audio products	100.0
	Harman Automotive Electronic Systems (Suzhou) Co., Ltd.	Manufacture of audio products, R&D	100.0
	Harman Commercial (Shanghai) Co., Ltd.	Sale of audio products	100.0
	Harman Connected Services Solutions (Chengdu) Co., Ltd.	Connected service provider	100.0
	Harman Holding Limited	Sale of audio products	100.0
	Harman International (China) Holdings Co., Ltd.	Sale of audio products, R&D	100.0
	Harman Technology (Shenzhen) Co., Ltd.	Sale of audio products, R&D	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Domestic	Samsung Display Co., Ltd.	Manufacture and sale of display panels	84.8
	SU Materials	Manufacture of display components	50.0
	STECO Co., Ltd.	Manufacture of semiconductor components	70.0
	SEMES Co., Ltd.	Manufacture and sale of semiconductor/FPD	91.5
	Samsung Electronics Service Co., Ltd.	Repair services for electronic devices	99.3
	Samsung Electronics Service Customer Satisfaction Co., Ltd.	Call center for repair services for electronic devices	100.0
	Samsung Electronics Sales Co., Ltd.	Sale of electronic devices	100.0
	Samsung Electronics Logitech Co., Ltd.	General logistics agency	100.0
	Samsung Medison Co., Ltd.	Manufacture and sale of medical equipment	68.5
	Stella Forest of Hope	Manufacture of food	100.0
	Mirero System Co., Ltd.	Development and supply of semiconductor process defect and quality control software	99.9
	Dowooinssys Co., Ltd.	Manufacture of display components	69.0
	Gf-System Co., Ltd.	Manufacture of display components	100.0
	Harman International Korea	Software development and supply, etc.	100.0
	Samsung Venture Capital Union #21	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #22	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #26	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #28	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #29	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #32	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #33	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #37	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #40	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #42	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #43	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #45	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #48	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #52	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #55	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #56	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #57	Technology business, Venture capital investments	99.0
	Growth type private equity trust specialized in semiconductors	Investment on semiconductor industry	66.7
	System LSI Mutual benefit private equity trust	Investment on semiconductor industry	62.5

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

1.3 Summary of Financial Data of Major Consolidated Subsidiaries

Summary of financial data of major consolidated subsidiaries is as follows:

(1) 2022

(In millions of Korean won)	As of December 31, 2022		For the year ended December 31, 2022	
Major subsidiaries[1]	**Assets**	**Liabilities**	**Sales**	**Profit (loss) for the year**
Samsung Display	57,302,567	7,282,718	30,779,405	4,365,588
Samsung Electronics America, Inc. (SEA)	37,883,156	12,258,315	46,738,920	219,670
Samsung Asia Pte. Ltd. (SAPL)	26,894,611	2,678,285	-	8,699,679
Harman and its subsidiaries[2]	17,102,324	6,380,456	13,211,151	631,019
Samsung (China) Semiconductor Co., Ltd. (SCS)	17,095,000	2,970,835	9,679,757	638,385
Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	15,718,299	2,358,140	36,336,963	2,721,701
Samsung (CHINA) Investment Co., Ltd. (SCIC)	13,830,988	9,764,636	2,865,831	257,878
Samsung Semiconductor, Inc. (SSI)	12,199,102	5,930,369	43,009,331	88,467
Samsung Electronics Vietnam Co., Ltd. (SEV)	10,931,037	1,408,387	23,667,565	1,646,165
Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	10,841,515	6,272,800	-	57,997
Samsung Austin Semiconductor LLC. (SAS)	9,301,017	828,494	3,663,909	208,879
Samsung Display Vietnam Co., Ltd. (SDV)	7,471,680	1,608,448	25,773,970	1,301,926
Samsung India Electronics Private Ltd. (SIEL)	6,772,537	3,571,863	16,180,492	508,510
Shanghai Samsung Semiconductor Co., Ltd. (SSS)	5,067,891	2,858,382	21,370,622	318,578
Samsung Eletronica da Amazonia Ltda. (SEDA)	4,600,508	1,342,517	7,485,104	(38,490)
Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	3,732,057	980,448	6,253,401	386,119
Thai Samsung Electronics Co., Ltd. (TSE)	3,263,473	486,820	4,824,734	168,524
Samsung Electronics (UK) Ltd. (SEUK)	2,819,792	1,708,064	5,929,357	243,396
Samsung Electronics Benelux B.V. (SEBN)	2,377,730	597,044	2,834,008	25,411
Samsung Electronics Hungarian Private Co. Ltd. (SEH)	2,374,317	452,628	3,935,745	199,742
Samsung Electronics Europe Logistics B.V. (SELS)	2,194,975	2,021,491	15,409,984	20,347
Samsung Display Dongguan Co., Ltd. (SDD)	2,135,132	265,835	2,556,608	111,643
SEMES Co., Ltd.	2,065,558	602,323	2,889,238	185,762
Samsung Electronics GmbH (SEG)	1,968,273	1,907,132	6,567,011	3,695
Samsung Electronics Mexico S.A. De C.V. (SEM)	1,816,895	996,002	3,270,016	110,386

[1] Summary of condensed financial information is based on separate financial statements of each subsidiary.
[2] Consolidated financial data of an intermediate company that includes Harman International Industries, Inc. and its subsidiaries.

(2) 2021

(In millions of Korean won)	As of December 31, 2021		For the year ended December 31, 2021	
Major subsidiaries[1]	**Assets**	**Liabilities**	**Sales**	**Profit (loss) for the year**
Samsung Display	54,967,156	9,081,737	28,755,975	2,770,060
Samsung Electronics America, Inc. (SEA)	42,982,054	19,246,751	42,325,524	823,914
Samsung (China) Semiconductor Co., Ltd. (SCS)	19,049,536	5,168,738	7,341,018	1,708,832
Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	17,521,446	3,425,127	32,184,024	2,298,273
Harman and its subsidiaries[2]	15,887,380	6,104,012	10,015,092	357,612
Samsung Asia Pte. Ltd. (SAPL)	14,683,789	58,381	-	4,668,478
Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	14,651,496	8,998,502	-	24,527
Samsung Semiconductor, Inc. (SSI)	13,744,799	7,955,060	33,895,805	74,531
Samsung (CHINA) Investment Co., Ltd. (SCIC)	13,599,093	9,685,278	2,615,685	451,062
Samsung Electronics Vietnam Co., Ltd. (SEV)	13,023,272	2,085,411	21,583,038	1,455,704
Samsung Austin Semiconductor LLC (SAS)	8,705,085	958,537	3,703,472	759,206
Shanghai Samsung Semiconductor Co., Ltd. (SSS)	7,765,126	5,799,690	31,326,186	325,397
Samsung India Electronics Private Ltd. (SIEL)	7,765,019	3,236,745	12,222,643	522,672
Samsung Display Vietnam Co., Ltd. (SDV)	6,821,066	2,486,703	21,722,446	981,311
Samsung Eletronica da Amazonia Ltda. (SEDA)	4,589,505	1,671,097	6,020,523	490,202
Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	3,129,104	919,721	6,551,242	472,666
Thai Samsung Electronics Co., Ltd. (TSE)	3,018,358	474,223	4,443,031	142,191
Samsung Electronics (UK) Ltd. (SEUK)	2,925,062	1,992,367	5,621,922	241,403
Samsung Electronics Benelux B.V. (SEBN)	2,612,357	766,034	2,569,603	284,816
Samsung Electronics Hungarian Private Co., Ltd. (SEH)	2,504,075	641,004	4,357,137	157,616
Samsung Electronics Europe Logistics B.V. (SELS)	2,305,275	2,144,805	14,700,517	13,943
Samsung Electronics GmbH (SEG)	2,289,391	2,228,650	6,385,080	2,158
Samsung Display Dongguan Co., Ltd. (SDD)	2,149,277	339,425	3,987,674	163,637
Samsung International, Inc. (SII)	2,125,719	1,041,168	7,948,982	105,444
Samsung Electronics Taiwan Co., Ltd. (SET)	2,033,992	1,459,353	5,638,204	50,966

[1] Summary of condensed financial information is based on separate financial statements of each subsidiary.
[2] Consolidated financial data of an intermediate company that includes Harman International Industries, Inc. and its subsidiaries.

1.4 Changes in Consolidation Scope

Changes in consolidation scope during the year ended December 31, 2022 are as follows:

Change	Area	Subsidiary	Description
Included	Europe & CIS	Samsung R&D Institute Ukraine (SRUKR)	Establishment
		Samsung Electronics Uzbekistan Ltd. (SEUZ)	Establishment
		Apostera GmbH	Acquisition
		Apostera UA, LLC	Acquisition
	Asia (Excluding China)	DOWOOINSYS VINA COMPANY LIMITED	Establishment
		Red Brick Lane Marketing Solutions Pvt. Ltd.	Acquisition
	Domestic	Samsung Venture Capital Union #57	Establishment
		Stella Forest of Hope	Establishment
Excluded	America	Dacor Canada Co.	Liquidation
	Europe & CIS	AMX UK Limited	Liquidation
		Harman International s.r.o	Liquidation
		Apostera GmbH	Merger

2. Significant Accounting Policies

2.1 Basis of Presentation

The principal accounting policies used to prepare the consolidated financial statements are set out below. Except for the effect of the amendments to the Korean IFRS and new interpretations set out below, the principal accounting policies used to prepare the consolidated financial statements as of and for the year ended December 31, 2022 are consistent with those used to prepare the consolidated financial statements as of and for the year ended December 31, 2021.

The Company maintains its accounting records in Korean won and prepares the statutory financial statements in Korean language (Hangul) in accordance with International Financial Reporting Standards as adopted by the Republic of Korea ("Korean IFRS"). The accompanying consolidated financial statements have been restructured, and translated into English from the Korean language financial statements.

Certain information attached to the Korean language financial statements that are not required for a fair presentation of the Company's financial position, financial performance or cash flows, are not presented in the accompanying consolidated financial statements.

The consolidated financial statements of the Company have been prepared in accordance with Korean IFRS. These are the standards, subsequent amendments and related interpretations issued by the International Accounting Standards Board (IASB) that have been adopted by the Republic of Korea.

Korean IFRS permits the use of critical accounting estimates in the preparation of the consolidated financial statements and requires management judgments in applying the accounting policies. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements, are disclosed in Note 3.

2.2 Changes in Accounting Policies and Disclosures

(A) New and amended standards adopted by the Company

The Company applied the following amended and/or enacted standards for the first time for their annual reporting period commencing on January 1, 2022:

Amendments to Korean IFRS 1116, Lease

The amendments to Korean IFRS 1116 introduced a practical expedient that provided practical relief to lessees in accounting for rent concessions occurring as a direct consequence of COVID-19. The amendments extend the practical expedient to apply to reduction in lease payments originally due on or before June 30, 2022. The application of amendments does not have a significant impact on the Company's year-end consolidated financial statements.

Amendments to Korean IFRS 1103, Business Combinations

The amendments update Korean IFRS 1103 so that it refers to the amended conceptual framework for financial reporting for assets and liabilities recognized upon business combination, along with adding requirement that for transactions and other events within the scope of IAS 37 or IFRIC 21, an acquirer applies IAS 37 or IFRIC 21 to identify the liabilities it has assumed in a business combination. The amendments also add an explicit statement that an acquirer does not recognize contingent assets acquired in a business combination. The application of amendments does not have a significant impact on the Company's year-end consolidated financial statements.

Amendments to Korean IFRS 1016, Property, Plant and Equipment

The amendments prohibit deducting from the cost of an item of property, plant and equipment any proceeds from selling items produced while bringing that asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Instead, an entity recognizes the proceeds from selling such items, and the cost of producing those items, in profit or loss. The application of amendments does not have a significant impact on the Company's year-end consolidated financial statements.

Amendments to Korean IFRS 1037, Provisions, Contingent Liabilities and Contingent Assets

The amendments specify that the cost of fulfilling a contract comprises the costs that relate directly to the contract, and that costs that relate directly to a contract consist of both the incremental costs of fulfilling that contract and an allocation of other costs that relate directly to fulfilling contracts. The application of the amendments does not have a significant impact on the Company's year-end consolidated financial statements.

(B) New and amended standards not yet adopted by the Company

The amended accounting standards issued that are not mandatory for the annual reporting periods commencing on January 1, 2022 and has not been early adopted by the Company are as follows:

Amendments to Korean IFRS 1001 Presentation of Financial Statements

The amendments clarify that the classification of liabilities as current or non-current is based on the rights that are in existence at the end of the reporting period, specify that classification is unaffected by expectations about whether an entity will exercise its right to defer settlement of a liability, and elucidate that settlement refers to the transfer to the counterparty of cash, equity instruments, other assets or services. The amendments are effective for annual reporting periods beginning on or after January 1, 2023, with earlier application permitted.

Amendments to Korean IFRS 1001 Presentation of Financial Statements

The amendments require companies to define and disclose their 'material' accounting policy information instead of its 'significant' accounting policies. The amendments explain how an entity can identify material accounting policy information. The amendments to K-IFRS 1001 are effective for annual periods beginning on or after January 1, 2023, with earlier application permitted and are applied prospectively.

Amendments to Korean IFRS 1008 Accounting Policies, Changes in Accounting Estimates and Errors

The amendments clarify the definition of a change in accounting estimates, and specify how to distinguish from a change in accounting policies. The amendments are effective for annual periods beginning on or after January, 1 2023 to changes in accounting policies and changes in accounting estimates that occur on or after the beginning of that period, with earlier application permitted.

Amendments to Korean IFRS 1012, Income Taxes

The amendments add to the initial recognition exemption that the initial recognition exemption does not apply to transactions in which equal amounts of deductible and taxable temporary differences arise on initial recognition. The amendments are effective for annual reporting periods beginning on or after January 1, 2023, with earlier application permitted.

2.3 Consolidation

The Company prepares the consolidated financial statements in accordance with Korean IFRS 1110 *Consolidated Financial Statements*.

(A) Subsidiaries

Subsidiaries are all entities (including the special purpose entities) over which the Company has control. The Company controls the corresponding investee when it is exposed, or has rights, to variable returns from its involvement with the investee and has the ability to affect those returns through its power over the investee. Consolidation of a subsidiary begins from the date the Company obtains control of a subsidiary and ceases when the Company loses control of the subsidiary.

The Company applies the acquisition method to account for business combinations. The consideration transferred is measured at the fair values of the assets transferred, and identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are initially measured at their fair values at the acquisition date. The Company recognizes any non-controlling interest in the acquiree on an acquisition-by-acquisition basis in the event of liquidation at the non-controlling interest's proportionate share of the recognized amounts of acquiree's identifiable net assets. Acquisition-related costs are expensed as incurred.

The excess of consideration transferred, of any non-controlling interest in the acquired entity, and acquisition-date fair value of any previous equity interest in the acquired entity over the fair value of the net identifiable assets acquired is recorded as goodwill. If those amounts are less than the fair value of the net identifiable assets of the business acquired, the difference is recognized directly in the profit or loss as a bargain purchase.

Balances of receivables and payables, income and expenses and unrealized gains or losses on transactions between the entities within the Company are eliminated. Accounting policies of subsidiaries are changed where necessary to ensure consistency with the policies adopted by the Company.

(B) Changes in ownership interests in subsidiaries without change of control

Transactions with non-controlling interests that do not result in loss of control are accounted for as equity transactions – that is, as transactions with the owners in their capacity as owners. The difference between the fair value of any consideration paid and the relevant share acquired of the carrying value of net assets of the subsidiary is recorded in equity. Gains or losses on disposals of non-controlling interests are also recorded in equity.

(C) Disposal of subsidiaries

If the Company loses control of a subsidiary, any investment continuously retained in the subsidiary is re-measured at its fair value at the date when control is lost and any resulting differences are recognized in profit or loss. Such fair value becomes the initial carrying amount for the subsequent measurement of the retained interest accounted for as an associate, joint venture, or financial asset. In addition, any amounts previously recognized in other comprehensive income in respect of such entity are accounted as if the Company had directly disposed of the related assets or liabilities. As a result, the previously recognized other comprehensive income are reclassified into profit or loss or equity.

(D) Non-controlling interests

Each component of profit or loss and other comprehensive income is attributed to owners of the parent and to non-controlling interests. Total comprehensive income is attributed to owners of the parent and to non-controlling interests even if this results in a negative balance of non-controlling interests.

(E) Associates

Associates are all entities over which the Company has significant influence but does not have control, generally investees of which from 20% to 50% voting shares are owned by the Company. Investments in associates are accounted for using the equity method of accounting, after initially being recognized at cost. Unrealized gains on transactions between the Company and its associates are eliminated to the extent of the Company's interest in the associates. If the Company's share of losses of an associate equals or exceeds its interest in the associate (including long-term interests that, in substance, form part of the Company's net investment in the associate), the Company discontinues recognizing its share of further losses. After the Company's interest is reduced to zero, additional losses are provided for, and a liability is recognized, only to the extent that the Company has incurred legal or constructive obligations or made payments on behalf of the associate. If there is objective evidence of impairment for the investment in the associate, the Company recognizes the difference between the recoverable amount of the associate and its carrying amount as an impairment loss. If an associate uses accounting policies other than those of the Company for like transactions and events in similar circumstances, adjustments shall be made, if necessary, to make the associate's accounting policies conform to those of the Company when the associate's financial statements are used by the entity in applying the equity method.

(F) Joint arrangements

A joint arrangement of which two or more parties have joint control is classified as either a joint operation or a joint venture. A joint operator has rights to the assets, and obligations for the liabilities, relating to the joint operation and recognizes the assets, liabilities, revenues and expenses relating to its interest in a joint operation. A joint venturer has rights to the net assets relating to the joint venture and accounts for that investment using the equity method.

2.4 Foreign Currency Translation

(A) Functional and presentation currency

Items included in the consolidated financial statements of each of the Company's entities are measured using the currency of the primary economic environment in which each entity operates (the "functional currency"). The consolidated financial statements are presented in Korean won, which is the parent company's functional and presentation currency.

(B) Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions or valuation where items are re-measured. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognized in profit or loss. Exchange differences arising on non-monetary financial assets and liabilities such as equity instruments at fair value through profit or loss and equity instruments at fair value through other comprehensive income are recognized in profit or loss and other comprehensive income, respectively, as part of the fair value gain or loss.

(C) Translation into the presentation currency

The results and financial position of all the foreign entities that have a functional currency different from the presentation currency of the Company are translated into the presentation currency as follows:

- Assets and liabilities for each consolidated statement of financial position presented are translated at the closing rate at the end of the reporting date.
- Income and expenses for each consolidated statement of profit or loss are translated at average exchange rates, unless this average is not a reasonable approximation of the cumulative effect of the rates prevailing on the transaction dates, in which case income and expenses are translated at the as-of rate on the dates of the transactions.
- All resulting exchange differences are recognized in other comprehensive income.

2.5 Cash and Cash Equivalents

Cash and cash equivalents include cash on hand, deposits held at call with banks, and other short-term investment assets with high liquidity that are readily convertible to a known amount of cash and are subject to an insignificant risk of change in value.

2.6 Financial Assets

(A) Classification

From January 1, 2018, the initial application date for Korean IFRS 1109 *Financial Instruments*, the Company classifies its financial assets in the following measurement categories:

- Financial assets measured at fair value (changes in fair value recognized in either other comprehensive income, or profit or loss)
- Financial assets measured at amortized cost.

The classification depends on the Company's business model for managing the financial assets and the contractual terms of the cash flows.

For financial assets measured at fair value, gains and losses will either be recorded in profit or loss or other comprehensive income. For investments in debt instruments, this will depend on the business model in which the investment is held. The Company reclassifies debt investments only when its business model for managing those assets changes.

For investments in equity instruments that are not held for trading, classification will depend on whether the Company has made an irrevocable election at the time of initial recognition to account for the equity investment at fair value through other comprehensive income. Changes in fair value of the investments in equity instruments that are not elected to be accounted for as other comprehensive income are recognized in profit or loss.

(B) Measurement

At initial recognition, the Company measures a financial asset at its fair value. In the case of financial asset not measured at fair value through profit or loss, transaction costs that are directly attributable to the acquisition of the financial asset or the issuance of the financial liabilities are added to its fair value. Transaction costs of financial assets carried at fair value through profit or loss are expensed in profit or loss.

Hybrid (combined) contracts with embedded derivatives are considered in their entirety when determining whether their cash flows solely consist of the payments of principal and interest.

a) Debt instruments

Subsequent measurement of debt instruments depends on the Company's business model for managing the asset and the cash flow characteristics of the asset. The Company classifies its debt instruments into one of the following three measurement categories:

① Financial assets measured at amortized cost

Assets that are held for collection of contractual cash flows where those cash flows represent solely the payments of principal and interest are measured at amortized cost. A gain or loss on a debt investment that is subsequently measured at amortized cost and is not part of a hedging relationship is recognized in profit or loss when the asset is derecognized or impaired. Interest income from these financial assets is included in 'financial income' using the effective interest rate method.

② Financial assets measured at fair value through other comprehensive income

Assets that are held for collection of contractual cash flows and for selling the financial assets, where the assets' cash flows represent solely the payments of principal and interest, are measured at fair value through other comprehensive income. Movements in the carrying amount are taken through other comprehensive income, except for the recognition of impairment loss (reversal of impairment loss), interest income and foreign exchange gains and losses which are recognized in profit or loss. When the financial assets are derecognized, the cumulative gain or loss previously recognized in other comprehensive income is reclassified from equity to profit or loss. Interest income from these financial assets is included in 'financial income' using the effective interest rate method. Foreign exchange gains and losses are presented in 'financial income' or 'financial expenses' and impairment losses are presented in 'other non-operating expenses'.

③ Financial assets measured at fair value through profit or loss

Assets that do not meet the criteria for amortized cost or fair value through other comprehensive income are measured at fair value through profit or loss. A gain or loss on a debt investment that is subsequently measured at fair value through profit or loss and is not part of a hedging relationship is recognized in profit or loss and presented in the consolidated statement of profit or loss within 'other non-operating income' or 'other non-operating expenses' in the year in which it arises.

b) Equity instruments

The Company subsequently measures all equity investments at fair value. Where the Company's management has elected to present fair value gains and losses on equity investments in other comprehensive income, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. When the financial asset is derecognized, the cumulative gain or loss on valuation of financial assets at fair value through other comprehensive income recognized in equity is reclassified to retained earnings. Dividend income from such investments continue to be recognized in profit or loss as 'other non-operating income' when the right to receive the payments is established.

Changes in the fair value of financial assets at fair value through profit or loss are recognized in 'other non-operating income' or 'other non-operating expenses' in the consolidated statements of profit or loss as applicable.

(C) Impairment

The Company assesses on a forward-looking basis the expected credit losses associated with its debt instruments carried at amortized cost and fair value through other comprehensive income. The impairment methodology applied depends on whether there has been a significant increase in credit risk. For trade receivables, the Company applies the simplified approach, which requires expected lifetime losses to be recognized from initial recognition of the receivables.

(D) Recognition and derecognition

Regular way purchases and sales of financial assets are recognized or derecognized on a trade date basis. Financial assets are derecognized when the rights to receive cash flows from the financial assets have expired or have been transferred and the Company has transferred substantially all the risks and rewards of ownership. If a transfer does not result in derecognition because the Company has retained substantially all the risks and rewards of ownership of the transferred asset, the Company continues to recognize the transferred asset in its entirety and recognizes a financial liability for the consideration received. The Company classifies the financial liability as 'borrowings' in the consolidated statement of financial position.

(E) Offsetting of financial instruments

Financial assets and liabilities are offset and the net amount is reported in the statements of financial position when there is a legally enforceable right to offset the recognized amounts and there is an intention to settle on a net basis or realize the assets and settle the liability simultaneously. The legally enforceable right must not be contingent on future events and must be enforceable in the normal course of business, even in the event of default, insolvency or bankruptcy of the Company or the counterparty.

2.7 Trade Receivables

Trade receivables are amounts due from customers for inventories sold or services performed in the ordinary course of business. If collection is expected within one year or less, they are classified as current assets. If collection is expected beyond one year, they are presented as non-current assets. Trade receivables are recognized initially at transaction price and subsequently measured at amortized cost using the effective interest method, less loss allowance, unless the trade receivables bear significant financial component.

2.8 Inventories

Inventories are stated at the lower of cost and net realizable value. Cost is determined using the average cost method, except for materials in transit. The cost of finished goods and work in progress comprises raw materials, direct labor, other direct costs and related production overheads (based on normal operating capacity). It excludes costs of idle plant and abnormal waste. Net realizable value is the estimated selling price in the ordinary course of business, less applicable variable selling expenses.

The Company regularly estimates the changes in future customer demand in the products that may cause a significant change in the valuation allowance and recognizes the valuation allowance if there is any case such as excess, obsolescence and decline in market value. Loss on valuation of inventories is recorded as cost of sales.

2.9 Property, Plant and Equipment

Property, plant and equipment are stated at cost less accumulated depreciation and accumulated impairment losses. Historical cost includes expenditures that are directly attributable to the acquisition. Subsequent costs are included in the asset's carrying amount or recognized as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the cost will flow to the Company and the cost can be measured reliably. The carrying amounts of the replaced parts are derecognized and the repairs and maintenance expenses are recognized in profit or loss in the period they are incurred.

Depreciation on tangible assets is calculated using the straight-line method to allocate the difference between their cost and their residual values over their estimated useful lives. Land is not depreciated. Costs that are directly attributable to the acquisition, construction or production of a qualifying asset, including capitalized interest costs, form part of the cost of that asset and are amortized over the estimated useful lives.

The Company's policy is that property, plant and equipment should be depreciated over the following estimated useful lives:

	Estimated useful lives
Buildings and structures	15, 30 years
Machinery and equipment	5 years
Other	5 years

The depreciation method, residual values and useful lives of property, plant and equipment are reviewed, and adjusted if appropriate, at the end of each reporting period. An asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount. Gains and losses on disposals are determined by comparing the proceeds with the carrying amount and are recognized within the consolidated statement of profit or loss as 'other non-operating income' or 'other non-operating expenses'.

2.10 Borrowing Costs

General and specific borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset are capitalized during the period of time that is required to complete and prepare the asset for its intended use. Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalization. Other borrowing costs are expensed in the period in which they are incurred.

2.11 Intangible Assets

Goodwill represents the excess of the cost of acquisition over the fair value of the Company's share of the net identifiable assets of the acquired subsidiaries, associates, joint ventures and businesses at the date of acquisition. Goodwill on an acquisition of businesses is included in intangible assets and goodwill on an acquisition of associates and joint ventures' shares is included in the investments in associates and joint ventures.

Intangible assets, except for goodwill, are initially recognized at their historical cost and carried at cost less accumulated amortization and accumulated impairment losses.

Internally generated development costs are the aggregate costs recognized after meeting the asset recognition criteria, including technical feasibility, and determined to have future economic benefits. Membership rights and certain trademarks are regarded as intangible assets with an indefinite useful life and not amortized because there is no foreseeable limit to the period over which the assets are expected to be utilized. However, the Company records impairment based on its reasonable estimation of the benefits associated with the membership rights and assessment of impairment indicators, such as a decline in the market value. Intangible assets with definite useful lives such as trademarks, licenses, and other intangible assets, are amortized using the straight-line method over their estimated useful lives.

The Company's policy is that intangible assets should be amortized over the following estimated useful lives:

	Estimated useful lives
Development costs	2 years
Trademarks, licenses and other intangible assets	3 - 25 years

2.12 Impairment of Non-Financial Assets

Goodwill or intangible assets with indefinite useful lives are not subject to amortization and are tested annually for impairment. Assets that are subject to amortization are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and value in use. For the purposes of assessing impairment, assets are grouped at the lowest level for which there are separately identifiable cash flows (cash-generating units). Non-financial assets other than goodwill that suffered an impairment are reviewed for possible reversal of the impairment at the end of each reporting period.

2.13 Assets Held-for-Sale (Disposal Group)

Non-current assets (or disposal groups) are classified as assets held-for-sale when their carrying amount is to be recovered principally through a sale transaction and the sale is considered highly probable. The assets are measured at the lower of their carrying amount and the fair value less costs to sell. Gain or loss on disposal is determined by comparing the proceeds with the carrying amount of relevant assets, and is recognized in the statements of profit or loss as 'other non-operating income' or 'other non-operating expenses'.

2.14 Financial Liabilities

(A) Classification and measurement

The Company shall classify all financial liabilities as financial liabilities measured subsequently at amortized cost, except for the following:

- Financial liabilities at fair value through profit or loss. Such liabilities, including derivatives that are liabilities, shall be subsequently measured at fair value.
- Financial liabilities that arise when a transfer of a financial asset does not qualify for derecognition or when the continuing involvement approach applies. Such financial liabilities are measured based on the methodology described in Note 2.6 Financial Assets.
- Financial guarantee contracts. After the initial recognition, an issuer of such a contract shall subsequently measure it at the higher of:
  (a) The amount of the loss allowance determined based on the expected credit losses.
  (b) The amount initially recognized less the cumulative amount of income recognized in accordance with the principles of Korean IFRS 1115 *Revenue from Contracts with Customers*, when appropriate.
- Commitments to provide loan at below-market interest rate. An issuer of such a commitment shall subsequently measure it at the higher of:
  (a) The amount of the loss allowance determined based on the expected credit losses.
  (b) The amount initially recognized less the cumulative amount of income recognized in accordance with the principles of Korean IFRS 1115 *Revenue from Contracts with Customers*, when appropriate.
- Contingent consideration recognized by an acquirer in a business combination to which Korean IFRS 1103 *Business Combinations* applies. Such contingent consideration shall subsequently be measured at fair value with changes recognized in profit or loss.

(B) Derecognition

Financial liabilities are removed from the consolidated statements of financial position when it is extinguished; for example, when the obligation specified in the contract is discharged or cancelled or expired or when the terms of an existing financial liability are substantially modified. The difference between the carrying amount of a financial liability extinguished or transferred to another party and the consideration paid (including any non-cash assets transferred or liabilities assumed) is recognized in profit or loss.

2.15 Trade Payables

Trade payables are amounts due to suppliers for inventories purchased or services received in the ordinary course of business. If payment is expected to be made within 12 months, they are classified as current liabilities. If not, they are presented as non-current liabilities. Non-current trade payables are recognized initially at fair value and subsequently measured at amortized cost using the effective interest method.

2.16 Borrowings

Borrowings are recognized initially at fair value, net of transaction costs, and are subsequently measured at amortized cost. Any difference between cost and the redemption value is recognized in the consolidated statement of profit or loss over the period of the borrowings using the effective interest method. If the Company has an indefinite right to defer payment for a period longer than 12 months after the end of the reporting date, such liabilities are recorded as non-current liabilities, otherwise, they are recorded as current liabilities.

2.17 Provisions and Contingent Liabilities

A provision is recognized when the Company has present legal or constructive obligation as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation. Provisions are not recognized for future operating losses.

Provisions are measured at present value of the expenditures expected to be required to settle the obligation using a pre-tax rate that reflects the current market assessments of the time value of money and the risks specific to the obligation. The increase in the provision due to the passage of time is recognized as interest expense.

The Company discloses a contingent liability if there is a possible obligation from past events in which the existence may only be identified through the occurrence of uncertain future events; or there is a present obligations that the possibility on the outflow of economic resources is uncertain; or the amount of economic resources required to settle the present obligation cannot be reasonably estimated.

2.18 Employee Benefits

The Company has a variety of retirement pension plans including a defined benefit plan and a defined contribution plan.

A defined contribution plan is a pension plan under which the Company pays fixed contributions into a separate fund. The Company has no legal or constructive obligation to pay further contributions if the fund does not hold sufficient assets to pay all employees the benefits relating to employee service received in the current and prior periods. For a defined contribution plans, the Company pays contributions to annuity plans that are managed either publicly or privately on a mandatory, contractual or voluntary basis. The Company has no further future payment obligations once the contributions have been paid. The contributions are recognized as employee benefit expense when they are due. Prepaid contributions are recognized as an asset to the extent that a cash refund or a reduction in the future payments is available.

A defined benefit plan is a pension plan that is not a defined contribution plan. Typically, a defined benefit plan establishes an amount of pension benefit that an employee will receive upon retirement, usually dependent on one or more factors such as age, years of service and compensation. The liability (asset) recognized in the consolidated statement of financial position with respect to the defined benefit pension plan is the present value of the defined benefit obligation at the end of the reporting period less the fair value of plan assets. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using the interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid and that have the terms to maturity approximating to the terms of the related pension obligation.

Actuarial gains and losses resulting from the changes in actuarial assumptions, and the differences between the previous actuarial assumptions and what has actually occurred, are recognized in other comprehensive income in the period in which they were incurred. When plan amendments, curtailments and settlements occur, past service costs or gain or loss from settlements are immediately recognized in profit or loss.

2.19 Financial Guarantee Contract

Financial guarantee contracts are contracts that require the issuer to make specified payments to reimburse the holder for a loss it incurs because a specified debtor fails to make payments when due.

The liability is initially measured at fair value and then subsequently measured at the higher of the following, and is recognized in the consolidated statements of financial position within 'other financial liabilities':

- the amount determined in accordance with the expected credit loss model and
- the amount initially recognized less the cumulative amount of income recognized in accordance with Korean IFRS 1115 *Revenue from Contracts with Customers*, where appropriate.

2.20 Current and Deferred Tax

The tax expense for the year comprises current and deferred tax. Current and deferred tax is recognized in profit or loss, except to the extent that it relates to the items recognized in other comprehensive income or directly in equity. The tax expense is calculated on the basis of the tax laws enacted or substantively enacted at the end of the reporting period.

Deferred tax is recognized for temporary differences arising between the tax bases of assets and liabilities and their carrying amounts as expected tax consequences at the recovery or settlement of the carrying amounts of those assets and liabilities. However, deferred tax assets and liabilities are not recognized if they arise from initial recognition of an asset or liability in a transaction other than a business combination that, at the time of the transaction, affects neither the accounting nor taxable profit. Deferred tax assets are recognized only to the extent that it is probable that a future taxable profit will be available against which the temporary differences can be utilized.

A deferred tax liability is recognized for taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint ventures, except to the extent that the Company is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. In addition, a deferred tax asset is recognized for deductible temporary differences arising from such investments to the extent that it is probable the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset the current tax assets against the current tax liabilities and when the deferred income tax assets and liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities with an intention to settle the balances on a net basis.

2.21 Derivative Instruments

The Company initially recognizes rights and obligations from derivative contracts as assets and liabilities at fair value. Gain or loss arising from these contracts are recognized in profit or loss. Qualified hedged amount from cash flow hedge and hedge of a net investment in a foreign operation is deferred in equity.

The Company applies cash flow hedge accounting to hedge the price risk associated with inventory purchase and other. The effective portion of changes in fair value of derivatives that are designated and qualify as cash flow hedges is recognized in other comprehensive income, and the ineffective portion is recognized in financial income or expenses.

2.22 Dividend

Dividend is recognized as a liability when approved by the Company's shareholders.

2.23 Share Capital

Ordinary shares and preference shares with no repayment obligations are classified as equity. When the Company or a subsidiary acquires the Company's ordinary shares, the acquisition costs, including direct transaction costs, are deducted from equity until the redemption or reissuance as treasury shares. Consideration received on the reissuance of treasury shares is credited to equity attributable to owners of the parent company.

2.24 Revenue Recognition

Revenue mainly comprises the fair value of the consideration received or receivable for the sale of goods in the ordinary course of the Company's activities. Revenue is shown net of value-added tax, returns, sales incentives and discounts and after eliminating intercompany transactions.

The Company applied Korean IFRS 1115 *Revenue from Contracts with Customers* to the annual period beginning January 1, 2018. The Company shall recognize revenue in accordance with Korean IFRS 1115 *Revenue from Contracts with Customers* by applying the following 5 steps: ① Identify the contracts with the customers, ② Identify the separate performance obligations, ③ Determine the transaction price of the contract, ④ Allocate the transaction price to each of the separate performance obligations, and ⑤ Recognize the revenue as each performance obligation is satisfied.

(A) Identification of performance obligations

The Company exports various products and merchandise in accordance with Incoterms Group C trading conditions (Incoterms CIF and other). Since the seller provides the shipping service after the control of the product or merchandise has been transferred to the customer, the shipping service (including insurance) is recognized as a separate performance obligation.

(B) Performance obligations satisfied over time

The Company delivers products to customers and installs them in accordance with the system air conditioner contracts awarded by the Public Procurement Service. According to Korean IFRS 1115 *Revenue from Contracts with Customers* the Company should recognize revenue over time if the Company creates or enhances an asset (for example, work in progress) that the customer controls as the asset is created or enhanced. The Company recognizes the revenue from system air conditioner installation over time as the customer controls the outcome of the service.

(C) Variable consideration

The Company estimates amount of variable consideration by using the 'expected value method' or the 'most likely amount method', depending on which method the Company expects to better predict the amount of consideration. The Company recognizes revenue only to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognized will not occur, and classifies the amount which the Company does not expect to be entitled as contract liabilities.

The Company measures refund liability at the amount of consideration received for which the Company does not expect to be entitled. The Company has a right to recover the product from the customer when the customer exercises his right of return and recognizes an asset and a corresponding adjustment to cost of sales. The asset is measured with reference to the former carrying amount of the product less the costs to recover the products.

(D) Allocation of the transaction price

The transaction price in an arrangement must be allocated to each separate performance obligation based on the relative standalone selling prices of the goods or services being provided to a customer. The Company determines the standalone selling price for each separate performance obligation by using methods such as the 'adjusted market assessment approach'.

2.25 Leases

A lease is a contract, whereby the lessor conveys to the lessee, the right to control the use of an identified asset for a period of time in exchange for consideration.

At inception of a contract, the Company assesses whether the contract is, or contains, a lease. However, the Company did not reassess all contracts at initial application of Korean IFRS 1116 *Leases* because the Company applied the practical expedient to contracts entered into before January 1, 2019.

For a contract that is, or contains, a lease, both lessee and lessor account for each lease component within the contract as a lease separately from the non-lease components of the contract. In lessee accounting, however, the Company does not account for them separately but instead applies the practical expedient to account for each lease component and any associated non-lease components as a single lease component.

(A) Lessee accounting

The Company recognizes a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments at the commencement date of the lease.

The right-of-use asset is initially measured at cost and subsequently measured at cost less accumulated depreciation and accumulated impairment losses, adjusted for the remeasurement of lease liability. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term from the commencement date of the lease and is classified as 'property, plant and equipment' in the consolidated financial statements.

At the commencement date, the lease liability is measured at the present value of the lease payments that are not paid at that date. When measuring the present value, the lease payments are discounted using the interest rate implicit in the lease. If such implicit rate cannot be readily determined, the Company uses the Company's incremental borrowing rate. The lease liability is subsequently increased by the amount of interest expenses recognized on the lease liability and reduced by the lease payments made. Lease liabilities are remeasured when the future lease payments are changed due to the following:

- Changes in an index or rate
- Changes in amounts expected to be payable by the lessee under the residual value guarantees
- Changes in the assessment of whether a purchase option or an option to renew is reasonably certain to be exercised, or
- Changes in the assessment of whether it is reasonably certain that an option to terminate the lease will not be exercised.

Lease liabilities are classified as 'current portion of long-term liabilities' and/or 'long-term borrowings' in the consolidated financial statements.

The Company elected the practical expedient for short-term leases (leases that have a lease term of 12 months or less at the commencement date) and leases of low-value assets (leases for which the underlying asset is valued at USD 5,000 or less), and the lease payments are recognized as an expense on a straight-line basis over the lease term.

(B) Lessor accounting

The accounting treatment as a lessor did not change significantly from the Korean IFRS 1116 *Leases* initially applied on January 1, 2019.

The Company classifies a lease as a finance lease if it transfers substantially all the risks and rewards incidental to ownership at the inception of the lease. A lease other than a finance lease is classified as an operating lease. Lease income from operating leases is recognized in income on a straight-line basis over the lease term. Initial direct costs incurred by the lessor in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognized as an expense over the lease term on the same basis as the lease income.

2.26 Government Grants

Government grants are recognized at their fair values when there is reasonable assurance that the grant will be received and the Company will comply with the conditions attached to it. Government grants relating to costs are deferred and recognized in the consolidated statements of profit or loss over the period necessary to match the costs they are intended to compensate. Government grants relating to assets are recognized in liabilities as deferred income government grants, and depreciated over the expected lives of the related assets, and are credited to the consolidated statements of profit or loss.

2.27 Earnings per Share

Basic earnings per share is calculated by dividing the net profit for the period available to the ordinary shareholders by the weighted-average number of ordinary shares outstanding during the year.

Diluted earnings per share is calculated by dividing the profit for the year attributable to owners of the parent company from the consolidated statements of profit or loss by the weighted-average number of ordinary shares outstanding and potential dilutive shares. Potential dilutive shares are used in the calculation of dilutive earnings per share only when they have dilutive effects.

2.28 Reportable Segments

Reportable segments are disclosed in a manner consistent with the reporting provided to the chief operating decision-maker. The chief operating decision-maker is responsible for making strategic decisions on resource allocation and assessing performance of the reportable segments. The Management Committee, which makes strategic decisions, is regarded as the chief operating decision-maker.

2.29 Convenience Translation into United States Dollar Amounts

The Company operates primarily in Korean won and its official accounting records are maintained in Korean won. The US dollar amounts provided in the consolidated financial statements represent supplementary information solely for the convenience of the reader. All Korean won amounts are expressed in US dollar at the rate of ₩ 1,291.1 to USD 1, the average exchange rate for the year ended December 31, 2022. Such presentation is not in accordance with generally accepted accounting principles, and should not be construed as a representation that the Korean won amounts shown could be readily converted, realized or settled in US dollar at this or at any other rate.

2.30 Approval of the Consolidated Financial Statements

These consolidated financial statements were approved by the Board of Directors on January 31, 2023, and may be modified and approved at the Annual General Shareholders' Meetings.

3. Critical Accounting Estimates and Assumptions

The Company makes estimates and assumptions concerning the future. The estimates and assumptions are continuously assessed, considering historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. The resulting accounting estimates will, by definition, seldom equal the related actual results. In particular, the spread of COVID-19 in the year ended December 31, 2020 may result in changes to the Company's assumptions and estimates but its potential financial impact cannot be reasonably estimated as of the reporting date.

The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are addressed below.

(A) Revenue recognition

A refund liability and a right to the returned goods are recognized for the products expected to be returned at the time of sale. Accumulative experience is used to estimate such returns at the time of sale at a portfolio level (through expected value method), and the Company's revenue is affected by the changes in expected return rate.

Sales of goods are recognized based on the considerations specified in the contract, net of sales incentives, when control of the products has transferred. The sales deduction, which affects the Company's revenue, is reasonably estimated based on the historical experience and past contracts.

(B) Provision for warranty

The Company recognizes provision for warranty on products sold. The Company accrues provision for warranty based on the best estimate of amounts necessary to settle future and existing claims at the end of each reporting period. The amounts are estimated based on the past experience.

(C) Fair value of financial instruments

The fair value of financial instruments that are not traded in an active market is determined by using a variety of methods and assumptions that are mainly based on market conditions existing at the end of each reporting period.

(D) Impairment of financial assets

The loss allowance for financial assets are based on assumptions about risk of default and expected loss rates. The Company uses judgement in making these assumptions and selecting the inputs to the impairment calculation based on the Company's past history, existing market conditions as well as forward looking estimates at the end of each reporting period.

(E) Lease

In determining the lease term, the Company considers all facts and circumstances that create an economic incentive to exercise an extension option, or not to exercise a termination option. Extension options (or periods after termination options) are only included in the lease term if the lease is reasonably certain to be extended (or not terminated).

The lease term is reassessed if an option is actually exercised (or not exercised) or the Company becomes obliged to exercise (or not exercise) it. The Company reassesses whether it is reasonably certain to exercise an extension option (or not to exercise such option) upon the occurrence of either a significant event or a significant change in circumstances that is within the control of the lessee.

(F) Net defined benefit liabilities (assets)

The net defined benefit liabilities (assets) depend on a number of factors that are determined on an actuarial basis using a number of assumptions including the discount rate. Any changes in these assumptions will impact the carrying amount of the net defined benefit liability. The Company, in consideration of the interest rates of high-quality corporate bonds, determines the appropriate discount rate at the end of each year. This is the interest rate that is used to determine the present value of estimated future cash outflows expected to be required to settle the net defined benefit liabilities (assets). The principal actuarial assumptions associated with the net defined benefit liabilities (assets) are based on the current market expectations.

(G) Impairment of goodwill and intangible assets that have an indefinite useful life

At the end of each reporting period, the Company tests whether goodwill and intangible assets that have an indefinite useful life have become impaired by comparing the carrying amounts of assets or cash-generating units to the recoverable amounts. The recoverable amounts of assets or cash-generating units have been determined based on value-in-use calculations, and these calculations are based on estimates.

(H) Income taxes

Income taxes on the Company's taxable income from operating activities are subject to various tax laws and determinations of each tax authority across various countries throughout the world. There is uncertainty in determining the eventual tax effects on the taxable income from operating activities. The Company has recognized current tax and deferred tax at the end of the fiscal year based on the best estimate of future taxes payable as a result of operating activities. However, the resulting deferred income tax assets and liabilities may not equal the actual future taxes payable and such difference may impact the current tax and deferred income tax assets and liabilities upon the determination of eventual tax effects.

Regarding taxes payable in Korea, if a certain portion of taxable income is not used for investments or for increases in wages or dividends, in accordance with the *Tax System For Recirculation of Corporate Income*, the Company is liable to pay additional income tax calculated based on the Korean tax law. The current and deferred taxes at the end of the fiscal year are based on the best estimate of future taxes payable, which can differ from the actual future taxes payable as a result of changes in investments, wages and dividends; this results in an additional uncertainty in measuring the final tax effects.

The Company assesses uncertainty over a tax treatment. When the Company concludes it is not probable that the taxation authority will accept an uncertain tax treatment, the Company will reflect the effect of uncertainty for each uncertain tax treatment by using either of the following methods, depending on which method the Company expects to better predict the resolution of the uncertainty:

- The most likely amount: the single most likely amount in a range of possible outcomes.
- The expected value: the sum of the probability-weighted amounts in a range of possible outcomes.

4. Financial Instruments by Category

(A) Categorizations of financial assets and liabilities as of December 31, 2022 and 2021 are as follows:

(1) As of December 31, 2022

(In millions of Korean won)	Financial assets measured at amortized cost	Financial assets measured at fair value through other comprehensive income	Financial assets measured at fair value through profit or loss	Other financial assets[1]	Total
Financial assets					
Cash and cash equivalents	49,680,710	-	-	-	49,680,710
Short-term financial instruments	65,102,886	-	-	-	65,102,886
Short-term financial assets at amortized cost	414,610	-	-	-	414,610
Short-term financial assets at fair value through profit or loss	-	-	29,080	-	29,080
Trade receivables	35,721,563	-	-	-	35,721,563
Financial assets at fair value through other comprehensive income	-	11,397,012	-	-	11,397,012
Financial assets at fair value through profit or loss	-	-	1,405,468	-	1,405,468
Other	9,945,209	-	334,263	61,404	10,340,876
Total	160,864,978	11,397,012	1,768,811	61,404	174,092,205

[1]Other financial assets include derivatives designated as hedging instruments which are not subject to categorizations.

(In millions of Korean won)	Financial liabilities measured at amortized cost	Financial liabilities measured at fair value through profit or loss	Other financial liabilities[1]	Total
Financial liabilities				
Trade payables	10,644,686	-	-	10,644,686
Short-term borrowings	1,577,958	-	3,569,357	5,147,315
Other payables	16,328,237	-	-	16,328,237
Current portion of long-term liabilities	215,143	-	874,019	1,089,162
Debentures	536,093	-	-	536,093
Long-term borrowings	33,846	-	3,526,826	3,560,672
Long-term other payables	2,289,236	-	-	2,289,236
Other	12,047,761	334,415	27,353	12,409,529
Total	43,672,960	334,415	7,997,555	52,004,930

[1] Other financial liabilities include collateralized borrowings, lease liabilities and derivatives designated as hedging instruments, which are not subject to categorizations.

(2) As of December 31, 2021

(In millions of Korean won)	**Financial assets measured at amortized cost**	**Financial assets measured at fair value through other comprehensive income**	**Financial assets measured at fair value through profit or loss**	**Other financial assets[1]**	**Total**
Financial assets					
Cash and cash equivalents	39,031,415	-	-	-	39,031,415
Short-term financial instruments	81,708,986	-	-	-	81,708,986
Short-term financial assets at amortized cost	3,369,034	-	-	-	3,369,034
Short-term financial assets at fair value through profit or loss	-	-	40,757	-	40,757
Trade receivables	40,713,415	-	-	-	40,713,415
Financial assets at fair value through other comprehensive income	-	13,965,839	-	-	13,965,839
Financial assets at fair value through profit or loss	-	-	1,525,344	-	1,525,344
Other	8,711,973	-	279,127	49,089	9,040,189
Total	173,534,823	13,965,839	1,845,228	49,089	189,394,979

[1] Other financial assets include derivatives designated as hedging instruments which are not subject to categorizations.

(In millions of Korean won)	**Financial liabilities measured at amortized cost**	**Financial liabilities measured at fair value through profit or loss**	**Other financial liabilities[1]**	**Total**
Financial liabilities				
Trade payables	13,453,351	-	-	13,453,351
Short-term borrowings	2,131,692	-	11,556,101	13,687,793
Other payables	14,126,970	-	-	14,126,970
Current portion of long-term liabilities	518,065	-	811,903	1,329,968
Debentures	508,232	-	-	508,232
Long-term borrowings	1,500	-	2,864,656	2,866,156
Long-term other payables	2,562,158	-	-	2,562,158
Others	10,444,290	323,526	13,868	10,781,684
Total	43,746,258	323,526	15,246,528	59,316,312

[1] Other financial liabilities include collateralized borrowings, lease liabilities, and derivatives designated as hedging instruments, which are not subject to categorizations.

(B) Net gains or losses on each category of financial assets and liabilities for the years ended December 31, 2022 and 2021 are as follows:

(1) 2022

(In millions of Korean won)	**Financial assets measured at amortized cost**	**Financial assets measured at fair value through other comprehensive income**	**Financial assets measured at fair value through profit or loss**	**Other financial assets[1]**	**Total**
Financial assets					
Gain (loss) on valuation (other comprehensive income)	-	(1,969,498)	-	53,180	(1,916,318)
Gain (loss) on valuation/disposal (profit or loss)	(36,550)	-	83,332	474	47,256
Reclassification from other comprehensive income to profit or loss	-	-	-	310	310
Interest income	2,720,213	-	266	-	2,720,479
Foreign exchange differences (profit or loss)	(822,011)	-	-	-	(822,011)
Dividend income	-	413,467	1,134	-	414,601
Impairment/reversal (profit or loss)	(19,124)	-	-	-	(19,124)

[1] Other financial assets include derivatives designated as hedging instruments which are not subject to categorizations.

(In millions of Korean won)	**Financial liabilities measured at amortized cost**	**Financial liabilities measured at fair value through profit or loss**	**Other financial liabilities[1]**	**Total**
Financial liabilities				
Gain (loss) on valuation (other comprehensive income)	-	-	(10,621)	(10,621)
Gain (loss) on valuation/disposal (profit or loss)	-	(91,056)	(45)	(91,101)
Reclassification from other comprehensive income to profit or loss	-	-	59	59
Interest expense	(322,529)	-	(440,486)	(763,015)
Foreign exchange differences (profit or loss)	574,771	-	155,952	730,723

[1] Other financial liabilities include collateralized borrowings, lease liabilities, and derivatives designated as hedging instruments, which are not subject to categorizations.

(2) 2021

(In millions of Korean won)	**Financial assets measured at amortized cost**	**Financial assets measured at fair value through other comprehensive income**	**Financial assets measured at fair value through profit or loss**	**Other financial assets[1]**	**Total**
Financial assets					
Gain (loss) on valuation (other comprehensive income)	-	2,980,896	-	27,715	3,008,611
Gain (loss) on valuation/disposal (profit or loss)	(1,969)	-	420,100	437	418,568
Reclassification from other comprehensive income to profit or loss	-	-	-	(148)	(148)
Interest income	1,278,051	-	227	-	1,278,278
Foreign exchange differences (profit or loss)	29,834	-	-	-	29,834
Dividend income	-	133,532	2,308	-	135,840
Impairment/reversal (profit or loss)	(27,194)	-	-	-	(27,194)

[1] Other financial assets include derivatives designated as hedging instruments which are not subject to categorizations.

(In millions of Korean won)	**Financial liabilities measured at amortized cost**	**Financial liabilities measured at fair value through profit or loss**	**Other financial liabilities[1]**	**Total**
Financial liabilities				
Gain on valuation (other comprehensive loss)	-	-	22,695	22,695
Gain (loss) on valuation/disposal (profit or loss)	-	(65,368)	-	(65,368)
Reclassification from other comprehensive income to profit or loss	-	-	(121)	(121)
Interest expense	(213,477)	-	(218,063)	(431,540)
Foreign exchange differences (profit or loss)	362,820	-	3,447	366,267

[1] Other financial liabilities include collateralized borrowings, lease liabilities, and derivatives designated as hedging instruments, which are not subject to categorizations.

5. Transfer of Financial Assets

Trade receivables of the Company have been discounted through factoring agreements with banks during the years ended December 31, 2022 and 2021. Trade receivables provided as collaterals in such factoring transactions do not meet the requirements for asset derecognition as risks and rewards are not substantially transferred in the event of a debtor default due to the recourse obligation, etc. Financial liabilities recognized in relation to these transactions are included as 'short-term borrowings' on the consolidated statements of financial position (refer to Note 12).

The following table presents a breakdown of discounted trade receivables as of December 31, 2022 and 2021:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Carrying amount of the discounted trade receivables[1]	3,569,357	11,556,101
Carrying amount of the related borrowings	3,569,357	11,556,101

[1] The discounted trade receivables include the intercompany balances.

6. Financial Assets at Fair Value

(A) Details of financial assets at fair value as of December 31, 2022 and 2021 are as follows:

(1) Financial assets at fair value through other comprehensive income

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Non-current portion		
Equity instruments	11,397,012	13,965,839

(2) Financial assets at fair value through profit or loss

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Current portion		
Debt instruments	29,080	40,757
Non-current portion		
Equity instruments	773,063	905,094
Debt instruments	632,405	620,250
Subtotal	1,405,468	1,525,344
Total	1,434,548	1,566,101

(B) Changes in financial assets at fair value for the years ended December 31, 2022 and 2021 are as follows:

(1) Financial assets at fair value through other comprehensive income

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	13,965,839	12,575,216
Acquisition	35,013	1,146,868
Disposal	(20,913)	(3,551,604)
Fair value valuation gain (loss)	(2,636,448)	3,653,253
Other	53,521	142,106
Balance as of December 31	11,397,012	13,965,839

(2) Financial assets at fair value through profit or loss

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	1,525,344	1,202,969
Acquisition	158,244	208,262
Disposal	(80,718)	(142,406)
Fair value valuation gain (loss)	(198,594)	275,447
Other	1,192	(18,928)
Balance as of December 31	1,405,468	1,525,344

(C) Changes in gain (loss) on valuation of financial assets at fair value through other comprehensive income for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	6,222,980	7,071,415
Fair value valuation gain (loss)	(2,636,448)	3,653,253
Reclassification to retained earnings due to disposals	49,946	(4,501,688)
Balance as of December 31	3,636,478	6,222,980
Income tax effects on equity and non-controlling interests	(887,369)	(1,606,341)
Total	2,749,109	4,616,639

(D) Details of listed equity securities of financial assets at fair value as of December 31, 2022 and 2021 are as follows:

	December 31, 2022				December 31, 2021
(In millions of Korean won, number of shares and percentage)	**Number of shares owned**	**Percentage of ownership[1] (%)**	**Acquisition cost**	**Carrying amount (Market value)**	**Carrying amount (Market value)**
Samsung Heavy Industries	134,027,281	15.2	932,158	684,879	759,935
Hotel Shilla	2,004,717	5.1	13,957	166,592	156,368
iMarket Korea	647,320	1.9	324	6,538	6,926
SFA	3,644,000	10.2	38,262	132,642	131,366
Wonik Holdings	3,518,342	4.6	30,821	13,536	17,521
Wonik IPS	3,701,872	7.5	32,428	91,621	156,589
ASML Holding N.V.	6,297,787	1.5	363,012	4,287,121	5,974,280
Wacom Co., Ltd.	8,398,400	5.1	62,013	46,750	79,256
BYD Company Limited	2,380,100	0.1	79,049	110,971	118,862
Corning Incorporated	80,000,000	9.5	3,980,636	3,238,205	3,530,893
Other			563,635	742,890	1,155,113
Total			6,096,295	9,521,745	12,087,109

[1] Ownership represents the Company's ownership of the total ordinary shares issued by each entity.

7. Trade and Non-Trade Receivables

(A) Trade and non-trade receivables as of December 31, 2022 and 2021 are as follows:

	December 31, 2022		December 31, 2021	
(In millions of Korean won)	**Trade**	**Non-trade**	**Trade**	**Non-trade**
Receivables	36,238,032	7,051,536	41,250,034	5,572,176
Less: Loss allowance	(312,221)	(78,101)	(310,880)	(72,805)
Subtotal	35,925,811	6,973,435	40,939,154	5,499,371
Less: Non-current portion	(204,248)	(824,226)	(225,739)	(1,002,114)
Current portion	35,721,563	6,149,209	40,713,415	4,497,257

(B) Movements in the loss allowance for receivables for the years ended December 31, 2022 and 2021 are as follows:

	2022		2021	
(In millions of Korean won)	**Trade**	**Non-trade**	**Trade**	**Non-trade**
Balance as of January 1	310,880	72,805	318,731	59,487
Bad debt expense (reversal)	8,784	7,312	17,990	9,009
Write-off	(3,557)	(6,154)	(19,095)	(2,424)
Other	(3,886)	4,138	(6,746)	6,733
Balance as of December 31	312,221	78,101	310,880	72,805

(C) The details of trade and non-trade receivables classified by past due date to measure expected credit losses as of December 31, 2022 and 2021 are as follows:

	December 31, 2022		December 31, 2021	
(In millions of Korean won)	**Trade**	**Non-trade**	**Trade**	**Non-trade**
Receivables not past due	33,177,298	5,890,018	39,677,264	5,125,414
Past due[1]:				
Less than 31 days overdue	2,206,622	981,889	1,229,479	196,783
31 days to 90 days overdue	642,859	52,972	36,545	51,804
Over 90 days overdue	211,253	126,657	306,746	198,175
Subtotal	3,060,734	1,161,518	1,572,770	446,762
Total	36,238,032	7,051,536	41,250,034	5,572,176

[1] The Company does not consider trade and non-trade receivables that are overdue for less than or equal to 31 days as impaired.

(D) The maximum exposure to current credit risk is equivalent to the carrying amount of receivables as of December 31, 2022. The Company has in place insurance contracts covering the Company's major receivables.

8. Inventories

Inventories as of December 31, 2022 and 2021 are as follows:

	December 31, 2022			December 31, 2021		
(In millions of Korean won)	**Gross amount**	**Valuation allowance**	**Carrying amount**	**Gross amount**	**Valuation allowance**	**Carrying amount**
Finished goods	17,526,178	(1,493,952)	16,032,226	13,000,200	(719,621)	12,280,579
Work in process	21,612,965	(1,535,446)	20,077,519	13,967,331	(493,713)	13,473,618
Raw materials and supplies	16,268,974	(1,289,694)	14,979,280	14,864,486	(679,645)	14,184,841
Materials in transit	1,098,841	-	1,098,841	1,445,366	-	1,445,366
Total	56,506,958	(4,319,092)	52,187,866	43,277,383	(1,892,979)	41,384,404

The inventories recognized as expense for the year ended December 31, 2022, amount to ₩ 186,396,549 million (2021: ₩ 164,319,031 million). The amount includes loss on valuation of inventories.

9. Investments in Associates and Joint Ventures

(A) Changes in investments in associates and joint ventures for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	8,932,251	8,076,779
Acquisition	1,006,998	47,090
Disposal	(20,894)	(34,664)
Share of profit	1,090,643	729,614
Other[1]	(115,129)	113,432
Balance as of December 31	10,893,869	8,932,251

[1] Other consists of dividends, impairment, and reclassification.

(B) Major investments in associates and joint ventures as of December 31, 2022 are as follows:

(1) Investments in associates

Investee	**Nature of relationship with associate**	**Percentage of ownership (%)[1]**	**Principal business location**	**Fiscal period-end**
Samsung Electro-Mechanics Co., Ltd.	Manufacture and supply electronic components including passive components, circuit boards, and modules	23.7	Korea	December
Samsung SDS Co., Ltd.	Provide IT services including computer programming, system integration and management and logistical services	22.6	Korea	December
Samsung Biologics Co., Ltd.	New business investment	31.2	Korea	December
Samsung SDI Co., Ltd.[2]	Manufacture and supply electronic components including secondary cell batteries	19.6	Korea	December
Cheil Worldwide, Inc.	Advertising agency	25.2	Korea	December

[1] Ownership represents the Company's ownership of the total ordinary shares issued by each entity.
[2] The Company's ownership of ordinary shares outstanding is 20.6%.

(2) Investments in joint ventures

Investee	**Nature of relationship with joint venture**	**Percentage of ownership (%)[1]**	**Principal business location**	**Fiscal period-end**
Samsung Corning Advanced Glass, LLC	Manufacture and supply industrial glass devices	50.0	Korea	December

[1] Ownership represents the Company's ownership of the total ordinary shares issued by each entity.

(C) Details of investments in associates and joint ventures as of December 31, 2022 and 2021 are as follows:

(1) Investments in associates

(In millions of Korean won)	December 31, 2022		
Investee	**Acquisition cost**	**Net asset value of equity shares[1]**	**Carrying amount**
Samsung Electro-Mechanics	359,237	1,765,507	1,764,249
Samsung SDS	147,963	1,857,481	1,870,338
Samsung Biologics	1,424,358	2,804,547	2,808,673
Samsung SDI	1,242,605	3,318,875	2,691,223
Cheil Worldwide	506,162	347,510	649,161
Other	645,255	718,801	907,333
Total	4,325,580	10,812,721	10,690,977

[1] The Company's portion of net asset value of associates is based on the Company's percentage of ownership.

(In millions of Korean won)	December 31, 2021		
Investee	**Acquisition cost**	**Net asset value of equity shares [1]**	**Carrying amount**
Samsung Electro-Mechanics	359,237	1,573,570	1,556,386
Samsung SDS	147,963	1,632,847	1,652,155
Samsung Biologics	443,193	1,571,809	1,577,664
Samsung SDI	1,242,605	2,960,235	2,529,650
Cheil Worldwide	506,162	320,301	621,292
Other	644,903	578,547	793,748
Total	3,344,063	8,637,309	8,730,895

[1] The Company's portion of net asset value of associates is based on the Company's percentage of ownership.

(2) Investments in joint ventures

(In millions of Korean won)	December 31, 2022		
Investee	**Acquisition cost**	**Net asset value of equity shares [1]**	**Carrying amount**
Samsung Corning Advanced Glass	215,000	137,727	137,745
Other	259,994	67,632	65,147
Total	474,994	205,359	202,892

[1] The Company's portion of net asset value of joint ventures is based on the Company's percentage of ownership.

(In millions of Korean won)	December 31, 2021		
Investee	**Acquisition cost**	**Net asset value of equity shares [1]**	**Carrying amount**
Samsung Corning Advanced Glass	215,000	135,584	135,580
Other	259,994	67,517	65,776
Total	474,994	203,101	201,356

[1] The Company's portion of net asset value of joint ventures is based on the Company's percentage of ownership.

(D) Details of the valuation of investments in associates and joint ventures using the equity method are as follows:

(1) For the year ended December 31, 2022

(In millions of Korean won)	**Balance as of January 1**	**Share of profit (loss)**	**Share of other comprehensive income**	**Other[1]**	**Balance as of December 31**
Samsung Electro-Mechanics	1,556,386	242,139	2,880	(37,156)	1,764,249
Samsung SDS	1,652,155	241,962	18,154	(41,933)	1,870,338
Samsung Biologics	1,577,664	250,028	(183)	981,164	2,808,673
Samsung SDI	2,529,650	194,242	(19,207)	(13,462)	2,691,223
Cheil Worldwide	621,292	55,476	1,140	(28,747)	649,161
Samsung Corning Advanced Glass	135,580	1,999	144	22	137,745
Other	859,524	104,797	(53,438)	61,597	972,480
Total	8,932,251	1,090,643	(50,510)	921,485	10,893,869

[1] Other consists of acquisitions, disposals, dividends, impairment and reclassification.

(2) For the year ended December 31, 2021

(In millions of Korean won)	**Balance as of January 1**	**Share of profit**	**Share of other comprehensive income**	**Other[1]**	**Balance as of December 31**
Samsung Electro-Mechanics	1,333,819	207,949	51,702	(37,084)	1,556,386
Samsung SDS	1,525,857	137,926	30,305	(41,933)	1,652,155
Samsung Biologics	1,453,012	124,979	(327)	-	1,577,664
Samsung SDI	2,326,037	128,483	88,594	(13,464)	2,529,650
Cheil Worldwide	586,057	47,619	12,008	(24,392)	621,292
Samsung Corning Advanced Glass	123,356	12,376	(129)	(23)	135,580
Other	728,641	70,282	29,826	30,775	859,524
Total	8,076,779	729,614	211,979	(86,121)	8,932,251

[1] Other consists of acquisitions, disposals, dividends, impairment, and reclassification.

(E) Summary of the condensed financial information of major associates and joint ventures

(1) Summary of condensed financial information of major associates and dividends received from associates as of December 31, 2022 and 2021, and for the years ended December 31, 2022 and 2021 are as follows:

	2022				
(In millions of Korean won)	**Samsung Electro-Mechanics**	**Samsung SDS**	**Samsung Biologics**	**Samsung SDI**	**Cheil Worldwide**
1. Condensed financial information					
Condensed statements of financial position :					
Current assets	4,888,319	8,005,764	6,457,657	9,651,702	2,193,979
Non-current assets	6,108,852	3,946,660	10,124,394	20,605,823	557,466
Current liabilities	2,525,123	2,493,323	4,181,542	8,006,939	1,335,643
Non-current liabilities	778,563	992,132	3,416,034	5,033,084	194,373
Non-controlling interests	154,991	243,777	-	731,779	9,388
Condensed statements of comprehensive income:					
Revenue	9,441,276	17,234,750	3,001,295	20,124,070	4,253,367
Profit from continuing operations, net of tax [1]	993,519	1,099,745	798,056	1,952,149	193,732
Profit from discontinued operation, net of tax[1]	-	-	-	-	-
Other comprehensive income (loss)[1]	(9,601)	80,368	6,995	(139,877)	(1,122)
Total comprehensive income[1]	983,918	1,180,113	805,051	1,812,272	192,610
2. Details of adjustments from the carrying amount of investments in associates					
Net assets (a)	7,538,494	8,223,192	8,984,475	16,485,723	1,212,041
Ownership percentage (b)[2]	23.4%	22.6%	31.2%	20.1%	28.7%
Net assets of equity shares (a x b)	1,765,507	1,857,481	2,804,547	3,318,875	347,510
Goodwill	7,081	26,801	3,645	-	298,779
Intercompany transactions and other[3]	(8,339)	(13,944)	481	(627,652)	2,872
Carrying amount of associates	1,764,249	1,870,338	2,808,673	2,691,223	649,161
3. Dividends from associates					
Dividends	37,155	41,933	-	13,463	28,748

[1] Profit (loss) attributable to owners of the investee

[2] Ownership percentage includes ordinary and preference shares.

[3] Consists of unrealized gains and losses and other differences.

(In millions of Korean won)	2021				
	Samsung Electro-Mechanics	**Samsung SDS**	**Samsung Biologics**	**Samsung SDI**	**Cheil Worldwide**
1. Condensed financial information					
Condensed statements of financial position:					
Current assets	4,598,269	7,575,968	2,823,175	7,444,907	2,018,598
Non-current assets	5,343,105	2,941,464	5,146,835	18,388,286	523,513
Current liabilities	2,234,657	2,370,290	1,107,295	6,461,286	1,224,222
Non-current liabilities	835,592	703,442	1,871,614	4,175,208	190,622
Non-controlling interests	152,177	214,980	-	492,435	10,125
Condensed statements of comprehensive income:					
Revenue	9,675,036	13,630,002	1,568,007	13,553,220	3,325,712
Profit from continuing operations, net of tax [1]	1,055,411	611,171	393,589	1,169,801	165,485
Loss from discontinued operation, net of tax[1]	(162,966)	-	-	-	-
Other comprehensive income (loss)[1]	151,809	134,163	(1,270)	623,792	32,535
Total comprehensive income[1]	1,044,254	745,334	392,319	1,793,593	198,020
2. Details of adjustments from the carrying amount of investments in associates					
Net assets (a)	6,718,948	7,228,720	4,991,101	14,704,264	1,117,142
Ownership percentage (b)[2]	23.40%	22.60%	31.50%	20.10%	28.70%
Net assets of equity shares (a x b)	1,573,570	1,632,847	1,571,809	2,960,235	320,301
Goodwill	7,081	26,801	3,645	-	298,779
Intercompany transactions and other[3]	(24,265)	(7,493)	2,210	(430,585)	2,212
Carrying amount of associates	1,556,386	1,652,155	1,577,664	2,529,650	621,292
3. Dividends from associates					
Dividends	24,770	41,933	-	13,463	24,392

[1] Profit (loss) attributable to owners of the investee.
[2] Ownership percentage includes ordinary and preference shares.
[3] Consists of unrealized gains and losses and other differences.

(2) Summary of condensed financial information of major joint ventures and dividends received from joint ventures as of December 31, 2022 and 2021, and for the years ended December 31, 2022 and 2021 are as follows:

	Samsung Corning Advanced Glass	
(In millions of Korean won)	**2022**	**2021**
1. Condensed financial information		
Condensed statements of financial position:		
Current assets	170,103	163,083
Non-current assets	125,507	141,411
Current liabilities	19,794	31,779
Non-current liabilities	363	1,547
Condensed statements of comprehensive income:		
Revenue	133,634	204,130
Profit from continuing operations, net of tax[1]	3,998	24,753
Profit (loss) from discontinued operations, net of tax[1]	-	-
Other comprehensive income (loss)[1]	288	(305)
Total comprehensive income[1]	4,286	24,448
2. Details of adjustments from the carrying amount of investments in joint ventures		
Net assets (a)	275,453	271,168
Ownership percentage (b)	50.00%	50.00%
Net assets of equity shares (a x b)	137,727	135,584
Intercompany transactions and other[2]	18	(4)
Carrying amount of joint ventures	137,745	135,580
3. Dividends from joint ventures		
Dividends	-	-

[1] Profit (loss) attributable to owners of the parent company.
[2] Consists of unrealized gains and losses and other differences.

(3) Profit (loss) attributable to owners of the parent company from associates and joint ventures which are not individually material for the years ended December 31, 2022 and 2021 are as follows:

	2022		2021	
(In millions of Korean won)	**Associates**	**Joint ventures**	**Associates**	**Joint ventures**
Profit from continuing operations	102,930	1,867	68,646	1,636
Other comprehensive income (loss)	(50,761)	(2,677)	29,258	568
Total comprehensive income (loss)	52,169	(810)	97,904	2,204

(F) Details of marketable investments in associates as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won and number of shares)	December 31, 2022		December 31, 2021
	Number of shares held	**Market value**	**Market value**
Samsung Electro-Mechanics	17,693,084	2,308,947	3,494,384
Samsung SDS	17,472,110	2,149,070	2,734,385
Samsung Biologics	22,217,309	18,240,411	18,815,659
Samsung SDI	13,462,673	7,956,440	8,818,051
Cheil Worldwide	29,038,075	669,328	663,520

(G) Other matters

On July 12, 2018, the Korea Securities and Futures Commission determined an initial measure following an investigation relating to Samsung Biologics Co., Ltd., an associate of the Company, and its accounting for its investment in Samsung Bioepis Co., Ltd, a joint venture between Biogen Therapeutics Inc. and Samsung Biologics Co., Ltd. This measure included a recommendation to dismiss the director in charge, prosecution charges, and external auditor designation by the regulator, on the basis that the Joint Venture Agreement was not disclosed in the notes to the financial statements. On November 14, 2018, the Korea Securities and Futures Commission determined a second measure which included a penalty of ₩ 8,000 million, a recommendation to dismiss the CEO, a requirement to restate its financial statements, and further prosecution charges.

To prove justification of its accounting treatment, Samsung Biologics Co., Ltd. filed a suit for cancellation of the aforementioned measures to the Seoul Administrative Court, which is currently in progress. On September 24, 2021, the Seoul Administrative Court announced a decision to cancel the first measure charged by the Korea Securities and Futures Commission, and suspended its execution until the final rulings of the appeal. On October 16, 2021, the Korea Securities and Futures Commission appealed and the litigation is in progress at Seoul High Court. Samsung Biologics Co., Ltd. also filed for suspending the execution of the initial and second measures. On January 22, 2019 and February 19, 2019, the Seoul Administrative Court pronounced decisions to suspend the second and initial measure, respectively, until the final rulings. The Korea Securities and Futures Commission immediately appealed against the decisions but the appeals were dismissed by the Seoul High Court on May 13, 2019 and May 24, 2019, in relation to the second and first measures, respectively. On May 23, 2019 and June 10, 2019, the Korea Securities and Futures Commission re-appealed against the dismissals relating to the second and first measures, respectively. On September 6, 2019 and October 11, 2019, the Supreme Court of Korea dismissed the Korea Securities and Futures Commission's re-appeal relating to the second and first measures, respectively, and confirmed the decision to suspend the execution of these measures.

Although the future outcome of the administrative litigation cannot be estimated, should Samsung Biologics Co., Ltd. be required to restate its financial statements to amend its historical accounting treatment relating to its investment in Samsung Bioepis Co., Ltd., the Company's share of profit or loss relating to its equity method investment, the amount of investment in associates, and retained earnings, for the years ended December 31, 2015 and onwards, and the profit on disposal of investment for the year ended December 31, 2016, may be impacted. Given the timing of completion and the final result of the administrative litigation between Samsung Biologics Co., Ltd. and the Korea Securities and Futures Commission is uncertain and cannot currently be estimated, it is not possible for the Company to recognize the effects of these proceedings in the current period consolidated financial statements.

10. Property, Plant and Equipment

(A) Changes in property, plant and equipment for the years ended December 31, 2022 and 2021 are as follows:

	2022					
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Construction in progress**	**Other**	**Total**
Balance as of January 1	9,830,154	38,869,440	79,526,297	18,009,324	3,693,324	149,928,539
Acquisition cost	9,943,570	62,651,459	274,909,571	18,009,324	11,958,070	377,471,994
Accumulated depreciation and impairment	(113,416)	(23,782,019)	(195,383,274)	-	(8,264,746)	(227,543,455)
Acquisitions and capital expenditures[1]	138,925	5,302,095	31,010,080	16,675,741	2,100,119	55,226,960
Depreciation	(49,516)	(3,533,917)	(30,761,685)	-	(1,606,980)	(35,952,098)
Disposals/scrap	(57,596)	(127,935)	(35,098)	(193)	(34,208)	(255,030)
Impairment (reversal)	-	(2,255)	(11,815)	-	(12,323)	(26,393)
Other[2]	30,200	199,490	(13,148)	(1,077,308)	(15,824)	(876,590)
Balance as of December 31	9,892,167	40,706,918	79,714,631	33,607,564	4,124,108	168,045,388
Acquisition cost	10,024,569	67,713,808	303,000,627	33,607,564	13,248,490	427,595,058
Accumulated depreciation and impairment	(132,402)	(27,006,890)	(223,285,996)	-	(9,124,382)	(259,549,670)

[1] The capitalized borrowing costs are ₩ 41,634 million and interest rate used to calculate the borrowing costs eligible for capitalization is 2.1%~4.1%.
[2] Other includes effects of changes in foreign currency exchange rates and effects of the offset related to government grants.

	2021					
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Construction in progress**	**Other**	**Total**
Balance as of January 1	9,772,156	34,552,004	60,994,130	20,175,917	3,458,685	128,952,892
Acquisition cost	9,850,942	55,026,369	233,056,501	20,175,917	10,496,584	328,606,313
Accumulated depreciation and impairment	(78,786)	(20,474,365)	(172,062,371)	-	(7,037,899)	(199,653,421)
Acquisitions and capital expenditures[1]	117,933	6,608,620	43,862,769	(2,320,520)	1,696,362	49,965,164
Depreciation	(47,517)	(3,174,672)	(26,552,958)	-	(1,510,062)	(31,285,209)
Disposals, scrap	(49,683)	(91,964)	(18,307)	(469)	(6,200)	(166,623)
Impairment (reversal)	-	(12,135)	(131,985)	-	(7,082)	(151,202)
Other[2]	37,265	987,587	1,372,648	154,396	61,621	2,613,517
Balance as of December 31	9,830,154	38,869,440	79,526,297	18,009,324	3,693,324	149,928,539
Acquisition cost	9,943,570	62,651,459	274,909,571	18,009,324	11,958,070	377,471,994
Accumulated depreciation and impairment	(113,416)	(23,782,019)	(195,383,274)	-	(8,264,746)	(227,543,455)

[1] The capitalized borrowing costs are ₩ 24,908 million and interest rate used to calculate the borrowing costs eligible for capitalization is 0.3~1.1%.
[2] Other includes effects of changes in foreign currency exchange rates and effects of the offset related to government grants.

(B) Changes in the right-of-use assets included in the property, plant and equipment for the years ended December 31, 2022 and 2021 are as follows:

	2022				
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Other**	**Total**
Balance as of January 1	525,954	2,841,970	191,059	391,584	3,950,567
Acquisition	32,632	1,542,889	29,098	507,041	2,111,660
Depreciation	(49,516)	(823,543)	(58,000)	(116,287)	(1,047,346)
Cancellation of contracts	(13,741)	(111,145)	(263)	(4,220)	(129,369)
Other[1]	7,874	1,425	13,257	9,541	32,097
Balance as of December 31	503,203	3,451,596	175,151	787,659	4,917,609

[1] Other includes effects of changes in foreign currency exchange rates.

	2021				
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Other**	**Total**
Balance as of January 1	441,603	2,105,360	109,372	313,538	2,969,873
Acquisition	112,419	1,326,322	136,680	173,490	1,748,911
Depreciation	(57,699)	(553,324)	(54,233)	(66,868)	(732,124)
Cancellation of contracts	(398)	(60,742)	(1,265)	(4,790)	(67,195)
Other[1]	30,029	24,354	505	(23,786)	31,102
Balance as of December 31	525,954	2,841,970	191,059	391,584	3,950,567

[1] Other includes effects of changes in foreign currency exchange rates.

(C) Details of depreciation of property, plant and equipment for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Cost of sales	32,285,800	27,868,090
Selling and administrative expenses, and etc.	3,666,298	3,417,119
Total	35,952,098	31,285,209

11. Intangible Assets

(A) Changes in intangible assets for the years ended December 31, 2022 and 2021 are as follows:

	2022					
(In millions of Korean won)	**Intellectual property rights**	**Development cost**	**Membership**	**Goodwill**	**Other**	**Total**
Balance as of January 1	4,153,236	236,910	241,219	5,844,259	9,760,620	20,236,244
External acquisitions	299,484	-	8,905	-	2,375,986	2,684,375
Internally generated/developed	-	-	-	-	-	-
Amortization	(268,070)	(151,892)	-	-	(2,735,599)	(3,155,561)
Disposals/scrap	(50,979)	-	(417)	-	(402)	(51,798)
Impairment (reversal)	-	-	(509)	-	(5,753)	(6,262)
Other[1]	145,079	-	4,356	170,163	191,158	510,756
Balance as of December 31	4,278,750	85,018	253,554	6,014,422	9,586,010	20,217,754

[1] Other includes the cumulative effect of changes in foreign currency exchange rates and others.

	2021					
(In millions of Korean won)	**Intellectual property rights**	**Development cost**	**Membership**	**Goodwill**	**Other**	**Total**
Balance as of January 1	4,033,904	371,391	229,987	5,673,642	8,159,578	18,468,502
External acquisitions	333,073	-	8,757	-	3,648,484	3,990,314
Internally generated/developed	-	193,708	-	-	-	193,708
Amortization	(278,288)	(321,608)	-	-	(2,362,256)	(2,962,152)
Disposals/scrap	(51,236)	-	(195)	-	(1,696)	(53,127)
Impairment (reversal)	(52,101)	-	(1,586)	-	-	(53,687)
Other[1]	167,884	(6,581)	4,256	170,617	316,510	652,686
Balance as of December 31	4,153,236	236,910	241,219	5,844,259	9,760,620	20,236,244

[1] Other includes effects of reclassification of licenses and changes in foreign currency exchange rates.

(B) Goodwill

Goodwill is allocated to each cash-generating unit. Details of goodwill as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
DX segment	1,249,290	1,214,730
DS segment	159,359	160,026
SDC segment	138,754	138,061
Harman segment	4,466,339	4,330,139
Other	680	1,303
Total	6,014,422	5,844,259

Goodwill impairment reviews are performed annually, and the recoverable amounts of cash-generating units have been determined based on the value-in-use calculations, etc. These calculations generally use the pre-tax cash flow projections based on the financial budgets approved by management covering a five-year period, unless it is reasonable to use long-term financial budgets longer than five years in the new technology business. Perpetual cash flows beyond the five-year period are extrapolated using a constant growth rate assumption. The growth rate applied was capped at the long-term average growth rate for the industry.

(C) Details of amortization of intangible assets for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Cost of sales	2,211,481	2,136,937
Selling and administrative expenses and other	944,080	825,215
Total	3,155,561	2,962,152

12. Borrowings

(A) Details of the carrying amounts of borrowings as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**Financial institutions**	**Interest rates (%) as of Dec 31, 2022**	**December 31, 2022**	**December 31, 2021**
Short-term borrowings				
Collateralized borrowings[1]	Woori Bank and others	0.1~16.7	3,569,357	11,556,101
Non-collateralized borrowings	Citibank and others	0.1~38.5	1,577,958	2,131,692
Total			5,147,315	13,687,793
Current portion of long-term borrowings				
Bank borrowings	BNP and others	38.9~53.2	208,915	40,415
Lease liabilities[2]	CSSD and others	3.5	874,019	811,902
Total			1,082,934	852,317
Long-term borrowings				
Bank borrowings	Industrial Bank of Korea and others	1.6~5.9	33,846	1,500
Lease liabilities[2]	CSSD and others	3.5	3,526,826	2,864,656
Total			3,560,672	2,866,156

[1] Collateralized borrowings are secured by trade receivables.

[2] Interest expenses arising from the lease liabilities for the years ended December 31, 2022 and 2021 amount to ₩ 140,111 million and ₩ 106,877 million, respectively, which were determined using the weighted average incremental borrowing rate. The right-of-use assets are pledged as collateral to the lessor in the event of default. Short-term lease payments and low- valued asset lease payments that are not included in measurement of lease liabilities during the years ended December 31, 2022 and 2021 amount to ₩ 211,283 million and ₩ 129,686 million, respectively.

(B) Maturities of long-term borrowings outstanding as of December 31, 2022 are as follows:

(In millions of Korean won)	**Long-term borrowings**
Repayment terms	
2023	208,915
2024	1,000
2025	31,346
2026	-
2027 and thereafter	1,500
Total	242,761

(C) Maturities of lease liabilities outstanding as of December 31, 2022 are as follows:

(In millions of Korean won)	**Lease liabilities**
Repayment terms	
2023	1,021,767
2024	866,188
2025	690,763
2026	582,745
2027 and thereafter	1,905,034
Total	5,066,497

13. Debentures

(A) Details of the carrying amounts of debentures as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**Issue date**	**Due date**	**Interest rates (%) as of Dec 31, 2022**	**December 31, 2022**	**December 31, 2021**
US dollar denominated straight bonds[1]	1997.10.2	2027.10.1	7.7	31,683 (US$ 25 million)	35,565 (US$ 30 million)
US dollar denominated debenture bonds[2]	2015.5.11	2025.5.15	4.2	506,920 (US$ 400 million)	474,200 (US$ 400 million)
EURO denominated debenture bonds[3]	2015.5.27	2022.5.27	2.0	- -	469,819 (EUR 350 million)
Less: Discounts				(543)	(708)
Add: Premium				4,261	7,007
Less: Current portion				(6,228)	(477,651)
Total				536,093	508,232

[1] US dollar denominated straight bonds are repaid annually for twenty years after a ten-year grace period from the date of issuance. Interest is paid semi-annually.

[2] Harman International Industries, Inc. issued US dollar denominated debenture bonds. These debentures are repaid on the date of 10 years maturity and interest is paid semi-annually.

[3] Harman Finance International, SCA issued Euro denominated debenture bonds. These debentures are repaid on the date of 7 years maturity and interest is paid annually. These debentures were fully repaid early on March 1, 2022.

(B) Maturities of debentures outstanding as of December 31, 2022 are as follows:

(In millions of Korean won)	**Debentures**
Repayment terms	
2023	6,337
2024	6,337
2025	513,257
2026	6,337
2027 and thereafter	6,335
Total	538,603

14. Net Defined Benefit Liabilities (Assets)

(A) Details of net defined benefit liabilities (assets) recognized in the statements of financial position as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Present value of funded defined benefit obligations	13,639,460	14,391,209
Present value of unfunded defined benefit obligations	370,848	266,976
Subtotal	14,010,308	14,658,185
Fair value of plan assets	(19,593,910)	(17,001,891)
Total	(5,583,602)	(2,343,706)

(B) The components of defined benefit costs recognized in profit or loss for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Current service cost	1,365,600	1,247,857
Net interest income	(99,356)	(38,326)
Past service cost	(253)	2,718
Other	28,713	3,847
Total	1,294,704	1,216,096

The amount recognized as an expense of defined contribution plans for the years ended December 31, 2022 and 2021 are ₩ 145,395 million and ₩ 144,248 million, respectively.

(C) The expenses related to the defined benefit plans recognized in the statements of profit or loss for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Cost of sales	514,589	480,331
Selling and administrative expenses and other	780,115	735,765
Total	1,294,704	1,216,096

(D) Changes in the defined benefit obligations for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	14,658,185	12,948,999
Current service cost	1,365,600	1,247,857
Interest cost	528,884	396,730
Past service cost	(253)	2,718
Remeasurement:		
Actuarial gains or losses arising from changes in demographic assumptions	34,917	(34,014)
Actuarial gains or losses arising from changes in financial assumptions	(2,496,879)	126,297
Other	521,452	473,668
Benefits paid	(630,019)	(519,043)
Other[1]	28,421	14,973
Balance as of December 31	14,010,308	14,658,185

[1] Other includes effects of changes in foreign currency exchange rates and business combinations.

(E) Changes in the fair value of plan assets for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	17,001,891	13,840,043
Interest income on plan assets	628,240	435,056
Remeasurement of plan assets	(312,565)	(146,239)
Contributions by employer	2,741,417	3,263,765
Benefits paid	(498,246)	(397,678)
Other[1]	33,173	6,944
Balance as of December 31	19,593,910	17,001,891

[1] Other includes effects of changes in foreign currency exchange rates and business combinations.

Expected contributions to post-employment benefit plans to be paid in 2023 as of December 31, 2022 are ₩ 1,940,341 million.

(F) Plan assets as of December 31, 2022 and 2021 consist of the following:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Principal guaranteed fixed income financial instruments and other	18,766,006	16,935,143
Other	827,904	66,748
Total	19,593,910	17,001,891

Plan assets are mostly invested in instruments which have a quoted price in active markets.

(G) The principal actuarial assumptions as of December 31, 2022 and 2021 are as follows:

(In percentage)	**December 31, 2022**	**December 31, 2021**
Discount rate	4.3~6.4	0.2~7.2
Salary growth rate (including the effects of inflation)	2.0~6.4	1.5~10.0

(H) The sensitivity analysis of the defined benefit obligations as of December 31, 2022 and 2021 to changes in the weighted principal assumptions is as follows:

(In percentage)	**December 31, 2022**	**December 31, 2021**
Discount rate		
1% p increase	92	91
1% p decrease	109	110
Salary growth rate		
1% p increase	109	110
1% p decrease	92	91

(I) The weighted average maturity of the defined benefit obligations is 8.38 years as of December 31, 2022.

15. Provisions

Changes in provisions for the year ended December 31, 2022 are as follows:

(In millions of Korean won)	**Warranty (A)**	**Royalty expenses (B)**	**Long-term incentives (C)**	**Other (D, E)**	**Total**
Balance as of January 1	1,978,294	1,561,809	734,283	3,405,480	7,679,866
Charged to profit or loss	2,186,312	629,713	302,229	759,669	3,877,923
Payment	(1,873,519)	(712,635)	(255,658)	(1,070,410)	(3,912,222)
Other[1]	18,639	67,719	2,409	39,091	127,858
Balance as of December 31	**2,309,726**	**1,546,606**	**783,263**	**3,133,830**	**7,773,425**

[1] Other includes effects of changes in foreign currency exchange rates.

(A) The Company accrues warranty reserves for estimated costs of quality assurance, exchanges, repairs, recalls, and future services based on historical experience and terms of warranty programs.

(B) The Company recognizes provisions for the estimated royalty expenses that are under negotiation with counterparties. The timing and amount of payment depend on the settlement of the negotiation.

(C) The Company has a long-term incentive plan for its executives based on a three-year management performance criteria and recognizes a provision for the estimated incentive cost for the accrued period.

(D) The Company records provisions for future expenses expected to be incurred for products that have been discontinued from manufacturing and sales.

(E) The Company makes provisions for the carrying amounts of emission rights held by the Company and the emission in excess of the emission rights for the applicable years. Details of emission rights and liabilities as of December 31, 2022 are as follows:

(1) The amount of emission rights allocated free of charge in the current commitment period and the estimated amount of emission as of December 31, 2022 are as follows:

(In ten thousand metric tons)	**December 31, 2022**
Allocated emission permits[1]	1,754
Estimated volume of emission	1,957

[1]As of December 31, 2022, emission permits allocated to the Company for the remaining plan periods are 4,905 ten thousand tons. (2023: 1,645 ten thousand, 2024: 1,630 ten thousand, 2025: 1,630 ten thousand)

(2) Changes in the emission rights for the year ended December 31, 2022 are as follows:

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	46,073	44,865
Increase	1,872	1,422
Decrease	(28,378)	(214)
Balance as of December 31[1]	19,567	46,073

[1]The quantity of emission right is 6,742 ten thousand ton and there is no emission rights provided as provision of collateral as of December 31, 2022.

(3) Changes in emissions liabilities for the year ended December 31, 2022 are as follows:

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	45,049	31,876
Charged to profit or loss	16,167	13,374
Submission	(28,378)	(201)
Balance as of December 31	32,838	45,049

16. Commitments and Contingencies

(A) Litigation

As of December 31, 2022, the Company is involved in various claims, disputes, and investigations conducted by regulatory bodies that arose during the normal course of business with numerous entities. Although the outflow of resources and timing of these matters are uncertain, the Company believes the outcome will not have a material impact on the financial position of the Company.

(B) Other commitments

(1) As of December 31, 2022, the Company has trade financing agreements, trade notes receivable discounting facilities, and loan facilities with accounts receivable pledged as collateral with 26 financial institutions including Woori Bank, with a combined limit of up to ₩ 21,609,679 million. In addition, the Company has a trade financing agreement (up to ₩ 16,020,930 million) with 23 financial institutions including Shinhan Bank and loan facilities with accounts receivable pledged as collateral and other financial agreements (up to ₩ 1,589,717 million).

(2) As of December 31, 2022, unfulfilled agreements relating to the acquisition of property, plant and equipment and intangible assets amount to ₩ 8,553,336 million.

17. Contract Liabilities

The Company has recognized contract liabilities related to contracts with customers as follows:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Contract liabilities[1]	13,255,682	13,235,108

[1] Contract liabilities include advances received, accrued expenses, other current liabilities and others.

The revenue recognized during the year ended December 31, 2022 in relation to carried-forward contract liabilities as of January 1, 2022 amounts to ₩ 1,051,027 million.

18. Share Capital

As of December 31, 2022, the Company's total number of authorized shares is 25,000,000,000 shares (₩ 100 per share). The Company has issued 5,969,782,550 shares of ordinary shares and 822,886,700 shares of preference shares as of December 31, 2022, excluding the retired shares. As of the December 31, 2022, the number of shares outstanding is the same as the number of shares issued above, and no changes were made to the number of shares outstanding during the years ended December 31, 2022 and 2021. Due to the retirement of shares, the total par value of the shares issued is ₩ 679,267 million (ordinary shares of ₩ 596,978 million and preference shares of ₩ 82,289 million), which does not agree with paid-in capital of ₩ 897,514 million.

19. Retained Earnings

(A) Retained earnings as of December 31, 2022 and 2021 consist of the following:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Discretionary reserve, etc.	192,294,496	170,814,107
Unappropriated retained earnings	145,651,911	122,250,656
Total	337,946,407	293,064,763

(B) Details of interim and year-end dividends are as follows:

(1) Interim dividends (Record date: March 31, June 30 and September 30, 2022 and 2021)

(In millions of Korean won and number of shares)			**2022**	**2021**
1st Quarter	Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
		Preference shares	822,886,700	822,886,700
	Dividend rate (based on par value)		361%	361%
	Dividend amount	Ordinary shares	2,155,092	2,155,092
		Preference shares	297,062	297,062
		Total	2,452,154	2,452,154
2nd Quarter	Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
		Preference shares	822,886,700	822,886,700
	Dividend rate (based on par value)		361%	361%
	Dividend amount	Ordinary shares	2,155,092	2,155,092
		Preference shares	297,062	297,062
		Total	2,452,154	2,452,154
3rd Quarter	Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
		Preference shares	822,886,700	822,886,700
	Dividend rate (based on par value)		361%	361%
	Dividend amount	Ordinary shares	2,155,092	2,155,092
		Preference shares	297,062	297,062
		Total	2,452,154	2,452,154

(2) Year-end dividends (Record date: December 31, 2022 and 2021)

(In millions of Korean won and number of shares)		**2022**	**2021**
Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
	Preference shares	822,886,700	822,886,700
Dividend rate (based on par value)	Ordinary shares	361%	361%
	Preference shares	362%	362%
Dividend amount	Ordinary shares	2,155,092	2,155,092
	Preference shares	297,884	297,884
	Total	2,452,976	2,452,976

20. Other Components of Equity

Other components of equity as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Gain on valuation of financial assets at fair value through other comprehensive income	2,749,109	4,616,639
Share of other comprehensive income of associates and joint ventures	114,987	166,835
Gain (loss) on overseas business translation	1,039,197	(3,824,733)
Remeasurement of net defined benefit liabilities (assets)	(2,051,610)	(3,173,977)
Other	86,645	86,763
Total	1,938,328	(2,128,473)

21. Expenses by Nature

Expenses by nature for the years ended December 31, 2022 and 2021 consist of the following:

(In millions of Korean won)	**2022**	**2021**
Changes in finished goods, work in process, and other	(10,355,548)	(4,517,560)
Raw materials used, merchandise purchased, and other	112,591,917	95,625,437
Wages and salaries	30,078,623	28,207,782
Post-employment benefit	1,440,099	1,360,344
Depreciation	35,952,098	31,285,209
Amortization	3,155,561	2,962,152
Welfare	6,091,626	5,073,002
Utilities	6,142,317	4,928,929
Outsourcing	6,597,467	5,594,602
Advertising	6,112,951	5,376,015
Sales promotion expenses	7,110,649	6,286,159
Other	53,936,970	45,788,872
Total[1]	258,854,730	227,970,943

[1] Equal to the sum of cost of sales and selling and administrative expenses in the consolidated statements of profit or loss.

22. Selling and Administrative Expenses

Selling and administrative expenses for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Selling and administrative expenses		
Wages and salaries	7,763,588	7,245,981
Post-employment benefit	330,115	310,823
Commissions and service charges	7,457,896	6,192,568
Depreciation	1,574,757	1,529,507
Amortization	664,346	543,544
Advertising	6,112,951	5,376,015
Sales promotion expenses	7,110,649	6,286,159
Transportation	3,214,301	2,792,690
Service charges	3,671,913	4,039,642
Other	5,993,246	4,840,946
Subtotal	43,893,762	39,157,875
Research and development expenses		
Total expenses	24,919,198	22,595,434
Capitalized expenses	-	(193,708)
Subtotal	24,919,198	22,401,726
Total	68,812,960	61,559,601

23. Other Non-Operating Income and Expenses

Details of other non-operating income and expenses for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Other non-operating income		
Dividend income	414,601	135,840
Rental income	140,908	132,801
Gain on disposal of property, plant and equipment	159,123	340,400
Other	1,247,439	1,596,654
Total	1,962,071	2,205,695

(In millions of Korean won)	**2022**	**2021**
Other non-operating expenses		
Loss on disposal of property, plant and equipment	61,256	75,586
Donations	305,941	270,927
Other	1,422,979	1,709,458
Total	1,790,176	2,055,971

24. Financial Income and Expenses

Details of financial income and expenses for the years ended December 31, 2022 and 2021 are as follows:

(*In millions of Korean won*)	**2022**	**2021**
Financial income		
Interest income	2,720,479	1,278,278
Interest income from financial assets measured at amortized cost	2,720,213	1,278,051
Interest income from financial assets measured at fair value through profit or loss	266	227
Foreign exchange differences	16,537,855	6,525,676
Gains from derivatives	1,570,661	739,233
Total	20,828,995	8,543,187

(*In millions of Korean won*)	**2022**	**2021**
Financial expenses		
Interest expenses	763,015	431,540
Interest expenses from financial liabilities measured at amortized cost	322,529	213,477
Other financial liabilities	440,486	218,063
Foreign exchange differences	16,809,703	6,486,093
Losses from derivatives	1,454,971	786,921
Total	19,027,689	7,704,554

The Company recognizes foreign exchange gains and losses arising from foreign currency transactions and translation as financial income and expenses.

25. Income Tax Expense

(A) Income tax expense for the years ended December 31, 2022 and 2021 consists of the following:

(In millions of Korean won)	**2022**	**2021**
Current taxes		
Current tax on profits for the year	7,391,099	11,135,521
Adjustments recognize in the current year	(501,683)	(195,237)
Subtotal	6,889,416	10,940,284
Deferred taxes		
Changes in deferred taxes arising from unused tax credits	(1,080,068)	(332,975)
Changes in deferred taxes arising from temporary differences	(15,407,692)	2,172,312
Changes in deferred taxes arising from unused tax losses	160,123	507,313
Other	224,618	157,443
Subtotal	(16,103,019)	2,504,093
Items charged directly to equity	-	-
Income tax expense	(9,213,603)	13,444,377

(B) The tax on the Company's profit before income tax differs from the theoretical amount that would arise using the weighted-average statutory tax rate applicable to profits of the Company as follows:

(In millions of Korean won)	**2022**	**2021**
Profit before income tax	46,440,474	53,351,827
Tax calculated at weighted average of applicable tax rates[1]	13,652,900	15,760,775
Adjustments:		
Permanent differences	(2,090,031)	(464,839)
Temporary differences for which no deferred income tax was recognized	769,211	(80,250)
Tax credits and exemptions	(5,185,576)	(4,627,136)
Results of interest in subsidiaries, etc.	(16,186,745)	2,267,026
Impact of changes in tax rates	(376)	8,691
Other	(172,986)	580,110
Subtotal	(22,866,503)	(2,316,398)
Income tax expense	(9,213,603)	13,444,377

[1] The weighted average of statutory tax rates are applied to the respective profits of the Company applicable to each tax authority as of December 31, 2022 and 2021.

(C) The movement in deferred income tax assets and liabilities resulting from the tax effect of temporary differences for the years ended December 31, 2022 and 2021 are as follows:

(1) 2022

	Temporary differences			Deferred income tax assets (liabilities)		
(In millions of Korean won)	**Balance as of January 1**	**Increase (Decrease)**	**Balance as of December 31**	**Balance as of January 1**	**Increase (Decrease)**	**Balance as of December 31**
Deferred tax arising from temporary differences						
Revaluation of land	(3,406,625)	3,195	(3,403,430)	(936,822)	38,317	(898,505)
Investments in subsidiaries, associates and joint ventures[1]	(126,816,779)	(18,391,837)	(145,208,616)	(20,614,554)	15,654,307	(4,960,247)
Accumulated depreciation and other	(3,814,598)	(3,782,747)	(7,597,345)	(1,771,793)	(794,742)	(2,566,535)
Accrued income	(22,153)	108,861	86,708	6,853	32,827	39,680
Provisions, accrued expenses and other	15,979,455	2,799,841	18,779,296	4,560,874	658,256	5,219,130
Foreign currency translation	62,615	670,489	733,104	12,076	173,824	185,900
Asset impairment losses	1,134,048	(69,523)	1,064,525	258,886	(24,152)	234,734
Other	(492,225)	(1,356,462)	(1,848,687)	(638,757)	(330,945)	(969,702)
Subtotal	(117,376,262)	(20,018,183)	(137,394,445)	(19,123,237)	15,407,692	(3,715,545)
Deferred tax arising from tax losses						
Unused tax losses	2,015,448	(520,129)	1,495,319	436,481	(160,123)	276,358
Deferred tax arising from tax credits						
Unused tax credits	1,687,065	1,243,873	2,930,938	1,666,362	1,080,068	2,746,430
Deferred tax recognized in equity						
Loss (gain) on valuation of financial assets at fair value through other comprehensive income and other	(3,575,094)	(61,384)	(3,636,478)	(3,155,310)	3,104,918	(50,392)
Remeasurement of net defined benefit liabilities (assets)	4,447,510	(1,627,945)	2,819,565	1,238,713	(505,578)	733,135
Subtotal	872,416	(1,689,329)	(816,913)	(1,916,597)	2,599,340	682,743
Deferred tax assets				4,261,214	840,104	5,101,318
Deferred tax liabilities				(23,198,205)	18,086,873	(5,111,332)
Total				(18,936,991)	18,926,977	(10,014)

[1] Deferred tax assets are not recognized if it is probable that the temporary differences will not reverse in the foreseeable future for investments in subsidiaries, associates and joint ventures.

(2) 2021

(In millions of Korean won)	Temporary differences			Deferred income tax assets (liabilities)		
	Balance as of January 1	**Increase (Decrease)**	**Balance as of December 31**	**Balance as of January 1**	**Increase (Decrease)**	**Balance as of December 31**
Deferred tax arising from temporary differences						
Revaluation of land	(3,420,886)	14,261	(3,406,625)	(940,744)	3,922	(936,822)
Investments in subsidiaries, associates and joint ventures[1]	(111,924,859)	(14,891,920)	(126,816,779)	(19,172,409)	(1,442,145)	(20,614,554)
Accumulated depreciation and other	(2,285,841)	(1,528,757)	(3,814,598)	(992,777)	(779,016)	(1,771,793)
Accrued income	(139,406)	117,253	(22,153)	(31,486)	38,339	6,853
Provisions, accrued expenses and other	13,121,416	2,858,039	15,979,455	3,764,808	796,066	4,560,874
Foreign currency translation	(24,683)	87,298	62,615	(10,077)	22,153	12,076
Asset impairment losses	1,855,765	(721,717)	1,134,048	453,486	(194,600)	258,886
Other	562,628	(1,054,853)	(492,225)	(21,726)	(617,031)	(638,757)
Subtotal	(102,255,866)	(15,120,396)	(117,376,262)	(16,950,925)	(2,172,312)	(19,123,237)
Deferred tax arising from tax losses						
Unused tax losses	3,618,601	(1,603,153)	2,015,448	943,794	(507,313)	436,481
Deferred tax arising from tax credits						
Unused tax credits	1,328,527	358,538	1,687,065	1,333,387	332,975	1,666,362
Deferred tax recognized in equity						
Loss on valuation of financial assets at fair value through other comprehensive income and other	(1,660,421)	(1,914,673)	(3,575,094)	(909,176)	(2,246,134)	(3,155,310)
Remeasurement of net defined benefit liabilities (assets)	3,735,320	712,190	4,447,510	1,047,075	191,638	1,238,713
Subtotal	2,074,899	(1,202,483)	872,416	137,899	(2,054,496)	(1,916,597)
Deferred tax assets				4,275,000	(13,786)	4,261,214
Deferred tax liabilities				(18,810,845)	(4,387,360)	(23,198,205)
Total				(14,535,845)	(4,401,146)	(18,936,991)

[1] Deferred tax assets are not recognized if it is probable that the temporary differences will not reverse in the foreseeable future for investments in subsidiaries, associates and joint ventures.

The Company assessed that the deferred tax asset is realizable as the estimated average annual taxable income in future years exceeds the tax loss carry forwards and tax credit carry forwards to be reversed in each accounting period. Temporary differences in which deferred tax effects were not recognized due to uncertainty regarding the ultimate realizability of such assets as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Unused tax losses	594,798	706,512
Unused tax credits	46,550	47,929

Expected expiry dates of unused tax losses and credits for which no deferred tax asset is recognized are as follows:

(In millions of Korean won)	**2022**	**2023**	**2024**	**2025 and after**
Unused tax losses	69,464	1,776	-	523,558
Unused tax credits	7,466	4,157	29,972	4,955

(D) Details of the period when the deferred tax assets (liabilities) are recovered (settled) as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Deferred tax assets		
Deferred tax assets to be recovered within 12 months	3,249,661	2,999,046
Deferred tax assets to be recovered after more than 12 months	1,851,657	1,262,168
Subtotal	**5,101,318**	**4,261,214**
Deferred tax liabilities		
Deferred tax liabilities to be settled after more than 12 months	(5,111,332)	(23,198,205)
Total	**(10,014)**	**(18,936,991)**

26. Earnings per Share

(A) Basic earnings per share

Basic earnings per share for the years ended December 31, 2022 and 2021 are calculated as follows:

(1) Ordinary shares

(In millions of Korean won, thousands of number of shares)	**2022**	**2021**
Profit for the year attributable to owners of the parent company	54,730,018	39,243,791
Profit for the year available for ordinary shares	48,099,117	34,488,944
Weighted-average number of ordinary shares outstanding	5,969,783	5,969,783
Basic earnings per ordinary share *(in Korean won)*	8,057	5,777

(2) Preference shares

(In millions of Korean won, thousands of number of shares)	**2022**	**2021**
Profit for the year attributable to owners of the parent company	54,730,018	39,243,791
Profit for the year available for preference shares	6,630,901	4,754,847
Weighted-average number of preference shares outstanding	822,887	822,887
Basic earnings per preference share *(in Korean won)*	8,058	5,778

(B) Diluted earnings per share

The Company does not have dilutive potential ordinary shares and as a result, basic earnings per share and diluted earnings per share are the same for the years ended December 31, 2022 and 2021.

27. Statements of Cash Flows

(A) The Company used the indirect method to present cash flows from operating activities. Adjustments and changes in assets and liabilities arising from operating activities for the years ended December 31, 2022 and 2021 are as follows:

- Adjustments

(In millions of Korean won)	**2022**	**2021**
Adjustments:		
Income tax expense	(9,213,603)	13,444,377
Financial income	(5,778,279)	(2,485,679)
Financial expenses	4,336,254	1,917,705
Post-employment benefits	1,440,099	1,360,344
Depreciation	35,952,098	31,285,209
Amortization	3,155,561	2,962,152
Bad debt expenses	8,784	17,990
Dividend income	(414,601)	(135,840)
Share of profit of associates and joint ventures	(1,090,643)	(729,614)
Gain on disposal of property, plant and equipment	(159,123)	(340,400)
Loss on disposal of property, plant and equipment	61,256	75,586
Loss on valuation of inventories	4,408,767	1,735,741
Others	366,869	(51,938)
Total	33,073,439	49,055,633

- Changes in assets and liabilities arising from operating activities

(In millions of Korean won)	**2022**	**2021**
Changes in assets and liabilities :		
Decrease (increase) in trade receivables	7,856,258	(7,302,604)
Increase in non-trade receivables	(1,524,173)	(204,348)
Decrease (increase) in prepaid expenses	3,506	(204,971)
Increase in inventories	(13,311,072)	(9,712,379)
Increase (decrease) in trade payables	(5,298,547)	1,027,017
Increase (decrease) in other payables	(1,443,409)	1,516,076
Increase (decrease) in advances received	106,977	(24,371)
Increase in withholdings	25,392	275,998
Increase in accrued expenses	919,271	3,340,697
Increase (decrease) in provisions	(34,298)	1,862,320
Payment of post-employment benefits	(707,887)	(606,870)
Increase in plan assets	(2,243,171)	(2,866,087)
Other	(1,347,795)	(3,387,362)
Total	(16,998,948)	(16,286,884)

(B) Significant non-cash investing and financing transactions for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Valuation of financial assets at fair value through other comprehensive income	(2,636,448)	3,653,253
Valuation of investments in associates and joint ventures	(50,510)	211,979
Reclassification of construction in progress to property, plant and equipment	36,047,916	50,451,574
Acquisition of right-of-use assets (New lease contracts established)	2,111,660	1,748,911
Reclassification of current portion of debentures	6,228	477,651
Reclassification of current portion of long-term borrowings	1,082,934	852,317

(C) Changes in liabilities arising from financing activities for the years ended December 31, 2022 and 2021 are as follows:

(1) 2022

(In millions of Korean won)	**As of January 1**	**Cash flows from financing activities**	**Non-cash transactions**		**As of December 31**
			New lease contracts	**Other[1]**	
Short-term borrowings	13,687,793	(8,339,149)	-	(201,329)	5,147,315
Debentures and long-term borrowings	4,704,356	(1,236,468)	2,111,660	(393,621)	5,185,927
Total	18,392,149	(9,575,617)	2,111,660	(594,950)	10,333,242

[1] Other includes amortization and effects of changes in foreign currency exchange rates.

(2) 2021

(In millions of Korean won)	**As of January 1**	**Cash flows from financing activities**	**Non-cash transactions**		**As of December 31**
			New lease contracts	**Other[1]**	
Short-term borrowings	16,553,429	(2,616,943)	-	(248,693)	13,687,793
Debentures and long-term borrowings	3,663,952	(836,470)	1,748,912	127,962	4,704,356
Total	20,217,381	(3,453,413)	1,748,912	(120,731)	18,392,149

[1] Other includes amortization, effects of changes in foreign currency exchange rates.

For the years ended December 31, 2022 and 2021, cash outflows from principal repayment (financial activities) amount to ₩ 998,531 million and ₩ 876,437 million, respectively, and cash outflows due to interest expenses (operating activities) in relation to the lease liabilities amount to ₩ 140,111 million and ₩ 106,877 million, respectively.

(D) The Company reported cash receipts and payments arising from transactions occurring frequently, of large gross amounts, and with short-term maturities, such as short-term financial instruments, borrowings and other, on a net basis. As of December 31, 2022, most of the Company's cash and cash equivalents consist of bank deposits.

28. Financial Risk Management

The Company's financial risk management focuses on minimizing the market risk, credit risk, and liquidity risk arising from operating activities. To mitigate these risks, the Company implements and operates a financial risk policy and program that closely monitors and manages such risks. In addition, the Company uses derivatives to hedge certain risk exposure.

The finance team mainly carries out the Company's financial risk management. After implementing the global financial risk management policies, the finance team periodically measures, evaluates, and hedges the financial risk and also establishes and implements the global financial risk management policy.

The Company also manages the foreign exchange risk by monitoring the foreign exchange rate fluctuations at local finance centers across major regions (United States, United Kingdom, Singapore, China, Brazil, and Russia) and acting as an agent of foreign exchange transactions. In addition, the Company manages the liquidity risk by utilizing a globally integrated finance structure.

The Company's financial assets that are under the financial risk management are comprised of cash and cash equivalents, short-term financial instruments, financial assets at amortized cost, trade receivables and others. The Company's financial liabilities under financial risk management are comprised of trade payables, borrowings, and others.

(A) Market risk

(1) Foreign exchange risk

The Company is exposed to the foreign exchange risk arising from its global operations performed in currencies other than its functional currency. The major currencies that are exposed to the foreign exchange risk are the US dollar, Euro, and Indian Rupee.

The Company focuses on minimizing the impact of the foreign exchange fluctuation by maintaining the equal amount of assets and liabilities denominated in each foreign currency, irrespective of the foreign exchange fluctuation considerations. To prevent the exchange position, the Company's foreign exchange management policy requires the normal business transactions, including imports and exports, as well as the financing transactions such as depositing and borrowing, to be in local currency or for the cash-in currency to be matched up with the cash-out currency. Moreover, the Company periodically evaluates and monitors the foreign exchange risk to efficiently mitigate such risk, and the speculative foreign exchange transactions are strictly prohibited.

As of December 31, 2022 and 2021, when the currency rates change by 5%, the impact on profit or loss (before income tax effects) arising from financial assets and liabilities denominated in foreign currencies other than the functional currency are as follows:

	December 31, 2022		**December 31, 2021**	
(In millions of Korean won)	**Increase**	**Decrease**	**Increase**	**Decrease**
USD	258,655	(258,655)	250,489	(250,489)
EUR	92,546	(92,546)	107,519	(107,519)
INR	52,096	(52,096)	24,216	(24,216)

(2) Interest rate risk

Risk of changes in interest rates for floating interest rate financial instruments is defined as the risk that the fair value of components of the statements of financial position, and future cash flows of interest income (expenses) of a financial instrument, will fluctuate because of the changes in market interest rates. The Company's position with regard to interest rate risk exposure is mainly driven by its floating interest rate debt obligations and interest-bearing deposits. The Company implemented policies and operates to minimize uncertainty arising from changes in interest rates and financial expenses.

As of December 31, 2022 and 2021, changes in profit or loss (before income tax effects) as a result of a 1%p change in interest rates on floating interest rate financial assets and liabilities are presented below:

	December 31, 2022		**December 31, 2021**	
(In millions of Korean won)	**Increase**	**Decrease**	**Increase**	**Decrease**
Financial assets	72,750	(72,750)	71,131	(71,131)
Financial liabilities	(8,427)	8,427	(18,779)	18,779
Net effect	64,323	(64,323)	52,352	(52,352)

(3) Price risk

The Company's investment portfolio consists of direct and indirect investments in equity instruments classified as financial assets at fair value through other comprehensive income and financial assets at fair value through profit or loss, which is in line with the Company's strategy.

As of December 31, 2022 and 2021, price fluctuation of marketable equity securities (listed stocks) by 1% would result in changes in other comprehensive income (before income tax) of ₩ 92,073 million and ₩ 116,087 million, respectively, and changes in profit before tax of ₩ 3,144 million and ₩ 4,784 million, respectively.

(B) Credit risk

Credit risk arises during the normal course of transactions and investing activities where clients or other parties fail to discharge an obligation. The Company monitors and sets the client's and the counterparty's credit limits on a periodic basis based on the client's and counterparty's financial conditions, default histories and other important factors. Adequate insurance coverage is maintained for trade receivables related to the trading partners situated in higher risk countries.

Credit risk can arise from transactions with financial institutions which include financial instrument transactions such as cash and cash equivalents, deposits, and derivative instruments. To minimize such risk, the Company transacts only with banks which have strong international credit ratings (S&P A and above), and all new transactions with financial institutions with no prior transaction history are approved, managed and monitored by the Company's finance team and the local finance center. The Company generally enters into a financial agreement with no restrictions, such as debt ratio covenants, provision of collateral and/or repayment of loans/borrowings. The Company requires separate approvals for contracts with restrictions.

As of December 31, 2022 and 2021, the Company estimates that its maximum exposure to credit risk is the carrying amount of its financial assets, net of impairment losses.

(C) Liquidity risk

Due to large investments made by the Company, maintaining adequate levels of liquidity risk is critical. The Company strives to achieve this goal by periodically forecasting its capital balance, estimating the required cash levels, and managing income and expenses.

The Company manages its liquidity risk by periodically forecasting the projected cash flows. If abnormal signs are identified, the Company works with the local finance center and provides liquidity support by utilizing a globally integrated finance structure, such as Cash Pooling. In addition, the Company maintains a liquidity management process which provides an additional financial support from the local finance center and the Company. The Cash Pooling program allows the sharing of surplus funds among the entities and contributes to minimizing the liquidity risk and strengthening the Company's competitive position by reducing capital operation expenses and financial expenses.

For the need of large scale of liquidity, the Company secures the credit limit for overseas subsidiaries through payment guarantees.

As of December 31, 2022 and 2021, the following table is an undiscounted cash flow analysis for financial liabilities according to their remaining contractual maturity.

	December 31, 2022				
(In millions of Korean won)	**Less than 3 months**	**4 - 6 months**	**7 – 12 months**	**1 - 5 years**	**More than 5 years**
Financial liabilities	42,990,570	733,984	1,925,448	5,402,672	1,562,274

	December 31, 2021				
(In millions of Korean won)	**Less than 3 months**	**4 – 6 months**	**7 - 12 months**	**1 - 5 years**	**More than 5 years**
Financial liabilities	55,185,809	1,814,271	1,674,980	5,462,057	944,232

The table above shows the Company's financial liabilities based on the remaining period at the consolidated statements of financial position date until the contractual maturity date. The amounts disclosed in the table are the contractual undiscounted cash flows.

The Company's derivative financial liabilities of ₩ 119,061 million (December 31, 2021: ₩ 113,590 million) has been included within the less than 3 months bucket. These are the Company's trading portfolio of derivative instruments, on a net settlement term, of which the contractual maturities are not essential for understanding its cash flows. These contracts are managed on a net fair value basis rather than by the maturity date. Net settled derivatives consist of forwards on currency rates used by the Company to manage the exchange rate profile.

Derivatives that are settled on a gross basis by the delivery of underlying items, including derivatives for hedging, will be settled within the next 60 months from the end of the reporting period. These derivatives are not included in the table above.

There is no maximum liquidity risk exposure from those other than the above financial liabilities (e.g., payment and performance guarantees) as of December 31, 2022.

(D) Derivative financial instruments

The Company applies cash flow hedge accounting to hedge the foreign currency risk of forecasted transaction including hedging the price risk associated with inventory. Details of derivative financial instruments that qualify as cash flow hedges as of December 31, 2022 and 2021 are as follows:

	December 31, 2022		December 31, 2021	
(In millions of Korean won)	**Assets**	**Liabilities**	**Assets**	**Liabilities**
Currency forward exchange contracts				
Current items	44,567	11,035	34,075	11,090
Non-current items	15,703	15,813	16,790	3,280
Total	60,270	26,848	50,865	14,370

For the years ended December 31, 2022 and 2021, the Company recognizes the gains and losses relating to the effective portion of changes in fair value of derivatives that are designated and qualify as cash flow hedges in other comprehensive income, which amount to the loss of ₩ 12,893 million (after tax) and gain of ₩ 50,410 million (after tax), respectively, and recognizes the gains and losses relating to the ineffective portion in profit or loss, which amount to the gain of ₩ 611 million (before tax) and loss of ₩ 451 million (before tax), respectively. For the years ended December 31, 2022 and 2021, gains and losses reclassified directly from other comprehensive income to profit or loss amount to the loss of ₩ 4,602 million (after tax) and the gain of ₩ 1,117 million (after tax), respectively and the gains reclassified from other comprehensive income to the carrying amount of inventory amount to the gain of ₩ 55,856 million (after tax) and the gain of ₩ 1,539 million (after tax), respectively.

(E) Capital risk management

The Group manages its capital to ensure that entities in the Group will be able to continue as going concerns while maximising the return to shareholders through the optimisation of the debt and equity balance.

The Company's capital risk management policy has not changed since the prior reporting periods. The Company has maintained an AA- and Aa2 credit ratings from S&P and Moody's, respectively.

The total liabilities to equity ratios as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Total liabilities	93,674,903	121,721,227
Total equity	354,749,604	304,899,931
Debt ratio	26.4%	39.9%

(F) Fair value estimation

(1) Carrying amounts and fair values of financial instruments by category as of December 31, 2022 and 2021 are as follows:

	December 31, 2022		December 31, 2021	
(In millions of Korean won)	**Carrying amount**	**Fair value**	**Carrying amount**	**Fair value**
Financial assets				
Cash and cash equivalents	49,680,710	(*1)	39,031,415	(*1)
Short-term financial instruments	65,102,886	(*1)	81,708,986	(*1)
Short-term financial assets at amortized cost	414,610	(*1)	3,369,034	(*1)
Short-term financial assets at fair value through profit or loss	29,080	29,080	40,757	40,757
Trade receivables	35,721,563	(*1)	40,713,415	(*1)
Financial assets at fair value through other comprehensive income	11,397,012	11,397,012	13,965,839	13,965,839
Financial assets at fair value through profit or loss	1,405,468	1,405,468	1,525,344	1,525,344
Other(*2)	10,340,876	395,667	9,040,189	328,216
Total financial assets	174,092,205		189,394,979	
Financial liabilities				
Trade payables	10,644,686	(*1)	13,453,351	(*1)
Short-term borrowings	5,147,315	(*1)	13,687,793	(*1)
Other payables	16,328,237	(*1)	14,126,970	(*1)
Current portion of long-term liabilities	1,089,162	6,580	1,329,968	554,106
- Current portion of long-term borrowing	1,082,934	(*1)(*3)	852,317	(*1)(*3)
- Current portion of debentures	6,228	6,580	477,651	554,106
Debentures	536,093	521,129	508,232	546,339
Long-term borrowings	3,560,672	(*1)(*3)	2,866,156	(*1)(*3)
Long-term other payables(*2)	2,289,236	(*1)	2,562,158	(*1)
Other(*2)	12,409,529	361,768	10,781,684	337,394
Total financial liabilities	52,004,930		59,316,312	

(*1) Assets and liabilities whose carrying amount is a reasonable approximation of fair value are excluded from the fair value disclosures.

(*2) Assets measured at the cost of ₩ 9,945,209 million (December 31, 2021: ₩ 8,711,973 million) and liabilities measured at the cost of ₩ 12,047,761 million (December 31, 2021: ₩ 10,444,290 million) are excluded as the carrying amount is a reasonable estimation of fair value.

(*3) Lease liabilities, classified under the current portion of long-term liabilities and long-term borrowings, are excluded from the fair value disclosures in accordance with *Korean IFRS 1107*.

(2) Fair value hierarchy classifications of the financial instruments that are measured or disclosed at fair value as of December 31, 2022 and 2021 are as follows:

	December 31, 2022			
(In millions of Korean won)	**Level 1**	**Level 2**	**Level 3**	**Total balance**
1) Assets				
Short-term financial assets at fair value through profit or loss	-	29,080	-	29,080
Financial assets at fair value through other comprehensive income	9,207,295	-	2,189,717	11,397,012
Financial assets at fair value through profit or loss	314,449	-	1,091,019	1,405,468
Other	-	373,176	22,491	395,667
2) Liabilities				
Current portion of debentures	-	6,580	-	6,580
Debentures	-	521,129	-	521,129
Other	-	354,364	7,404	361,768

	December 31, 2021			
(In millions of Korean won)	**Level 1**	**Level 2**	**Level 3**	**Total balance**
1) Assets				
Short-term financial assets at fair value through profit or loss	-	35,620	5,137	40,757
Financial assets at fair value through other comprehensive income	11,608,708	-	2,357,131	13,965,839
Financial assets at fair value through profit or loss	478,401	-	1,046,943	1,525,344
Other	-	307,213	21,003	328,216
2) Liabilities				
Current portion of debentures	-	554,106	-	554,106
Debentures	-	546,339	-	546,339
Other	-	331,956	5,438	337,394

The levels of the fair value hierarchy and its application to financial assets and liabilities are described below.

- Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities
- Level 2: Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly
- Level 3: Inputs for the asset or liability that are not based on observable market data (that is, unobservable inputs)

The fair value of financial instruments traded in active markets is based on quoted market prices at the statements of financial position date. A market is regarded as active if quoted prices are readily and regularly available from an exchange, dealer, broker, industry group, pricing service, or regulatory agency, and those prices represent actual and regularly occurring market transactions on an arm's length basis. The quoted market price used for financial assets held by the Company is the current bid price. These instruments are included in Level 1. The instruments included in Level 1 are listed equity investments, most of which are classified as financial assets at fair value through other comprehensive income.

The fair value of financial instruments that are not traded in an active market (for example, over-the-counter derivatives) is determined by using valuation techniques. These valuation techniques maximize the use of observable market data where it is available and rely as little as possible on the entity-specific estimates. If all significant inputs required for a fair value of an instrument are observable, the instrument is included in Level 2.

If one or more of the significant inputs are not based on observable market data, the instrument is included in Level 3.

The Company performs the fair value measurements required for financial reporting purposes, including Level 3 fair values and discusses valuation processes and results at least once every quarter in line with the Company's quarterly reporting dates. The Company's policy is to recognize transfers between levels at the end of the reporting period, if corresponding events or changes in circumstances have occurred.

Specific valuation techniques used to value financial instruments include:

- Quoted market prices or dealer quotes for similar instruments
- The fair value of forward foreign exchange contracts is determined using forward exchange rates at the statements of financial position date, with the resulting value discounted back to present value

Other techniques, such as discounted cash flow analysis, are used to determine fair value for the remaining financial instruments. For trade and other receivables that are classified as current assets, the book value approximates a reasonable estimate of fair value.

(3) Valuation technique and the inputs

The Company utilizes a present value technique to discount cash flow and others using a proper interest rate for corporate bonds, government and public bonds, and bank debentures that are classified as Level 2 in the fair value hierarchy.

The following table presents the valuation technique and the inputs used for major financial instruments classified as Level 3 as of December 31, 2022.

(In millions of Korean won and percentage)

Classification	Fair value	Valuation technique	Level 3 inputs	Input range (Weighted average)
Financial assets at fair value through other comprehensive income				
Samsung Venture Investment	32,073	Discounted cash flow	Permanent growth rate	-1.0%~1.0%(0.0%)
			Weighted average cost of capital	15.8%~17.8%(16.8%)
MiCo Ceramics Co., Ltd.	29,385	Discounted cash flow	Permanent growth rate	0.0%~1.0%(0.5%)
			Weighted average cost of capital	13.1%~15.1%(14.1%)
TCL China Star Optoelectronics Technology Co., Ltd. (CSOT)	1,244,889	Discounted cash flow and others	Permanent growth rate	-1.0%~1.0%(0.0%)
			Weighted average cost of capital	10.6%~12.6%(11.6%)
China Star Optoelectronics Semiconductor Display Technology Ltd. (CSOSDT)	230,263	Discounted cash flow	Permanent growth rate	-1.0%~1.0%(0.0%)
			Weighted average cost of capital	10.6%~12.6%(11.6%)
Others				
Put option on equity instruments	22,491	Binomial model	Risk-free discount rate	4.0%~4.5%, 2.5%
			Price volatility	22.3%~32.3%(27.3%)
				25.3%~35.3%(30.3%)

(4) Changes in Level 3 instruments for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Financial assets		
Balance as of January 1	3,430,214	6,449,139
Acquisitions	207,730	1,075,389
Disposals	(207,252)	(402,782)
Amount recognized in profit or loss	73,782	463,818
Amount recognized in other comprehensive income (loss)	(197,830)	1,543,511
Other	(3,417)	(5,698,861)
Balance as of December 31	3,303,227	3,430,214

(In millions of Korean won)	**2022**	**2021**
Financial liabilities		
Balance as of January 1	5,438	9,248
Amount recognized in profit or loss	1,966	(784)
Other	-	(3,026)
Balance as of December 31	7,404	5,438

(5) Sensitivity analysis for recurring fair value measurements categorized within Level 3

Sensitivity analysis of financial instruments is performed to measure favorable and unfavorable changes in the fair value of financial instruments which are affected by the unobservable parameters, using a statistical technique. When the fair value is affected by more than two input parameters, the amounts represent the most favorable or unfavorable.

The results of the sensitivity analysis for the effect on profit or loss (before tax amount for other comprehensive income or loss) from changes in inputs for major financial instruments which are categorized within Level 3 and subject to sensitivity analysis are as follows:

(In millions of Korean won)	**Favorable changes**		**Unfavorable changes**	
Classification	**Profit or loss**	**Equity**	**Profit or loss**	**Equity**
Financial assets at fair value through other comprehensive income[1]	-	112,515	-	(79,168)
Others[2]	2,669	-	(3,750)	-

[1] For equity securities, changes in fair value are calculated with the correlation between the growth rate (-1%~1%) and the discount rate, which are significant unobservable inputs.

[2] Changes were calculated based on the correlation between the fair value and price volatility (-5%~5%), which is a significant unobservable input.

29. Segment Information

(A) Operating segment information

The chief operating decision-maker has been identified as the Management Committee. The Company determines operating segments based on the units reported to the Management Committee. The Management Committee reviews the operating profits of each operating segment in order to assess the performance and to make strategic decisions regarding the allocation of resources to the segments.

Sales revenue consists mostly of product sales. The operating segments are product-based and are identified based on the internal organization and revenue streams. As of the reporting date, the operating segments are comprised of DX, DS, SDC, Harman, and others.

The segment information for each reporting period is prepared after allocating the intercompany reconciliations to depreciation, amortization of intangible assets and operating profits. Total assets and liabilities of each operating segment are excluded from the disclosure as these have not been provided regularly to the Management Committee.

(1) For the year ended December 31, 2022

(In millions of Korean won)	**DX**	**DS**	**SDC**	**Harman**	**Total**[1]
Net revenue	182,489,720	98,455,270	34,382,619	13,213,694	302,231,360
Depreciation	2,520,708	28,196,959	4,768,498	331,342	35,952,098
Amortization	1,678,572	809,270	237,182	211,549	3,155,561
Operating profit	12,746,074	23,815,810	5,952,973	880,548	43,376,630

[1] Other operating segments are not separately disclosed.

Net revenue by major product for the year ended December 31, 2022 are as follows:

(In millions of Korean won)	**Image devices**	**Mobile devices**	**Memory**	**Display panels**	**Total**[1]
Net revenue	33,279,488	115,425,375	68,534,930	34,382,619	302,231,360

[1] Other products are not separately disclosed.

(2) For the year ended December 31, 2021

(In millions of Korean won)	**DX**	**DS**	**SDC**	**Harman**	**Total**[1]
Net revenue	166,259,437	95,387,173	31,712,526	10,039,922	279,604,799
Depreciation	2,373,076	22,848,912	5,504,216	311,237	31,285,209
Amortization	1,435,220	939,922	239,821	229,772	2,962,152
Operating profit	17,386,554	29,192,021	4,457,365	599,097	51,633,856

[1] Other operating segments are not separately disclosed.

Net revenue by major product for the year ended December 31, 2021 are as follows:

(In millions of Korean won)	**Image devices**	**Mobile devices**	**Memory**	**Display panels**	**Total**[1]
Net revenue	31,497,420	104,680,574	72,602,237	31,712,526	279,604,799

[1] Other products are not separately disclosed.

(B) Regional information

The regional segment information provided to the Management Committee for the reportable segments as of and for the years ended December 31, 2022 and 2021 are as follows:

(1) As of and for the year ended December 31, 2022

(In millions of Korean won)	**Korea**	**America**	**Europe**	**Asia and Africa**	**China**	**Intercompany elimination**	**Consolidated**
Net revenue	48,654,656	118,974,561	50,283,975	48,692,399	35,625,769	-	302,231,360
Non-current assets[1]	144,936,912	14,022,225	5,839,813	9,056,272	15,338,153	(930,233)	188,263,142

[1] Financial instruments, deferred tax assets, investments in associates and joint ventures, and others are excluded from non-current assets.

(2) As of and for the year ended December 31, 2021

(In millions of Korean won)	**Korea**	**America**	**Europe**	**Asia and Africa**	**China**	**Intercompany elimination**	**Consolidated**
Net revenue	43,971,631	97,903,868	50,323,287	41,834,609	45,571,404	-	279,604,799
Non-current assets[1]	127,116,179	10,758,956	5,951,905	9,088,409	18,244,469	(995,135)	170,164,783

[1] Financial instruments, deferred tax assets, investments in associates and joint ventures, and others are excluded from non-current assets.

30. Related Party Transactions

(A) Sale and purchase transactions

Sale and purchase transactions with related parties for the years ended December 31, 2022 and 2021 are as follows:

		2022			
(In millions of Korean won)	**Name of company[1]**	**Sales**	**Disposal of non-current assets**	**Purchases**	**Purchase of non-current assets**
Associates and joint ventures	Samsung SDS	214,105	-	1,865,588	378,770
	Samsung Electro-Mechanics	62,274	767	1,401,483	120
	Samsung SDI	82,062	-	803,556	24,926
	Cheil Worldwide	31,782	-	964,096	361
	Other	1,353,769	-	15,158,969	125,053
	Total	1,743,992	767	20,193,692	529,230
Other related parties	Samsung C&T	51,447	-	433,100	7,423,404
	Other	345,901	188	1,595,487	1,910,813
	Total	397,348	188	2,028,587	9,334,217
Other[2]	Samsung Engineering	1,666	-	53,793	3,249,254
	S-1	13,634	-	510,311	54,069
	Other	166,052	-	550,757	746,749
	Total	181,352	-	1,114,861	4,050,072

[1] Transactions with separate entities that are related parties of the Company.
[2] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

		2021			
(In millions of Korean won)	**Name of company[1]**	**Sales**	**Disposal of non-current assets**	**Purchases**	**Purchase of non-current assets**
Associates and joint ventures	Samsung SDS	142,435	-	1,732,273	569,840
	Samsung Electro-Mechanics	47,031	-	1,525,854	-
	Samsung SDI	76,160	269	671,169	36,180
	Cheil Worldwide	27,740	-	758,877	16
	Other	1,288,094	68	12,361,130	118,099
	Total	1,581,460	337	17,049,303	724,135
Other related parties	Samsung C&T	79,183	32,705	334,386	4,045,297
	Other	352,919	-	1,608,435	633,109
	Total	432,102	32,705	1,942,821	4,678,406
Other[2]	Samsung Engineering	787	-	48,284	2,404,314
	S-1	13,819	-	469,979	35,762
	Other	129,439	2,371	496,451	261,614
	Total	144,045	2,371	1,014,714	2,701,690

[1] Transactions with separate entities that are related parties of the Company.
[2] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

(B) Balances of receivables and payables

Balances of receivables and payables arising from the sales and purchases of goods and services as of December 31, 2022 and 2021 are as follows:

		December 31, 2022	
(In millions of Korean won)	**Name of company**[1]	**Receivables**	**Payables**[2]
Associates and joint ventures	Samsung SDS	49,792	512,022
	Samsung Electro-Mechanics	385	133,952
	Samsung SDI	121,605	92,452
	Cheil Worldwide	223	453,545
	Other	371,575	1,236,016
	Total	543,580	2,427,987
Other related parties	Samsung C&T	217,818	2,783,240
	Other	20,830	250,103
	Total	238,648	3,033,343
Other[3]	Samsung Engineering	331	1,251,039
	S-1	3,839	73,102
	Other	15,647	545,684
	Total	19,817	1,869,825

[1] Balances due from and to separate entities that are related parties of the Company.
[2] Payables and others include lease liabilities.
[3] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise group in accordance with the Monopoly Regulation and Fair Trade Act.

		December 31, 2021	
(In millions of Korean won)	**Name of company**[1]	**Receivables**	**Payables**[2]
Associates and joint ventures	Samsung SDS	64,521	616,949
	Samsung Electro-Mechanics	3,659	176,549
	Samsung SDI	130,638	100,835
	Cheil Worldwide	206	428,090
	Other	397,709	1,361,554
	Total	596,733	2,683,977
Other related parties	Samsung C&T	220,550	1,739,997
	Other	20,306	251,766
	Total	240,856	1,991,763
Other[3]	Samsung Engineering	338	1,151,536
	S-1	2,423	40,558
	Other	48,703	185,256
	Total	51,464	1,377,350

[1] Balances due from and to separate entities that are related parties of the Company.
[2] Payables and others include lease liabilities.
[3] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise

group in accordance with the Monopoly Regulation and Fair Trade Act.

(C) For the years ended December 31, 2022 and 2021, the Company invested ₩ 907,958 million and ₩ 47,090 million, respectively, in associates and joint ventures. In addition, the Company recovered ₩ 13,087 million and ₩ 19,169 million of investments in associates and joint ventures for the years ended December 31, 2022 and 2021.

(D) For the year ended December 31, 2022, the Company declared ₩ 1,663,149 million of dividends (₩ 3,527,449 million for the year ended December 31, 2021) to the related parties. In addition, for the year ended December 31, 2022, the Company declared ₩ 128,232 million (₩ 267,738 million for the year ended December 31, 2021) of dividends to the entities that are not related parties of the Company in accordance with *Korean IFRS 1024*, but belong to the same conglomerate according to the Monopoly Regulation and Fair Trade Act. As of December 31, 2022 and 2021, there is no dividend payables to the entities that are not in scope of Korean IFRS 1024.

(E) For the year ended December 31, 2022, the Company entered into lease agreements with its related parties amounted to ₩ 25,243 million (₩ 12,602 million for the year ended December 31, 2021), and the lease payments made to the related parties for the years ended December 31, 2022 and 2021 amounted to ₩ 22,607 million and ₩ 31,893 million, respectively.

(F) Key management compensation

The compensation paid or payable to key management (executive directors) for their services for the years ended December 31, 2022 and 2021 consists of:

(In millions of Korean won)	**2022**	**2021**
Short-term employee benefits	14,768	20,370
Post-employment benefits	612	886
Other long-term employee benefits	5,434	8,092

31. Information for Non-Controlling Interests

(A) Changes in accumulated non-controlling interests

The profit or loss allocated to non-controlling interests and accumulated non-controlling interests of subsidiaries that are material to the Company for the years ended December 31, 2022 and 2021 are as follows:

	Samsung Display Co., Ltd. and its subsidiaries	
(In millions of Korean won)	**2022**	**2021**
Percentage of non-controlling interests	15.2%	15.2%
Balance as of January 1	8,028,555	7,723,784
Profit for the year	853,290	580,164
Dividends	(3,947)	(3,123)
Other	(24,186)	(272,270)
Balance as of December 31	8,853,712	8,028,555

(B) The summarized financial information for each subsidiary with non-controlling interests that are material to the Company before the intercompany eliminations for the years December 31, 2022 and 2021 are as follows:

(1) Summarized consolidated statements of financial position

	Samsung Display Co., Ltd. and its subsidiaries	
(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Current assets	42,082,412	35,220,985
Non-current assets	23,070,658	24,773,119
Current liabilities	6,294,310	7,539,403
Non-current liabilities	1,220,097	1,359,478
Equity attributable to:	57,638,663	51,095,223
Owners of the parent company	57,552,528	51,012,895
Non-controlling interests	86,135	82,328

(2) Summarized consolidated statements of comprehensive income

	Samsung Display Co., Ltd. and its subsidiaries	
(In millions of Korean won)	**2022**	**2021**
Sales	34,298,283	31,557,504
Profit for the year	6,614,496	3,511,314
Other comprehensive income (loss)	(67,942)	1,256,904
Total comprehensive income attributable to:	6,546,554	4,768,218
Owners of the parent company	6,539,633	4,752,963
Non-controlling interests	6,921	15,255

(3) Summarized consolidated statements of cash flows

	Samsung Display Co., Ltd. and its subsidiaries	
(In millions of Korean won)	**2022**	**2021**
Cash flows from operating activities	11,395,827	10,943,029
Cash flows from investing activities	(8,654,933)	(9,927,110)
Cash flows from financing activities	(1,146,117)	(1,284,749)
Effect of exchange rate changes on cash and cash equivalents	(44,426)	52,154
Increase (decrease) in cash and cash equivalents	1,550,351	(216,676)
Cash and cash equivalents at beginning of the year	758,859	975,535
Cash and cash equivalents at end of year	2,309,210	758,859

4. Non-consolidated financial statements

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF FINANCIAL POSITION

(In millions of Korean won, in thousands of US dollars (Note 2.29))

	Notes	December 31, 2022	December 31, 2021	December 31, 2022	December 31, 2021
		KRW	KRW	USD	USD
Assets					
Current assets					
Cash and cash equivalents	4, 28	3,921,593	3,918,872	3,037,290	3,035,183
Short-term financial instruments	4, 28	137	15,000,576	106	11,618,010
Trade receivables	4, 5, 7, 28	20,503,223	33,088,247	15,879,833	25,626,988
Non-trade receivables	4, 7, 28	2,925,006	1,832,488	2,265,430	1,419,270
Prepaid expenses		1,047,900	817,689	811,603	633,304
Inventories	8	27,990,007	15,973,053	21,678,380	12,371,198
Other current assets	4, 28	2,674,792	2,922,491	2,071,638	2,263,481
		59,062,658	**73,553,416**	**45,744,280**	**56,967,434**
Non-current assets					
Financial assets at fair value through other comprehensive income	4, 6, 28	1,364,325	1,662,532	1,056,676	1,287,638
Financial assets at fair value through profit or loss	4, 6, 28	283	2,135	219	1,654
Investments in subsidiaries, associates and joint ventures	9	57,397,249	56,225,599	44,454,414	43,546,966
Property, plant and equipment	10	123,266,986	103,667,025	95,470,805	80,290,552
Intangible assets	11	8,561,424	8,657,456	6,630,859	6,705,237
Net defined benefit assets	14	4,410,223	2,324,291	3,415,736	1,800,173
Deferred income tax assets	25	2,142,512	1,211,100	1,659,385	938,002
Other non-current assets	4, 7, 28	3,878,090	3,808,630	3,003,597	2,949,799
		201,021,092	**177,558,768**	**155,691,691**	**137,520,021**
Total assets		**260,083,750**	**251,112,184**	**201,435,971**	**194,487,455**

The above separate statements of financial position should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF FINANCIAL POSITION

(In millions of Korean won, in thousands of US dollars (Note 2.29))

	Notes	December 31, 2022	December 31, 2021	December 31, 2022	December 31, 2021
		KRW	KRW	USD	USD
Liabilities and Equity					
Current liabilities					
Trade payables	4, 28	8,729,315	11,557,441	6,760,892	8,951,287
Short-term borrowings	4, 5, 12, 28	2,381,512	9,204,268	1,844,491	7,128,745
Other payables	4, 28	18,554,543	13,206,753	14,370,573	10,228,686
Advances received	17	320,689	474,731	248,375	367,681
Withholdings	4, 28	523,354	624,585	405,340	483,744
Accrued expenses	4, 17, 28	8,359,296	8,275,410	6,474,310	6,409,340
Current income tax liabilities		2,533,481	5,599,896	1,962,192	4,337,143
Current portion of long-term liabilities	4, 12, 13, 28	135,753	139,328	105,141	107,910
Provisions	15	4,059,491	3,643,853	3,144,093	2,822,180
Other current liabilities	17	488,613	341,038	378,433	264,135
		46,086,047	**53,067,303**	**35,693,840**	**41,100,851**
Non-current liabilities					
Debentures	4, 13, 28	24,912	29,048	19,294	22,498
Long-term borrowings	4, 12, 28	654,979	431,915	507,284	334,520
Long-term other payables	4, 28	2,439,232	2,653,715	1,889,196	2,055,314
Long-term provisions	15	1,423,165	1,659,774	1,102,247	1,285,502
Other non-current liabilities		39,224	76,697	30,378	59,401
		4,581,512	**4,851,149**	**3,548,399**	**3,757,235**
Total liabilities		**50,667,559**	**57,918,452**	**39,242,239**	**44,858,086**

The above separate statements of financial position should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF FINANCIAL POSITION

(In millions of Korean won, in thousands of US dollars (Note 2.29))

	Notes	December 31, 2022	December 31, 2021	December 31, 2022	December 31, 2021
		KRW	KRW	USD	USD
Equity					
Preference shares	18	119,467	119,467	92,528	92,528
Ordinary shares	18	778,047	778,047	602,601	602,601
Share premium		4,403,893	4,403,893	3,410,834	3,410,834
Retained earnings	19	204,388,016	188,774,335	158,299,388	146,206,526
Other components of equity	20	(273,232)	(882,010)	(211,619)	(683,120)
Total equity		**209,416,191**	**193,193,732**	**162,193,732**	**149,629,369**
Total liabilities and equity		**260,083,750**	**251,112,184**	**201,435,971**	**194,487,455**

The above separate statements of financial position should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF PROFIT OR LOSS

(In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	**2022**	**2021**	**2022**	**2021**
		KRW	KRW	USD	USD
Revenue	29	211,867,483	199,744,705	164,092,267	154,703,124
Cost of sales	21	152,589,393	135,823,433	118,181,134	105,195,827
Gross profit		**59,278,090**	**63,921,272**	**45,911,133**	**49,507,297**
Selling and administrative expenses	21, 22	33,958,761	31,928,110	26,301,205	24,728,457
Operating profit	29	**25,319,329**	**31,993,162**	**19,609,928**	**24,778,840**
Other non-operating income	23	4,576,378	7,359,004	3,544,424	5,699,580
Other non-operating expense	23	296,344	745,978	229,520	577,762
Financial income	24	9,734,299	3,796,979	7,539,256	2,940,776
Financial expense	24	9,641,742	3,698,675	7,467,570	2,864,640
Profit before income tax		**29,691,920**	**38,704,492**	**22,996,518**	**29,976,794**
Income tax expense	25	4,273,142	7,733,538	3,309,566	5,989,658
Profit for the year		**25,418,778**	**30,970,954**	**19,686,952**	**23,987,136**
Earnings per share	26				
(in Korean won, in US dollars)					
- Basic		3,742	4,559	2.90	3.53
- Diluted		3,742	4,559	2.90	3.53

The above separate statements of profit or loss should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF COMPREHENSIVE INCOME

(In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	**2022**	**2021**	**2022**	**2021**
		KRW	KRW	USD	USD
Profit for the year		**25,418,778**	**30,970,954**	**19,686,952**	**23,987,136**
Other comprehensive income (loss)					
Items that will not be reclassified subsequently to profit or loss:					
Loss on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	(208,883)	(99,916)	(161,781)	(77,385)
Remeasurement of net defined benefit assets, net of tax	14, 20	822,001	(513,309)	636,643	(397,560)
Items that may be reclassified subsequently to profit or loss		**-**	**-**	**-**	**-**
Other comprehensive income (loss) for the year, net of tax		**613,118**	**(613,225)**	**474,862**	**(474,945)**
Total comprehensive income for the year		**26,031,896**	**30,357,729**	**20,161,814**	**23,512,191**

The above separate statements of comprehensive income should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF CHANGES IN EQUITY

(In millions of Korean won)

2021 KRW	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Total
Balance as of January 1, 2021		**119,467**	**778,047**	**4,403,893**	**178,284,102**	**(268,785)**	**183,316,724**
Profit for the year		-	-	-	30,970,954	-	30,970,954
Loss on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	-	(99,916)	(99,916)
Remeasurement of net defined benefit assets, net of tax	14, 20	-	-	-	-	(513,309)	(513,309)
Total comprehensive income (loss) for the year		**-**	**-**	**-**	**30,970,954**	**(613,225)**	**30,357,729**
Dividends declared	19	-	-	-	(20,480,721)	-	(20,480,721)
Total transactions with owners		**-**	**-**	**-**	**(20,480,721)**	**-**	**(20,480,721)**
Balance as of December 31, 2021		**119,467**	**778,047**	**4,403,893**	**188,774,335**	**(882,010)**	**193,193,732**

The above separate statements of changes in equity should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF CHANGES IN EQUITY

(In thousands of US dollars (Note 2.29))

2021 USD	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Total
Balance as of January 1, 2021		**92,528**	**602,601**	**3,410,834**	**138,081,796**	**(208,175)**	**141,979,584**
Profit for the year		-	-	-	23,987,136	-	23,987,136
Loss on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	-	(77,385)	(77,385)
Remeasurement of net defined benefit assets, net of tax	14, 20	-	-	-	-	(397,560)	(397,560)
Total comprehensive income (loss) for the year		**-**	**-**	**-**	**23,987,136**	**(474,945)**	**23,512,191**
Dividends declared	19	-	-	-	(15,862,406)	-	(15,862,406)
Total transactions with owners		**-**	**-**	**-**	**(15,862,406)**	**-**	**(15,862,406)**
Balance as of December 31, 2021		**92,528**	**602,601**	**3,410,834**	**146,206,526**	**(683,120)**	**149,629,369**

The above separate statements of changes in equity should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF CHANGES IN EQUITY

(In millions of Korean won)

2022 KRW	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Total
Balance as of January 1, 2022		**119,467**	**778,047**	**4,403,893**	**188,774,335**	**(882,010)**	**193,193,732**
Profit for the year		-	-	-	25,418,778	-	25,418,778
Gain (loss) on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	4,340	(213,223)	(208,883)
Remeasurement of net defined benefit assets, net of tax	14, 20	-	-	-	-	822,001	822,001
Total comprehensive income for the year		-	-	-	**25,423,118**	**608,778**	**26,031,896**
Dividends declared	19	-	-	-	(9,809,437)	-	**(9,809,437)**
Total transactions with owners		-	-	-	**(9,809,437)**	-	**(9,809,437)**
Balance as of December 31, 2022		**119,467**	**778,047**	**4,403,893**	**204,388,016**	**(273,232)**	**209,416,191**

The above separate statements of changes in equity should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF CHANGES IN EQUITY

(In thousands of US dollars (Note 2.29))

2022 USD	Notes	Preference shares	Ordinary shares	Share premium	Retained earnings	Other components of equity	Total
Balance as of January 1, 2022		**92,528**	**602,601**	**3,410,834**	**146,206,526**	**(683,120)**	**149,629,369**
Profit for the year		-	-	-	19,686,952	-	19,686,952
Gain (loss) on valuation of financial assets at fair value through other comprehensive income, net of tax	6, 20	-	-	-	3,361	(165,142)	(161,781)
Remeasurement of net defined benefit assets, net of tax	14, 20	-	-	-	-	636,643	636,643
Total comprehensive income for the year		**-**	**-**	**-**	**19,690,313**	**471,501**	**20,161,814**
Dividends declared	19	-	-	-	(7,597,451)	-	(7,597,451)
Total transactions with owners		**-**	**-**	**-**	**(7,597,451)**	**-**	**(7,597,451)**
Balance as of December 31, 2022		**92,528**	**602,601**	**3,410,834**	**158,299,388**	**(211,619)**	**162,193,732**

The above separate statements of changes in equity should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF CASH FLOWS

(In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	**2022**	**2021**	**2022**	**2021**
		KRW	KRW	USD	USD
Operating activities					
Profit for the year		25,418,778	30,970,954	19,686,952	23,987,136
Adjustments	27	31,039,388	25,168,062	24,040,138	19,492,771
Changes in assets and liabilities arising from operating activities	27	(6,868,269)	(5,781,655)	(5,319,504)	(4,477,916)
Cash generated from operations		**49,589,897**	**50,357,361**	**38,407,586**	**39,001,991**
Interest received		339,560	282,918	262,991	219,121
Interest paid		(287,488)	(125,036)	(222,661)	(96,841)
Dividends received		3,551,435	6,560,011	2,750,602	5,080,756
Income tax paid		(8,404,655)	(5,825,185)	(6,509,441)	(4,511,631)
Net cash from operating activities		**44,788,749**	**51,250,069**	**34,689,077**	**39,693,396**
Investing activities					
Net decrease in short-term financial instruments		15,000,439	13,600,708	11,617,904	10,533,806
Disposal of financial assets at fair value through other comprehensive income		10,976	-	8,501	-
Acquisition of financial assets at fair value through other comprehensive income		-	(234,975)	-	(181,989)
Disposal of financial assets at fair value through profit or loss		1,744	912	1,351	706
Disposal of investments in subsidiaries, associates and joint ventures		165,089	605,607	127,862	469,045
Acquisition of investments in subsidiaries, associates and joint ventures		(1,001,723)	(138,858)	(775,839)	(107,546)
Disposal of property, plant and equipment		288,684	408,560	223,587	316,431
Acquisition of property, plant and equipment		(39,160,176)	(36,021,504)	(30,329,723)	(27,898,808)
Disposal of intangible assets		6,242	5,809	4,834	4,499
Acquisition of intangible assets		(3,298,378)	(2,459,929)	(2,554,608)	(1,905,225)
Cash outflow from other investing activities		(136,783)	(201,537)	(105,939)	(156,091)
Net cash used in investing activities		**(28,123,886)**	**(24,435,207)**	**(21,782,070)**	**(18,925,172)**

The above separate statements of cash flows should be read in conjunction with the accompanying notes.

Samsung Electronics Co., Ltd.

SEPARATE STATEMENTS OF CASH FLOWS

(In millions of Korean won, in thousands of US dollars (Note 2.29))

		For the years ended December 31,			
	Notes	**2022**	**2021**	**2022**	**2021**
		KRW	KRW	USD	USD
Financing activities					
Net decrease in short-term borrowings	27	(6,700,826)	(3,288,858)	(5,189,818)	(2,547,235)
Repayment of debentures and long-term borrowings	27	(155,264)	(117,963)	(120,253)	(91,363)
Dividends paid		(9,808,974)	(20,478,233)	(7,597,092)	(15,860,478)
Net cash used in financing activities		**(16,665,064)**	**(23,885,054)**	**(12,907,163)**	**(18,499,076)**
Effect of foreign exchange rate changes		2,922	19	2,263	15
Net increase in cash and cash equivalents		**2,721**	**2,929,827**	**2,107**	**2,269,163**
Cash and cash equivalents					
Beginning of the year		3,918,872	989,045	3,035,183	766,020
End of the year		**3,921,593**	**3,918,872**	**3,037,290**	**3,035,183**

The above separate statements of cash flows should be read in conjunction with the accompanying notes.

5. Notes to non-consolidated financial statements

1. General Information

Samsung Electronics Co., Ltd. (the "Company") was incorporated under the laws of the Republic of Korea in 1969 and listed its shares on the Korea Stock Exchange in 1975. The Company operates two business divisions: Device eXperience ("DX") and Device Solutions ("DS"). DX division includes digital TVs, refrigerators, mobile phones, and communication systems. DS division includes semiconductor products such as memory, foundry and system LSI. The Company is domiciled in the Republic of Korea and is located in Suwon, the Republic of Korea.

These financial statements have been prepared in accordance with *Korean IFRS 1027, Separate Financial Statements*.

2. Significant Accounting Policies

2.1 Basis of Presentation

The principal accounting policies used to prepare the separate financial statements are set out below. Except for the effect of the amendments to the Korean IFRS and new interpretations set out below, the principal accounting policies used to prepare the separate financial statements as of and for the year ended December 31, 2022 are consistent with those used to prepare the separate financial statements as of and for the year ended December 31, 2021.

The Company maintains its accounting records in Korean won and prepares the statutory financial statements in Korean language (Hangul) in accordance with International Financial Reporting Standards as adopted by the Republic of Korea ("Korean IFRS"). The accompanying separate financial statements have been restructured and translated into English from the Korean language financial statements.

Certain information attached to the Korean language financial statements that are not required for a fair presentation of the Company's financial position, financial performance, or cash flows, are not presented in the accompanying separate financial statements.

The separate financial statements of the Company have been prepared in accordance with Korean IFRS. These are the standards, subsequent amendments and related interpretations issued by the International Accounting Standards Board (IASB) that have been adopted by the Republic of Korea.

Korean IFRS permits the use of critical accounting estimates in the preparation of the separate financial statements and requires management judgments in applying the accounting policies. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the separate financial statements, are disclosed in Note 3.

2.2 Changes in Accounting Policies and Disclosures

(A) New and amended standards adopted by the Company

The Company applied the following amended and/or enacted standards for the first time for their annual reporting period commencing on January 1, 2022:

Amendments to Korean IFRS 1116, Lease

The amendments to Korean IFRS 1116 introduced a practical expedient that provided practical relief to lessees in accounting for rent concessions occurring as a direct consequence of COVID-19. The amendments extend the practical expedient to apply to reduction in lease payments originally due on or before 30 June 2022. The application of amendments does not have a significant impact on the Company's year-end financial statements.

Amendments to Korean IFRS 1103, Business Combinations

The amendments update Korean IFRS 1103 so that it refers to the amended conceptual framework for financial reporting for assets and liabilities recognized upon business combination, along with adding requirement that for transactions and other events within the scope of IAS 37 or IFRIC 21, an acquirer applies IAS 37 or IFRIC 21 to identify the liabilities it has assumed in a business combination. The amendments also add an explicit statement that an acquirer does not recognize contingent assets acquired in a business combination. The application of amendments does not have a significant impact on the Company's year-end financial statements.

Amendments to Korean IFRS 1016, Property, Plant and Equipment

The amendments prohibit deducting from the cost of an item of property, plant and equipment any proceeds from selling items produced while bringing that asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Instead, an entity recognizes the proceeds from selling such items, and the cost of producing those items, in profit or loss. The application of amendments does not have a significant impact on the Company's year-end financial statements.

Amendments to Korean IFRS 1037, Provisions, Contingent Liabilities and Contingent Assets

The amendments specify that the cost of fulfilling a contract comprises the costs that relate directly to the contract, and that costs that relate directly to a contract consist of both the incremental costs of fulfilling that contract and an allocation of other costs that relate directly to fulfilling contracts. The application of the amendments does not have a significant impact on the Company's year-end financial statements.

(B) New and amended standards not yet adopted by the Company

The amended accounting standards issued that are not mandatory for the annual reporting period commencing on January 1, 2022 and have not been early adopted by the Company are as follows:

Amendments to Korean IFRS 1001, Presentation of Financial Statements

The amendments clarify that the classification of liabilities as current or non-current is based on the rights that are in existence at the end of the reporting period, specify that classification is unaffected by expectations about whether an entity will exercise its right to defer settlement of a liability, and elucidate that settlement refers to the transfer to the counterparty of cash, equity instruments, other assets or services. The amendments are effective for annual reporting periods beginning on or after January 1, 2023, with earlier application permitted.

Amendments to Korean IFRS 1001, Presentation of Financial Statements

The amendments require companies to define and disclose their 'material' accounting policy information instead of its 'significant' accounting policies. The amendments explain how an entity can identify material accounting policy information. The amendments to K-IFRS 1001 are effective for annual periods beginning on or after January 1, 2023, with earlier application permitted and are applied prospectively.

Amendments to Korean IFRS 1008, Accounting Policies, Changes in Accounting Estimates and Errors

The amendments clarify the definition of a change in accounting estimates, and specify how to distinguish from a change in accounting policies. The amendments are effective for annual periods beginning on or after January, 1 2023 to changes in accounting policies and changes in accounting estimates that occur on or after the beginning of that period, with earlier application permitted.

Amendments to Korean IFRS 1012, Income Taxes

The amendments add to the initial recognition exemption that the initial recognition exemption does not apply to transactions in which equal amounts of deductible and taxable temporary differences arise on initial recognition. The amendments are effective for annual reporting periods beginning on or after January 1, 2023, with earlier application permitted.

2.3 Subsidiaries, Associates and Joint Ventures

The Company, as the ultimate controlling company in accordance with Korean IFRS 1110 *Consolidated Financial Statements* recognizes investments in subsidiaries, associates and joint ventures under the cost method in accordance with Korean IFRS 1027 *Separate Financial Statements* on the Company's separate financial statements.

If there is any objective evidence that the investment in the subsidiaries, associates and joint ventures is impaired, the Company recognizes the difference between the recoverable amount and its carrying amount as an impairment loss.

2.4 Foreign Currency Translation

(A) Functional and presentation currency

Items included in the separate financial statements of each of the Company's entities are measured using the currency of the primary economic environment in which each entity operates (the "functional currency"). The separate financial statements are presented in Korean won, which is the parent company's functional and presentation currency.

(B) Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions or valuation where items are re-measured. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognized in profit or loss. Exchange differences arising on non-monetary financial assets and liabilities such as equity instruments at fair value through profit or loss and equity instruments at fair value through other comprehensive income are recognized in profit or loss and other comprehensive income, respectively, as part of the fair value gain or loss.

2.5 Cash and Cash Equivalents

Cash and cash equivalents include cash on hand, deposits held at call with banks, and other short-term investment assets with high liquidity that are readily convertible to a known amount of cash and are subject to an insignificant risk of change in value.

2.6 Financial Assets

(A) Classification

From January 1, 2018, the initial application date for Korean IFRS 1109 *Financial Instruments*, the Company classifies its financial assets in the following measurement categories:

- Financial assets measured at fair value (changes in fair value recognized in either other comprehensive income, or profit or loss).
- Financial assets measured at amortized cost.

The classification depends on the Company's business model for managing the financial assets and the contractual terms of the cash flows.

For financial assets measured at fair value, gains and losses will either be recorded in profit or loss or other comprehensive income. For investments in debt instruments, this will depend on the business model in which the investment is held. The Company reclassifies debt investments only when its business model for managing those assets changes.

For investments in equity instruments that are not held for trading, classification will depend on whether the Company has made an irrevocable election at the time of initial recognition to account for the equity investment at fair value through other comprehensive income. Changes in fair value of the investments in equity instruments that are not elected to be accounted for as other comprehensive income are recognized in profit or loss.

(B) Measurement

At initial recognition, the Company measures a financial asset at its fair value. In the case of financial asset not measured at fair value through profit or loss, transaction costs that are directly attributable to the acquisition of the financial asset or the issuance of the financial liabilities are added to its fair value. Transaction costs of financial assets carried at fair value through profit or loss are expensed in profit or loss.

Hybrid (combined) contracts with embedded derivatives are considered in their entirety when determining whether their cash flows solely consist of the payments of principal and interest.

a) Debt instruments

Subsequent measurement of debt instruments depends on the Company's business model for managing the asset and the cash flow characteristics of the asset. The Company classifies its debt instruments into one of the following three measurement categories:

① Financial assets measured at amortized cost

Assets that are held for collection of contractual cash flows where those cash flows represent solely the payments of principal and interest are measured at amortized cost. A gain or loss on a debt investment that is subsequently measured at amortized cost and is not part of a hedging relationship is recognized in profit or loss when the asset is derecognized or impaired. Interest income from these financial assets is included in 'financial income' using the effective interest rate method.

② Financial assets measured at fair value through other comprehensive income

Assets that are held for collection of contractual cash flows and for selling the financial assets, where the assets' cash flows represent solely the payments of principal and interest, are measured at fair value through other comprehensive income. Movements in the carrying amount are taken through other comprehensive income, except for the recognition of impairment loss (reversal of impairment loss), interest income and foreign exchange gains and losses which are recognized in profit or loss. When the financial assets are derecognized, the cumulative gain or loss previously recognized in other comprehensive income is reclassified from equity to profit or loss. Interest income from these financial assets is included in 'financial income' using the effective interest rate method. Foreign exchange gains and losses are presented in 'financial income' or 'financial expenses' and impairment losses are presented in 'other non-operating expenses'.

③ Financial assets measured at fair value through profit or loss

Assets that do not meet the criteria for amortized cost or fair value through other comprehensive income are measured at fair value through profit or loss. A gain or loss on a debt investment that is subsequently measured at fair value through profit or loss and is not part of a hedging relationship is recognized in profit or loss and presented in the separate statement of profit or loss within 'other non-operating income' or 'other non-operating expenses' in the year in which it arises.

b) Equity instruments

The Company subsequently measures all equity investments at fair value. Where the Company's management has elected to present fair value gains and losses on equity investments in other comprehensive income, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. When the financial asset is derecognized, the cumulative gain or loss on valuation of financial assets at fair value through other comprehensive income recognized in equity is reclassified to retained earnings. Dividend income from such investments continue to be recognized in profit or loss as 'other non-operating income' when the right to receive the payments is established.

Changes in the fair value of financial assets at fair value through profit or loss are recognized in 'other non-operating income' or 'other non-operating expenses' in the separate statements of profit or loss as applicable.

(C) Impairment

The Company assesses on a forward-looking basis the expected credit losses associated with its debt instruments carried at amortized cost and fair value through other comprehensive income. The impairment methodology applied depends on whether there has been a significant increase in credit risk. For trade receivables, the Company applies the simplified approach, which requires expected lifetime losses to be recognized from initial recognition of the receivables.

(D) Recognition and derecognition

Regular way purchases and sales of financial assets are recognized or derecognized on a trade date basis. Financial assets are derecognized when the rights to receive cash flows from the financial assets have expired or have been transferred and the Company has transferred substantially all the risks and rewards of ownership. If a transfer does not result in derecognition because the Company has retained substantially all the risks and rewards of ownership of the transferred asset, the Company continues to recognize the transferred asset in its entirety and recognizes a financial liability for the consideration received. The Company classifies the financial liability as 'borrowings' in the separate statement of financial position.

(E) Offsetting of financial instruments

Financial assets and liabilities are offset and the net amount is reported in the statements of financial position when there is a legally enforceable right to offset the recognized amounts and there is an intention to settle on a net basis or, realize the assets and settle the liability simultaneously. The legally enforceable right must not be contingent on future events and must be enforceable in the normal course of business, even in the event of default, insolvency or bankruptcy of the Company or the counterparty.

2.7 Trade Receivables

Trade receivables are amounts due from customers for inventories sold or services performed in the ordinary course of business. If collection is expected within one year or less, they are classified as current assets. If collection is expected beyond one year, they are presented as non-current assets. Trade receivables are recognized initially at transaction price and subsequently measured at amortized cost using the effective interest method, less loss allowance, unless the trade receivables bear significant financial component.

2.8 Inventories

Inventories are stated at lower of the cost and net realizable value. Cost is determined using the average cost method, except for materials in transit. The cost of finished goods and work in progress comprises raw materials, direct labor, other direct costs and related production overheads (based on normal operating capacity). It excludes costs of idle plant and abnormal waste. Net realizable value is the estimated selling price in the ordinary course of business, less applicable variable selling expenses.

The Company regularly estimates the changes in future customer demand in the products that may cause a significant change in the valuation allowance and recognizes the valuation allowance if there is any case such as excess, obsolescence and decline in market value. Loss on valuation of inventories is recorded as cost of sales.

2.9 Property, Plant and Equipment

Property, plant and equipment are stated at cost less accumulated depreciation and accumulated impairment losses. Historical cost includes expenditures that are directly attributable to the acquisition. Subsequent costs are included in the asset's carrying amount or recognized as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the cost will flow to the Company and the cost can be measured reliably. The carrying amounts of the replaced parts are derecognized and the repairs and maintenance expenses are recognized in profit or loss in the period they are incurred.

Depreciation on tangible assets is calculated using the straight-line method to allocate the difference between their cost and their residual values over their estimated useful lives. Land is not depreciated. Costs that are directly attributable to the acquisition, construction or production of a qualifying asset, including capitalized interest costs, form part of the cost of that asset and are amortized over the estimated useful lives.

The Company's policy is that property, plant and equipment should be depreciated over the following estimated useful lives:

	Estimated useful lives
Buildings and structures	15, 30 years
Machinery and equipment	5 years
Other	5 years

The depreciation method, residual values and useful lives of property, plant and equipment are reviewed, and adjusted if appropriate, at the end of each reporting period. An asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount. Gains and losses on disposals are determined by comparing the proceeds with the carrying amount and are recognized in the separate statements of profit or loss as 'other non-operating income' or 'other non-operating expenses'.

2.10 Borrowing Costs

General and specific borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset are capitalized during the period of time that is required to complete and prepare the asset for its intended use. Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalization. Other borrowing costs are expensed in the period in which they are incurred.

2.11 Intangible Assets

Goodwill represents the excess of the cost of acquisition over the fair value of the Company's share of the net identifiable assets of the acquired subsidiaries, associates, joint ventures and businesses at the date of acquisition. Goodwill on an acquisition of businesses is included in intangible assets and goodwill on an acquisition of subsidiaries, associates and joint ventures' shares is included in the investments in subsidiaries, associates and joint ventures.

Intangible assets, except for goodwill, are initially recognized at their historical cost and carried at cost less accumulated amortization and accumulated impairment losses.

Internally generated development costs are the aggregate costs recognized after meeting the asset recognition criteria, including technical feasibility, and determined to have future economic benefits. Membership rights and certain trademarks are regarded as intangible assets with an indefinite useful life and not amortized because there is no foreseeable limit to the period over which the assets are expected to be utilized. However, the Company records impairment based on its reasonable estimation of the benefits associated with the membership rights and assessment of impairment indicators, such as a decline in the market value. Intangible assets with definite useful lives such as trademarks, licenses, and other intangible assets, are amortized using the straight-line method over their estimated useful lives.

The Company's policy is that intangible assets should be amortized over the following estimated useful lives:

	Estimated useful lives
Development costs	2 years
Trademarks, licenses and other intangible assets	5 - 10 years

2.12 Impairment of Non-Financial Assets

Goodwill or intangible assets with indefinite useful lives are not subject to amortization and are tested annually for impairment. Assets that are subject to amortization are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and value in use. For the purposes of assessing impairment, assets are grouped at the lowest level for which there are separately identifiable cash flows (cash-generating units). Non-financial assets other than goodwill that suffered an impairment are reviewed for possible reversal of the impairment at the end of each reporting period.

2.13 Assets Held-for-Sale (Disposal Group)

Non-current assets (or disposal groups) are classified as assets held-for-sale when their carrying amount is to be recovered principally through a sale transaction and the sale is considered highly probable. The assets are measured at the lower of carrying amount and the fair value less costs to sell. Gain or loss on disposal is determined by comparing the proceeds with the carrying amount of relevant assets, and is recognized in the statements of profit or loss as 'other non-operating income' or 'other non-operating expenses'.

2.14 Financial Liabilities

(A) Classification and measurement

The Company shall classify all financial liabilities as financial liabilities measured subsequently at amortized cost, except for the following:

- Financial liabilities at fair value through profit or loss. Such liabilities, including derivatives that are liabilities, shall be subsequently measured at fair value.
- Financial liabilities that arise when a transfer of a financial asset does not qualify for derecognition or when the continuing involvement approach applies. Such financial liabilities are measured based on the methodology described in Note 2.6 Financial Assets.
- Financial guarantee contracts. After the initial recognition, an issuer of such a contract shall subsequently measure it at the higher of:
  (a) The amount of the loss allowance determined based on the expected credit losses.
  (b) The amount initially recognized less the cumulative amount of income recognized in accordance with the principles of Korean IFRS 1115 *Revenue from Contracts with Customers*, when appropriate.
- Commitments to provide loan at below-market interest rate. An issuer of such a commitment shall subsequently measure it at the higher of:
  (a) The amount of the loss allowance determined based on the expected credit losses.
  (b) The amount initially recognized less the cumulative amount of income recognized in accordance with the principles of Korean IFRS 1115 *Revenue from Contracts with Customers*, when appropriate.
- Contingent consideration recognized by an acquirer in a business combination to which Korean IFRS 1103 *Business Combinations* applies. Such contingent consideration shall subsequently be measured at fair value with changes recognized in profit or loss.

(B) Derecognition

Financial liabilities are removed from the separate statements of financial position when it is extinguished; for example, when the obligation specified in the contract is discharged or cancelled or expired or when the terms of an existing financial liability are substantially modified. The difference between the carrying amount of a financial liability extinguished or transferred to another party and the consideration paid (including any non-cash assets transferred or liabilities assumed) is recognized in profit or loss.

2.15 Trade Payables

Trade payables are amounts due to suppliers for inventories purchased or services received in the ordinary course of business. If payment is expected to be made within 12 months, they are classified as current liabilities. If not, they are presented as non-current liabilities. Non-current trade payables are recognized initially at fair value and subsequently measured at amortized cost using the effective interest method.

2.16 Borrowings

Borrowings are recognized initially at fair value, net of transaction costs, and are subsequently measured at amortized cost. Any difference between cost and the redemption value is recognized in the separate statement of profit or loss over the period of the borrowings using the effective interest method. If the Company has an indefinite right to defer payment for a period longer than 12 months after the end of the reporting date, such liabilities are recorded as non-current liabilities, otherwise, they are recorded as current liabilities.

2.17 Provisions and Contingent Liabilities

A provision is recognized when the Company has present legal or constructive obligation as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation. Provisions are not recognized for future operating losses.

Provisions are measured at present value of the expenditures expected to be required to settle the obligation using a pre-tax rate that reflects the current market assessments of the time value of money and the risks specific to the obligation. The increase in the provision due to the passage of time is recognized as interest expense.

The Company discloses a contingent liability if there is a possible obligation from past events in which the existence may only be identified through the occurrence of uncertain future events; or there is a present obligation that the possibility on the outflow of economic resources is uncertain; or the amount of economic resources required to settle the present obligation cannot be reasonably estimated.

2.18 Employee Benefits

The Company has a variety of retirement pension plans including a defined benefit plan and a defined contribution plan.

A defined contribution plan is a pension plan under which the Company pays fixed contributions into a separate fund. The Company has no legal or constructive obligation to pay further contributions if the fund does not hold sufficient assets to pay all employees the benefits relating to employee service received in the current and prior periods. For a defined contribution plans, the Company pays contributions to annuity plans that are managed either publicly or privately on a mandatory, contractual or voluntary basis. The Company has no further future payment obligations once the contributions have been paid. The contributions are recognized as employee benefit expense when they are due. Prepaid contributions are recognized as an asset to the extent that a cash refund or a reduction in the future payments is available.

A defined benefit plan is a pension plan that is not a defined contribution plan. Typically, a defined benefit plan establishes an amount of pension benefit that an employee will receive upon retirement, usually dependent on one or more factors such as age, years of service and compensation. The liability (asset) recognized in the separate statements of financial position with respect to the defined benefit pension plan is the present value of the defined benefit obligation at the end of the reporting period less the fair value of plan assets. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using the interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid and that have the terms to maturity approximating to the terms of the related pension obligation.

Actuarial gains and losses resulting from the changes in actuarial assumptions, and the differences between the previous actuarial assumptions and what has actually occurred, are recognized in other comprehensive income in the period in which they were incurred. When plan amendments, curtailments and settlements occur, past service costs or gain or loss from settlements are immediately recognized in profit or loss.

2.19 Financial Guarantee Contract

Financial guarantee contracts are contracts that require the issuer to make specified payments to reimburse the holder for a loss it incurs because a specified debtor fails to make payments when due.

The liability is initially measured at fair value and then subsequently measured at the higher of the following, and is recognized in the separate statements of financial position within 'other financial liabilities':

- the amount determined in accordance with the expected credit loss model and
- the amount initially recognized less the cumulative amount of income recognized in accordance with Korean IFRS 1115 *Revenue from Contracts with Customers*, where appropriate.

2.20 Current and Deferred Tax

The tax expense for the year comprises current and deferred tax. Current and deferred tax is recognized in profit or loss, except to the extent that it relates to the items recognized in other comprehensive income or directly in equity. The tax expense is calculated on the basis of the tax laws enacted or substantively enacted at the end of the reporting period.

Deferred tax is recognized for temporary differences arising between the tax bases of assets and liabilities and their carrying amounts as expected tax consequences at the recovery or settlement of the carrying amounts of those assets and liabilities. However, deferred tax assets and liabilities are not recognized if they arise from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither the accounting nor taxable profit. Deferred tax assets are recognized only to the extent that it is probable that a future taxable profit will be available against which the temporary differences can be utilized.

A deferred tax liability is recognized for taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint ventures, except to the extent that the Company is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. In addition, a deferred tax asset is recognized for deductible temporary differences arising from such investments to the extent that it is probable the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset the current tax assets against the current tax liabilities and when the deferred income tax assets and liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities with an intention to settle the balances on a net basis.

2.21 Derivative Instruments

The Company initially recognizes rights and obligations from derivative contracts as assets and liabilities at fair value. Gain or loss arising from these contracts are recognized in profit or loss. Qualified hedged amount from cash flow hedge and hedge of a net investment in a foreign operation is deferred in equity.

The Company applies cash flow hedge accounting to hedge the price risk associated with inventory purchase and other. The effective portion of changes in fair value of derivatives that are designated and qualify as cash flow hedges is recognized in other comprehensive income, and the ineffective portion is recognized in financial income or expenses.

2.22 Dividend

Dividend is recognized as a liability when approved by the Company's shareholders.

2.23 Share Capital

Ordinary shares and preference shares with no repayment obligations are classified as equity. When the Company acquires its ordinary shares, the acquisition costs, including direct transaction costs, are deducted from equity until the redemption or reissuance as treasury shares. Consideration received on the reissuance of treasury shares is credited to equity attributable to owners of the parent company.

2.24 Revenue Recognition

Revenue mainly comprises the fair value of the consideration received or receivable for the sale of goods in the ordinary course of the Company's activities. Revenue is shown net of value-added tax, returns, sales incentives and discounts and after eliminating intercompany transactions.

The Company applied Korean IFRS 1115 *Revenue from Contracts with Customers* to the annual period beginning January 1, 2018. The Company shall recognize revenue in accordance with Korean IFRS 1115 *Revenue from Contracts with Customers* by applying the following 5 steps: ① Identify the contracts with the customers, ② Identify the separate performance obligations, ③ Determine the transaction price of the contract, ④ Allocate the transaction price to each of the separate performance obligations, and ⑤ Recognize the revenue as each performance obligation is satisfied.

(A) Identification of performance obligations

The Company exports various products and merchandise in accordance with Incoterms Group C trading conditions (Incoterms CIF, and other). Since the seller provides the shipping service after the control of the product or merchandise has been transferred to the customer, the shipping service (including insurance) is recognized as a separate performance obligation.

(B) Performance obligations satisfied over time

The Company delivers products to customers and installs them in accordance with the system air conditioner contracts awarded by the Public Procurement Service. According to Korean IFRS 1115 *Revenue from Contracts with Customers*, the Company should recognize revenue over time if the Company creates or enhances an asset (for example, work in progress) that the customer controls as the asset is created or enhanced. The Company recognizes the revenue from system air conditioner installation over time as the customer controls the outcome of the service.

(C) Variable consideration

The Company estimates amount of variable consideration by using the 'expected value method' or the 'most likely amount method', depending on which method the Company expects to better predict the amount of consideration. The Company recognizes revenue only to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognized will not occur, and classifies the amount which the Company does not expect to be entitled as contract liabilities.

The Company measures refund liability at the amount of consideration received for which the Company does not expect to be entitled. The Company has a right to recover the product from the customer when the customer exercises his right of return and recognizes an asset and a corresponding adjustment to cost of sales. The asset is measured with reference to the former carrying amount of the product less the costs to recover the products.

(D) Allocation of the transaction price

The transaction price in an arrangement must be allocated to each separate performance obligation based on the relative standalone selling prices of the goods or services being provided to a customer. The Company determines the standalone selling price for each separate performance obligation by using methods such as the 'adjusted market assessment approach'.

2.25 Leases

A lease is a contract, whereby the lessor conveys to the lessee, the right to control the use of an identified asset for a period of time in exchange for consideration.

At inception of a contract, the Company assesses whether the contract is, or contains, a lease. However, the Company did not reassess all contracts at initial application of Korean IFRS 1116 *Leases* because the Company applied the practical expedient to contracts entered into before January 1, 2019.

For a contract that is, or contains, a lease, both lessee and lessor account for each lease component within the contract as a lease separately from the non-lease components of the contract. In lessee accounting, however, the Company does not account for them separately but instead applies the practical expedient to account for each lease component and any associated non-lease components as a single lease component.

(A) Lessee accounting

The Company recognizes a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments at the commencement date of the lease.

The right-of-use asset is initially measured at cost and subsequently measured at cost less accumulated depreciation and accumulated impairment losses, adjusted for the remeasurement of lease liability. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term from the commencement date of the lease and is classified as 'property, plant and equipment' in the separate financial statements.

At the commencement date, the lease liability is measured at the present value of the lease payments that are not paid at that date. When measuring the present value, the lease payments are discounted using the interest rate implicit in the lease. If such implicit rate cannot be readily determined, the Company uses the Company's incremental borrowing rate. The lease liability is subsequently increased by the amount of interest expenses recognized on the lease liability and reduced by the lease payments made. Lease liabilities are remeasured when the future lease payments are changed due to the following:

- Changes in an index or rate
- Changes in amounts expected to be payable by the lessee under the residual value guarantee
- Changes in the assessment of whether a purchase option or an option to renew is reasonably certain to be exercised, or
- Changes in the assessment of whether it is reasonably certain that an option to terminate the lease will not be exercised.

Lease liabilities are classified as 'current portion of long-term liabilities' and/or 'long-term borrowings' in the separate financial statements.

The Company elected the practical expedient for short-term leases (leases that have a lease term of 12 months or less at the commencement date) and leases of low-value assets (leases for which the underlying asset is valued at USD 5,000 or less), and the lease payments are recognized as an expense on a straight-line basis over the lease term.

(B) Lessor accounting

The accounting treatment as a lessor did not change significantly from the accounting treatment applied before the initial application of the Korean IFRS 1116 *Leases* on January 1, 2019.

The Company classifies a lease as a finance lease if it transfers substantially all the risks and rewards incidental to ownership at the inception of the lease. A lease other than a finance lease is classified as an operating lease. Lease income from operating leases is recognized in income on a straight-line basis over the lease term. Initial direct costs incurred by the lessor in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognized as an expense over the lease term on the same basis as the lease income.

2.26 Government Grants

Government grants are recognized at their fair values when there is reasonable assurance that the grant will be received and the Company will comply with the conditions attached to it. Government grants relating to costs are deferred and recognized in the separate statements of profit or loss over the period necessary to match the costs they are intended to compensate. Government grants relating to assets are recognized in liabilities as deferred income government grants, and are depreciated over the expected lives of the related assets, and credited to the statements of profit or loss.

2.27 Earnings per Share

Basic earnings per share is calculated by dividing the net profit for the period available to the ordinary shareholders by the weighted-average number of ordinary shares outstanding during the year.

Diluted earnings per share is calculated by dividing the profit for the year attributable to the Company from the separate statements of profit or loss by the weighted-average number of ordinary shares outstanding and potential dilutive shares. Potential dilutive shares are used in the calculation of dilutive earnings per share only when they have dilutive effects.

2.28 Reportable Segments

Reportable segments are disclosed in a manner consistent with the reporting provided to the chief operating decision-maker. The chief operating decision-maker is responsible for making strategic decisions on resource allocation and assessing performance of the reportable segments. The Management Committee, which makes strategic decisions, is regarded as the chief operating decision-maker.

2.29 Convenience Translation into United States Dollar Amounts

The Company operates primarily in Korean won and its official accounting records are maintained in Korean won. The US dollar amounts provided in the separate financial statements represent a supplementary information solely for the convenience of the reader. All Korean won amounts are expressed in U.S. dollar at the rate of ₩ 1,291.2 to USD 1, the average exchange rate for the year ended December 31, 2022. Such presentation is not in accordance with generally accepted accounting principles, and should not be construed as a representation that the Korean won amounts shown could be readily converted, realized or settled in US dollar at this or at any other rate.

2.30 Approval of the Separate Financial Statements

These separate financial statements were approved by the Board of Directors on January 31, 2023, and may be modified and approved at the Annual General Shareholders' Meetings.

3. Critical Accounting Estimates and Assumptions

The Company makes estimates and assumptions concerning the future. The estimates and assumptions are continuously assessed, considering historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. The resulting accounting estimates will, by definition, seldom equal the related actual results. In particular, the spread of COVID-19 since 2020 may result in changes to the Company's assumptions and estimates but its potential financial impact cannot be reasonably estimated as of the reporting date.

The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are addressed below.

(A) Revenue recognition

A refund liability and a right to the returned goods are recognized for the products expected to be returned at the time of sale. Accumulative experience is used to estimate such returns at the time of sale at a portfolio level (through expected value method), and the Company's revenue is affected by the changes in expected return rate.

Sales of goods are recognized based on the considerations specified in the contract, net of sales incentives, when control of the products has transferred. The sales deduction, which affects the Company's revenue, is reasonably estimated based on the historical experience and past contracts.

(B) Provision for warranty

The Company recognizes provision for warranty on products sold. The Company accrues provision for warranty based on the best estimate of amounts necessary to settle future and existing claims at the end of each reporting period. The amounts are estimated based on the past experience.

(C) Fair value of financial instruments

The fair value of financial instruments that are not traded in an active market is determined by using a variety of methods and assumptions that are mainly based on market conditions existing at the end of each reporting period.

(D) Impairment of financial assets

The loss allowance for financial assets are based on assumptions about risk of default and expected loss rates. The Company uses judgement in making these assumptions and selecting the inputs to the impairment calculation based on the Company's past history, existing market conditions as well as forward looking estimates at the end of each reporting period.

(E) Lease

In determining the lease term, the Company considers all facts and circumstances that create an economic incentive to exercise an extension option, or not to exercise a termination option. Extension options (or periods after termination options) are only included in the lease term if the lease is reasonably certain to be extended (or not terminated).

The lease term is reassessed if an option is actually exercised (or not exercised) or the Company becomes obliged to exercise (or not exercise) it. The Company reassesses whether it is reasonably certain to exercise an extension option (or not to exercise such option), upon the occurrence of either a significant event or a significant change in circumstances that is within the control of the lessee.

(F) Net defined benefit liabilities (assets)

The net defined benefit liabilities (assets) depend on a number of factors that are determined on an actuarial basis using a number of assumptions including the discount rate. Any changes in these assumptions will impact the carrying amount of the net defined benefit liability. The Company, in consideration of the interest rates of high-quality corporate bonds, determines the appropriate discount rate at the end of each year. This is the interest rate that is used to determine the present value of the estimated future cash outflows expected to be required to settle the net defined benefit liabilities (assets). The principal actuarial assumptions associated with the net defined benefit liabilities (assets) are based on the current market expectations.

(G) Impairment of goodwill and intangible assets that have an indefinite useful life

At the end of each reporting period, the Company tests whether goodwill and intangible assets that have an indefinite useful life have become impaired by comparing the carrying amounts of assets or cash-generating units to the recoverable amounts. The recoverable amounts of assets or cash-generating units have been determined based on the value-in-use calculations, and these calculations are based on estimates.

(H) Income taxes

Income taxes on the Company's taxable income from operating activities are subject to various tax laws and determinations of each tax authority across various countries throughout the world. There is uncertainty in determining the eventual tax effects on the taxable income from operating activities. The Company has recognized current tax and deferred tax at the end of the fiscal year based on the best estimate of future taxes payable as a result of operating activities. However, the resulting deferred income tax assets and liabilities may not equal the actual future taxes payable and such difference may impact the current tax and deferred income tax assets and liabilities upon the determination of eventual tax effects.

Regarding taxes payable in Korea, if a certain portion of taxable income is not used for investments or for increases in wages or dividends, in accordance with the *Tax System for Recirculation of Corporate Income*, the Company is liable to pay additional income tax calculated based on the Korean tax law. The current and deferred taxes at the end of the fiscal year are based on the best estimate of future taxes payable, which can differ from the actual future taxes payable as a result of changes in investments, wages and dividends; this results in an additional uncertainty in measuring the final tax effects.

The Company assesses uncertainty over a tax treatment. When the Company concludes it is not probable that the taxation authority will accept an uncertain tax treatment, the Company will reflect the effect of uncertainty for each uncertain tax treatment by using either of the following methods, depending on which method the Company expects to better predict the resolution of the uncertainty:

- The most likely amount: the single most likely amount in a range of possible outcomes.
- The expected value: the sum of the probability-weighted amounts in a range of possible outcomes.

4. Financial Instruments by Category

(A) Categorizations of financial assets and liabilities as of December 31, 2022 and December 31, 2021 are as follows:

(1) As of December 31, 2022

(In millions of Korean won)	**Financial assets measured at amortized cost**	**Financial assets measured at fair value through other comprehensive income**	**Financial assets measured at fair value through profit or loss**	**Total**
Financial assets				
Cash and cash equivalents	3,921,593	-	-	3,921,593
Short-term financial instruments	137	-	-	137
Trade receivables	20,503,223	-	-	20,503,223
Financial assets at fair value through other comprehensive income	-	1,364,325	-	1,364,325
Financial assets at fair value through profit or loss	-	-	283	283
Other	5,470,355	-	-	5,470,355
Total	29,895,308	1,364,325	283	31,259,916

(In millions of Korean won)	**Financial liabilities measured at amortized cost**	**Other financial liabilities**[1]	**Total**
Financial liabilities			
Trade payables	8,729,315	-	8,729,315
Short-term borrowings	-	2,381,512	2,381,512
Other payables	18,324,604	-	18,324,604
Current portion of long-term liabilities	6,228	129,525	135,753
Debentures	24,912	-	24,912
Long-term borrowings	-	654,979	654,979
Long-term other payables	2,083,790	-	2,083,790
Other	3,145,473	-	3,145,473
Total	32,314,322	3,166,016	35,480,338

[1] Other financial liabilities include collateralized borrowings and lease liabilities which are not subject to categorizations.

(2) As of December 31, 2021

(In millions of Korean won)	**Financial assets measured at amortized cost**	**Financial assets measured at fair value through other comprehensive income**	**Financial assets measured at fair value through profit or loss**	**Total**
Financial assets				
Cash and cash equivalents	3,918,872	-	-	3,918,872
Short-term financial instruments	15,000,576	-	-	15,000,576
Trade receivables	33,088,247	-	-	33,088,247
Financial assets at fair value through other comprehensive income	-	1,662,532	-	1,662,532
Financial assets at fair value through profit or loss	-	-	2,135	2,135
Other	5,076,418	-	-	5,076,418
Total	57,084,113	1,662,532	2,135	58,748,780

(In millions of Korean won)	**Financial liabilities measured at amortized cost**	**Other financial liabilities**[1]	**Total**
Financial liabilities			
Trade payables	11,557,441	-	11,557,441
Short-term borrowings	-	9,204,268	9,204,268
Other payables	12,948,960	-	12,948,960
Current portion of long-term liabilities	5,810	133,518	139,328
Debentures	29,048	-	29,048
Long-term borrowings	-	431,915	431,915
Long-term other payables	2,335,218	-	2,335,218
Others	3,056,156	-	3,056,156
Total	29,932,633	9,769,701	39,702,334

[1] Other financial liabilities include collateralized borrowings and lease liabilities which are not subject to categorizations.

(B) Net gains or net losses on each category of financial assets and liabilities for the years ended December 31, 2022 and 2021 are as follows:

(1) For the year ended December 31, 2022

(In millions of Korean won)	**Financial assets measured at amortized cost**	**Financial assets measured at fair value through other comprehensive income**	**Financial assets measured at fair value through profit or loss**	**Total**
Financial assets				
Gain (loss) on valuation (other comprehensive income)	-	(208,883)	-	(208,883)
Gain on valuation/disposal (profit or loss)	-	-	271,057	271,057
Interest income	339,242	-	-	339,242
Foreign exchange differences (profit or loss)	(668,955)	-	-	(668,955)
Dividend income	-	3,594	-	3,594
Impairment/reversal (profit or loss)	(2,130)	-	-	(2,130)

(In millions of Korean won)	**Financial liabilities measured at amortized cost**	**Other financial liabilities**[1]	**Total**
Financial liabilities			
Interest expense	(45,883)	(244,200)	(290,083)
Foreign exchange differences (profit or loss)	477,397	132,902	610,299

[1] Other financial liabilities include collateralized borrowings, lease liabilities which are not subject to categorizations.

(2) For the year ended December 31, 2021

(In millions of Korean won)	**Financial assets measured at amortized cost**	**Financial assets measured at fair value through other comprehensive income**	**Financial assets measured at fair value through profit or loss**	**Total**
Financial assets				
Gain (loss) on valuation (other comprehensive income)	-	(99,916)	-	(99,916)
Gain on valuation/disposal (profit or loss)	-	-	14,003	14,003
Interest income	260,396	-	-	260,396
Foreign exchange differences (profit or loss)	69,874	-	-	69,874
Dividend income	-	3,118	593	3,711
Impairment/reversal (profit or loss)	(17,144)	-	-	(17,144)

(In millions of Korean won)	**Financial liabilities measured at amortized cost**	**Other financial liabilities**[1]	**Total**
Financial liabilities			
Interest expense	(49,982)	(100,002)	(149,984)
Foreign exchange differences (profit or loss)	317,176	(21,167)	296,009

[1] Other financial liabilities include collateralized borrowings, lease liabilities which are not subject to categorizations.

5. Transfer of Financial Assets

Trade receivables of the Company have been discounted through factoring agreements with banks during the years ended December 31, 2022 and 2021. Trade receivables provided as collaterals in such factoring transactions do not meet the requirements for asset derecognition as risks and rewards are not substantially transferred in the event of a debtor default due to the recourse obligation, etc. Financial liabilities recognized in relation to these transactions are included as ‘short-term borrowings’ on the separate statements of financial position (refer to Note 12).

The following table presents a breakdown of discounted trade receivables as of December 31, 2022 and 2021:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Carrying amount of the discounted trade receivables	2,381,512	9,204,268
Carrying amount of the related borrowings	2,381,512	9,204,268

6. Financial Assets at Fair Value

(A) Details of financial assets at fair value as of December 31, 2022 and December 31, 2021 are as follows:

(1) Financial assets at fair value through other comprehensive income

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Equity instruments	1,364,325	1,662,532

(2) Financial assets at fair value through profit or loss

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Debt instruments	283	2,135

(B) Changes in financial assets at fair value for the years ended December 31, 2022 and 2021 are as follows:

(1) Financial assets at fair value through other comprehensive income

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	1,662,532	1,539,659
Acquisition	-	260,642
Disposal	(10,976)	-
Fair value valuation loss	(285,585)	(137,815)
Other	(1,646)	46
Balance as of December 31	1,364,325	1,662,532

(2) Financial assets at fair value through profit or loss

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	2,135	3,107
Disposal	(1,744)	(912)
Other	(108)	(60)
Balance as of December 31	283	2,135

(C) Changes in gain (loss) on valuation of financial assets at fair value through other comprehensive income for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	124,937	262,752
Fair value valuation loss	(285,585)	(137,815)
Reclassification to retained earnings due to disposal	(5,987)	-
Balance as of December 31	(166,635)	124,937
Income tax effects on equity	43,991	(34,358)
Total	(122,644)	90,579

(D) Details of listed equity securities of financial assets at fair value as of December 31, 2022 and 2021 are as follows:

	December 31, 2022				**December 31, 2021**
(In millions of Korean won, number of shares and percentage)	**Number of shares owned**	**Percentage of ownership[1] (%)**	**Acquisition cost**	**Carrying amount (Market value)**	**Carrying amount (Market value)**
Samsung Heavy Industries	134,027,281	15.2	932,158	684,879	759,935
Hotel Shilla	2,004,717	5.1	13,957	166,592	156,368
iMarket Korea	647,320	1.9	324	6,538	6,926
Skylife	240,000	0.5	3,344	1,954	2,194
Yongpyong Resort	400,000	0.8	1,869	1,412	1,958
A-Tech Solution	1,592,000	15.9	26,348	12,879	26,188
Wonik Holdings	1,759,171	2.3	15,410	5,972	8,761
Wonik IPS	1,850,936	3.8	16,214	45,811	78,295
Dongjin Semichem	2,467,894	4.8	48,277	73,913	125,863
Soulbrain Holdings	461,741	2.2	30,752	10,989	15,976
Soulbrain	373,368	4.8	24,866	81,357	103,983
S&S Tech	1,716,116	8.0	65,933	45,220	63,153
YIK Corp	9,601,617	11.7	47,336	26,933	59,530
Kctech	1,022,216	4.9	20,720	15,129	24,584
Lotvacuum	1,267,668	7.1	18,990	14,326	21,805
Newpower	2,140,939	4.9	12,739	7,579	13,723
Fine Semitech	1,522,975	7.0	43,009	23,758	38,607
DNF	810,030	7.0	20,964	10,692	18,509
Marvell	173,187	0.0	11,705	8,129	17,962
SoundHound	1,702,957	0.9	13,719	3,820	-
Total			1,368,634	1,247,882	1,544,320

[1] Ownership represents the Company's ownership of the total ordinary shares issued by each entity.

7. Trade and Non-Trade Receivables

(A) Trade and non-trade receivables as of December 31, 2022 and 2021 are as follows:

	December 31, 2022		December 31, 2021	
(In millions of Korean won)	**Trade**	**Non-trade**	**Trade**	**Non-trade**
Receivables	20,720,707	2,945,898	33,353,467	1,855,136
Less: Loss allowance	(56,432)	(6,387)	(56,610)	(4,397)
Subtotal	20,664,275	2,939,511	33,296,857	1,850,739
Less: Non-current portion	(161,052)	(14,505)	(208,610)	(18,251)
Current portion	20,503,223	2,925,006	33,088,247	1,832,488

As of December 31, 2022, trade receivables discounted through factoring agreements were accounted for as collateral borrowings and amount of the trade receivables were ₩ 2,381,512 million (as of December 31, 2021, ₩ 9,204,268 million) (refer to Note 12).

(B) Movements in the loss allowance for receivables for the years ended December 31, 2022 and 2021 are as follows:

	2022		2021	
(In millions of Korean won)	**Trade**	**Non-trade**	**Trade**	**Non-trade**
Balance as of January 1	56,610	4,397	37,469	7,014
Bad debt expense (reversal)	(178)	1,994	19,235	(1,998)
Write-off	-	(4)	(94)	(619)
Balance as of December 31	56,432	6,387	56,610	4,397

(C) The details of trade and non-trade receivables classified by past due date to measure expected credit losses as of December 31, 2022 and 2021 are as follows:

	December 31, 2022		December 31, 2021	
(In millions of Korean won)	**Trade**	**Non-trade**	**Trade**	**Non-trade**
Receivables not past due	19,948,076	2,237,287	32,986,766	1,640,450
Past due[1]:				
Less than 31 days overdue	581,231	651,489	181,986	31,420
31 days to 90 days overdue	89,722	30,611	26,727	17,586
Over 90 days overdue	101,678	26,511	157,988	165,680
Subtotal	772,631	708,611	366,701	214,686
Total	20,720,707	2,945,898	33,353,467	1,855,136

[1] The Company does not consider trade and non-trade receivables that are overdue for less than or equal to 31 days as impaired.

(D) The maximum exposure to current credit risk is equivalent to the carrying amount of receivables as of December 31, 2022. The Company has in place insurance contracts covering the Company's major receivables.

8. Inventories

Inventories as of December 31, 2022 and 2021 are as follows:

	December 31, 2022			December 31, 2021		
(In millions of Korean won)	**Gross amount**	**Valuation allowance**	**Carrying amount**	**Gross amount**	**Valuation allowance**	**Carrying amount**
Finished goods	8,589,879	(956,427)	7,633,452	3,884,713	(366,987)	3,517,726
Work in process	16,738,121	(1,216,059)	15,522,062	9,384,285	(222,291)	9,161,994
Raw materials and supplies	4,891,951	(492,006)	4,399,945	3,211,380	(258,464)	2,952,916
Materials in transit	434,548	-	434,548	340,417	-	340,417
Total	30,654,499	(2,664,492)	27,990,007	16,820,795	(847,742)	15,973,053

The inventories recognized as expense for the year ended December 31, 2022, amount to ₩ 151,436,315 million (2021: ₩ 135,609,737 million). The amount includes loss on valuation of inventories.

9. Investments in Subsidiaries, Associates and Joint Ventures

(A) Changes in investments in subsidiaries, associates and joint ventures for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	56,225,599	56,587,548
Acquisition	1,272,296	138,858
Disposal	(164,503)	(567,693)
Impairment (reversal)	63,857	66,886
Balance as of December 31	57,397,249	56,225,599

(B) Major investments in associates as of December 31, 2022 are as follows:
(refer to Note 30 for list of the Company's subsidiaries)

Investee	**Nature of relationship with associate**	**Percentage of ownership (%)[1]**	**Principal business location**	**Fiscal period-end**
Samsung Electro-Mechanics Co., Ltd.	Manufacture and supply electronic components including passive components, circuit boards, and modules	23.7	Korea	December
Samsung SDS Co., Ltd.	Provide IT services including computer programming, system integration and management, and logistical services	22.6	Korea	December
Samsung Biologics Co., Ltd.	New business investment	31.2	Korea	December
Samsung SDI Co., Ltd.[2]	Manufacture and supply electronic components including secondary cell batteries	19.6	Korea	December
Cheil Worldwide, Inc.	Advertising agency	25.2	Korea	December

[1] Ownership represents the Company's ownership of the total ordinary shares issued by each entity.
[2] The Company's ownership of ordinary shares outstanding is 20.6%.

(C) A summary of the condensed financial information of major subsidiaries and associates as of and for the years ended December 31, 2022 and 2021 is as follows:

(1) Major subsidiaries

	2022			
(In millions of Korean won)	**Assets**	**Liabilities**	**Sales**	**Profit (loss) for the year**
Samsung Display Co., Ltd. (SDC)[1]	57,302,567	7,282,718	30,779,405	4,365,588
Samsung Electronics America, Inc. (SEA)[1]	37,883,156	12,258,315	46,738,920	219,670
Samsung Asia Pte. Ltd. (SAPL)[1]	26,894,611	2,678,285	-	8,699,679
Samsung (China) Semiconductor Co., Ltd. (SCS)	17,095,000	2,970,835	9,679,757	638,385
Samsung (CHINA) Investment Co., Ltd. (SCIC)[1]	13,830,988	9,764,636	2,865,831	257,878
Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)[1]	10,841,515	6,272,800	-	57,997
Samsung India Electronics Private Ltd. (SIEL)[1]	6,772,537	3,571,863	16,180,492	508,510
Shanghai Samsung Semiconductor Co., Ltd. (SSS)[1]	5,067,891	2,858,382	21,370,622	318,578
Samsung Eletronica da Amazonia Ltda. (SEDA)	4,600,508	1,342,517	7,485,104	(38,490)
Thai Samsung Electronics Co., Ltd. (TSE)[1]	3,263,473	486,820	4,824,734	168,524
Samsung Electronics (UK) Ltd. (SEUK)[1]	2,819,792	1,708,064	5,929,357	243,396
Samsung Electronics Benelux B.V. (SEBN)[1]	2,377,730	597,044	2,834,008	25,411
Samsung Electronics Hungarian Private Co. Ltd. (SEH)	2,374,317	452,628	3,935,745	199,742
Samsung Electronics Europe Logistics B.V. (SELS)	2,194,975	2,021,491	15,409,984	20,347
SEMES Co., Ltd.[1]	2,065,558	602,323	2,889,238	185,762

[1] The above summary of condensed financial information is based on separate financial statements of each subsidiary.

	2021			
(In millions of Korean won)	**Assets**	**Liabilities**	**Sales**	**Profit for the year**
Samsung Display Co., Ltd. (SDC)[1]	54,967,156	9,081,737	28,755,975	2,770,060
Samsung Electronics America, Inc. (SEA)[1]	42,982,054	19,246,751	42,325,524	823,914
Samsung (CHINA) Investment Co., Ltd. (SCIC)[1]	13,599,093	9,685,278	2,615,685	451,062
Samsung (China) Semiconductor Co., Ltd. (SCS)[1]	19,049,536	5,168,738	7,341,018	1,708,832
Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)[1]	14,651,496	8,998,502	-	24,527
Samsung Asia Private Ltd. (SAPL)[1]	14,683,789	58,381	-	4,668,478
Shanghai Samsung Semiconductor Co., Ltd. (SSS)[1]	7,765,126	5,799,690	31,326,186	325,397
Samsung Eletronica da Amazonia Ltda. (SEDA)	4,589,505	1,671,097	6,020,523	490,202
Samsung India Electronics Private Ltd. (SIEL)[1]	7,765,019	3,236,745	12,222,643	522,672
Thai Samsung Electronics Co., Ltd. (TSE)[1]	3,018,358	474,223	4,443,031	142,191
Samsung Electronics (UK) Ltd. (SEUK)[1]	2,925,062	1,992,367	5,621,922	241,403
Samsung Electronics GmbH (SEG)	2,289,391	2,228,650	6,385,080	2,158
Samsung Electronics Hungarian Private Co., Ltd. (SEH)	2,504,075	641,004	4,357,137	157,616
Samsung Electronics Benelux B.V. (SEBN)[1]	2,612,357	766,034	2,569,603	284,816
Samsung Electronics Europe Logistics B.V. (SELS)	2,305,275	2,144,805	14,700,517	13,943

[1] The above summary of condensed financial information is based on separate financial statements of each subsidiary.

(2) Major associates

(In millions of Korean won)	2022				
	Samsung Electro-Mechanics	**Samsung SDS**	**Samsung Biologics**	**Samsung SDI**	**Cheil Worldwide**
Current assets	4,888,319	8,005,764	6,457,657	9,651,702	2,193,979
Non-current assets	6,108,852	3,946,660	10,124,394	20,605,823	557,466
Current liabilities	2,525,123	2,493,323	4,181,542	8,006,939	1,335,643
Non-current liabilities	778,563	992,132	3,416,034	5,033,084	194,373
Revenue	9,441,276	17,234,750	3,001,295	20,124,070	4,253,367
Profit from continuing operations[1]	993,519	1,099,745	798,056	1,952,149	193,732
Profit or loss from discontinued operation, net of tax[1]	-	-	-	-	-
Other comprehensive income (loss)[1]	(9,601)	80,368	6,995	(139,877)	(1,122)
Total comprehensive income[1]	983,918	1,180,113	805,051	1,812,272	192,610

[1] Profit (loss) attributable to owners of the parent company.

(In millions of Korean won)	2021				
	Samsung Electro-Mechanics	**Samsung SDS**	**Samsung Biologics**	**Samsung SDI**	**Cheil Worldwide**
Current assets	4,598,269	7,575,968	2,823,175	7,444,907	2,018,598
Non-current assets	5,343,105	2,941,464	5,146,835	18,388,286	523,513
Current liabilities	2,234,657	2,370,290	1,107,295	6,461,286	1,224,222
Non-current liabilities	835,592	703,442	1,871,614	4,175,208	190,622
Revenue	9,675,036	13,630,002	1,568,007	13,553,220	3,325,712
Profit from continuing operations[1]	1,055,411	611,171	393,589	1,169,801	165,485
Loss from discontinued operation, net of tax[1]	(162,966)	-	-	-	-
Other comprehensive income (loss)[1]	151,809	134,163	(1,270)	623,792	32,535
Total comprehensive income[1]	1,044,254	745,334	392,319	1,793,593	198,020

[1] Profit (loss) attributable to owners of the parent company.

(D) Fair value of marketable investments in associates as of December 31, 2022 and are 2021 as follows:

	December 31, 2022			December 31, 2021	
(In millions of Korean won and number of shares)	**Number of shares held**	**Market value**	**Carrying amount**	**Market value**	**Carrying amount**
Samsung Electro-Mechanics	17,693,084	2,308,947	445,244	3,494,384	445,244
Samsung SDS	17,472,110	2,149,070	560,827	2,734,385	560,827
Samsung Biologics	22,217,309	18,240,411	1,595,892	18,815,659	443,193
Samsung SDI	13,462,673	7,956,440	1,242,605	8,818,051	1,242,605
Cheil Worldwide	29,038,075	669,328	491,599	663,520	491,599

10. Property, Plant and Equipment

(A) Changes in property, plant and equipment for the years ended December 31, 2022 and 2021 are as follows:

	2022					
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Construction in progress**	**Other**	**Total**
Balance as of January 1	7,780,994	21,841,816	57,135,313	15,307,502	1,601,400	103,667,025
Acquisition cost	7,782,125	33,244,532	175,487,461	15,307,502	4,022,759	235,844,379
Accumulated depreciation and impairment	(1,131)	(11,402,716)	(118,352,148)	-	(2,421,359)	(132,177,354)
Acquisitions and capital expenditures[1]	154	3,246,081	26,182,600	13,481,591	1,085,750	43,996,176
Depreciation	(439)	(1,827,588)	(21,889,623)	-	(594,290)	(24,311,940)
Disposals/scrap	(27,720)	(20,264)	(137,496)	-	(8,247)	(193,727)
Other	-	6,577	135,746	(20,729)	(12,142)	109,452
Balance as of December 31	7,752,989	23,246,622	61,426,540	28,768,364	2,072,471	123,266,986
Acquisition cost	7,754,559	36,449,026	199,823,339	28,768,364	4,886,059	277,681,347
Accumulated depreciation and impairment	(1,570)	(13,202,404)	(138,396,799)	-	(2,813,588)	(154,414,361)

[1] The capitalized borrowing costs are ₩40,577 million, and interest rate used to calculate the borrowing costs eligible for capitalization is 4.1%.

	2021					
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Construction in progress**	**Other**	**Total**
Balance as of January 1	7,800,435	19,087,134	43,749,609	13,994,259	1,535,487	86,166,924
Acquisition cost	7,801,259	28,992,675	146,778,918	13,994,259	3,535,985	201,103,096
Accumulated depreciation and impairment	(824)	(9,905,541)	(103,029,309)	-	(2,000,498)	(114,936,172)
Acquisitions and capital expenditures[1]	5,295	4,385,819	31,501,402	1,339,173	607,076	37,838,765
Depreciation	(406)	(1,614,006)	(18,016,803)	-	(532,894)	(20,164,109)
Disposals/scrap	(24,319)	(5,104)	(108,737)	-	(5,402)	(143,562)
Other	(11)	(12,027)	9,842	(25,930)	(2,867)	(30,993)
Balance as of December 31	7,780,994	21,841,816	57,135,313	15,307,502	1,601,400	103,667,025
Acquisition cost	7,782,125	33,244,532	175,487,461	15,307,502	4,022,759	235,844,379
Accumulated depreciation and impairment	(1,131)	(11,402,716)	(118,352,148)	-	(2,421,359)	(132,177,354)

[1] The capitalized borrowing costs are ₩21,911 million, and interest rate used to calculate the borrowing costs eligible for capitalization is 1.1%.

(B) Changes in the right-of-use assets included in the property, plant and equipment for the years ended December 31, 2022 and 2021 are as follows:

	2022				
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Other**	**Total**
Balance as of January 1	2,279	510,528	39,038	178,480	730,325
Acquisition	26	261,999	1,380	410,088	673,493
Depreciation	(439)	(128,754)	(23,276)	(19,120)	(171,589)
Cancellation of contract	-	(1,070)	-	(737)	(1,807)
Other	-	(3)	4,993	601	5,591
Balance as of December 31	1,866	642,700	22,135	569,312	1,236,013

	2021				
(In millions of Korean won)	**Land**	**Buildings and structures**	**Machinery and equipment**	**Other**	**Total**
Balance as of January 1	2,593	144,615	70,429	188,236	405,873
Acquisition	91	446,071	4,674	992	451,828
Depreciation	(405)	(80,085)	(36,065)	(9,617)	(126,172)
Disposals/scrap	-	(28)	-	(1,131)	(1,159)
Other	-	(45)	-	-	(45)
Balance as of December 31	2,279	510,528	39,038	178,480	730,325

(C) Details of depreciation of property, plant and equipment for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Cost of sales	22,486,452	18,479,655
Selling and administrative expenses and other	1,825,488	1,684,454
Total	24,311,940	20,164,109

11. Intangible Assets

(A) Changes in intangible assets for the years ended December 31, 2022 and 2021 are as follows:

	2022				
(In millions of Korean won)	**Intellectual property rights**	**Development cost**	**Membership**	**Other**	**Total**
Balance as of January 1	1,226,241	236,910	195,135	6,999,170	8,657,456
External acquisitions	232,768	-	5,795	2,315,598	2,554,161
Internally generated/ developed	-	-	-	-	-
Amortization	(217,808)	(151,892)	-	(2,235,367)	(2,605,067)
Disposals/scrap	(47,915)	-	(197)	-	(48,112)
Impairment	-	-	(863)	-	(863)
Other	-	-	-	3,849	3,849
Balance as of December 31	1,193,286	85,018	199,870	7,083,250	8,561,424

	2021				
(In millions of Korean won)	**Intellectual property rights**	**Development cost**	**Membership**	**Other**	**Total**
Balance as of January 1	1,195,319	371,392	194,277	5,241,660	7,002,648
External acquisitions	286,963	-	4,329	3,610,518	3,901,810
Internally generated/ developed	-	193,708	-	-	193,708
Amortization	(218,754)	(321,608)	-	(1,851,408)	(2,391,770)
Disposals/scrap	(42,031)	-	-	(557)	(42,588)
Impairment	-	-	(3,471)	-	(3,471)
Other	4,744	(6,582)	-	(1,043)	(2,881)
Balance as of December 31	1,226,241	236,910	195,135	6,999,170	8,657,456

(B) Details of amortization of intangible assets for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Cost of sales	2,006,928	1,931,598
Selling and administrative expenses and other	598,139	460,172
Total	2,605,067	2,391,770

12. Borrowings

(A) Details of the carrying amounts of borrowings as of December 31, 2022 and December 31, 2021 are as follows:

(In millions of Korean won)	**Financial institutions**	**Interest rate (%) as of Dec 31, 2022**	**December 31, 2022**	**December 31, 2021**
Short-term borrowings				
Collateralized borrowings[1]	Woori Bank and other	0.0~16.7	2,381,512	9,204,268
Current portion of long-term borrowings				
Lease liabilities[2]	-	1.6	129,525	133,518
Long-term borrowings				
Lease liabilities[2]	-	1.6	654,979	431,915

[1] Collateralized borrowings are secured by trade receivables.

[2] Interest expenses arising from the lease liabilities for the years ended December 31, 2022 and 2021 amount to ₩ 10,876 million and ₩ 4,939 million, respectively, which were determined using the weighted average incremental borrowing rate. The right-of-use assets are pledged as collateral to lessors in the event of default. Short-term lease payments and low- valued asset lease payments that are not included in measurement of lease liabilities during the years ended December 31, 2022 and 2021 amount to ₩ 63,103 million and ₩ 56,750 million, respectively.

(B) Maturities of lease liabilities outstanding as of December 31, 2022 are as follows:

(In millions of Korean won)	**Lease liabilities**
Repayment terms	
2023	149,150
2024	151,838
2025	146,916
2026	131,801
2027 and thereafter	303,645
Total	883,350

13. Debentures

(A) Details of the carrying amounts of debentures as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**Issue date**	**Due date**	**Interest rate (%) as of Dec 31, 2022**	**December 31, 2022**	**December 31, 2021**
US dollar denominated straight bonds[1]	Oct 2, 1997	Oct 1, 2027	7.7	31,683 (USD 25 million)	35,565 (USD 30 million)
Less: Discounts				(543)	(707)
Less: Current Portion				(6,228)	(5,810)
Total				24,912	29,048

[1] US dollar denominated straight bonds are repaid annually for twenty years after a ten-year grace period from the date of issuance. Interest is paid semi-annually.

(B) Maturities of debentures outstanding as of December 31, 2022 are as follows:

(In millions of Korean won)	**Debentures**
Repayment terms	
2023	6,337
2024	6,337
2025	6,337
2026	6,337
2027 and thereafter	6,335
Total	31,683

14. Net Defined Benefit Liabilities (Assets)

(A) Details of net defined benefit liabilities (assets) recognized in the statements of financial position as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Present value of funded defined benefit obligations	10,729,126	11,155,187
Present value of unfunded defined benefit obligations	29,546	18,449
Subtotal	10,758,672	11,173,636
Fair value of plan assets	(15,168,895)	(13,497,927)
Total	(4,410,223)	(2,324,291)

(B) The components of defined benefit costs recognized in profit or loss for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Current service cost	1,030,033	907,450
Net interest income	(91,902)	(40,104)
Total	938,131	867,346

(C) The expenses related to the defined benefit plans recognized in the statements of profit or loss for the years ended December 31, 2022 and 2021 are as follows :

(In millions of Korean won)	**2022**	**2021**
Cost of sales	373,835	341,934
Selling and administrative expenses and other	564,296	525,412
Total	938,131	867,346

(D) Changes in the defined benefit obligations for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	11,173,636	9,754,082
Current service cost	1,030,033	907,450
Interest cost	401,973	296,029
Remeasurement:		
Actuarial gains or losses arising from changes in demographic assumptions	-	-
Actuarial gains or losses arising from changes in financial assumptions	(1,779,803)	150,624
Other	356,672	429,051
Benefits paid	(455,787)	(374,416)
Other	31,948	10,816
Balance as of December 31	10,758,672	11,173,636

(E) Changes in the fair value of plan assets for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	13,497,927	10,916,538
Interest income on plan assets	493,875	336,133
Remeasurement of plan assets	(249,943)	(128,336)
Contributions by employer	1,757,800	2,640,100
Benefits paid	(355,311)	(276,733)
Other	24,547	10,225
Balance as of December 31	15,168,895	13,497,927

Expected contributions to post-employment benefit plans to be paid in 2023 as of December 31, 2022 are ₩ 1,451,728 million.

(F) As of December 31, 2022, plan assets are invested in principal guaranteed fixed income financial instruments and others.

(G) The principal actuarial assumptions as of December 31, 2022 and 2021 are as follows:

(In percentage)	**December 31, 2022**	**December 31, 2021**
Discount rate	6.1	3.8
Salary growth rate (including the effects of inflation)	5.8	5.3

(H) The sensitivity analysis of the defined benefit obligations as of December 31, 2022 and 2021 to changes in the weighted principal assumptions is as follows:

(In percentage)	**December 31, 2022**	**December 31, 2021**
Discount rate		
1%p increase	92	91
1%p decrease	109	110
Salary growth rate		
1%p increase	109	110
1%p decrease	92	91

(I) The weighted average maturity of the defined benefit obligations is 8.1 years as of December 31, 2022.

15. Provisions

Changes in provisions for the year ended December 31, 2022 are as follows:

(In millions of Korean won)	**Warranty (A)**	**Royalty expenses (B)**	**Long-term incentives (C)**	**Other (D, E)**	**Total**
Balance as of January 1	386,713	1,496,525	558,982	2,861,407	5,303,627
Charged to profit or loss	764,209	590,483	184,480	865,232	2,404,404
Payment	(563,257)	(608,120)	(194,281)	(964,082)	(2,329,740)
Other	-	67,718	-	36,647	104,365
Balance as of December 31	587,665	1,546,606	549,181	2,799,204	5,482,656

(A) The Company accrues warranty reserves for estimated costs of quality assurance, exchanges, repairs, recalls, and future services based on historical experience and terms of warranty programs.

(B) The Company recognizes provisions for the estimated royalty expenses that are under negotiation with counterparties. The timing and amount of payment depend on the settlement of the negotiation.

(C) The Company has a long-term incentive plan for its executives based on a three-year management performance criteria and recognizes a provision for the estimated incentive cost for the accrued period.

(D) The Company records provisions for future expenses expected to be incurred for products that have been discontinued from manufacturing and sales.

(E) The Company makes provisions for the carrying amounts of emission rights held by the Company and the emission in excess of the emission rights for the applicable years. Details of emission rights and liabilities as of December 31, 2022 are as follows:

(1) The amount of emission rights allocated free of charge in the current commitment period and the estimated amount of emission as of December 31, 2022 are as follows:

(In ten thousand metric tons)	**December 31, 2022**
Allocated emission rights[1]	1,147
Estimated volume of emission	1,521

[1] The quantity of allocated emission right for the remaining planned period is 3,361 ten thousand metric ton (2023: 1,127 ten thousand, 2024: 1,117 ten thousand, 2025: 1,117 ten thousand).

(2) Changes in the emission rights for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	46,073	44,865
Acquisition	1,872	1,312
Submission	(28,378)	(104)
Balance as of December 31[1]	19,567	46,073

[1] The quantity of emission right is 4,589 ten thousand metric ton and no emission rights is provided as collateral as of December 31, 2022.

(3) Changes in the emission liabilities for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Balance as of January 1	45,049	31,777
Charged to the statement of profit or loss	16,154	13,376
Submission	(28,378)	(104)
Balance as of December 31	32,825	45,049

16. Commitments and Contingencies

(A) Guarantees

(1) Debt guarantees provided by the Company for overseas subsidiaries as of December 31, 2022 are as follows:

(In millions of Korean won and thousands of US dollars)

Debtor	Creditor	Period	Actual indebtedness	Guaranteed amount
SETK	BNP and others	Dec 16, 2023	303,386	984,692
SEDAM	Citibank and others	Dec 16, 2023	197,405	680,540
SETK-P	BNP and others	Dec 16, 2023	32,506	164,749
SEIL	Citibank	Dec 16, 2023	12,248	19,770
Other	Others	-	-	8,474,399
Total			545,545	10,324,150
			USD 430,476	USD 8,146,572

(2) The ceiling amount of guarantees provided by the Company for the execution of contracts by overseas subsidiaries is ₩ 469,262 million as of December 31, 2022.

(3) The Company has not been provided any collateral or guarantees from its related parties as of December 31, 2022.

(B) Litigation

As of December 31, 2022, the Company is involved in various claims, disputes, and investigations conducted by regulatory bodies that arose during the normal course of business with numerous entities. Although the outflow of resources and timing of these matters are uncertain, the Company believes the outcome will not have a material impact on the financial position of the Company.

(C) Joint liabilities related to the divestiture

The Company, Samsung Display Co., Ltd. and others are jointly and severally liable to fulfill the debts of Samsung Display Co., Ltd. and others which relate to the periods prior to Samsung Display Co., Ltd.'s separation from the Company.

(D) Other commitments

(1) As of December 31, 2022, the Company has trade financing agreements, trade notes receivable discounting facilities, and loan facilities with accounts receivable pledged as collateral with 5 financial institutions including Woori Bank, with a combined limit of up to ₩ 10,411,963 million. In addition, the Company has a trade financing agreement (up to USD 8,950 million) with 19 financial institutions including Shinhan Bank, and loan facilities with accounts receivable pledged as collateral related to purchase payments with 4 financial institutions including Industrial Bank of Korea (up to ₩ 415,048 million).

(2) As of December 31, 2022, unfulfilled agreements relating to the acquisition of property, plant and equipment and intangible assets amount to ₩ 7,191,569 million.

17. Contract Liabilities

The Company has recognized contract liabilities related to contracts with customers as follows:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Contract liabilities[1]	1,133,426	1,104,756

[1] Contract liabilities include advances received, accrued expenses, other current liabilities and others.

The revenue recognized during the year ended December 31, 2022 in relation to carried-forward balance of contract liabilities as of January 1, 2022 amounts to ₩ 361,591 million.

18. Share Capital

As of December 31, 2022, the Company's total number of authorized shares is 25,000,000,000 shares (₩ 100 per share). The Company has issued 5,969,782,550 shares of ordinary shares and 822,886,700 shares of preference shares as of December 31, 2022, excluding the retired shares. As of the December 31, 2022, the number of shares outstanding is the same as the number of shares issued above, and no changes were made to the number of shares outstanding during the years ended December 31, 2022 and 2021. Due to the retirement of shares, the total par value of the shares issued is ₩ 679,267 million (ordinary shares of ₩ 596,978 million and preference shares of ₩ 82,289 million), which does not agree with paid-in capital of ₩ 897,514 million.

19. Retained Earnings

(A) Retained earnings as of December 31, 2022 and 2021 consist of the following:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Appropriated retained earnings		
Legal reserves:		
Earned profit reserves[1]	450,789	450,789
Discretionary reserves	185,870,540	164,709,023
Subtotal	186,321,329	165,159,812
Unappropriated retained earnings	18,066,687	23,614,523
Total	204,388,016	188,774,335

[1] The Commercial Code of the Republic of Korea requires the Company to appropriate as a legal reserve, an amount equal to a minimum of 10% of annual cash dividends declared, until the reserve equals 50% of its issued capital stock. As of December 31, 2022, since the Company's profit reserves reached 50% of its capital stock, the Company has no obligation for additional reserves.

(B) Separate statements of appropriation of retained earnings for the years ended December 31, 2022 and 2021 are as follows:

The appropriation of retained earnings for the year ended December 31, 2022, is expected to be appropriated at the shareholders' meeting. The appropriation date for the year ended December 31, 2021 was March 16, 2022.

(In millions of Korean won)	**2022**	**2021**
Retained earnings before appropriations		
Unappropriated retained earnings carried over from prior year	30	30
Interim dividends:		
In 2022 - ₩ 1,083 (dividend rate: 1083%)	(7,356,461)	(7,356,461)
In 2021 - ₩ 1,083 (dividend rate: 1083%)		
Profit for the year	25,418,778	30,970,954
Disposal of financial assets measured at fair value through profit or loss	4,340	-
Retained earnings available for appropriation	**18,066,687**	**23,614,523**
Transfers from other reserves	**-**	**-**
Appropriations of retained earnings		
Cash dividends:	2,452,976	2,452,976
In 2022:		
Ordinary shares - ₩ 361 (dividend rate: 361%)		
Preference shares - ₩ 362 (dividend rate: 362%)		
In 2021:		
Ordinary shares - ₩ 361 (dividend rate: 361%)		
Preference shares - ₩ 362 (dividend rate: 362%)		
Reserve for research and human resources development	15,613,681	21,161,517
Total appropriations of retained earnings	**18,066,657**	**23,614,493**
Unappropriated retained earnings to be carried forward	**30**	**30**

(C) Details of interim and year-end dividends are as follows:

(1) Interim dividends (Record date: March 31, June 30 and September 30, 2022 and 2021)

(In millions of Korean won and number of shares)			**2022**	**2021**
1st Quarter	Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
		Preference shares	822,886,700	822,886,700
	Dividend rate (based on par value)		361%	361%
	Dividend amount	Ordinary shares	2,155,092	2,155,092
		Preference shares	297,062	297,062
		Total	2,452,154	2,452,154
2nd Quarter	Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
		Preference shares	822,886,700	822,886,700
	Dividend rate (based on par value)		361%	361%
	Dividend amount	Ordinary shares	2,155,092	2,155,092
		Preference shares	297,062	297,062
		Total	2,452,154	2,452,154
3rd Quarter	Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
		Preference shares	822,886,700	822,886,700
	Dividend rate (based on par value)		361%	361%
	Dividend amount	Ordinary shares	2,155,092	2,155,092
		Preference shares	297,062	297,062
		Total	2,452,154	2,452,154

(2) Year-end dividends (Record date: December 31, 2022 and 2021)

(In millions of Korean won and number of shares)		**2022**	**2021**
Number of shares eligible for dividends	Ordinary shares	5,969,782,550	5,969,782,550
	Preference shares	822,886,700	822,886,700
Dividend rate (based on par value)	Ordinary shares	361%	361%
	Preference shares	362%	362%
Dividend amount	Ordinary shares	2,155,092	2,155,092
	Preference shares	297,884	297,884
	Total	2,452,976	2,452,976

20. Other Components of Equity

Other components of equity as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Gain (loss) on valuation of financial assets at fair value through other comprehensive income	(122,644)	90,579
Remeasurement of net defined benefit assets	(1,910,996)	(2,732,997)
Others	1,760,408	1,760,408
Total	(273,232)	(882,010)

21. Expenses by Nature

Expenses by nature for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Changes in finished goods, work in process, and other	(10,475,794)	(1,423,122)
Raw materials used, merchandise purchased, and other	107,383,581	90,519,249
Wages and salaries	14,861,811	14,870,760
Post-employment benefit	974,711	898,132
Depreciation	24,311,940	20,164,109
Amortization	2,605,067	2,391,770
Welfare	3,220,421	2,630,171
Utilities	3,779,467	2,903,838
Outsourcing	3,623,225	3,106,610
Advertising	1,662,135	1,945,358
Sales promotion expenses	1,385,835	1,066,434
Other	33,215,755	28,678,234
Total[1]	186,548,154	167,751,543

[1] Equal to sum of cost of sales and selling and administrative expenses in the separate statements of profit or loss.

22. Selling and Administrative Expenses

Selling and administrative expenses for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Selling and administrative expenses		
Wages and salaries	2,308,767	2,396,978
Post-employment benefit	171,358	163,395
Commissions	2,652,491	2,397,640
Depreciation	412,787	396,881
Amortization	361,653	220,616
Advertising	1,662,135	1,945,358
Sales promotion expenses	1,385,835	1,066,434
Transportation	790,774	907,948
Service charges	935,838	1,675,628
Other	2,333,072	1,911,866
Subtotal	13,014,710	13,082,744
Research and development expenses		
Total expenses	20,944,051	19,039,074
Capitalized expenses	-	(193,708)
Subtotal	20,944,051	18,845,366
Total	33,958,761	31,928,110

23. Other Non-Operating Income and Expenses

Details of other non-operating income and expenses for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Other non-operating income		
Dividend income	3,952,338	6,560,011
Rental income	173,719	164,197
Gain on disposal of property, plant and equipment	115,861	278,849
Other	334,460	355,947
Total	4,576,378	7,359,004

(In millions of Korean won)	**2022**	**2021**
Other non-operating expenses		
Loss on disposal of property, plant and equipment	18,842	13,366
Donations	220,309	195,457
Other	57,193	537,155
Total	296,344	745,978

24. Financial Income and Expenses

Details of financial income and expenses for the years ended December 31, 2022 and 2021 are as follows:

(*In millions of Korean won*)	**2022**	**2021**
Financial income		
Interest income	339,242	260,396
Interest income from financial assets measured at amortized cost	339,242	260,396
Foreign exchange differences	9,124,484	3,497,401
Gain from derivatives	270,573	39,182
Total	9,734,299	3,796,979

(*In millions of Korean won*)	**2022**	**2021**
Financial expenses		
Interest expenses	290,083	149,984
Interest expenses from financial liabilities measured at amortized cost	45,883	49,982
Other financial liabilities	244,200	100,002
Foreign exchange differences	9,351,659	3,485,602
Losses from derivatives	-	63,089
Total	9,641,742	3,698,675

The Company recognizes foreign exchange gains and losses arising from foreign currency transactions and translation as financial income and expenses.

25. Income Tax Expense

(A) Income tax expense for the years ended December 31, 2022 and 2021 consists of the following:

(In millions of Korean won)	**2022**	**2021**
Current taxes		
Current tax on profits for the year	5,926,928	8,041,604
Adjustments recognized in the current year	(449,536)	(321,952)
Subtotal	5,477,392	7,719,652
Deferred taxes		
Changes in deferred taxes arising from unused tax credits	(1,010,632)	(332,351)
Changes in deferred taxes arising from temporary differences	(193,618)	346,237
Subtotal	(1,204,250)	13,886
Items charged directly to equity	-	-
Income tax expense	4,273,142	7,733,538

(B) The tax on the Company's profit before income tax differs from the theoretical amount that would arise using the tax rate applicable to profits of the Company as follows:

(In millions of Korean won)	**2022**	**2021**
Profit before income tax	29,691,920	38,704,492
Tax calculated at tax rates applicable to profits[1]	8,165,278	10,643,735
Adjustments:		
Non-taxable income	(47,446)	(34,706)
Disallowed expense	507,992	651,517
Tax credits	(4,133,747)	(3,420,702)
Other	(218,935)	(106,306)
Subtotal	(3,892,136)	(2,910,197)
Income tax expense	4,273,142	7,733,538

[1] The statutory tax rate regulated by tax law as of December 31, 2022 and 2021 is applied.

(C) The movement in deferred income tax assets and liabilities resulting from the tax effect of temporary differences for the years ended December 31, 2022 and 2021 are as follows:

(1) 2022

	Temporary differences			Deferred tax assets (liabilities)		
(In millions of Korean won)	**Balance as of January 1**	**Increase (Decrease)**	**Balance as of December 31**	**Balance as of January 1**	**Increase (Decrease)**	**Balance as of December 31**
Deferred tax arising from temporary differences						
Revaluation of land	(3,406,625)	3,195	(3,403,430)	(936,822)	38,317	(898,505)
Investments in subsidiaries, associates and joint ventures[1]	(3,837,368)	-	(3,837,368)	(853,165)	34,127	(819,038)
Accumulated depreciation and other	(2,456,302)	(3,733,239)	(6,189,541)	(675,483)	(958,555)	(1,634,038)
Accrued income	(54,107)	44,687	(9,420)	(14,879)	12,392	(2,487)
Provisions, accrued expenses, and other	11,098,305	2,589,469	13,687,774	3,052,034	561,538	3,613,572
Foreign currency translation	(5,313)	562,866	557,553	(1,461)	148,655	147,194
Asset impairment losses	1,096,297	(105,290)	991,007	220,916	(36,634)	184,282
Post-employment benefits	(6,093,355)	685,667	(5,407,688)	(1,675,673)	248,043	(1,427,630)
Valuation effects from spin-off[2]	10,586,822	-	10,586,822	-	-	-
Other	3,897,591	624,521	4,522,112	478,445	145,735	624,180
Subtotal	10,825,945	671,876	11,497,821	(406,088)	193,618	(212,470)
Deferred tax arising from unused tax credits						
Unused tax credits	672,053	1,153,334	1,825,387	614,893	1,010,632	1,625,525
Deferred tax recognized in equity						
Loss (gain) on valuation of financial assets at fair value through other comprehensive income and other	(124,938)	291,573	166,635	(34,358)	78,349	43,991
Remeasurement of net defined benefit assets	3,769,652	(1,173,189)	2,596,463	1,036,653	(351,187)	685,466
Subtotal	3,644,714	(881,616)	2,763,098	1,002,295	(272,838)	729,457
Total				1,211,100	931,412	2,142,512

[1] Deferred tax assets are not recognized if it is probable that the temporary differences will not reverse in the foreseeable future for investments in subsidiaries, associates and joint ventures.

[2] Difference in carrying amount for accounting and tax purposes for the shares of Samsung Display Co., Ltd., the Company's subsidiary, acquired through spin-off of the LCD division in the past. As of the reporting date, the Company does not have plans to dispose of its investments in Samsung Display Co., Ltd. As it is probable that the temporary differences will not reverse in the foreseeable future, deferred tax assets were not recognized.

(2) 2021

(In millions of Korean won)	Temporary differences			Deferred tax assets (liabilities)		
	Balance as of January 1	**Increase (Decrease)**	**Balance as of December 31**	**Balance as of January 1**	**Increase (Decrease)**	**Balance as of December 31**
Deferred tax arising from temporary differences						
Revaluation of land	(3,420,886)	14,261	(3,406,625)	(940,744)	3,922	(936,822)
Investments in subsidiaries, associates and joint ventures[1]	(3,994,444)	157,076	(3,837,368)	(909,018)	55,853	(853,165)
Accumulated depreciation and other	(514,103)	(1,942,199)	(2,456,302)	(141,379)	(534,104)	(675,483)
Accrued income	(112,810)	58,703	(54,107)	(31,023)	16,144	(14,879)
Provisions, accrued expenses, and other	9,540,744	1,557,561	11,098,305	2,623,704	428,330	3,052,034
Foreign currency translation	(51,955)	46,642	(5,313)	(14,288)	12,827	(1,461)
Asset impairment losses	1,744,851	(648,554)	1,096,297	399,268	(178,352)	220,916
Post-employment benefits	(4,223,358)	(1,869,997)	(6,093,355)	(1,161,424)	(514,249)	(1,675,673)
Valuation effects from spin-off[2]	10,586,822	-	10,586,822	-	-	-
Other	1,038,962	2,858,629	3,897,591	115,053	363,392	478,445
Subtotal	10,593,823	232,122	10,825,945	(59,851)	(346,237)	(406,088)
Deferred tax arising from unused tax credits						
Unused tax credits	282,542	389,511	672,053	282,542	332,351	614,893
Deferred tax recognized in equity						
Loss on valuation of financial assets at fair value through other comprehensive income and other	(262,753)	137,815	(124,938)	(72,257)	37,899	(34,358)
Remeasurement of net defined benefit assets	3,061,640	708,012	3,769,652	841,951	194,702	1,036,653
Subtotal	2,798,887	845,827	3,644,714	769,694	232,601	1,002,295
Total				992,385	218,715	1,211,100

[1] Deferred tax assets are not recognized if it is probable that the temporary differences will not reverse in the foreseeable future for investments in subsidiaries, associates and joint ventures.

[2] Difference in carrying amount for accounting and tax purposes for the shares of Samsung Display Co., Ltd., the Company's subsidiary acquired through a spin-off of the LCD division in the past. As of the reporting date, the Company does not have plans to dispose of its investments in Samsung Display Co., Ltd. As it is probable that the temporary differences will not reverse in the foreseeable future, deferred tax assets were not recognized.

(D) Details of the period when the deferred tax assets (liabilities) are recovered (settled) as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Net deferred tax assets (liabilities) to be recovered (settled) within 12 months	2,267,807	2,837,162
Net deferred tax assets (liabilities) to be recovered (settled) after more than 12 months	(125,295)	(1,626,062)
Total	2,142,512	1,211,100

26. Earnings per Share

(A) Basic earnings per share

Basic earnings per share for the years ended December 31, 2022 and 2021 are calculated as follows:

(1) Ordinary shares

(In millions of Korean won, thousands of number of shares)	**2022**	**2021**
Profit for the year	25,418,778	30,970,954
Profit for the year available for ordinary shares	22,338,739	27,218,306
Weighted-average number of ordinary shares outstanding	5,969,783	5,969,783
Basic earnings per ordinary share *(in Korean won)*	3,742	4,559

(2) Preference shares

(In millions of Korean won, thousands of number of shares)	**2022**	**2021**
Profit for the year	25,418,778	30,970,954
Profit for the year available for preference shares	3,080,039	3,752,648
Weighted-average number of preference shares outstanding	822,887	822,887
Basic earnings per preference share *(in Korean won)*	3,743	4,560

(B) Diluted earnings per share

The Company does not have dilutive potential ordinary shares and as a result, basic earnings per share and diluted earnings per share are the same for the years ended December 31, 2022 and 2021.

27. Statements of Cash Flows

(A) The Company used the indirect method to present cash flows from operating activities. Adjustments and changes in assets and liabilities arising from operating activities for the years ended December 31, 2022 and 2021 are as follows:

- Adjustments

(In millions of Korean won)	**2022**	**2021**
Adjustments :		
Income tax expense	4,273,142	7,733,538
Financial income	(1,224,148)	(514,303)
Financial expenses	1,565,955	636,934
Post-employment benefits	974,711	898,132
Depreciation	24,311,940	20,164,109
Amortization	2,605,067	2,391,770
Bad debt expenses (reversal)	(178)	19,235
Dividends income	(3,952,338)	(6,560,011)
Gain on disposal of property, plant and equipment	(115,861)	(278,849)
Loss on disposal of property, plant and equipment	18,842	13,366
Loss on valuation of inventories and others	2,529,351	696,536
Others	52,905	(32,395)
Total	31,039,388	25,168,062

- Changes in assets and liabilities arising from operating activities

(In millions of Korean won)	**2022**	**2021**
Changes in assets and liabilities :		
Decrease (increase) in trade receivables	12,354,628	(8,102,318)
Decrease (increase) in non-trade receivables	(711,933)	54,306
Decrease (increase) in prepaid expenses	11,033	(198,371)
Increase in inventories	(14,337,291)	(2,732,143)
Increase (decrease) in trade payables	(2,494,560)	4,935,529
Increase in other payables	1,522,457	1,004,128
Increase (decrease) in advances received	(154,042)	50,363
Increase (decrease) in withholdings	(101,231)	191,872
Increase in accrued expenses	88,828	920,919
Increase in provisions	74,664	1,570,118
Payment of post-employment benefits	(492,366)	(405,203)
Increase in plan assets	(1,402,489)	(2,363,367)
Other	(1,225,967)	(707,488)
Total	(6,868,269)	(5,781,655)

(B) Significant non-cash investing and financing transactions for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**2022**	**2021**
Valuation of financial assets at fair value through other comprehensive income	(285,585)	(137,815)
Reclassification of construction in progress to property, plant and equipment	30,539,179	36,663,946
Acquisition of right-of-use assets (new lease contracts established)	673,493	451,828
Reclassification of current portion of debentures	6,228	5,810
Reclassification of current portion of long-term borrowings	129,525	133,518

(C) Changes in liabilities arising from financing activities for the years ended December 31, 2022 and 2021 are as follows:

(1) 2022

			Non-cash transactions		
(In millions of Korean won)	**As of January 1**	**Cash flows from financing activities**	**New lease contracts**	**Other[1]**	**As of December 31**
Short-term borrowings	9,204,268	(6,700,826)	-	(121,930)	2,381,512
Debentures and long-term borrowings	600,291	(155,264)	673,493	(302,876)	815,644
Total	9,804,559	(6,856,090)	673,493	(424,806)	3,197,156

[1] Other includes amortization and effects of changes in foreign currency exchange rates.

(2) 2021

			Non-cash transactions		
(In millions of Korean won)	**As of January 1**	**Cash flows from financing activities**	**New lease contracts**	**Other[1]**	**As of December 31**
Short-term borrowings	12,520,367	(3,288,858)	-	(27,241)	9,204,268
Debentures and long-term borrowings	269,877	(117,963)	451,828	(3,451)	600,291
Total	12,790,244	(3,406,821)	451,828	(30,692)	9,804,559

[1] Other includes amortization and effects of changes in foreign currency exchange rates.

(D) For the years ended December 31, 2022 and 2021, cash outflows from repayment of the principal (financial activities) were ₩ 149,337 million and ₩ 112,523 million, respectively, while cash outflows due to interest expenses (operating activities) in relation to the lease liabilities amount to ₩ 10,876 million and ₩ 4,939 million, respectively.

(E) The Company reported cash receipts and payments arising from transactions occurring frequently, of large gross amounts, and with short-term maturities, such as short-term financial instruments, borrowings and other, on a net basis. As of December 31, 2022, most of the Company's cash and cash equivalents consist of bank deposits.

28. Financial Risk Management

The Company's financial risk management focuses on minimizing the market risk, credit risk, and liquidity risk arising from operating activities. To mitigate these risks, the Company implements and operates a financial risk policy and program that closely monitors and manages such risks. In addition, the Company uses derivatives to hedge certain risk exposure.

The finance team mainly carries out the Company's financial risk management. After implementing the global financial risk management policies, the finance team periodically measures, evaluates, and hedges the financial risk and also establishes and implements the global financial risk management policy.

The Company also manages the foreign exchange risk by monitoring the foreign exchange rate fluctuations at local finance centers across major regions (United States, United Kingdom, Singapore, China, Brazil, and Russia) and acting as an agent of foreign exchange transactions. In addition, the Company manages the liquidity risk by utilizing a globally integrated finance structure.

The Company's financial assets that are under the financial risk management are comprised of cash and cash equivalents, short-term financial instruments, trade receivables and others. The Company's financial liabilities under financial risk management are comprised of trade payables, borrowings, and others.

(A) Market risk

(1) Foreign exchange risk

The Company is exposed to the foreign exchange risk arising from its global operations performed in currencies other than its functional currency. The major currencies that are exposed to the foreign exchange risk are the US dollar, Euro, and Indian Rupee.

The Company focuses on minimizing the impact of the foreign exchange fluctuation by maintaining the equal amount of assets and liabilities denominated in each foreign currency, irrespective of the foreign exchange fluctuation considerations. To prevent the exchange position, the Company's foreign exchange management policy requires the normal business transactions, including imports and exports, as well as the financing transactions such as depositing and borrowing, to be in local currency or for the cash-in currency to be matched up with the cash-out currency. Moreover, the Company periodically evaluates and monitors the foreign exchange risk to efficiently mitigate such risk, and the speculative foreign exchange transactions are strictly prohibited.

As of December 31, 2022 and 2021, when the currency rates change by 5%, the impact on profit or loss (before income tax effects) arising from financial assets and liabilities denominated in foreign currencies other than the functional currency are as follows:

	December 31, 2022		**December 31, 2021**	
(In millions of Korean won)	**Increase**	**Decrease**	**Increase**	**Decrease**
USD	77,795	(77,795)	119,312	(119,312)
EUR	(53,114)	53,114	(33,776)	33,776
INR	52,012	(52,012)	25,057	(25,057)

(2) Interest rate risk

Risk of changes in interest rates for floating interest rate financial instruments is defined as the risk that the fair value of components of the statements of financial position, and future cash flows of interest income (expenses) of a financial instrument, will fluctuate because of the changes in market interest rates. The Company's position with regard to interest rate risk exposure is mainly driven by its floating interest rate debt obligations and interest-bearing deposits. The Company implemented policies and operates to minimize uncertainty arising from changes in interest rates and financial expenses.

(3) Price risk

The Company's investment portfolio consists of direct and indirect investments in equity instruments classified as financial assets at fair value through other comprehensive income, which is in line with the Company's strategy.

As of December 31, 2022 and 2021, price fluctuation of marketable equity securities (listed stocks) by 1% would result in changes in other comprehensive income (before income tax) of ₩ 12,479 million and ₩ 15,443 million, respectively.

(B) Credit risk

Credit risk arises during the normal course of transactions and investing activities where clients or other parties fail to discharge an obligation. The Company monitors and sets the client's and the counterparty's credit limits on a periodic basis based on the client's and counterparty's financial conditions, default histories and other important factors. Adequate insurance coverage is maintained for trade receivables related to the trading partners situated in higher risk countries.

Credit risk can arise from transactions with financial institutions which include financial instrument transactions such as cash and cash equivalents, deposits, and derivative instruments. To minimize such risk, the Company transacts only with banks which have strong international credit ratings (S&P A and above), and all new transactions with financial institutions with no prior transaction history are approved, managed and monitored by the Company's finance team and the local finance center. The Company generally enters into a financial agreement with no restrictions, such as debt ratio covenants, provision of collateral and/or repayment of loans/borrowings. The Company requires separate approvals for contracts with restrictions.

As of December 31, 2022 and 2021, the Company estimates that its maximum exposure to credit risk is the carrying amount of its financial assets, net of impairment losses.

(C) Liquidity risk

Due to large investments made by the Company, maintaining adequate levels of liquidity risk is critical. The Company strives to achieve this goal by periodically forecasting its capital balance, estimating the required cash levels, and managing income and expenses.

The Company manages its liquidity risk by periodically forecasting the projected cash flows. If abnormal signs are identified, the Company works with the local finance center and provides liquidity support by utilizing a globally integrated finance structure, such as Cash Pooling. In addition, the Company maintains a liquidity management process which provides an additional financial support from the local finance center and the Company. The Cash Pooling program allows the sharing of surplus funds among the entities and contributes to minimizing the liquidity risk and strengthening the Company's competitive position by reducing capital operation expenses and financial expenses.

For the need of large scale of liquidity, the Company secures the credit limit for overseas subsidiaries through payment guarantees.

As of December 31, 2022 and 2021, the following table is an undiscounted cash flow analysis for financial liabilities according to their remaining contractual maturity.

	December 31, 2022				
(In millions of Korean won)	**Less than 3 months**	**4 – 6 months**	**7 – 12 months**	**1 - 5 years**	**More than 5 years**
Financial liabilities	31,354,944	316,725	1,096,183	2,431,415	472,135

	December 31, 2021				
(In millions of Korean won)	**Less than 3 months**	**4 – 6 months**	**7 – 12 months**	**1 - 5 years**	**More than 5 years**
Financial liabilities	35,764,225	435,581	728,627	2,798,560	87,798

The table above shows the Company's financial liabilities based on the remaining period at the separate statements of financial position date until the contractual maturity date. The amounts disclosed in the table are the contractual undiscounted cash flows.

The maximum liquidity risk exposure from those other than the above financial liabilities (e.g., payment guarantees for affiliated companies, performance bonds, and other) as of December 31, 2022 and 2021 are ₩ 10,793,412 million and ₩ 10,211,619 million, respectively.

(D) Capital risk management

The purpose of capital management is to maintain a sound capital structure. The Company monitors capital on the basis of credit ratings and debt ratio. Debt ratio is calculated by dividing the total liabilities by total equity in the financial statements.

The Company has maintained an AA- and Aa2 credit ratings from S&P and Moody's, respectively.

The debt ratio as of December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	**December 31, 2022**	**December 31, 2021**
Total liabilities	50,667,559	57,918,452
Total equity	209,416,191	193,193,732
Debt ratio	24.2%	30.0%

(E) Fair values estimation

(1) Carrying amounts and fair value of financial instruments by category as of December 31, 2022 and 2021 are as follows:

	December 31, 2022		December 31, 2021	
(In millions of Korean won)	**Carrying amount**	**Fair value**	**Carrying amount**	**Fair value**
Financial assets				
Cash and cash equivalents	3,921,593	(*1)	3,918,872	(*1)
Short-term financial instruments	137	(*1)	15,000,576	(*1)
Trade receivables	20,503,223	(*1)	33,088,247	(*1)
Financial assets at fair value through other comprehensive income	1,364,325	1,364,325	1,662,532	1,662,532
Financial assets at fair value through profit or loss	283	283	2,135	2,135
Other	5,470,355	(*1)	5,076,418	(*1)
Total financial assets	31,259,916		58,748,780	
Financial liabilities				
Trade payables	8,729,315	(*1)	11,557,441	(*1)
Short-term borrowings	2,381,512	(*1)	9,204,268	(*1)
Other payables	18,324,604	(*1)	12,948,960	(*1)
Current portion of long-term liabilities	135,753	6,580	139,328	6,276
- Current portion of long-term borrowing	129,525	(*2)	133,518	(*2)
- Current portion of debentures	6,228	6,580	5,810	6,276
Debentures	24,912	27,845	29,048	35,863
Long-term borrowings	654,979	(*2)	431,915	(*2)
Long-term other payables	2,083,790	(*1)	2,335,218	(*1)
Other	3,145,473	(*1)	3,056,156	(*1)
Total financial liabilities	35,480,338		39,702,334	

(*1) Assets and liabilities whose carrying amount is a reasonable approximation of fair value are excluded from the fair value disclosures.
(*2) Lease liabilities, classified under the current portion of long-term liabilities and long-term borrowings, are excluded from the fair value disclosures in accordance with *Korean IFRS 1107*.

(2) Fair value hierarchy classifications of the financial instruments that are measured at fair value or its fair value disclosed as of December 31, 2022 and 2021 are as follows:

	December 31, 2022			
(In millions of Korean won)	**Level 1**	**Level 2**	**Level 3**	**Total balance**
1) Assets				
Financial assets at fair value through other comprehensive income	1,247,882	-	116,443	1,364,325
Financial assets at fair value through profit or loss	-	-	283	283
2) Liabilities				
Current portion of debentures	-	6,580	-	6,580
Debentures	-	27,845	-	27,845

	December 31, 2021			
(In millions of Korean won)	**Level 1**	**Level 2**	**Level 3**	**Total balance**
1) Assets				
Financial assets at fair value through other comprehensive income	1,544,320	-	118,212	1,662,532
Financial assets at fair value through profit or loss	-	-	2,135	2,135
2) Liabilities				
Current portion of debentures	-	6,276	-	6,276
Debentures	-	35,863	-	35,863

The levels of the fair value hierarchy and its application to financial assets and liabilities are described below.

- Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities
- Level 2: Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly
- Level 3: Inputs for the asset or liability that are not based on observable market data (that is, unobservable inputs)

The fair value of financial instruments traded in active markets is based on quoted market prices at the statements of financial position date. A market is regarded as active if quoted prices are readily and regularly available from an exchange, dealer, broker, industry group, pricing service, or regulatory agency, and those prices represent actual and regularly occurring market transactions on an arm's length basis. The quoted market price used for financial assets held by the Company is the current bid price. These instruments are included in Level 1. The instruments included in Level 1 are listed equity investments, most of which are classified as financial assets at fair value through other comprehensive income.

The fair value of financial instruments that are not traded in an active market (for example, over-the-counter derivatives) is determined by using valuation techniques. These valuation techniques maximize the use of observable market data where it is available and rely as little as possible on the entity-specific estimates. If all significant inputs required for a fair value of an instrument are observable, the instrument is included in Level 2.

If one or more of the significant inputs are not based on observable market data, the instrument is included in Level 3.

The Company performs the fair value measurements required for financial reporting purposes, including Level 3 fair values and discusses valuation processes and results at least once every quarter in line with the Company's quarterly reporting dates. The Company's policy is to recognize transfers between levels at the end of the reporting period, if corresponding events or changes in circumstances have occurred.

Specific valuation techniques used to value financial instruments include:

- Quoted market prices or dealer quotes for similar instruments
- The fair value of forward foreign exchange contracts is determined using forward exchange rates at the statements of financial position date, with the resulting value discounted back to present value

Other techniques, such as discounted cash flow analysis, are used to determine fair value for the remaining financial instruments. For trade and other receivables that are classified as current assets, the book value approximates a reasonable estimate of fair value.

(3) Valuation technique and the inputs

The Company utilizes a present value technique to discount future cash flows using a proper interest rate for corporate bonds, government and public bonds, and bank debentures that are classified as Level 2 in the fair value hierarchy.

The following table presents the valuation technique and the inputs used for major financial instruments classified as Level 3 as of December 31, 2022.

(In millions of Korean won, and percentage)

Classification	Fair value	Valuation technique	Level 3 inputs	Input range (Weighted average)
Financial assets at fair value through other comprehensive income				
Samsung Venture Investment	32,073	Discounted cash flow	Permanent growth rate	-1.0%~1.0%(0.0%)
			Weighted average cost of capital	15.8%~17.8%(16.8%)
MiCo Ceramics Co., Ltd.	29,385	Discounted cash flow and other	Permanent growth rate	0.0%~1.0%(0.5%)
			Weighted average cost of capital	13.1%~15.1%(14.1%)

(4) Changes in Level 3 instruments for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	2022	2021
Financial assets		
Balance as of January 1	120,347	130,242
Disposals	(12,720)	(912)
Amount recognized in profit or loss for the year	(108)	-
Amount recognized in other comprehensive income	22,926	2,736
Other	(13,719)	(11,719)
Balance as of December 31	116,726	120,347

(5) Sensitivity analysis for recurring fair value measurements categorized within Level 3

Sensitivity analysis of financial instruments is performed to measure favorable and unfavorable changes in the fair value of financial instruments which are affected by the unobservable parameters, using a statistical technique. When the fair value is affected by more than two input parameters, the amounts represent the most favorable or unfavorable.

The results of the sensitivity analysis for the effect on other comprehensive income or loss (before-tax amount for other comprehensive income or loss) from changes in inputs for major financial instruments which are categorized within Level 3 and subject to sensitivity analysis are as follows:

(In millions of Korean won)	**Favorable changes**		**Unfavorable changes**	
Classification	**Profit or loss**	**Equity**	**Profit or loss**	**Equity**
Financial assets at fair value through other comprehensive income[1]	-	2,970	-	(2,374)

[1] For equity securities, changes in fair value are calculated with the correlation between the growth rate (-1% ~1%) and the discount rate, which are significant unobservable inputs.

29. Segment Information

The chief operating decision-maker has been identified as the Management Committee. The Company determines operating segments based on the units reported to the Management Committee. The Management Committee reviews the operating profits of each operating segment in order to assess the performance and to make strategic decisions regarding the allocation of resources to the segment.

Sales revenue consists mostly of product sales. The operating segments are product-based and are identified based on the internal organization and revenue streams. As of the reporting date, the operating segments are comprised of DX, DS, and others.

Total assets and liabilities of each operating segment are excluded from the disclosure as these have not been provided regularly to the Management Committee.

(1) For the year ended December 31, 2022

(In millions of Korean won)	**DX**	**DS**	**Total[1]**
Sales	117,257,647	97,102,386	211,867,483
Depreciation	542,437	23,589,388	24,311,940
Amortization	1,631,289	754,791	2,605,067
Operating profit	3,083,254	22,232,180	25,319,329

[1] Other operating segments are not separately disclosed.

(2) For the year ended December 31, 2021

(In millions of Korean won)	**DX**	**DS**	**Total[1]**
Sales	107,675,342	94,373,136	199,744,705
Depreciation	537,479	19,457,650	20,164,109
Amortization	1,382,922	891,431	2,391,770
Operating profit	6,389,720	25,592,201	31,993,162

[1] Other operating segments are not separately disclosed.

30. Related Party Transactions

(A) Subsidiaries

List of subsidiaries as of December 31, 2022 are as follows:

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
America	Samsung Electronics America, Inc. (SEA)	Sale of electronic devices	100.0
	Samsung International, Inc. (SII)	Manufacture of TV and monitors	100.0
	Samsung Mexicana S.A. de C.V (SAMEX)	Manufacture of electronic devices	100.0
	Samsung Electronics Home Appliances America, LLC (SEHA)	Manufacture of home appliances	100.0
	Samsung Research America, Inc (SRA)	R&D	100.0
	Samsung Next LLC (SNX)	Management of overseas subsidiaries	100.0
	Samsung Next Fund LLC (SNXF)	Technology business, venture capital investments	100.0
	NeuroLogica Corp.	Manufacture and sale of medical equipment	100.0
	Samsung HVAC America, LLC	Sale of air conditioning products	100.0
	Joyent, Inc.	Cloud services	100.0
	Dacor Holdings, Inc.	Management of overseas subsidiaries	100.0
	Dacor, Inc.	Manufacture and sale of home appliances	100.0
	SmartThings, Inc.	Sale of smart home electronics	100.0
	TeleWorld Solutions, Inc. (TWS)	Installation and optimization of network devices	100.0
	Samsung Semiconductor, Inc. (SSI)	Sale of semiconductor and display panels	100.0
	Samsung Austin Semiconductor LLC. (SAS)	Manufacture of semiconductors	100.0
	Samsung Oak Holdings, Inc. (SHI)	Management of overseas subsidiaries	100.0
	SEMES America, Inc.	Semiconductor equipment services	100.0
	Samsung Electronics Canada, Inc. (SECA)	Sale of electronic devices	100.0
	AdGear Technologies Inc.	Digital advertising platforms	100.0
	Samsung Eletronica da Amazonia Ltda. (SEDA)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Mexico S.A. de C.V. (SEM)	Sale of electronic devices	100.0
	Samsung Electronics Digital Appliance Mexico, S.A. de C.V. (SEDAM)	Manufacture of home appliances	100.0
	Samsung Electronics Latinoamerica (Zona Libre), S. A. (SELA)	Sale of electronic devices	100.0
	Samsung Electronics Latinoamerica Miami, Inc. (SEMI)	Sale of electronic devices	100.0
	Samsung Electronica Colombia S.A. (SAMCOL)	Sale of electronic devices	100.0
	Samsung Electronics Argentina S.A. (SEASA)	Marketing and services	100.0
	Samsung Electronics Chile Limitada (SECH)	Sale of electronic devices	100.0
	Samsung Electronics Peru S.A.C. (SEPR)	Sale of electronic devices	100.0
	Samsung Electronics Venezuela, C.A. (SEVEN)	Marketing and services	100.0
	Samsung Electronics Panama. S.A. (SEPA)	Consulting	100.0
	Harman International Industries, Inc.	Management of overseas subsidiaries	100.0
	Harman Becker Automotive Systems, Inc.	Manufacture and sale of audio products, R&D	100.0
	Harman Connected Services, Inc.	Connected service provider	100.0
	Harman Connected Services Engineering Corp.	Connected service provider	100.0
	Harman da Amazonia Industria Eletronica e Participacoes Ltda.	Manufacture and sale of audio products	100.0
	Harman de Mexico, S. de R.L. de C.V.	Manufacture of audio products	100.0
	Harman do Brasil Industria Eletronica e Participacoes Ltda.	Sale of audio products, R&D	100.0
	Harman Financial Group LLC	Management company	100.0
	Harman International Industries Canada Ltd.	Sale of audio products	100.0
	Harman International Mexico, S. de R.L. de C.V.	Sale of audio products	100.0
	Harman KG Holding, LLC	Management of overseas subsidiaries	100.0
	Harman Professional, Inc.	Sale of audio products, R&D	100.0
	Beijing Integrated Circuit Industry International Fund, L.P	Venture capital investments	61.4
	China Materialia New Materials 2016 Limited Partnership	Venture capital investments	99.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Europe & CIS	Samsung Electronics (UK) Ltd. (SEUK)	Sale of electronic devices	100.0
	Samsung Electronics Ltd. (SEL)	Management of overseas subsidiaries	100.0
	Samsung Semiconductor Europe Limited (SSEL)	Sale of semiconductor and display panels	100.0
	Samsung Electronics GmbH (SEG)	Sale of electronic devices	100.0
	Samsung Electronics Holding GmbH (SEHG)	Management of overseas subsidiaries	100.0
	Samsung Semiconductor Europe GmbH (SSEG)	Sale of semiconductor and display panels	100.0
	Samsung Electronics France S.A.S (SEF)	Sale of electronic devices	100.0
	Samsung Electronics Italia S.P.A. (SEI)	Sale of electronic devices	100.0
	Samsung Electronics Iberia, S.A. (SESA)	Sale of electronic devices	100.0
	Samsung Electronics Portuguesa, Unipessoal, Lda. (SEP)	Sale of electronic devices	100.0
	Samsung Electronics Hungarian Private Co. Ltd. (SEH)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Europe Logistics B.V. (SELS)	Logistics	100.0
	Samsung Electronics Benelux B.V. (SEBN)	Sale of electronic devices	100.0
	Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	Management of overseas subsidiaries	100.0
	Samsung Electronics Nordic Aktiebolag (SENA)	Sale of electronic devices	100.0
	Samsung Electronics Slovakia s.r.o (SESK)	Manufacture of TV and monitors	100.0
	Samsung Display Slovakia, s.r.o. (SDSK)	Toll processing of display panels	100.0
	Samsung Electronics Polska, SP.Zo.o (SEPOL)	Sale of electronic devices	100.0
	Samsung Electronics Poland Manufacturing SP.Zo.o (SEPM)	Manufacture of home appliances	100.0
	Samsung Electronics Romania LLC (SEROM)	Sale of electronic devices	100.0
	Samsung Electronics Austria GmbH (SEAG)	Sale of electronic devices	100.0
	Samsung Electronics Switzerland GmbH (SESG)	Sale of electronic devices	100.0
	Samsung Electronics Czech and Slovak s.r.o. (SECZ)	Sale of electronic devices	100.0
	SAMSUNG ELECTRONICS BALTICS SIA (SEB)	Sale of electronic devices	100.0
	Samsung Electronics Greece S.M.S.A (SEGR)	Sale of electronic devices	100.0
	Samsung Electronics Air Conditioner Europe B.V. (SEACE)	Sale of air conditioning products	100.0
	Samsung Nanoradio Design Center (SNDC)	R&D	100.0
	Samsung Denmark Research Center ApS (SDRC)	R&D	100.0
	Samsung Cambridge Solution Centre Limited (SCSC)	R&D	100.0
	SAMSUNG Zhilabs, S.L.	Development and sale of network solutions	100.0
	FOODIENT LTD.	R&D	100.0
	Samsung Electronics Rus Company LLC (SERC)	Sale of electronic devices	100.0
	Samsung Electronics Rus Kaluga LLC (SERK)	Manufacture of TV	100.0
	Samsung Electronics Ukraine Company LLC (SEUC)	Sale of electronic devices	100.0
	Samsung R&D Institute Ukraine (SRUKR)	R&D	100.0
	Samsung Electronics Central Eurasia LLP (SECE)	Sale of electronic devices	100.0
	Samsung Electronics Overseas B.V. (SEO)	Sale of electronic devices	100.0
	Samsung R&D Institute Rus LLC (SRR)	R&D	100.0
	Samsung Electronics Caucasus Co. Ltd (SECC)	Marketing	100.0
	Samsung Electronics Uzbekistan Ltd. (SEUZ)	Marketing	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Europe & CIS	AKG Acoustics Gmbh	Manufacture and sale of audio products	100.0
	Apostera UA, LLC	Connected service provider	100.0
	Harman Audio Iberia Espana Sociedad Limitada	Sale of audio products	100.0
	Harman Automotive UK Limited	Manufacture of audio products	100.0
	Harman Becker Automotive Systems GmbH	Manufacture and sale of audio products, R&D	100.0
	Harman Becker Automotive Systems Italy S.R.L.	Sale of audio products	100.0
	Harman Becker Automotive Systems Manufacturing Kft	Manufacture of audio products, R&D	100.0
	Harman Belgium SA	Sale of audio products	100.0
	Harman Connected Services AB.	Connected service provider	100.0
	Harman Finland Oy	Connected service provider	100.0
	Harman Connected Services GmbH	Connected service provider	100.0
	Harman Connected Services Poland Sp.zoo	Connected service provider	100.0
	Harman Connected Services UK Ltd.	Connected service provider	100.0
	Harman Consumer Nederland B.V.	Sale of audio products	100.0
	Harman Deutschland GmbH	Sale of audio products	100.0
	Harman Finance International GP S.a.r.l	Management of overseas subsidiaries	100.0
	Harman France SNC	Sale of audio products	100.0
	Harman Holding Gmbh & Co. KG	Management company	100.0
	Harman Hungary Financing Ltd.	Financing company	100.0
	Harman Inc. & Co. KG	Management of overseas subsidiaries	100.0
	Harman International Estonia OU	R&D	100.0
	Harman International Industries Limited	Sale of audio products, R&D	100.0
	Harman International Romania SRL	R&D	100.0
	Harman Finance International, SCA	Financing company	100.0
	Harman Management Gmbh	Management of overseas subsidiaries	100.0
	Harman Professional Kft	Manufacture of audio products, R&D	100.0
	Harman Professional Denmark ApS	Sale of audio products, R&D	100.0
	Red Bend Software Ltd.	Software design	100.0
	Red Bend Software SAS	Software design	100.0
	Studer Professional Audio GmbH	Sale of audio products, R&D	100.0
	Harman Connected Services OOO	Connected service provider	100.0
	Harman RUS CIS LLC	Sale of audio products	100.0
Middle East & Africa	Samsung Gulf Electronics Co., Ltd. (SGE)	Sale of electronic devices	100.0
	Samsung Electronics Türkiye (SETK)	Sale of electronic devices	100.0
	Samsung Electronics Industry and Commerce Ltd. (SETK-P)	Manufacture of electronic devices	100.0
	Samsung Electronics Levant Co.,Ltd. (SELV)	Sale of electronic devices	100.0
	Samsung Electronics Maghreb Arab (SEMAG)	Sale of electronic devices	100.0
	Samsung Electronics Egypt S.A.E (SEEG)	Manufacture and sale of electronic devices	100.0
	Samsung Electronics Israel Ltd. (SEIL)	Marketing	100.0
	Samsung Electronics Tunisia S.A.R.L (SETN)	Marketing	100.0
	Samsung Electronics Pakistan(Private) Ltd. (SEPAK)	Marketing	100.0
	Samsung Electronics Saudi Arabia Ltd. (SESAR)	Sale of electronic devices	100.0
	Samsung Semiconductor Israel R&D Center, Ltd. (SIRC)	R&D	100.0
	Corephotonics Ltd.	R&D	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
	Samsung Electronics South Africa(Pty) Ltd. (SSA)	Sale of electronic devices	100.0
	Samsung Electronics South Africa Production (pty) Ltd. (SSAP)	Manufacture of TV and monitors	100.0
	Samsung Electronics West Africa Ltd. (SEWA)	Marketing	100.0
	Samsung Electronics East Africa Ltd. (SEEA)	Marketing	100.0
	Global Symphony Technology Group Private Ltd.	Management of overseas subsidiaries	100.0
	Harman Connected Services Morocco	Connected service provider	100.0
	Harman Industries Holdings Mauritius Ltd.	Management of overseas subsidiaries	100.0
	Red Bend Ltd.	Manufacture of audio products	100.0
Asia (Excluding China)	Samsung Asia Pte. Ltd. (SAPL)	Management of overseas subsidiaries	100.0
	Samsung Electronics Singapore Pte. Ltd. (SESP)	Sale of electronic devices	100.0
	Samsung Malaysia Electronics (SME) Sdn. Bhd. (SME)	Sale of electronic devices	100.0
	Samsung Electronics Display (M) Sdn. Bhd. (SDMA)	Manufacture of electronic devices	100.0
	Samsung Electronics (M) Sdn. Bhd. (SEMA)	Manufacture of home appliances	100.0
	Samsung Vina Electronics Co., Ltd. (SAVINA)	Sale of electronic devices	100.0
	Samsung Electronics Vietnam Co., Ltd. (SEV)	Manufacture of electronic devices	100.0
	Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	Manufacture of communication equipment	100.0
	Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	Manufacture and sale of electronic devices	100.0
	Samsung Display Vietnam Co., Ltd. (SDV)	Manufacture of display panels	100.0
	DOWOOINSYS VINA COMPANY LIMITED	Manufacture of display components	100.0
	PT Samsung Electronics Indonesia (SEIN)	Manufacture and sale of electronic devices	100.0
	PT Samsung Telecommunications Indonesia (STIN)	Sale of electronic devices and services	100.0
	Thai Samsung Electronics Co., Ltd. (TSE)	Manufacture and sale of electronic devices	91.8
	Laos Samsung Electronics Sole Co., Ltd (LSE)	Marketing	100.0
	Samsung Electronics Philippines Corporation (SEPCO)	Sale of electronic devices	100.0
	Samsung Electronics Australia Pty. Ltd. (SEAU)	Sale of electronic devices	100.0
	Samsung Electronics New Zealand Limited (SENZ)	Sale of electronic devices	100.0
	Samsung India Electronics Private Ltd. (SIEL)	Manufacture and sale of electronic devices	100.0
	Red Brick Lane Marketing Solutions Pvt. Ltd.	Marketing	100.0
	Samsung Display Noida Private Limited (SDN)	Manufacture of display panels	100.0
	Samsung R&D Institute India-Bangalore Private Limited (SRI-Bangalore)	R&D	100.0
	Samsung R&D Institute BanglaDesh Limited (SRBD)	R&D	100.0
	Samsung Nepal Services Pvt, Ltd (SNSL)	Service	100.0
	Samsung Japan Corporation (SJC)	Sale of semiconductor and display panels	100.0
	Samsung R&D Institute Japan Co. Ltd. (SRJ)	R&D	100.0
	Samsung Electronics Japan Co., Ltd. (SEJ)	Sale of electronic devices	100.0
	Harman Connected Services Corp. India Pvt. Ltd.	Connected service provider	100.0
	Harman International (India) Private Limited	Sale of audio products, R&D	100.0
	Harman International Industries PTY Ltd.	Management of overseas subsidiaries	100.0
	Harman International Japan Co., Ltd.	Sale of audio products, R&D	100.0
	Harman Singapore Pte. Ltd.	Sale of audio products	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
China	Samsung (CHINA) Investment Co., Ltd. (SCIC)	Sale of electronic devices	100.0
	Samsung Electronics Hong Kong Co., Ltd. (SEHK)	Sale of electronic devices	100.0
	Samsung Electronics Taiwan Co., Ltd. (SET)	Sale of electronic devices	100.0
	Tianjin Samsung Electronics Co., Ltd. (TSEC)	Manufacture of TV and monitors	91.2
	Suzhou Samsung Electronics Co., Ltd. (SSEC)	Manufacture of home appliances	88.3
	Samsung Suzhou Electronics Export Co., Ltd. (SSEC-E)	Manufacture of home appliances	100.0
	Samsung Electronics Suzhou Computer Co., Ltd. (SESC)	R&D	100.0
	Tianjin Samsung Telecom Technology Co., Ltd. (TSTC)	Manufacture of communication equipment	90.0
	Beijing Samsung Telecom R&D Center (SRC-Beijing)	R&D	100.0
	Samsung Electronics China R&D Center (SRC-Nanjing)	R&D	100.0
	Samsung Mobile R&D Center China-Guangzhou (SRC-Guangzhou)	R&D	100.0
	Samsung R&D Institute China-Shenzhen (SRC-Shenzhen)	R&D	100.0
	Shanghai Samsung Semiconductor Co., Ltd. (SSS)	Sale of semiconductor and display panels	100.0
	Samsung (China) Semiconductor Co., Ltd. (SCS)	Manufacture of semiconductors	100.0
	Samsung SemiConductor Xian Co., Ltd. (SSCX)	Sale of semiconductor and display panels	100.0
	Samsung Electronics Suzhou Semiconductor Co., Ltd. (SESS)	Toll processing of semiconductors	100.0
	Tianjin Samsung LED Co., Ltd. (TSLED)	Manufacture of LED	100.0
	Samsung Semiconductor (China) R&D Co., Ltd. (SSCR)	R&D	100.0
	Samsung Display Dongguan Co., Ltd. (SDD)	Manufacture of display panels	100.0
	Samsung Display Tianjin Co., Ltd. (SDT)	Manufacture of display panels	95.0
	SEMES (XIAN) Co., Ltd.	Semiconductor/FPD equipment services	100.0
	Samsung Semiconductor Investment L.P.I	Technology business, venture capital investments	99.0
	Harman (China) Technologies Co., Ltd.	Manufacture of audio products	100.0
	Harman (Suzhou) Audio and Infotainment Systems Co., Ltd.	Sale of audio products	100.0
	Harman Automotive Electronic Systems (Suzhou) Co., Ltd.	Manufacture of audio products, R&D	100.0
	Harman Commercial (Shanghai) Co., Ltd.	Sale of audio products	100.0
	Harman Connected Services Solutions (Chengdu) Co., Ltd.	Connected service provider	100.0
	Harman Holding Limited	Sale of audio products	100.0
	Harman International (China) Holdings Co., Ltd.	Sale of audio products, R&D	100.0
	Harman Technology (Shenzhen) Co., Ltd.	Sale of audio products, R&D	100.0

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

Area	Subsidiaries	Industry	Percentage of ownership (%)[1]
Domestic	Samsung Display Co., Ltd.	Manufacture and sale of display panels	84.8
	SU Materials	Manufacture of display components	50.0
	STECO Co., Ltd.	Manufacture of semiconductor components	70.0
	SEMES Co., Ltd.	Manufacture and sale of semiconductor/FPD	91.5
	Samsung Electronics Service Co., Ltd.	Repair services for electronic devices	99.3
	Samsung Electronics Service Customer Satisfaction Co., Ltd.	Call center for repair services for electronic devices	100.0
	Samsung Electronics Sales Co., Ltd.	Sale of electronic devices	100.0
	Samsung Electronics Logitech Co., Ltd.	General logistics agency	100.0
	Samsung Medison Co., Ltd.	Manufacture and sale of medical equipment	68.5
	Stella Forest of Hope	Manufacture and production of food	100.0
	Mirero System Co., Ltd.	Development and supply of semiconductor process defect and quality control software	99.9
	Dowooinssys Co., Ltd.	Manufacture of display components	69.0
	Gf-System Co., Ltd.	Manufacture of display components	100.0
	Harman International Korea	Software development and supply, etc.	100.0
	Samsung Venture Capital Union #21	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #22	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #26	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #28	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #29	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #32	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #33	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #37	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #40	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #42	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #43	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #45	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #48	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #52	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #55	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #56	Technology business, Venture capital investments	99.0
	Samsung Venture Capital Union #57	Technology business, Venture capital investments	99.0
	Growth type private equity trust specialized in semiconductors	Investment on semiconductor industry	66.7
	System LSI mutual benefit private equity trust	Investment on semiconductor industry	62.5

[1] Ownership represents the Company's ownership of the voting rights in each entity, including subsidiaries' ownerships.

(B) Sale and purchase transactions

Sale and purchase transactions with related parties for the years ended December 31, 2022 and 2021 are as follows:

(In millions of Korean won)	Name of company[1]	2022			
		Sales and other	Disposal of non-current assets	Purchases and other	Purchase of non-current assets
Subsidiaries	Samsung Display Co., Ltd.	283,011	-	981,927	-
	Samsung Electronics America, Inc. (SEA)	35,303,291	632	209,912	-
	Samsung Asia Pte. Ltd. (SAPL)	42	-	30,982	-
	Harman and its subsidiaries[2]	-	-	76,891	-
	Samsung (China) Semiconductor Co., Ltd. (SCS)	184,796	10,644	9,679,473	5,534
	Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	8,668,668	-	25,941,259	831
	Samsung (CHINA) Investment Co., Ltd. (SCIC)	1,588,710	-	9,035	-
	Samsung Semiconductor, Inc. (SSI)	40,907,261	-	532,962	-
	Samsung Electronics Vietnam Co., Ltd. (SEV)	5,804,935	256	16,441,332	50
	Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	-	-	-	-
	Samsung Austin Semiconductor LLC. (SAS)	1,053	-	3,663,909	2,457
	Samsung Display Vietnam Co., Ltd. (SDV)	2,073,972	-	-	-
	Samsung India Electronics Private Ltd. (SIEL)	7,439,341	112	5,798,974	-
	Shanghai Samsung Semiconductor Co., Ltd. (SSS)	16,490,821	-	47	-
	Samsung Eletronica da Amazonia Ltda. (SEDA)	1,262,369	-	2,174	-
	Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	628,854	2,791	4,830,861	1,680
	Thai Samsung Electronics Co., Ltd. (TSE)	1,578,349	-	2,615,512	-
	Samsung Electronics (UK) Ltd. (SEUK)	1,529,791	-	98,891	-
	Samsung Electronics Benelux B.V. (SEBN)	788,385	-	2,333	-
	Samsung Electronics Hungarian Private Co. Ltd. (SEH)	408,409	141	2,191	-
	Samsung Electronics Europe Logistics B.V. (SELS)	4,772,554	-	5,104	-
	Samsung Display Dongguan Co., Ltd. (SDD)	249,142	-	-	-
	SEMES Co., Ltd.	8,224	-	2,283,556	-
	Samsung Electronics GmbH (SEG)	3,865,859	-	6,948	-
	Samsung Electronics Mexico S.A. De C.V. (SEM)	2,442,869	-	6,950	-
	Other	58,705,560	4,198	23,123,295	2,213
	Total	194,986,266	18,774	96,344,518	12,765
Associates and joint ventures	Samsung SDS Co., Ltd	212,376	-	1,672,853	348,752
	Samsung Electro-Mechanics Co., Ltd	60,343	767	919,709	120
	Samsung SDI Co., Ltd	60,325	-	422,836	24,874
	Cheil Worldwide Inc.	31,194	-	931,489	361
	Other	617,779	-	881,585	10,224
	Total	982,017	767	4,828,472	384,331
Other related parties	Samsung C&T Corporation	44,359	-	84,635	7,018,252
	Other	283,122	188	602,014	132,512
	Total	327,481	188	686,649	7,150,764
Other[3]	Samsung Engineering Co., Ltd	1,490	-	32,677	3,106,154
	S-1 Corporation	7,530	-	428,907	45,864
	Other	136,969	-	251,907	540,591
	Total	145,989	-	713,491	3,692,609

[1] Transactions with separate entities that are related parties of the Company.

[2] Transactions with the intermediate parent company, including Harman International Industries, Inc. and its subsidiaries.

[3] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise group according to the Monopoly Regulation and Fair Trade Act.

(In millions of Korean won)	Name of company[1]	2021 Sales and other	Disposal of non-current assets	Purchases and other	Purchase of non-current assets
Subsidiaries	Samsung Display Co., Ltd.	234,883	2,475	916,709	-
	Samsung Electronics America, Inc. (SEA)	32,860,328	-	165,629	-
	Samsung (China) Semiconductor Co., Ltd. (SCS)	167,937	190,056	7,340,085	9,857
	Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	9,380,604	686	21,146,962	1,111
	Harman and its subsidiaries[2]	65	-	48,387	-
	Samsung Electronics Vietnam Co., Ltd. (SEV)	6,652,988	1,716	15,387,219	317
	Samsung (CHINA) Investment Co., Ltd. (SCIC)	1,525,639	-	9,019	-
	Samsung Semiconductor, Inc. (SSI)	31,894,007	-	409,852	-
	Samsung Asia Pte. Ltd. (SAPL)	18	-	22,855	-
	Samsung Austin Semiconductor LLC (SAS)	598	1,183	3,703,472	7,511
	Samsung India Electronics Private Ltd. (SIEL)	4,327,075	2,609	3,373,962	-
	Shanghai Samsung Semiconductor Co., Ltd. (SSS)	25,683,936	-	3,885	-
	Samsung Display Vietnam Co., Ltd. (SDV)	1,314,121	-	-	-
	Samsung Eletronica da Amazonia Ltda. (SEDA)	3,151,503	403	8,600	-
	Samsung Electronics (UK) Ltd. (SEUK)	1,535,053	-	91,821	1
	Samsung International, Inc. (SII)	417,680	-	7,721,915	-
	Thai Samsung Electronics Co., Ltd. (TSE)	1,459,938	-	2,489,534	-
	Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	652,277	3,222	5,183,912	900
	Samsung Electronics Taiwan Co., Ltd. (SET)	4,853,191	-	674	-
	Samsung Electronics Hungarian Private Co., Ltd. (SEH)	547,190	-	547	-
	Samsung Electronics Europe Logistics B.V. (SELS)	4,294,662	-	11,007	-
	Samsung Electronics Benelux B.V. (SEBN)	365,818	-	2,695	-
	Samsung Electronics GmbH (SEG)	3,332,793	-	7,646	-
	Samsung Display Dongguan Co., Ltd. (SDD)	288,980	-	-	-
	Other	53,602,392	10,982	15,648,603	3,784
	Total	188,543,676	213,332	83,694,990	23,481
Associates and joint ventures	Samsung SDS Co., Ltd	141,014	-	1,542,039	530,412
	Samsung Electro-Mechanics Co., Ltd	45,303	-	975,086	-
	Samsung SDI Co., Ltd	49,995	269	360,350	30,627
	Cheil Worldwide Inc.	26,794	-	720,533	16
	Other	595,551	68	773,381	8,011
	Total	858,657	337	4,371,389	569,066
Other related parties	Samsung C&T Corporation	66,745	-	78,054	3,902,417
	Other	303,093	-	564,706	92,577
	Total	369,838	-	642,760	3,994,994
Other[3]	Samsung Engineering Co., Ltd	598	-	38,556	2,106,166
	S-1 Corporation	7,132	-	401,224	27,744
	Other	106,714	2,371	200,387	38,531
	Total	114,444	2,371	640,167	2,172,441

[1] Transactions with separate entities that are related parties of the Company.

[2] Transactions with the intermediate parent company, including Harman International Industries, Inc. and its subsidiaries.

[3] Although these entities are not related parties of the Company in accordance with *Korean IFRS 1024*, they belong to the same large enterprise group according to the Monopoly Regulation and Fair Trade Act.

(C) Balances of receivables and payables

Balances of receivables and payables arising from the sales and purchases of goods and services as of December 31, 2022 and December 31, 2021 are as follows:

(In millions of Korean won)	Name of company[1]	December 31, 2022	
		Receivables and other[2]	Payables and other[3]
Subsidiaries	Samsung Display Co., Ltd.	32,521	108,011
	Samsung Electronics America, Inc. (SEA)	868,937	983,709
	Samsung Asia Pte. Ltd. (SAPL)	1,604	1,812
	Harman and its subsidiaries[4]	-	6,537
	Samsung (China) Semiconductor Co., Ltd. (SCS)	57,423	751,693
	Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	606,030	2,396,411
	Samsung (CHINA) Investment Co., Ltd. (SCIC)	131,285	283,459
	Samsung Semiconductor, Inc. (SSI)	4,700,427	263,757
	Samsung Electronics Vietnam Co., Ltd. (SEV)	369,380	1,748,670
	Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	693	-
	Samsung Austin Semiconductor LLC. (SAS)	21,309	386,640
	Samsung Display Vietnam Co., Ltd. (SDV)	196,643	7
	Samsung India Electronics Private Ltd. (SIEL)	1,219,298	312,243
	Shanghai Samsung Semiconductor Co., Ltd. (SSS)	1,623,968	77
	Samsung Eletronica da Amazonia Ltda. (SEDA)	227,180	3,037
	Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	234,870	358,082
	Thai Samsung Electronics Co., Ltd. (TSE)	115,103	379,098
	Samsung Electronics (UK) Ltd. (SEUK)	76,264	-
	Samsung Electronics Benelux B.V. (SEBN)	18,403	-
	Samsung Electronics Hungarian Private Co. Ltd. (SEH)	11,449	-
	Samsung Electronics Europe Logistics B.V. (SELS)	273,816	506,872
	Samsung Display Dongguan Co., Ltd. (SDD)	20,177	11
	SEMES Co., Ltd.	54,327	561,368
	Samsung Electronics GmbH (SEG)	10,607	-
	Samsung Electronics Mexico S.A. De C.V. (SEM)	230,508	1,093
	Other	6,565,258	2,226,116
	Total	17,667,480	11,278,703
Associates and joint ventures	Samsung SDS Co., Ltd	49,439	468,830
	Samsung Electro-Mechanics Co., Ltd	385	101,960
	Samsung SDI Co., Ltd	114,618	51,199
	Cheil Worldwide Inc.	43	444,017
	Other	203,575	159,668
	Total	368,060	1,225,674
Other related parties	Samsung C&T Corporation	194,539	2,718,294
	Other	14,679	160,305
	Total	209,218	2,878,599
Other [5]	Samsung Engineering Co., Ltd	286	1,181,947
	S-1 Corporation	3,085	59,352
	Other	4,113	478,136
	Total	7,484	1,719,435

[1] Transactions with separate entities that are related parties of the Company.

[2] The Company has not recognized bad debt allowance in relation to the receivables due from subsidiaries as of December 31, 2022.

[3] Payables and others include lease liabilities.

[4] Transactions with the intermediate parent company, including Harman International Industries, Inc. and its subsidiaries.

[5] Although these entities are not related parties of the Company in accordance with Korean IFRS 1024, they belong to the same large enterprise group according to the Monopoly Regulation and Fair Trade Act.

(In millions of Korean won)	Name of Company[1]	December 31, 2021	
		Receivables and other[2]	Payables and other[3]
Subsidiaries	Samsung Display Co., Ltd.	23,791	119,401
	Samsung Electronics America, Inc. (SEA)	4,708,011	143,310
	Samsung (China) Semiconductor Co., Ltd. (SCS)	59,110	726,945
	Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	734,283	4,049,400
	Harman and its subsidiaries[4]	-	7,541
	Samsung Electronics Vietnam Co., Ltd. (SEV)	414,781	2,301,949
	Samsung (CHINA) Investment Co., Ltd. (SCIC)	138,307	77,540
	Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	316	-
	Samsung Semiconductor, Inc. (SSI)	7,320,890	123,555
	Samsung Asia Pte. Ltd. (SAPL)	1,736	2,164
	Samsung Austin Semiconductor LLC (SAS)	4,645	277,682
	Samsung India Electronics Private Ltd. (SIEL)	1,099,927	463,652
	Shanghai Samsung Semiconductor Co., Ltd. (SSS)	4,337,520	217
	Samsung Display Vietnam Co., Ltd. (SDV)	161,441	-
	Samsung Eletronica da Amazonia Ltda. (SEDA)	258,490	1,040
	Samsung Electronics (UK) Ltd. (SEUK)	201,717	19,595
	Samsung International, Inc. (SII)	32,564	259,847
	Thai Samsung Electronics Co., Ltd. (TSE)	132,508	334,943
	Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	167,225	430,960
	Samsung Electronics Taiwan Co., Ltd. (SET)	372,716	32,145
	Samsung Electronics Hungarian Private Co., Ltd. (SEH)	58,694	99
	Samsung Electronics Europe Logistics B.V. (SELS)	629,882	1,715
	Samsung Electronics Benelux B.V. (SEBN)	45,171	3,351
	Samsung Electronics GmbH (SEG)	223,603	2,272
	Samsung Display Dongguan Co., Ltd. (SDD)	18,025	-
	Other	9,220,424	2,284,643
	Total	30,365,777	11,663,966
Associates and joint ventures	Samsung SDS Co., Ltd	64,364	574,443
	Samsung Electro-Mechanics Co., Ltd	2,415	108,103
	Samsung SDI Co., Ltd	113,845	54,076
	Cheil Worldwide Inc.	59	421,901
	Other	192,550	166,311
	Total	373,233	1,324,834
Other related parties	Samsung C&T Corporation	195,355	1,640,615
	Other	15,839	125,470
	Total	211,194	1,766,085
Other[5]	Samsung Engineering Co., Ltd	289	1,099,881
	S-1 Corporation	2,058	29,620
	Other	4,286	56,476
	Total	6,633	1,185,977

[1] Transactions with separate entities that are related parties of the Company.

[2] The Company has not recognized any bad debt allowance in relation to the receivables due from subsidiaries as of December 31, 2021.

[3] Payables and others include lease liabilities.

[4] Transactions with the intermediate parent company, including Harman International Industries, Inc. and its subsidiaries.

[5] Although these entities are not related parties of the Company in accordance with Korean IFRS 1024, they belong to the same large enterprise group according to the Monopoly Regulation and Fair Trade Act.

(D) For the years ended December 31, 2022 and 2021, the Company invested ₩ 119,598 million and ₩ 138,858 million, respectively, in subsidiaries, and received ₩ 164,503 million and ₩ 592,520 million in return of investments, respectively. In addition, the Company invested ₩ 882,125 million in associates and joint ventures for the year ended December 31, 2022, but there was no additional investment in associates and joint ventures for the year ended December 31, 2021 or return of those investments for the years ended December 31, 2022 and 2021, respectively.

(E) For the years ended December 31, 2022 and 2021, the Company declared dividend of ₩ 1,663,149 million and ₩ 3,527,449 million, respectively, to related parties. In addition, for the years ended December 31, 2022 and 2021, the Company declared dividends of ₩ 128,232 million and ₩ 267,738 million, respectively, to the entities that are not related parties of the Company in accordance with *Korean IFRS 1024*, but belong to the same conglomerate according to the Monopoly Regulation and Fair Trade Act. As of December 31, 2022 and December 31, 2021, no dividends declared remains unpaid.

(F) For the years ended December 31, 2022 and 2021, assets leased from related parties amounted to ₩ 20 million and ₩ 63,887 million, respectively, and lease payments made to the related parties amounted to ₩ 46,819 million and ₩ 51,703 million, respectively.

(G) As of December 31, 2022, the Company provides guarantees in relation to borrowings of the related parties (refer to Note 13).

(H) Key management compensation

The compensation paid or payable to key management (executive directors) for their services for the years ended December 31, 2022 and 2021 consists of:

(In millions of Korean won)	**2022**	**2021**
Short-term employee benefits	14,768	20,370
Post-employment benefits	612	886
Other long-term employee benefits	5,434	8,092

31. Subsequent Event

In accordance to the resolution of the Board of Directors on February 14, 2023, the Company concluded a ₩ 20 trillion loan agreement with Samsung Display Co., Ltd., the subsidiary, on February 16, 2023.

6. Dividends

We continue to work to enhance shareholder value alongside our efforts to strengthen competitiveness of our products and businesses. We utilized 50% of the free cash flow as the shareholder return pool for 2018 to 2020 as part of our shareholder return policy for 2018 to 2020 and paid annual, regular dividends of KRW 9.6 trillion. A special cash dividend of KRW 10.7 trillion was paid out at the same time as the 2020 end-year, regular dividend. The shareholder return policy for 2021 to 2023 was announced in January 2021. For this term, we kept the shareholder return pool at 50% of the free cash flow, but increased the annual, regular dividend to KRW 9.8 trillion. Any remaining portion of the 50% of the free cash flow will be paid out to shareholders.

Dividends paid in the three most recent fiscal years are as follows:

[Key dividend indices]

Classification		2022	2021	2020
Par value per share (KRW)		100	100	100
Consolidated net profit[1] (KRW mil)		54,730,018	39,243,791	26,090,846
Separate net profit (KRW mil)		25,418,778	30,970,954	15,615,018
EPS[2] (KRW)		8,057	5,777	3,841
Total cash dividend (KRW mil)		9,809,438	9,809,438	20,338,075
Total stock dividend (KRW mil)		-	-	-
Dividend payout ratio (%)		17.9	25.0	78.0
Cash dividend yield (%)	Common	2.5	1.8	4.0
	Preferred	2.7	2.0	4.2
Stock dividend yield (%)	Common	-	-	-
	Preferred	-	-	-
Cash dividend per share (KRW)	Common	1,444	1,444	2,994
	Preferred	1,445	1,445	2,995
Stock dividend per share (share)	Common	-	-	-
	Preferred	-	-	-

Total cash dividend for 2022 in the above table is a figure prior to the approval at the AGM, and if the amount is rejected or adjusted at the AGM, the details will be published in future reports.
Dividends were KRW 2,452,154 million or KRW 361 per share in the first three quarters of 2022 and the first three quarters of 2021, and KRW 2,404,605 million or KRW 354 per share in each of the first three quarters of 2020. For further information relating to total cash dividend, see retained earnings in『3. Note to Consolidated Financial Statements』in『III. Financial Affairs』.
1) Equity attributable to owners of the parent.
2) Basic earnings per common share on a consolidated basis. For further information relating to the calculation of basic EPS, see Earnings Per Share in『3. Note to Consolidated Financial Statements』in『III. Financial Affairs』.

History of dividend payouts is as follows:

Number of continuous dividend payments		Average dividend yield	
Quarterly/biannual dividends	End-year dividends	Past 3 years	Past 5 years
36	42	2.7%	2.9%

The number of continuous dividend payments includes the quarterly dividend for the quarter and the end-year dividend for the recent business year. Continuous payment of the end-year dividend started in 1981, biannual dividend in 1999, and quarterly dividend in 2017.
The average dividend yield is based on common shares. The average dividend yield of preferred shares for the past 3 years and past 5 years are 3.0% and 3.3% respectively.
The "past 3 years" refers to the period from 2020 to 2022, and the "past 5 years" refers to the period from 2018 to 2022. For the dividend yield of 2022, please refer to the table of key dividends above (common shares at 2.5%, preferred shares at 2.7%).

7. Matters about financing through the issuance of securities

7-1 Financing through the issuance of securities

[Issuance of equity securities]

N/A

[Issuance of debt securities]

A. List of issued debt securities

(As of December 31, 2022) (KRW mil, %)

Issuing company	Type of securities	Issuance method	Date of Issuance	Total nominal amount	Interest rate	Rating (rating institution)	Maturity date	Payment status	Management company
Samsung Electronics	Corporate bonds	Public offering	Oct 2,1997	126,730	7.7	Aa2(Moody's), AA-(S&P)	Oct 1, 2027	Partial redemption	Goldman Sachs et al.
Harman International Industries, Inc	Corporate bonds	Public offering	May 11, 2015	506,920	4.2	Baa1 (Moody's), A- (S&P)	May 15, 2025	Unredeemed	J.P.Morgan et al.
Harman Finance International, SCA (*1)	Corporate bonds	Public offering	May 27, 2015	469,819	2.0	Baa1 (Moody's), A- (S&P)	May 27, 2022	Redeemed	HSBC et al.
Dowinsys Co., Ltd	Corporate bonds	Private placement	Feb 28, 2020	23,000	0.5	-	Feb 28, 2025	Unredeemed	-
Dowinsys Co., Ltd	Corporate bonds	Private placement	Dec 8, 2022	42,000	0.5	-	Dec 8, 2027	Unredeemed	-
SEMES	Commercial paper	Private placement	Jul 28, 2022	80,000	3.0	A1	Aug 26, 2022	Redeemed	-
SEMES	Commercial paper	Private placement	Aug 30, 2022	30,000	3.3	A1	Sep 29, 2022	Redeemed	-
Total	-	-	-	1,278,469	-	-	-	-	-

※ The rating institutions of Commercial paper are NICE Investors Service and Korea Ratings Corporation.

(*1) The corporate bonds were redeemed on March 1st, 2022, prior to the original maturity date.

B. Commercial Paper Unredeemed Balance

Not Applicable

(Reporting Date: December 31, 2022) (KRW mil)

Maturity		Under 10 days	Above 10 days / under 30 days	Above 30 days / under 90 days	Above 90 days / under 180 days	Above 180 days / under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years	Total
Unredeemed balance	Public	-	-	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-

C. Short-term Bond Unredeemed Balance

Not Applicable

(Reporting Date: December 31, 2022) (KRW mil)

Maturity		Under 10 days	Above 10 days / under 30 days	Above 30 days / under 90 days	Above 90 days / under 180 days	Above 180 days / under 1 year	Total	Issue limit	Balance limit
Unredeemed balance	Public	-	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-

D. Corporate Bond Unredeemed Balance

(Reporting Date: December 31, 2022) (KRW mil)

Maturity		Under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years / under 4 years	Above 4 years / under 5 years	Above 5 years / under 10 years	Above 10 years	Total
Unredeemed balance	Public	6,337	6,337	513,257	6,337	6,335	-	-	538,790
	Private	-	-	23,000	-	42,000	-	-	65,000
	Total	6,337	6,337	536,257	6,337	48,335	-	-	603,603

※ Based on consolidated financial statements.
※ The exchange rate as of the reporting date has been applied.
※ Unredeemed balance of corporate bonds of Dowinsys are intercompany balances eliminated in consolidated financial statements.

- Corporate Bond Unredeemed Balance (Samsung Electronics)

(Reporting Date: December 31, 2022) (KRW mil)

Maturity		Under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years / under 4 years	Above 4 years / under 5 years	Above 5 years / under 10 years	Above 10 years	Total
Unredeemed balance	Public	6,337	6,337	6,337	6,337	6,335	-	-	31,683
	Total	6,337	6,337	6,337	6,337	6,335	-	-	31,683

※ The exchange rate as of the reporting date has been applied.

- Corporate Bond Unredeemed Balance (Harman)

(Reporting Date: December 31, 2022) (KRW mil)

Maturity		Under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years / under 4 years	Above 4 years / under 5 years	Above 5 years / under 10 years	Above 10 years	Total
Unredeemed balance	Public	-	-	506,920	-	-	-	-	506,920
	Total	-	-	506,920	-	-	-	-	506,920

※ The exchange rate as of the reporting date has been applied.

- Corporate Bond Unredeemed Balance (Dowinsys)

(Reporting Date: December 31, 2022) (KRW mil)

Maturity		Under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years / under 4 years	Above 4 years / under 5 years	Above 5 years / under 10 years	Above 10 years	Total
Unredeemed balance	Private	-	-	23,000	-	42,000	-	-	65,000
	Total	-	-	23,000	-	42,000	-	-	65,000

※ Unredeemed balance of corporate bonds of Dowinsys are intercompany balances eliminated in consolidated financial statements.

E. Hybrid Bond Unredeemed Balance

Not Applicable

(Reporting Date: December 31, 2022) (KRW mil)

Maturity		Under 1 year	Above 1 year / under 5 years	Above 5 years / under 10 years	Above 10 years / under 15 years	Above 15 years / under 20 years	Above 20 years / under 30 years	Above 30 years	Total
Unredeemed balance	Public	-	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-

F. Contingent Convertible Bond Unredeemed Balance

Not Applicable

(Reporting Date: December 31, 2022) (KRW mil)

Maturity		Under 1 year	Above 1 year / under 2 years	Above 2 years / under 3 years	Above 3 years / under 4 years	Above 4 years / under 5 years	Above 5 years / under 10 years	Above 10 years / under 20 years	Above 20 years / under 30 years	Above 30 years	Total
Unredeemed balance	Public	-	-	-	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-	-

G. Details and Compliance of the Bond Management Contract (Samsung Electronics)

(Reporting Date: December 31, 2022) (KRW mil, %)

Name of security	Date of issuance	Maturity date	Issued amount	Settlement date of bond management contract	Debenture management company
US$ 100,000,000 7.7% debenture	Oct 2, 1997	Oct 1, 2027	126,730	Oct 2, 1997	The Bank of New York Mellon Trust Company, N.A.

(Reporting Date: December 31, 2022)

Financial ratios	Contract details	Not applicable
	Implementation status	Not applicable
Constraint on collateral	Contract details	Less than 10% of net tangible assets
	Implementation status	Compliant (there is no collateral for the relevant assets)
Constraint on disposal of assets	Contract details	Certain requirements, such as transfer of obligations on the bond, must be satisfied to dispose all or most of an asset
	Implementation status	Compliant (disposed assets accounted for 0.2% of the total assets during 2022)
Constraint on governance	Contract Details	Not applicable
	Implementation status	Not applicable
Submission of implementation report	Implementation status	Not applicable

※ The exchange rate as of the base date has been applied.
※ The date of the bond management contract was signed on the same day as the Fiscal Agency Agreement; accordingly, the Bank of New York Mellon Trust Company, N.A. is under the authority of the Fiscal Agent.
※ The net tangible assets subjected to the limitation of collaterals are production facilities and stocks owned by the Company.
※ The reporting date is the date when most recent financial statements were prepared, which are used to determine the status of implementation.
※ The constraint on governance is as of the reporting date.

7-2 Use of funds financed through the issuance of securities

Not applicable

8. Other financial information

A. Restatement of financial statements and other matters to note

(1) Restatement of financial statements: Not Applicable

(2) Acquisition, divestment, asset sales, and sale of business

The major acquisition, divestment and transfer of business during past three years are as follows.

[Sale of SSL, SSM]

On August 28, 2020, Samsung Display Co., Ltd., the Company's subsidiary, decided to sell its 100% ownership in Samsung Suzhou Module Co., Ltd. ("SSM") and 60% ownership in Samsung Suzhou LCD Co., Ltd. ("SSL") to TCL China Star Optoelectronics Technologies Co. Ltd. ("CSOT"). The sales were completed on April 1, 2021.

(3) Information on the accounting treatment of the sales of assets related to asset backed securities and contingent liabilities

Accounting Treatment of the sale of assets related to asset backed securities:

- Not applicable

Litigation

The Company is involved in various claims, disputes, and investigations conducted by regulatory bodies, which arose during the normal course of business with numerous entities. Although the outflow of resources and timing of these matters are uncertain, as of the reporting date, the Company believes the outcome will not have a material impact on the financial position of the Company.

Debt guarantee

- Domestic: Not applicable

- Overseas:

(USD thousand)

Company	Relationship	Creditor	Guarantee	Transactions			Limit of guarantee
			Expiry date	Beginning of period	Increase/ decrease	End of period	
SEA	Subsidiary	BOA etc.	Dec 16, 2023	-	-	-	1,278,000
SEM	Subsidiary	BBVA etc.	Nov 08, 2023	-	-	-	715,000
SAMCOL	Subsidiary	Citibank etc.	Dec 16, 2023	-	-	-	210,000
SEDA	Subsidiary	BRADESCO etc.	Dec 16, 2023	-	-	-	409,000
SECH	Subsidiary	Citibank etc.	Dec 16, 2023	-	-	-	62,000
SEPR	Subsidiary	BBVA etc.	Dec 16, 2023	-	-	-	150,000
SSA	Subsidiary	SCB etc.	Dec 16, 2023	-	-	-	318,000
SEMAG	Subsidiary	SocGen etc.	Dec 16, 2023	-	-	-	110,000
SETK	Subsidiary	BNP etc.	Dec 16, 2023	102,275	137,120	239,395	777,000
SETK-P	Subsidiary	BNP etc.	Dec 16, 2023	33,334	-7,685	25,649	130,000
SECE	Subsidiary	Citibank	Dec 16, 2023	-	-	-	60,000
SEEG	Subsidiary	HSBC	Jun 13, 2023	-	-	-	85,000
SEIN	Subsidiary	BNP etc.	Nov 08, 2023	-	-	-	70,000
SJC	Subsidiary	Mizuho Bank etc.	Dec 16, 2023	-	-	-	832,572
SEUC	Subsidiary	Credit Agricole etc.	Dec 16, 2023	-	-	-	150,000
SEDAM	Subsidiary	Citibank etc.	Dec 16, 2023	-	155,768	155,768	537,000
SECA	Subsidiary	BoA	Nov 08, 2023	-	-	-	70,000
SELA	Subsidiary	Citibank	Dec 16, 2023	-	-	-	60,000
SEEH	Subsidiary	HSBC etc.	Dec 16, 2023	-	-	-	888,400
SERK	Subsidiary	SMBC etc.	Dec 16, 2023	-	-	-	45,000
SELV	Subsidiary	Citibank	Dec 16, 2023	-	-	-	10,000
SEIL	Subsidiary	Citibank	Dec 16, 2023	10,947	-1,283	9,664	15,600
SAPL	Subsidiary	BOA etc.	Dec 16, 2023	-	-	-	404,000
SAVINA	Subsidiary	HSBC	Jun 13, 2023	-	-	-	51,000
SCIC	Subsidiary	HSBC etc.	Dec 16, 2023	-	-	-	300,000
SME	Subsidiary	SCB	Nov 08, 2023	-	-	-	110,000
SAMEX	Subsidiary	Citibank	Dec 16, 2023	-	-	-	5,000
SEASA	Subsidiary	Citibank	Dec 16, 2023	-	-	-	2,000
SSAP	Subsidiary	SCB	Nov 08, 2023	-	-	-	35,000
SEPM	Subsidiary	HSBC	Jun 13, 2023	-	-	-	35,000
SESAR	Subsidiary	HSBC	Jun 13, 2023	-	-	-	20,000
AdGear Technologies Inc.	Subsidiary	BOA	Nov 08, 2023	-	-	-	2,000
Harman International Industries, Inc.	Subsidiary	JP Morgan	Jun 13, 2023	-	-	-	100,000
Harman International Japan Co., Ltd.	Subsidiary	MUFG	Nov 08, 2023	-	-	-	25,000
Harman RUS CIS LLC	Subsidiary	SocGen	May 31, 2022	-	-	-	-
Harman Holding Limited	Subsidiary	HSBC	Jun 13, 2023	-	-	-	30,000
Harman do Brasil Industria Eletronica e Participacoes Ltda.	Subsidiary	SocGen	Nov 08, 2023	-	-	-	15,000
Harman da Amazonia Industria Eletronica e Participacoes Ltda.							
Harman International Industries Limited	Subsidiary	HSBC	Jun 13, 2023	-	-	-	30,000
Harman Finance International, SCA	Subsidiary	JP Morgan etc.	Mar 01, 2022	396,304	-396,304	-	-
SDN	Subsidiary	SIEL	Nov 22, 2024	571,121	-57,755	513,366	603,960
SAS	Subsidiary	Epcor	The date of debt expiration	-	-	-	340,000
DOWOOINSYS VINA COMPANY LIMITED	Subsidiary	ANZ	Nov 09, 2025	-	20,000	20,000	20,000
Total				1,113,981	-150,139	963,842	9,110,532

※ Information above are prepared on a consolidated basis. Debt guarantees for Harman Finance International, SCA are provided by Harman International Industries, Inc., SDN by Samsung Display Co., Ltd., SAS by SEA, and DOWOOINSYS VINA COMPANY LIMITED by Dowinsys, respectively.

※ SEC requires Board approval for individual guarantees exceeding 2.5% of total equity. When the guarantee amount is between 0.1% and/or less than 2.5%, the approval decision is delegated to the Management Committee. Samsung Display Co., Ltd requires Board approval for individual guarantees over KRW 10,000 million.

※ SEC claims fees on the debt guarantees depending on the maturity date of each debt guarantee, general loan interest rate, etc. In 2022, the Company claimed approximately USD 547,000 in guarantee fees and, as of the reporting date, has not collected the amount.

In 2022, Samsung Display Co., Ltd. claimed approximately USD 3,080,000 in guarantee fees to SDN and, as of the reporting date, has not collected the amount.

Refer to the notes to the consolidated financial statements for the information on contingent liabilities.

(4) Other matters requiring attention in relation to the use of the financial statements

A. Emphasis of matter and key audit matter in Independent auditor's report

Period	Emphasis of matter	Key audit matter
2022	Not applicable	(Consolidated financial statement) 1. Sales deduction related to the Sales promotion activities of products (Separate financial statement) 1. Sales deduction related to the Sales promotion activities of products
2021	Not applicable	(Consolidated financial statement) 1. Sales deduction related to the Sales promotion activities of products (Separate financial statement) 1. Sales deduction related to the Sales promotion activities of products
2020	Not applicable	(Consolidated financial statement) 1. Sales deduction related to the Sales promotion activities of products 2. Impairment of goodwill and intangible assets with indefinite useful lives (Separate financial statement) 1. Sales deduction related to the Sales promotion activities of products

B. Allowance for bad debt

The allowances for bad debt by account over the past 3 years are as follows:

(KRW mil, %)

Period	Account	Receivables amount	Allowance amount	Allowance
2022	Trade receivables	36,033,784	312,221	0.9%
	Short-term loans	22,403	215	1.0%
	Other receivables	6,227,068	77,859	1.3%
	Advances	1,741,031	3,965	0.2%
	Trade receivables (long-term)	204,248	-	0.0%
	Other receivables (long-term)	824,468	242	0.0%
	Advances (long-term)	2,382,711	10,969	0.5%
	Long-term loans	225,983	1,206	0.5%
	Total	47,661,696	406,677	0.9%
2021	Trade receivables	41,024,295	310,880	0.8%
	Short-term loans	17,895	73	0.4%
	Other receivables	4,569,772	72,515	1.6%
	Advances	1,122,660	3,847	0.3%
	Trade receivables (long-term)	225,739	-	0.0%
	Other receivables (long-term)	1,002,404	290	0.0%
	Advances (long-term)	1,770,999	9,003	0.5%
	Long-term loans	199,577	917	0.5%
	Total	49,933,341	397,525	0.8%
2020	Trade receivables	31,283,789	318,731	1.0%
	Short-term loans	7,813	73	0.9%
	Other receivables	3,663,822	59,283	1.6%
	Advances	890,413	3,371	0.4%
	Trade receivables (long-term)	85,575	-	0.0%
	Other receivables (long-term)	401,582	204	0.1%
	Advances (long-term)	1,397,698	5,972	0.4%
	Long-term loans	113,944	1,309	1.1%
	Total	37,844,636	388,943	1.0%

※ Based on consolidated financial statements.

※ Receivables amount represents the value after deducting present value discount account.

Allowance for bad debt by year

(KRW mil)

	2022	2021	2020
1. Allowance for bad debt (beginning balance)	397,525	388,943	411,310
2. Net bad debt expense (① - ② + ③)	16,658	25,926	65,575
① Bad debt expense, etc (Write-off)	9,711	22,400	40,487
② Bad debt recovered	-	-	745
③ Others	6,947	3,526	25,833
3. Bad debts expense	25,810	34,508	43,208
4. Allowance for bad debts (Ending balance)	406,677	397,525	388,943

※ Based on consolidated financial statements.

The guideline for bad debt allowances for trade receivables

(1) Calculation of bad debt allowance

- Bad debt allowance is calculated using an expected credit loss impairment model which is based on write-off experience rate and future expected bad debt amount.

(2) Calculation basis of write-off experience rate and future expected bad debt:

- Write-off experience rate for each aging group of receivables is calculated based on the actual rate of credit losses to three-year average receivables balance.
- Future expected bad debt is determined taking into consideration cases of debtor bankruptcy, compulsory execution, death, disappearance, credit information of debtor and forward-looking information.

[Bad debt allowance by circumstance]

Circumstance	Rate of allowance
Dispute or conflict	25%
Receivable through utilization of third party collection agency	50%
Receivable under litigation	75%
Customer filed or in the process of filing bankruptcy	100%

(3) Instruction: Write-off is recorded when trade receivables contain the following characteristics:

- Objective proof of bad debts, such as bankruptcy, compulsory execution, discontinuance of business, debtor's death or disappearance
- Legal action has failed or the right of collection has been extinguished.
- When the third party collection agency notifies that collection is not possible.
- When the collateral is sold or insurance is received.
- When collection expense exceeds receivables amount.

The outstanding period of trade receivables

(Reporting Date: December 31, 2022) (KRW mil, %)

	Less than 6 months	6 months ~ 1 year	1 year ~ 3 years	More than 3 years	Total
Amount	36,067,812	4,549	68,147	97,524	36,238,032
Ratio	99.5%	0.0%	0.2%	0.3%	100.0%

※ Base on consolidated financial statements.

※ Receivables amount represents the value after deducting present value discount account.

C. Inventory

- The inventory status by Division over the last three years is as follows:

(KRW mil, %)

Division	Category	2022	2021	2020	Note
DX	Finished goods	7,712,885	8,894,766	7,088,063	
	Work in process	1,013,606	799,218	592,903	
	Raw material	10,520,293	11,384,887	7,862,310	
	Material in transit	943,322	1,299,624	876,270	
	Total	20,190,106	22,378,495	16,419,546	
DS	Finished goods	6,601,087	2,490,097	1,719,095	
	Work in process	18,756,104	11,809,911	10,639,866	
	Raw material	3,639,061	2,118,424	1,674,081	
	Material in transit	61,352	36,685	46,587	
	Total	29,057,604	16,455,117	14,079,629	
SDC	Finished goods	811,518	294,777	134,963	
	Work in process	542,473	874,229	650,762	
	Raw material	788,521	810,325	603,779	
	Material in transit	23,626	48,253	33,271	
	Total	2,166,138	2,027,584	1,422,775	
Harman	Finished goods	799,919	533,008	502,117	
	Work in process	119,890	105,271	80,237	
	Raw material	913,085	736,109	337,386	
	Material in transit	269,715	321,128	224,961	
	Total	2,102,609	1,695,516	1,144,701	
Total	Finished goods	16,032,226	12,280,579	9,387,886	
	Work in process	20,077,519	13,473,618	11,818,090	
	Raw material	14,979,280	14,184,841	9,790,766	
	Material in transit	1,098,841	1,445,366	1,046,403	
	Total	52,187,866	41,384,404	32,043,145	
Inventory ratio (%) [Inventory ÷ Total Assets] × 100		11.6%	9.7%	8.5%	
Inventory turnover (x) [Yearly COGS ÷ {(Beginning of inventory + End of inventory)÷2}]		4.1	4.5	4.9	

※ Based on consolidated financial statements

Inventory counts

(1) Inspection date

- End of May and November (twice a year)
- For the difference in inventories between the inspection date and at the end of the year, the Company checks all the warehouse record during the period in order to confirm the existence of the inventories as of the date of the financial statements.

(2) Inspection method

- Internal warehouse: Closed & entire quantity inspection

※ Sample inspection for semi-conductor and DP work-in-progress inventories, SVC materials

- Outside warehouse

  Perform check for the possession confirmation documents and sample tests at the third party warehouse and inventory-in-transit.
- External auditors join and observe the inspection and carry out sample tests to check the existence and completeness.

※ For the HQ, the most recent inventory inspection was conducted from May 29 to June 5, 2022, and the subsidiaries conducted the inventory inspection during the same period as HQ.

Inventory aging and valuation

Inventories are stated at the lower of cost or net realizable value. Inventory as of December 31, 2022 are as follows:

(KRW mil)

Category	Acquisition cost	Inventory valuation reserve	Balance	Note
Finished goods	17,526,178	-1,493,952	16,032,226	
Work in process	21,612,965	-1,535,446	20,077,519	
Raw material	16,268,974	-1,289,694	14,979,280	
Material in transit	1,098,841	-	1,098,841	
Total	56,506,958	-4,319,092	52,187,866	

※ Based on consolidated financial statements

D. Fair value estimation

Refer to 3. Financial Instruments by Category and 25. Financial Risk Management in 『Ⅲ. Financial Affairs』.

IV. Management Discussion and Analysis

1. Note on forward-looking statements

This annual report includes forward-looking statements that relate to future events and can be generally identified by phrases containing words such as “believes,” “expects,” “anticipates,” “foresees,” “forecasts,” “estimates” or other words or phrases of similar meaning. These forward-looking statements are not guarantees of future performance and may involve known and unknown risks, uncertainties and other factors that may affect our actual results, performance, achievements or financial position, making them materially different from the actual future results, performance, achievements or financial position expressed or implied by these forward-looking statements. Unless otherwise specified, all data presented in this report is from our consolidated financial statements.

Uncertain events that could positively or negatively affect the Company’s management condition and financial performance include, but are not limited to:

- Trends of financial markets domestically and abroad, including changes in exchange rates and interest rates
- The Company’s strategic decision making, including disposals and purchases of businesses
- Unexpected sudden changes in core businesses within DX, DS, SDC and Harman
- Other changes domestically and abroad that can affect management condition and financial performance

The Company assumes no obligation to revise or update this report to reflect risks or uncertainties that arise after the reporting period.

(Responsibility statement)
In accordance with article 3(2) c) of the Transparency Law (Luxembourg), Jong-Hee Han and Hark-kyu Park, as a CEO and the executive in charge of reporting confirm that, to the best of their knowledge, the consolidated financial statements and the statutory non-consolidated financial statements prepared in accordance with the applicable set of accounting standards give a true and fair view of the assets, liabilities, financial position and profit or loss of the Company and the undertakings included in the consolidation taken as a whole and that the management report includes a fair review of the development and performance of the business and the position of the Company and the undertakings included in the consolidation taken as a whole, together with a description of the principal risks and uncertainties that they face.

2. Overview

The business environment remained challenging in 2022 as uncertainties in the global economy intensified due to increasingly aggressive monetary tightening globally, the Russia-Ukraine war, and supply issues involving raw materials and energy. Despite the formidable economic conditions, Samsung Electronics achieved a total revenue of KRW 302 trillion and operating profit of KRW 43 trillion on a consolidated basis and a total revenue of KRW 212 trillion and operating profit of KRW 25 trillion on a standalone basis.

Our financial structure remained sound—we recorded a debt ratio of 26.4%, capital adequacy ratio of 79.1%, and ROE of 16.9% on a consolidated basis. On a standalone basis, the respective figures were 24.2%, 80.5%, and 12.6%. Our brand value in 2022 was evaluated at an all-time high of USD 87.7 billion (*Interbrand*; November 2022), up 17% from last year’s figure and maintaining our position as the world’s fifth most valuable brand.

On the business side, we further solidified our market power and industry leadership by launching the Galaxy Z Fold 4 and Z Flip 4 while strengthening our lineup of Neo QLED TVs and Bespoke products; and we further enhanced the profitability and cost competitiveness of the component business based on our capabilities in core technologies, which include the world’s first adoption of multi-step EUV technology.

In 2023, global economic uncertainties, such as continued monetary tightening and prolonged supply issues for raw

materials and energy, are likely to remain high, while intensifying competition for our main products and a rapidly changing paradigm in the IT industry will present numerous hurdles. However, we will leverage such challenges as opportunities and devote all our energy—via relentless innovations and thorough preparations—to improve our earnings and ensure swift responses to future opportunities.

3. Financial position and performance (consolidated)

A. Financial position

(KRW mil)

Classification	2022	2021	Increase/decrease	change
Current assets	218,470,581	218,163,185	307,396	0.1%
- Cash and cash equivalents	49,680,710	39,031,415	10,649,295	27.3%
- Short-term financial instruments	65,102,886	81,708,986	-16,606,100	-20.3%
- Other current financial assets	443,690	3,409,791	-2,966,101	-87.0%
- Trade and other receivables	35,721,563	40,713,415	-4,991,852	-12.3%
- Inventories	52,187,866	41,384,404	10,803,462	26.1%
- Other current assets	15,333,866	11,915,174	3,418,692	28.7%
Non-current assets	229,953,926	208,457,973	21,495,953	10.3%
- Other non-current financial assets	12,802,480	15,491,183	-2,688,703	-17.4%
- Associates and joint ventures	10,893,869	8,932,251	1,961,618	22.0%
- Property, plant and equipment	168,045,388	149,928,539	18,116,849	12.1%
- Intangible assets	20,217,754	20,236,244	-18,490	-0.1%
- Other non-current assets	17,994,435	13,869,756	4,124,679	29.7%
Total assets	448,424,507	426,621,158	21,803,349	5.1%
Current liabilities	78,344,852	88,117,133	-9,772,281	-11.1%
Non-current liabilities	15,330,051	33,604,094	-18,274,043	-54.4%
Total liabilities	93,674,903	121,721,227	-28,046,324	-23.0%
Equity attributable to owners of the parent	345,186,142	296,237,697	48,948,445	16.5%
Non-controlling interest	9,563,462	8,662,234	901,228	10.4%
Total equity	354,749,604	304,899,931	49,849,673	16.3%
Total liabilities and equity	448,424,507	426,621,158	21,803,349	5.1%
Capital adequacy ratio	79.1%	71.5%	7.6%p	
Debt-to-equity ratio	26.4%	39.9%	-13.5%p	
Inventory turnover	4.1	4.5	-0.4	

Presented in accordance with K-IFRS.
If the agenda item related to the approval of financial statements is rejected or adjusted at the AGM, the details will be published in future reports.

Samsung Electronics' total assets in 2022 were KRW 448.4245 trillion, an increase of KRW 21.8033 trillion (5.1%) from the previous year. The increase is mainly attributable to inventories, which increased by KRW 10.8035 trillion, and to an increase in tangible assets caused by facility investments worth KRW 18.1168 trillion for the semiconductor and DP businesses.

Total liabilities were KRW 93.6749 trillion, a decrease of KRW 28.0463 trillion (23.0%) from the previous year. This includes a decrease of KRW 9.7723 trillion (11.1%) in current liabilities and a decrease of KRW 18.2740 trillion (54.4%) in non-current liabilities. The changes are attributable to the KRW 8.5405 trillion and KRW 18.0869 trillion decreases in short-term borrowings and deferred income tax liabilities, respectively.

Total equity was KRW 354.7496 trillion, an increase of KRW 49.8497 trillion (16.3%) from the previous year. Retained earnings grew by KRW 44.8816 trillion year-on-year from net income of KRW 54.7300 trillion and dividends of KRW 9.8094 trillion. Other components of equity increased by KRW 4.0668 trillion due to factors such as the overseas operations translation difference.

In terms of financial ratios, the Company maintained a sound financial structure as the capital adequacy ratio increased by 7.6%pts from the previous year to 79.1% and the debt-to-equity ratio decreased by 13.5%pts from the previous year to 26.4%.

B. Performance

(KRW mil)

Classification	2022	2021	Increase/decrease	Change
Sales	302,231,360	279,604,799	22,626,561	8.1%
Cost of sales	190,041,770	166,411,342	23,630,428	14.2%
Gross profit	112,189,590	113,193,457	-1,003,867,	-0.9%
Selling and administrative expenses	68,812,960	61,559,601	7,253,359	11.8%
Operating profit	43,376,630	51,633,856	-8,257,226	-16.0%
Other income	1,962,071	2,205,695	-243,624	-11.0%
Other expenses	1,790,176	2,055,971	-265,795	-12.9%
Gain on valuation using the equity method of accounting	1,090,643	729,614	361,029	49.5%
Financial income	20,828,995	8,543,187	12,285,808	143.8%
Financial expenses	19,027,689	7,704,554	11,323,135	147.0%
Income before income tax expense	46,440,474	53,351,827	-6,911,353	-13.0%
Income tax expense	-9,213,603	13,444,377	-22,657,980	-168.5%
Net income	55,654,077	39,907,450	15,746,627	39.5%
Equity attributable to owners of the parent	54,730,018	39,243,791	15,486,227	39.5%
Non-controlling interests	924,059	663,659	260,400	39.2%

Presented in accordance with K-IFRS.
If the agenda item related to the approval of financial statements is rejected or adjusted at the AGM, the details will be published in future reports.

In 2022, revenue increased year-on-year by KRW 22.6266 trillion (8.1%) to an all-time annual high of KRW 302.2314 trillion, driven by expanding sales of premium products, such as Neo QLED TV, Bespoke, and flagship smartphones, as

well as currency effects on the DS Division. However, operating profit decreased year-on-year by KRW 8.2572 trillion (16.0%) to KRW 43.3766 trillion due to a decline in semiconductor ASP and the impacts of increased logistics costs from the finished product businesses.

Income before income taxes decreased year-on-year by KRW 6.9114 trillion (13.0%) to KRW 46.4405 trillion, and net income increased by KRW 15.7466 trillion (39.5%) to KRW 55.6541 trillion.

We continued to maintain a sound financial structure, highlighted by a year-on-year increase in ROE of 3.2%pts to 16.9%, and an increase in net profit ratio of 4.1%pts to 18.4%.

[Performance by division]

(KRW mil)

Classification	Division	2022		2021		Change	
		Amount	Share	Amount	Share	Amount	(%)
Revenue	DX Division	182,489,720	60.4%	166,259,437	59.5%	16,230,283	9.8%
	DS Division	98,455,270	32.6%	95,387,173	34.1%	3,068,097	3.2%
	SDC	34,382,619	11.4%	31,712,526	11.3%	2,670,093	8.4%
	Harman	13,213,694	4.4%	10,039,922	3.6%	3,173,772	31.6%
	Overall revenue	302,231,360	100.0%	279,604,799	100.0%	22,626,561	8.1%
Operating profit	DX Division	12,746,074	29.4%	17,386,554	33.7%	-4,640,480	-26.7%
	DS Division	23,815,810	54.9%	29,192,021	56.5%	-5,376,211	-18.4%
	SDC	5,952,973	13.7%	4,457,365	8.6%	1,495,608	33.6%
	Harman	880,548	2.0%	599,097	1.2%	281,451	47.0%
	Overall operating profit	43,376,630	100.0%	51,633,856	100.0%	-8,257,226	-16.0%

Includes inter-divisional revenue and operating profit.

(DX Division)

The DX Division's revenue in 2022 increased by KRW 16.2303 trillion (9.8%) from the previous year to KRW 182.4897 trillion, but operating profit decreased by KRW 4.6405 trillion (26.7%) to KRW 12.7461 trillion. Revenue growth was driven by sales of premium products, which include Neo QLED TVs, Bespoke products, and flagship smartphones, but operating profit declined due to the impacts of increased logistics costs.

In the DX Division, the VD/DA businesses are sustaining growth led by sales of premium products, including those for Neo QLED TVs featuring premium technology, as well as for products tailored to experience-oriented lifestyles, such as our Lifestyle TVs, Bespoke products, and new home appliance products.
In the Visual Display Business, we are expanding our leadership in the premium, ultra-large, over 75" TV market with QLED TVs featuring quantum dot technology, and we are growing market power with continued releases of new Lifestyle TV products, such as The Terrace and The Premier. In addition, we keep pushing the boundary of the overall market with diverse new products such as The Wall micro LED TV, soundbars, and LED signage.

Based on positive responses for our new products, Samsung has remained atop the global TV market for 17 consecutive years, spanning from 2006 to 2022, fortifying our industry leadership.

In 2023, the Company will continue to innovate to lift demand for premium TVs and sales of Lifestyle products. We will leverage micro LED technology to lead form factor in the industry; and we will present new lifestyles through additional design differentiations, which include an expansion of our lineup of lifestyle products that reflect changing patterns of how consumers use screens, including the way they connect mobile devices and content and how they interact with fitness training and gaming at home. Furthermore, as part of our Company's new environmental strategy, we will strive to ensure sustainable growth by adopting more components made from recycled plastic in our eco-friendly remote controls and by releasing new TV products that offer ultra-low-power technology.

In the Digital Appliance Business, we continue to launch products and services that not only offer advanced functions based on highly-efficient, eco-friendly technologies, but also increase convenience in our consumers' lives, all based on a deep understanding of the changing life patterns of our consumers. We are also creating new value with smart appliances that connect with various devices as well as a suite of services centering on Bixby and SmartThings.

In 2023, we aim to keep innovating user experiences by expanding global sales through differentiated Bespoke product

lineups. For our high margin B2B businesses, which include system air conditioners and built-in home appliances, we will strengthen our competitiveness to win more orders and maintain growth momentum by offering differentiated eco-friendly features and adopting customized products, for example. In addition, we will offer customized services by connecting products so our consumers can enjoy unparalleled user experiences; and we will fortify our status as a global brand in home appliances by strengthening activities that promote ESG by reducing energy use and expanding adoption of eco-friendly materials, to name a few.

Even amid challenging market conditions, including prolonged geopolitical issues and effects of inflation and the economic downturn, the DX Division's MX Business achieved solid results, including an increase in market share in the flagship smartphone market on the back of bolstered product competitiveness.

In the premium segment, following the launch of the Galaxy Z Flip and Galaxy Z Fold 2 in 2020, we released the S-series in 2021 to deliver experiences tailored to the various lifestyles of our users, further expanding our premium user base. Foldables, along with S-series models, are spearheading growth of our flagship products by offering unique user experiences. Moreover, the Galaxy Ecosystem allowed customers to experience expanded connectivity between various products and services and take advantage of collaborations with global partners, leading growth in the tablet, PC, and wearables businesses to exceed market and thus highlight strength in this segment in 2021. In 2022, facing heightened market uncertainties, including geopolitical issues, and stagnant demand, we focused our capabilities on our flagship products, increasing the sales portion and ensuring smooth supply of S22 Ultra—the top model in the S-series—thereby fortifying our status in the flagship market.

In 2023, we will aggressively pursue strategies to overcome challenges in the mobile market, which is expected to contract. We will push to expand our premium customer base by promoting the S23 and S23 Ultra to strengthen our leadership in the flagship market; and for foldables, we will stay atop the global market by further fortifying our market-leading position via our technology and broad cooperation with partners. In addition, we will actively address demand to transition to 5G via mass-market products in emerging markets, such as Southeast Asia and Latin America, to pursue overall growth in smartphones. Furthermore, by closely collaborating with the DX Division, the MX Business will expand our Multi Device experience, which enables convenient use of not only mobile products, but also TVs and home appliances, enabling our customers to enjoy an ultimate experience via the Galaxy Ecosystem.

Under a management philosophy that prioritizes future-oriented values and customer experiences, we will continue to preemptively address changing market landscapes and diversifying customer needs. We are endeavoring to preemptively secure core technologies and platforms—such as eXtended Reality (XR), chipsets, and digital health/wallets—that will power next-gen growth engines based on open cooperation; all while continuing to achieve solid results and lead the mobile market.

(DS Division)

In the DS Division, revenue in 2022 increased by KRW 3.0681 trillion (3.2%) year-on-year to KRW 98.4553 trillion, but operating profit decreased by KRW 5.3762 trillion (18.4%) to KRW 23.8158 trillion compared to the prior year due to the repercussions of a decline in semiconductor ASP in the second half of the year.

The Memory Business is focusing on bolstering competitive edges by maintaining its dominant position in cost competitiveness via technology leadership and through timely responses to market demand, even amid challenging business conditions that include a global economic slowdown and sluggish demand. In 2023, we expect customer inventory adjustments to continue and macro factors to keep dampening consumer sentiment in the short-term, and we will prepare for various scenarios—including a potential demand recovery in the second half—and continue to monitor market conditions to proactively address changes.

For DRAM, we further strengthened our technological competitiveness by preemptively establishing a DRAM mass production system that applies multi-step EUV technology—a world's first. We are focusing on qualitative growth by

operating portfolios centered on high-value and high-capacity products. Furthermore, we will actively address DDR5 demand from server and PC resulting from full-fledged adoption of a new CPU while ensuring timely responses to growing demand centering on high-capacity server and mobile products via an optimized product mix.

For NAND, we will work toward bolstering cost competitiveness and fortifying market leadership by securing a lineup of advanced products via promoting the full-fledged adoption of 8th-generation V-NAND in 2023, and by migrating to 7th-generation V-NAND products, which demonstrates our exceptional technological capabilities.

System LSI is sustaining growth momentum by maximizing revenue with the goal of transforming into a platform supplier by fully realizing synergies among various application products. Moreover, based on our product competitiveness, we will continue to expand our customer base and actively secure new technologies to prepare for market changes. For SoCs, we are securing additional customers, including for mobile- and automotive-use SoCs, while reinforcing our product lineup by leveraging our 5G technology, and we are continuing to prepare for the future by developing next-generation IP technologies. For image sensors, we launched 200MP sensors for mobile products for the first time in the world, leveraging our technological capabilities in micro-pixel ISOCELL; and for automotive image sensors, we continue to increase orders.

For Foundry in 2023, we expect growth to slow with the depressed market carried forth from 2H22 likely to keep weighing on demand and influencing inventory adjustments at customers, so we aim to use the year as an opportunity to sharpen our competitive edges by improving our fundamentals while working to overcome the downturn. For advanced nodes, we are concentrating on an early ramp of the 2nd generation 3nm GAA process and on the development of the next-generation 2nm process. For matured nodes, we aim to develop specialty processes that are customized to customer needs and expand our customer base to include various industries by diversifying within applications, including HPC, automotives, and IoT. In addition, we will endeavor to strengthen our services that promote shared growth with our customers by providing a platform offering customer-centric design and improved VoC functionality.

(SDC)

SDC's revenue in 2022 was KRW 34.3826 trillion, up KRW 2.6701 trillion (8.4%) from the previous year, and operating profit increased by KRW 1.4956 trillion (33.6%) to KRW 5.9530 trillion. Both revenue and operating profit increased on the back of expanded sales of value-added OLED panels and currency effects.

The mobile display business achieved solid earnings, led mainly by high-end products, despite a decline in smartphone demand due to weakened consumer sentiment caused by concerns over inflation, rate hikes, and the economic downturn. We actively addressed our customers' increasingly sophisticated needs by establishing an optimal product portfolio that ranges from mass-market through to premium products with our Flexible and Rigid OLED panels. Indeed, our industry-leading technological capabilities have been recognized based on our products' differentiated technologies and performance.

In the large display business, we delivered tangible achievements with our preemptive business restructuring, which includes the transition to QD-OLED. We have commenced our QD-OLED business in earnest and it is operating seamlessly, with stable mass production via the early securing of yields and a successful entry into the premium market.

In 2023, we expect the business landscape to remain challenging due to unstable market conditions triggered by inflation and tight monetary policies and as our peers enter the market in earnest. For the mobile panel business, we will leverage our technological gap in the high-end smartphone market, which is likely to stay relatively solid; and we will strengthen our market dominance through our superior cost competitiveness. Moreover, we will further solidify our leadership by diversifying our product portfolio by expanding into IT, gaming, and automotive products.

In the large panel business, amid expectations for sluggish demand due to prolonged economic uncertainties, we will keep enhancing profitability by strengthening sales foundations in the premium market based on a stabilized yield.

(Harman)

For Harman in 2022, revenue increased by KRW 3.1738 trillion (31.6%) to KRW 13.2137 trillion and operating profit increased by KRW 0.2815 trillion (47.0%) to KRW 0.8805 trillion. Both revenue and operating profit grew thanks to improved earnings from the automotive sector on the back of alleviated chip supply issues and as consumer audio sales remained strong.

Harman recorded its strongest results since its acquisition in the automotive components, consumer audio, and professional solution markets, despite a challenging business environment marked by disruptions in global logistics. Harman was able to expand its business capabilities through internal innovations as well as synergies with mobile, IT, display, and semiconductor technologies from various businesses of Samsung Electronics.

As a leader in the car component market, we supply car manufacturers with products that apply innovative technologies, all while maintaining quality at a level befitting a premium brand. In the infotainment market, we gained early dominance by preemptively addressing the transition to digital cockpits, and we won the industry's first order for 5G Telematics Control Units (TCUs) via our development of differentiated technologies. We will focus our capabilities on providing a more convenient, pleasant, and safe in-cabin experience by preparing for the era of autonomous vehicles based on such technological innovations.

In the consumer audio market, we have used our innovative technologies to firmly establish the brand's reputation among consumers and audiophiles. In particular, JBL has sold the most Bluetooth speakers in the global market for seven consecutive years, and it is sustaining notable growth momentum in the wireless earphone market.

In 2023, we expect to see a significant decline in global GDP growth compared to 2022 and additional deterioration of the business environment, including stagnant automotive and audio markets. However, we will strive to secure product and cost competitiveness via thorough preparations and technology innovations while remaining committed to enhancing shareholder value by achieving solid earnings.

C. New and closed businesses

N/A

D. Changes in organizational structure

In December 2021, the Company merged and restructured the CE and IM Divisions to form the DX Division and renamed the Mobile Communications Business to the Mobile eXperience (MX) Business. Also, SDC and the DS Division have been separated to align with the corporate organizational structure.

[As of December 2021]

	Before	After
Business organization	CE Division (Visual Display, Digital Appliances, Health & Medical Equipment)	DX Division (Visual Display, Digital Appliances, Health & Medical Equipment, Mobile eXperience, Network)
	IM Division (Mobile, Network)	
	DS Division (Memory, System LSI, Foundry, DP)	DS Division (Memory, System LSI, Foundry)
		SDC (DP)
	Harman Division	Harman
Regional headquarters	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa	Korea, North America, Latin America, Europe, CIS, Southwest Asia, Southeast Asia, China, Middle East, Africa
	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)	Americas (DS), Europe (DS), China (DS), Southeast Asia (DS), Japan (DS)

E. Foreign exchange risk

The Company experiences currency gains and losses based on the different functional currency of each entity due to global operations. As such, the Company is exposed to foreign currency volatility from exchange positions of currencies, especially related to the US dollar, Euro and Indian rupee.

(closing rate end at year-end by currency)

Currency	2022	2021	Change	Change (%)
USD	1,267.30	1,185.50	81.80	6.9%
EUR	1,351.20	1,342.34	8.86	0.7%
INR	15.31	15.93	-0.62	-3.9%

The foreign currency exposure to financial assets and liabilities of a 5% currency rate change against the Korean won (before income tax) are presented below:

(KRW mil)

Currency	December 31, 2022		December 31, 2021	
	Increase	Decrease	Increase	Decrease
USD	258,655	-258,655	250,489	-250,489
EUR	92,546	-92,546	107,519	-107,519
INR	52,096	-52,096	24,216	-24,216

To minimize foreign exchange risk arising from operating activities, the Company maintains the same level of equity and liability in each currency regardless of foreign exchange fluctuations. The Company's foreign exchange management policy requires normal business transactions (including imports and exports) to be conducted in the local currency or for the cash-in currency to be matched with the cash-out currency.

The Company effectively manages its foreign exchange risk by regular monitoring foreign exchange rates and limits all foreign exchange transactions besides the purpose of hedging risks.

F. Recognition of asset impairment loss

The Company conducts an annual review on asset impairment of CGUs (cash generating unit). The recoverable amount of a CGU is based on the calculation of value in use, and the value in use is calculated using a BTCF (before tax cash flow) assumption that based on the financial budget for the next five years (or longer if mid- to long-term plans for new businesses with emerging technologies are deemed appropriate) approved by the management committee. In calculating terminal-year cash flow for period that exceeds the term, assumption of fixed average growth (does not exceed industry average) was used.

Impairment losses are recognized to the extent the carrying amount exceeds the recoverable amount of a CGU. The recoverable amount is determined by choosing the greater figure between the use-value and fair-value, which deducts the disposal amount per cost. Recognized impairment gains or losses in 2022 reached KRW 26.4 billion for tangible assets and KRW 6.3 billion for intangible assets.

Refer to 『3. Notes to consolidated financial statements』 of 『III. Financial Affairs』 and 『B. Equity Investments in other corporations』 of 『IX. Affiliates and Subsidiaries』 for more details about asset impairment loss.

4. Liquidity, financing, and expenditure

Due to large investments made by the Company, maintaining adequate levels of liquidity is critical. The Company strives to achieve this goal by periodically forecasting its cash flow, estimating required cash levels, and managing income and expenses.

The Company preemptively manages risks by predicting cash flow on a regular basis. We efficiently manage liquidity risk through cash pooling by region, which allows the use of internal funds in case of lack of funds in the region. The cash pooling program allows sharing of surplus funds among entities and contributes to minimizing liquidity risk and strengthening the Company's competitive position by reducing capital operating expenses and finance expenses.

In addition, the Company provides payment guarantees, securing the limit of borrowing for overseas subsidiaries to prepare for any potential need for large-scale liquidity.

A. Current status of liquidity

The Company has ample liquidity, and its cash coverage (liquid funds/borrowings) is 1,115%.

	2022	2021
Cash coverage (liquid funds/borrowings)	1,115%	675%

The Company's liquidity as of December 31, 2022, is presented below:

(KRW mil)

Classification	2022	2021	Change
Liquid funds			
Cash and cash equivalents	49,680,710	39,031,415	10,649,295
Short-term financial instruments	65,102,886	81,708,986	-16,606,100
Short-term financial assets at amortized cost	414,610	3,369,034	-2,954,424
Financial assets at fair value through profit or loss	29,080	40,757	-11,677
Total financial assets	115,227,286	124,150,192	-8,922,906
Borrowings			
Short-term borrowings	5,147,315	13,687,793	-8,540,478
Current portion of long-term liabilities	1,089,162	1,329,968	-240,806
Debentures	536,093	508,232	27,861
Long-term borrowings	3,560,672	2,866,156	694,516
Total financial liabilities	10,333,242	18,392,149	-8,058,907
Net cash (liquid funds – borrowings)	104,894,044	105,758,043	-863,999

Current portion of long-term liabilities is current portion of long-term borrowings and current portion of debentures.

As of the end of 2022, the Company had KRW 115.2273 trillion of financial assets. These liquid funds include: i) cash and cash equivalents; ii) short-term financial instruments; iii) short-term financial assets at amortized cost; and iv) financial assets at fair value through other comprehensive income. This balance decreased by KRW 8.9229 trillion from KRW 124.1502 trillion at the end of the previous year.

The Company's borrowings (including debentures) are KRW 10.3332 trillion, a decrease of KRW 8.0589 trillion from KRW 18.3921 trillion at the end of the previous year.

The Company's liquidity includes an inflow of KRW 62.1813 trillion in cash flows from operating activities and an outflow of KRW 53.1267 trillion in acquisition of tangible and intangible assets, and KRW 9.8144 in dividends. The Company's net cash (liquid funds – borrowings) in 2022 is KRW 104.8940 trillion, which is a decrease of KRW 0.8640 trillion from KRW 105.7580 trillion at the end of the previous year.

B. Financing and expenditures

(Borrowings)

As of December 31, 2022, the Company's borrowings (including debentures) are presented below:

(KRW mil)

Classification	Creditor	Annual interest rate (%)	2022	2021
Short-term borrowings				
Collateralized borrowings	Woori Bank, etc.	0.0–16.7	3,569,357	11,556,101
Non-collateralized borrowings	CitiBank, etc.	0.1–38.5	1,577,958	2,131,692
Total short-term borrowings	-	-	5,147,315	13,687,793
Liquid long-term borrowings				
Bank borrowings	BNP, etc.	38.9–53.2	208,915	40,415
Capital lease liabilities	CSSD, etc.	3.5	874,019	811,902
Total liquid long-term borrowings			1,082,934	852,317
Long-term borrowings				
Bank borrowings	Industrial Bank of Korea, etc.	1.6–5.9	33,846	1,500
Capital lease liabilities	CSSD, etc.	3.5	3,526,826	2,864,656
Total long-term borrowings	-		3,560,672	2,866,156

(KRW mil)

Classification	Issuance date	Maturity date	Annual interest rate (%)	2022	2021
Debentures					
USD denominated straight bonds	Oct 2, 1997	Oct 1, 2027	7.7	31,683 (USD 25,000,000)	35,565 (USD 30,000,000)

USD denominated debenture bonds	May 11, 2015	May 15, 2025	4.2	506,920 (USD 400,000,000)	474,200 (USD 400,000,000)
EUR denominated debenture bonds	May 27, 2015	May 27, 2022	2.0	-	469,819 (EUR 350,000,000)
Sub Total				538,603	979,584
Premium on bonds payable (discount on bonds payable)				3,718	6,299
Total				542,321	985,883
Deduction: Current debentures				(6,228)	(477,651)
Non-current debentures				536,093	508,232

(Borrowings and payment of borrowings)

The Company's short-term borrowing increases or decreases depending on the discount amount of trade receivables. In 2022, short-term borrowing decreased by KRW 8.5405 trillion, while KRW 0.4816 trillion of long-term borrowing increased due to increased capital lease liabilities.

(Plan for payment of borrowings)

The Company's plan for payment of borrowings (including debentures) is presented below:

(KRW mil)

Year of payment	Amount of payment
2023	6,384,334
2024	873,525
2025	1,235,366
2026	589,082
2027~	1,912,869
Total	10,995,176

Amount calculated excluding bond discount, premium on bonds payable, and present value of bonds payable discount.

(Compliance to bond management contract conditions)

The Company's bonds are subject to conditions to protect investors such as constraint on collateral, constraint on disposal of assets, etc., and the Company complies with these conditions.

5. Off-balance sheet activities

- Refer to 『2. Notes to consolidated financial statements』 in 『III. Financial Affairs』

6. Other information for investment decision making

A. Significant accounting policies and estimation

- The Company applied the following major amended and enacted standards for the annual period beginning on January 1, 2022:

Amendments to Korean IFRS 1116, Lease

During the year ended December 31, 2020, the amendments to Korean IFRS 1116 introduced a practical expedient that provided practical relief to lessees in accounting for rent concessions occurring as a direct consequence of COVID-19. The amendments extend the practical expedient to apply to reduction in lease payments originally due on or before 30 June 2022. The application of the amendments does not have a significant impact on the consolidated financial statements.

Amendments to Korean IFRS 1103, Business Combinations

The amendments add to Korean IFRS 1103 a requirement that, for obligations within the scope of IAS 37, an acquirer applies Korean IFRS 1037 Provisions, Contingent Liabilities and Contingent Assets or Korean IFRS 2121 Levies to determine whether at the acquisition date a present obligation exists as a result of the past events. The amendments also add an explicit statement that an acquirer does not recognize contingent assets acquired in a business combination. The application of the amendments does not have a significant impact on the consolidated financial statements.

Amendments to Korean IFRS 1016 Property, Plant and Equipment

The amendments prohibit deducting from the cost of an item of property, plant and equipment any proceeds from selling items produced while bringing that asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Instead, an entity recognizes the proceeds from selling such items, and the cost of producing those items, in profit or loss. The application of the amendments does not have a significant impact on the consolidated financial statements.

Amendments to Korean IFRS 1037 Provisions, Contingent Liabilities and Contingent Assets

The amendments specify that the 'cost of fulfilling' a contract comprises the 'costs that relate directly to the contract'. Costs that relate directly to a contract consist of both the incremental costs of fulfilling that contract and an allocation of other costs that relate directly to fulfilling the contract. The application of the amendments does not have a significant impact on the consolidated financial statements.

B. Environment and employees

- Refer to 『3. Matters related to sanctions』 in 『XI. Other information』 for environmental sanctions or administrative actions.
- No significant changes in employee positions during this period.

C. Legal regulations

- Refer to 『3. Matters related to sanctions』 in 『XI. Other information』 for major legal regulations on the Company's businesses.

D. Derivatives and risk management policy

- To manage exchange rate risk, overseas companies hedge by buying or selling currency forwards for a foreign currency position that is not among the companies' functional currencies.

- Refer to 『5. Risk management and derivative trading』 in 『II. Businesses Overview』 and 『3. Notes to Financial Statements』 in 『III. Financial Affairs』 for the Company's key derivatives and risk management policy.

V. Auditor's Report

1. Introduction

Deloitte Anjin conducted audits on the consolidated/separate financial statements of financial position of the Company as of December 31, 2022, December 31, 2021, and December 31, 2020, and the related consolidated/separate statements of profit or loss, comprehensive income, changes in equity and cash flows for the years then ended and expressed an unqualified opinion on those financial statements.

All of the Company's subsidiaries received unqualified opinion for the years ended December 31, 2022, 2021, and 2020.

Period end	Company Auditor	Audit Opinion	Emphasis of Matter	Key Audit Matter(s)
Dec 31, 2022	Deloitte Anjin	Unqualified	Not applicable	(Consolidated) 1. Sales deduction related to the sales promotion activities of products (Separate) 1. Sales deduction related to the sales promotion activities of products
Dec 31, 2021	Deloitte Anjin	Unqualified	Not applicable	(Consolidated) 1. Sales deduction related to the sales promotion activities of products (Separate) 1. Sales deduction related to the sales promotion activities of products
Dec 31, 2020	Deloitte Anjin	Unqualified	Not applicable	(Consolidated) 1. Sales deduction related to the sales promotion activities of products 2. Impairment of goodwill and intangible assets with indefinite useful lives (Separate) 1. Sales deduction related to the sales promotion activities of products

※ Audit opinion on both separate and consolidated financial statements.

[Audit Contract Description] (KRW mil)

Fiscal Period	Auditor	Description	Contract		Actual	
			Audit fee	Total Hours	Fee Claimed	Hours spent
Year ended Dec 31, 2022	Deloitte Anjin	- Review of the interim separate/consolidated financial statements - Audit of separate/consolidated financial statements - Audit of Internal Control over Financial Reporting (ICFR)	8,424	78,000	8,424	78,146
Year ended Dec 31, 2021	Deloitte Anjin	- Review of the interim separate/consolidated financial statements - Audit of separate/consolidated financial statements - Audit of Internal Control over Financial Reporting (ICFR)	7,900	76,741	7,900	76,999
Year ended Dec 31, 2020	Deloitte Anjin	- Review of the interim separate/consolidated financial statements - Audit of separate/consolidated financial statements - Audit of Internal Control over Financial Reporting (ICFR)	8,400	85,721	8,400	86,128

< Review plan for the period ended December 31, 2022 >

Review Period		Planned Dates
2022 1Q	Pre-review	Mar 7, 2022 ~ Mar 25, 2022
	Review	Apr 5, 2022 ~ May 13, 2022
2022 2Q	Pre-review	Jun 6, 2022 ~ Jun 24, 2022
	Review	Jul 6, 2022 ~ Aug 12, 2022
2022 3Q	Pre-review	Sep 7, 2022 ~ Sep 23 2022
	Review	Oct 7, 2022 ~ Nov 11, 2022
Audit of IT systems and automated internal controls		Mar 16, 2022 ~ Jan 13, 2023
Early substantive audit procedures (annual audit)		Mar 7, 2022 ~ Dec 31, 2022
Audit of Internal Control over Financial Reporting (“ICFR”)		Apr 5, 2022 ~ Jan 20, 2023
Update of early substantive audit procedures and audit of financial statements		Jan 9, 2023 ~ Feb 15, 2023

※ Above schedule is for the review and audit of separate and consolidated financial statements, and audit of Internal Control over Financial Reporting (“ICFR”)

[Non-Audit Service Contract Description] (KRW mil)

Fiscal Period	Contract Date	Non-audit Service Description	Period for Service	Compensation	Note
Year ended Dec 31, 2022	Not Applicable	-	-	-	-
Year ended Dec 31, 2021	Jun 2017	E-discovery advisory services	Jan – Dec 2021	394	Deloitte Anjin
Year ended Dec 31, 2020	Jun 2017	E-discovery advisory services	Jan – Dec 2020	59	Deloitte Anjin

[Details of internal audit committee's discussion with Auditors]

No.	Date	Participants	Method	Details of discussion
1	Jan 25, 2022	Audit Committee: 3 members Company: Head of Audit Team Auditor: Signing partner and 1 other	Face-to-face meeting	- Key Audit Matters and others audit focus areas - Progress of audit of Internal Control over Financial Reporting - Other required communications at the completion stage of the audit
2	Apr 26, 2022	Audit Committee: 3 members Company: Head of Audit Team Auditor: Signing partner and 4 others	Face-to-face meeting	- Yearly plan for communication with those charged with governance - Audit plan for the year ending December 31, 2022 - Reporting on progress of quarterly review
3	Jul 26, 2022	Audit Committee: 3 members Company: Head of Audit Team Auditor: Signing partner and 4 others	Face-to-face meeting	- Annual audit plan and its progress - Plan for the Key Audit Matters selection - Progress of audit of Internal Control over Financial Reporting - Discussion of quarterly review focus areas and other required communications
4	Oct 25, 2022	Audit Committee: 3 members Company: Head of Audit Team Auditor: Signing partner and 4 others	Face-to-face meeting	- Annual audit plan and its progress - Plan for the Key Audit Matters selection - Progress of audit of Internal Control over Financial Reporting - Discussion of quarterly review focus areas and other required communications
5	Jan 27, 2023	Audit Committee: 3 members Company: Head of Audit Team Auditor: Signing partner and 4 others	Face-to-face meeting	- Key Audit Matters and others audit focus areas - Progress of audit of Internal Control over Financial Reporting - Other required communications at the completion stage of the audit

2. Change of Independent Auditor

There are 232 subsidiaries as of December 31, 2022, and Samsung R&D Institute Ukraine (SRUKR) newly appointed PwC, and Samsung Venture Capital Union SVIC No. 52, No. 55, No. 56, and No. 57 appointed KPMG as the external auditor, respectively.

There are 228 subsidiaries as of December 31, 2021. Samsung Electronics Singapore Pte. Ltd. (SESP) and Samsung Electronics Industry and Commerce Ltd (SETK-P) newly appointed Deloitte, and Gf-System Co., Ltd. newly appointed Anjin as the external auditor. And Samsung Electronics Benelux B.V. (SEBN) have changed the external auditor to E&Y from Deloitte, and Dowinsys Co., Ltd to Anjin from Samduk, respectively. Appointment of auditor was decided at the entities' own discretion.

Upon termination of the contract with previous auditor, Samil PwC, Deloitte Anjin has been designated as the Company's external auditor for three years ending December 31, 2022, in accordance with periodic designation regulation of Article 11 (1) and (2) of the "Act on External Audit of Stock Companies, Etc.", Article 17 of the "Enforcement Decree of the Act on External Audit of Stock Companies, Etc.", and Article 10 and Article 15 (1) of "Regulations on External Audit and Accounting".

There are 241 subsidiaries as at December 31, 2020. For the year ending December 31, 2020, 6 domestic subsidiaries, including Samsung Display Co., Ltd., changed external auditor from Samil PwC to Deloitte Anjin, 24 overseas subsidiaries, including Samsung Electronics America, Inc. (SEA), changed PwC to Deloitte, and 2 overseas subsidiaries, Samsung Electronica da Amazonia Ltda. (SEDA) and Samsung Gulf Electronics Co., Ltd. (SGE), changed KPMG to Deloitte. These changes in external auditors were to improve efficiency in audit of consolidated financial statements due to designation of the Company's external auditor.

Details of change in subsidiaries' external auditors are as follows:

Subsidiaries	Previous auditor	Current Auditor
Samsung Display Co., Ltd.	Samil PwC	Deloitte Anjin
Samsung Electronics Service Co., Ltd.	Samil PwC	Deloitte Anjin
Samsung Electronics Service CS Co., Ltd.	Samil PwC	Deloitte Anjin
Samsung Electronics Sales Co., Ltd.	Samil PwC	Deloitte Anjin
Samsung Electronics Logitech Co., Ltd.	Samil PwC	Deloitte Anjin
Mirero System Co., Ltd.	Samil PwC	Deloitte Anjin
Samsung Electronics America, Inc. (SEA)	PwC	Deloitte
Samsung Semiconductor, Inc. (SSI)	PwC	Deloitte
Samsung Mexicana S.A. de C.V (SAMEX)	PwC	Deloitte
Samsung International, Inc. (SII)	PwC	Deloitte
Samsung Austin Semiconductor LLC. (SAS)	PwC	Deloitte
Samsung Electronics Mexico S.A. De C.V. (SEM)	PwC	Deloitte
Samsung Electronics (UK) Ltd. (SEUK)	PwC	Deloitte
Samsung Electronics Holding GmbH (SEHG)	PwC	Deloitte
Samsung Semiconductor Europe GmbH (SSEG)	PwC	Deloitte
Samsung Electronics GmbH (SEG)	PwC	Deloitte
Samsung Electronics Benelux B.V. (SEBN)	PwC	Deloitte
Samsung Vina Electronics Co., Ltd. (SAVINA)	PwC	Deloitte
Samsung Asia Private Ltd. (SAPL)	PwC	Deloitte
Samsung Electronics Australia Pty. Ltd. (SEAU)	PwC	Deloitte

Thai Samsung Electronics Co., Ltd. (TSE)	PwC	Deloitte
Samsung Display Vietnam Co., Ltd. (SDV)	PwC	Deloitte
Samsung Electronics Vietnam Co., Ltd. (SEV)	PwC	Deloitte
Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	PwC	Deloitte
Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	PwC	Deloitte
Samsung (CHINA) Investment Co., Ltd. (SCIC)	PwC	Deloitte
Shanghai Samsung Semiconductor Co., Ltd. (SSS)	PwC	Deloitte
Samsung Electronics Saudi Arabia Ltd. (SESAR)	PwC	Deloitte
Samsung Electronics Turkey (SETK)	PwC	Deloitte
Samsung Electronics Rus Company LLC (SERC)	PwC	Deloitte
Samsung Eletronica da Amazonia Ltda. (SEDA)	KPMG	Deloitte
Samsung Gulf Electronics Co., Ltd. (SGE)	KPMG	Deloitte

The newly acquired subsidiary, TeleWorld Solutions, Inc.(TWS), appointed PwC as their external auditor. Appointment of auditor was decided at the entities' own discretion.

3. Regarding Internal Control

[Audit opinion of Internal Control over Financial Reporting (ICFR)]

Fiscal Period	Group Auditor	Opinion	Remarks
Year ended Dec 31, 2022	Deloitte Anjin	[Audit Opinion] The Company maintained, in all material respects, effective internal control over financial reporting As of December 31, 2022, based on *Conceptual Framework for Designing and Operating Internal Control over Financial Reporting.*	Not applicable
Year ended Dec 31, 2021	Deloitte Anjin	[Audit Opinion] The Company maintained, in all material respects, effective internal control over financial reporting As of December 31, 2021, based on *Conceptual Framework for Designing and Operating Internal Control over Financial Reporting.*	Not applicable
Year ended Dec 31, 2020	Deloitte Anjin	[Audit Opinion] The Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020, based on *Conceptual Framework for Designing and Operating Internal Control over Financial Reporting.*	Not applicable

VI. Corporate Governance

1. Board of Directors

A. Overview

The Board of Directors consisted of 11 directors, 5 of whom are Executive Directors (Jong-hee Han, Kye-hyun Kyung, Tae-moon Roh, Hark-kyu Park, and Jung-bae Lee) and 6 Independent Directors (Han-jo Kim, Sun-uk Kim, Jeong Kim, Jun-sung Kim, Eun-nyeong Heo, and Myung-hee Yoo). The Board has appointed Han-jo Kim as Chairman as he will be able to mediate the different opinions of Directors and is most qualified to manage Board activities. The roles of Board Chairman and CEO have been separated to enhance the Board's independence and transparency.

The Board has six committees: Management Committee, Audit Committee, Independent Director Recommendation Committee, Related Party Transactions Committee, Compensation Committee, and Sustainability Committee.

[As of December 31, 2022]

Classification	Composition	Members	Head	Role
Board of Directors	5 Executive Directors	Jong-hee Han, Kye-hyun Kyung, Tae-moon Roh, Hark-kyu Park, Jung-bae Lee	Han-jo Kim (Independent)	- Make resolutions on matters provided for by the relevant laws and regulations or the Articles of Incorporation, matters delegated by a general meeting of shareholders, as well as on important matters concerning basic policies and business execution. - Supervise management.
	6 Independent Directors	Han-jo Kim, Sun-uk Kim, Jeong Kim, Jun-sung Kim, Eun-nyeong Heo, Myung-hee Yoo		
Management Committee	5 Executive Directors	Jong-hee Han, Kye-hyun Kyung, Tae-moon Roh, Hark-kyu Park, Jung-bae Lee	Jong-hee Han (Executive)	- Deliberate and decide on matters related to finance, general management, and on matters specifically delegated by the Board.
Audit Committee	3 Independent Directors	Han-jo Kim, Sun-uk Kim, Jeong Kim	Han-jo Kim (Independent)	- Review and audit matters concerning management of the Company, including the Company's financial situation.
Independent Director Recommendation Committee	2 Independent Director	Jeong Kim, Sun-uk Kim	Jeong Kim (Independent)	- Assess the independence, diversity, and ability of potential candidates for Independent Director positions. - Recommend candidates.
Related Party Transactions Committee	3 Independent Directors	Sun-uk Kim, Han-jo Kim, Jeong Kim	Sun-uk Kim (Independent)	- Voluntarily comply with fair transaction regulations to enhance corporate transparency.
Compensation Committee	3 Independent Directors	Jeong Kim, Han-jo Kim, Jun-sung Kim	-	- Ensure the objectivity and transparency of the decision-making process for Director compensation.
Sustainability Committee	6 Independent Directors	Han-jo Kim, Sun-uk Kim, Jeong Kim, Jun-sung Kim, Eun-nyeong Heo, Myung-hee Yoo	Han-jo Kim (Independent)	- Promote sustainability management in ESG areas and enhance shareholder value.

Jan 27, 2022: Independent Director Jeong Kim was appointed as the Head of Independent Director Recommendation Committee.
Mar 16, 2022: Kye-hyun Kyung, Tae-moon Roh, Hark-kyu Park, and Jung-bae Lee were newly appointed as Executive Directors; Wha-jin Han and Jun-sung Kim as Independent Directors; and Han-jo Kim was reappointed as Independent Director at the AGM.
Mar 16, 2022: Ki-nam Kim, Hyun-suk Kim, and Dong-jin Koh resigned from their position as Executive Director.
Mar 19, 2022: Terms of Jae-wan Bahk and Curie Ahn as Independent Director expired.
Apr 1, 2022: Executive Director Jong-hee Han was appointed as the Head of Management Committee.
Apr 20, 2022: Wha-jin Han resigned from her position as Independent Director.
Apr 26, 2022: Independent Director Han-jo Kim was appointed as the Head of Audit Committee.

Apr 28, 2022: Independent Director Han-jo Kim was appointed as the Head of Sustainability Committee.
May 17, 2022: Independent Director Byung-gook Park passed away.
Jul 28, 2022: Independent Director Sun-uk Kim was appointed as Independent Director Recommendation Committee member at the Board meeting.
Jul 28, 2022: Independent Director Jeong Kim was appointed as Compensation Committee member at the Board meeting.
Nov 3, 2022: Eun-nyeong Heo and Myung-hee Yoo were newly appointed as Independent Directors at the EGM.
Nov 3, 2022: Independent Directors Eun-nyeong Heo and Myung-hee Yoo were appointed as Sustainability Committee members at the Board meeting.
Jan 27, 2023: Independent Director Jeong Kim was appointed as the Head of Compensation Committee.

The number of Independent Directors and changes in the number are shown below.

Number of Directors	Number of Independent Directors	Changes of Independent Directors		
		Appointed	Dismissed	Resigned
11	6	5	-	2

Mar 16, 2022: Wha-jin Han and Jun-sung Kim were newly appointed as Independent Directors and Han-jo Kim was reappointed as an Independent Director at the AGM.
Mar 19, 2022: Terms of Jae-wan Bahk and Curie Ahn as Independent Director expired.
Apr 20, 2022: Wha-jin Han resigned from her position as Independent Director.
May 17, 2022: Independent Director Byung-gook Park passed away.
Nov 3, 2022: Eun-nyeong Heo and Myung-hee Yoo were newly appointed as Independent Directors at the EGM.

B. Agendas considered and voting results

Date	Agenda	Results	Executive Directors (attendance)							
			Ki-nam Kim (100%)	Hyun-suk Kim (100%)	Dong-jin Koh (100%)	Jong-hee Han (90%)	Kye-hyun Kyung (100%)	Tae-moon Roh (88%)	Hark-kyu Park (100%)	Jung-bae Lee (100%)
Jan 27	① Approval of FY21 financial statements and full-year business report	Approved	For	For	For	For	N/A (newly appointed)	N/A (newly appointed)	N/A (newly appointed)	N/A (newly appointed)
	② Appointment of SCC member	Approved	For	For	For	For				
	※ Reported Items 1) Report on FY21 internal accounting management system activities 2) Report on evaluation of FY21 internal accounting management system activities									
Feb 15	① Appointment of CEO	Approved	For	For	For	For				
	② Decision to convene the 53rd AGM	Approved	For	For	For	For				
	③ Decisions on the 53rd AGM agenda items	Approved	For	For	For	For				
	※ Reported Items 1) FY21 annual audit report 2) FY21 full-year business report 3) Report on FY21 internal accounting management system activities ※ Agenda item 1: Approval of FY21 financial statements, including balance sheet, income statement, and the statement of appropriation of retained earnings, etc. ※ Agenda item 2: Appointment of Directors 2-1: Appointment of Independent Directors 2-1-1: Appointment of Han-jo Kim 2-1-2: Appointment of Wha-jin Han 2-1-3: Appointment of Jun-sung Kim 2-2: Appointment of Executive Directors 2-2-1: Appointment of Kye-hyun Kyung 2-2-2: Appointment of Tae-moon Roh 2-2-3: Appointment of Hark-kyu Park 2-2-4: Appointment of Jung-bae Lee 2-3: Appointment of Audit Committee Members 2-3-1: Appointment of Han-jo Kim 2-3-2: Appointment of Jeong Kim ※ Agenda item 3: Approval of remuneration limit for Directors									
	④ Revision of internal accounting management regulations	Approved	For	For	For	For				
	⑤ Approval of 2022 social contribution matching fund	Approved	For	For	For	For				
	⑥ Donation to Chung-nam Samsung Institute	Approved	-	For	For	For				

Date	Agenda	Results	Executive Directors (attendance)							
			Ki-nam Kim (100%)	Hyun-suk Kim (100%)	Dong-jin Koh (100%)	Jong-hee Han (90%)	Kye-hyun Kyung (100%)	Tae-moon Roh (88%)	Hark-kyu Park (100%)	Jung-bae Lee (100%)
	⑦ Purchase of product liability insurance	Approved	For	For	For	For				
Mar 16	① Appointment of Chairman of the Board	Approved	N/A (resigned)	N/A (resigned)	N/A (resigned)	For	For	For	For	For
	② Appointment of CEO	Approved				For	For	For	For	For
	③ Appointment of Board committee members	Approved				For	For	For	For	For
	④ Setting remuneration of Directors	Approved				For	For	For	For	For
	⑤ Participation in Samsung Biologics' rights offering	Approved				For	For	For	For	For
Apr 28	① Approval of 1Q22 interim business report and quarterly dividend	Approved				For	For	For	For	For
	② Real estate lease agreement of company building of SEC in Seocho	Approved				For	For	For	For	For
	③ Purchase of employee insurance policy	Approved				For	For	For	For	For
	④ Charitable contributions	Approved				For	For	For	For	For
	⑤ Lease agreement with Samsung SDI	Approved				For	For	For	For	For
	⑥ Donation to incentive fund for DS Division's suppliers	Approved				For	For	For	For	For
	⑦ Establishment of plans on safety and health	Approved				For	For	For	For	For
Jul 28	① Approval of 2022 half-year business report and quarterly dividend	Approved				For	For	Absent	-	For
	② Appointment of Board committee members	Approved				For	For	Absent	-	For
	③ Joining of the New Technology Investment Association	Approved				For	For	Absent	-	For
	④ Revision of regulation on establishment and operation of SCC	Approved				For	For	Absent	-	For
	⑤ Purchase of package insurance policy for domestic operations	Approved				For	For	Absent	-	For
	⑥ Purchase of mobile device insurance	Approved				For	For	Absent	-	For
	⑦ Real estate lease agreement with Samsung Display	Approved				For	For	Absent	-	For
	⑧ Donation to the Inter-University Semiconductor Research Center of Seoul National University to help cover operating costs	Approved				For	For	Absent	-	For
Sep 1	① Decision to convene the EGM	Approved				Absent	For	For	For	-
	② Decisions on the EGM agenda items	Approved				Absent	For	For	For	-
	※ Reported Items									
	1) Audit report									
	※ Agenda item 1: Appointment of Independent Directors									
	1-1: Appointment of Eun-nyeong Heo									
	1-2: Appointment of Myung-hee Yoo									
	③ Setting the record date of shareholder register for the EGM					Absent	For	For	For	-
Oct 27	① Promotion of JY Lee to Chairman	Approved				For	For	For	-	-
	② Approval of 3Q22 interim business report and quarterly dividend	Approved				For	For	For	-	-
	③ Donation to the Korea Chamber of Commerce and Industry	Approved				For	For	For	-	-
	※ Reported Items									
	1) Report on the CEO candidate pool									
Nov 3	① Appointment of Board committee members	Approved				For	For	For	For	For
	② Contribution for support related to the tragedy in Itaewon and to strengthen the public safety system	Approved				For	For	For	For	For
Nov 30	① Approval of transaction with affiliate company	Approved				For	For	For	For	For
	② Payment of retirement pension plan	Approved				For	For	For	For	For

Date	Agenda	Results	Executive Directors (attendance)							
			Ki-nam Kim (100%)	Hyun-suk Kim (100%)	Dong-jin Koh (100%)	Jong-hee Han (90%)	Kye-hyun Kyung (100%)	Tae-moon Roh (88%)	Hark-kyu Park (100%)	Jung-bae Lee (100%)
	③ Approval of business plan for 2023	Approved	N/A (resigned)	N/A (resigned)	N/A (resigned)	For	For	For	For	For
	④ Contribution to Community Chest of Korea's annual fundraising campaign for 2023	Approved				For	For	For	For	For
	⑤ Contribution to UNDP sourced from Samsung Global Goals	Approved				For	For	For	For	For
	⑥ Sponsorship of the WorldSkills Competition	Approved				For	For	For	For	For
	※ Reported Items 1) Report on the evaluation of the effectiveness of the compliance control system 2) Report on results of the compliance review 3) Report on measures to develop a compliance culture									
Dec 20	① Appointment of the Chief Compliance Officer	Approved				For	For	For	For	For

Date	Agenda	Results	Independent Directors (attendance)									
			Jae-wan Bahk (67%)	Sun-uk Kim (90%)	Byung-gook Park (100%)	Jeong Kim (100%)	Curie Ahn (67%)	Han-jo Kim (100%)	Wha-jin Han (100%)	Jun-sung Kim (100%)	Eun-nyeong Heo (100%)	Myung-hee Yoo (100%)
Jan 27	① Approval of FY21 financial statements and full-year business report	Approved	For	For	For	For	For	For	N/A (newly appointed)	N/A (newly appointed)	N/A (newly appointed)	N/A (newly appointed)
	② Appointment of SCC member	Approved	For	For	For	For	For	For				
	※ Reported Items 1) Report on FY21 internal accounting management system activities 2) Report on evaluation of FY21 internal accounting management system activities											
Feb 15	① Appointment of CEO	Approved	For	For	For	For	For	For				
	② Decision to convene the 53rd AGM	Approved	For	For	For	For	For	For				
	③ Decisions on the 53rd AGM agenda items	Approved	For	For	For	For	For	For				
	※ Reported Items 1) FY21 annual audit report 2) FY21 full-year business report 3) Report on FY21 internal accounting management system activities ※ Agenda item 1: Approval of FY21 financial statements, including balance sheet, income statement, and the statement of appropriation of retained earnings, etc. ※ Agenda item 2: Appointment of Directors 2-1: Appointment of Independent Directors 2-1-1: Appointment of Han-jo Kim 2-1-2: Appointment of Wha-jin Han 2-1-3: Appointment of Jun-sung Kim 2-2: Appointment of Executive Directors 2-2-1: Appointment of Kye-hyun Kyung 2-2-2: Appointment of Tae-moon Roh 2-2-3: Appointment of Hark-kyu Park											

Date	Agenda	Results	Independent Directors (attendance)									
			Jae-wan Bahk (67%)	Sun-uk Kim (90%)	Byung-gook Park (100%)	Jeong Kim (100%)	Curie Ahn (67%)	Han-jo Kim (100%)	Wha-jin Han (100%)	Jun-sung Kim (100%)	Eun-nyeong Heo (100%)	Myung-hee Yoo (100%)
	2-2-4: Appointment of Jung-bae Lee											
	2-3: Appointment of Audit Committee Member											
	2-3-1: Appointment of Han-jo Kim											
	2-3-2: Appointment of Jeong Kim											
	Agenda item 3: Approval of remuneration limit for Directors											
	④ Revision of internal accounting management regulations	Approved	For	For	For	For	For	For				
	⑤ Approval of 2022 social contribution matching fund	Approved	For	For	For	For	For	For	N/A (newly appointed)	N/A (newly appointed)		
	⑥ Donation to Chung-nam Samsung Institute*	Approved	For	For	For	For	For	For				
	⑦ Purchase of product liability insurance	Approved	For	For	For	For	For	For				
Mar 16	① Appointment of Chairman of the Board	Approved	Absent	For	For	For	Absent	For	For	For		
	② Appointment of CEO	Approved	Absent	For	For	For	Absent	For	For	For		
	③ Appointment of Board committee members	Approved	Absent	For	For	For	Absent	For	For	For		
	④ Setting remuneration of Directors	Approved	Absent	For	For	For	Absent	For	For	For		
	⑤ Participation in Samsung Biologics' rights offering	Approved	Absent	For	For	For	Absent	For	For	For		
Apr 28	① Approval of 1Q22 interim business report and quarterly dividend	Approved		For	For	For		For		For		
	② Real estate lease agreement of company building of SEC in Seocho	Approved		For	For	For		For		For		
	③ Purchase of employee insurance policy	Approved		For	For	For		For		For	N/A (newly appointed)	N/A (newly appointed)
	④ Charitable contributions	Approved		For	For	For		For		For		
	⑤ Lease agreement with Samsung SDI	Approved		For	For	For		For		For		
	⑥ Donation to incentive fund for DS Division's suppliers	Approved		For	For	For		For		For		
	⑦ Establishment of plans on safety and health	Approved		For	For	For		For		For		
Jul 28	① Approval of 2022 half-year business report and quarterly dividend	Approved		For		For		For		For		
	② Appointment of Board committee members	Approved		For		For		For		For		
	③ Joining of the New Technology Investment Association	Approved		For		For		For		For		
	④ Revision of regulation on establishment and operation of SCC	Approved		For		For		For		For		
	⑤ Purchase of package insurance policy for domestic operations	Approved	N/A (term expired)	For	N/A (resigned)	For	N/A (term expired)	For	N/A (resigned)	For		
	⑥ Purchase of mobile device insurance	Approved		For		For		For		For		
	⑦ Real estate lease agreement with Samsung Display	Approved		For		For		For		For		
	⑧ Donation to the Inter-University Semiconductor Research Center of Seoul National University to help cover operating costs	Approved		For		For		For		For		
Sep 1	① Decision to convene the EGM	Approved		For		For		For		For		
	② Decisions on the EGM agenda items	Approved		For		For		For		For		
	※ Reported Items											
	1) Audit report											

Date	Agenda	Results	Independent Directors (attendance)									
			Jae-wan Bahk (67%)	Sun-uk Kim (90%)	Byung-gook Park (100%)	Jeong Kim (100%)	Curie Ahn (67%)	Han-jo Kim (100%)	Wha-jin Han (100%)	Jun-sung Kim (100%)	Eun-nyeong Heo (100%)	Myung-hee Yoo (100%)
	※ Agenda item 1: Appointment of Independent Directors 1-1: Appointment of Eun-nyeong Heo 1-2: Appointment of Myung-hee Yoo ③ Setting the record date of shareholder register for the EGM	Approved		For		For		For		For		
Oct 27	① Promotion of JY Lee to Chairman	Approved		For		For		For		For		
	② Approval of 3Q22 interim business report and quarterly dividend	Approved		For		For		For		For		
	③ Donation to the Korea Chamber of Commerce and Industry	Approved		For		For		For		For		
	※ Reported Items 1) Report on the CEO candidate pool											
Nov 3	① Appointment of Board committee members	Approved		Absent		For		For		For	For	For
	② Contribution for support related to the tragedy in Itaewon and to strengthen the public safety system	Approved		Absent		For		For		For	For	For
Nov 30	① Approval of transaction with affiliate company	Approved		For		For		For		For	For	For
	② Payment of retirement pension plan	Approved		For		For		For		For	For	For
	③ Approval of business plan for 2023	Approved		For		For		For		For	For	For
	④ Contribution to Community Chest of Korea's annual fundraising campaign for 2023	Approved		For		For		For		For	For	For
	⑤ Contribution to UNDP sourced from Samsung Global Goals	Approved		For		For		For		For	For	For
	⑥ Sponsorship of the WorldSkills Competition	Approved		For		For		For		For	For	For
	※ Reported Items 1) Report on the evaluation of the effectiveness of the compliance control system 2) Report on results of the compliance review 3) Report on measures to develop a compliance culture											
Dec 20	① Appointment of the Chief Compliance Officer	Approved		For		For		For		For	For	For

*CEO Ki-nam Kim did not vote as it is a transaction between a Director and the Company in accordance with the Commercial Act and Ki-nam Kim has a special interest in the agenda item.

Mar 16, 2022: Kye-hyun Kyung, Tae-moon Roh, Hark-kyu Park, and Jung-bae Lee were newly appointed as Executive Directors, Wha-jin Han and Jun-sung Kim as Independent Directors; and Han-jo Kim was reappointed as an Independent Directors at the AGM.

Mar 16, 2022: Ki-nam Kim, Hyun-suk Kim, and Dong-jin Koh resigned from their positions as Executive Director.

Mar 19, 2022: Terms of Jae-wan Bahk and Curie Ahn as Independent Director expired.

Apr 20, 2022: Wha-jin Han resigned from her position as Independent Director.

May 17, 2022: Independent Director Byung-gook Park passed away.

Nov 3, 2022: Eun-nyeong Heo and Myung-hee Yoo were newly appointed as Independent Directors at the EGM.

C. Committees

(1) Composition of Board Committees

[As of December 31, 2022]

Committee	Composition	Members	Responsibilities and authorities	Note
Management	5 Executive Directors	Jong-hee Han (head), Kye-hyun Kyung, Tae-moon Roh, Hark-kyu Park, Jung-bae Lee	See below	Appointment of Executive Director Jong-hee Han as the Head (April 1, 2022)
Related Party Transactions	3 Independent Directors	Sun-uk Kim (head), Han-jo Kim, Jeong Kim		Appointment of Independent Director Sun-uk Kim as the Head (April 27, 2021)
Compensation	3 Independent Directors	Jeong Kim, Han-jo Kim, Jun-sung Kim		-
Sustainability	6 Independent Directors	Han-jo Kim (head), Sun-uk Kim, Jeong Kim, Jun-sung Kim, Eun-nyeong Heo, Myung-hee Yoo		Appointment of Independent Director Han-jo Kim as the Head (April 28, 2022)

The Audit Committee and Independent Director Recommendation Committee were excluded according to Corporate Disclosure Guidelines.
Mar 16, 2022: Kye-hyun Kyung, Tae-moon Roh, Hark-kyu Park, and Jung-bae Lee were newly appointed as Executive Directors, Wha-jin Han and Jun-sung Kim as Independent Directors; and Han-jo Kim was reappointed as an Independent Director at the AGM.
Mar 16, 2022: Ki-nam Kim, Hyun-suk Kim, and Dong-jin Koh resigned from their positions as Executive Director.
Mar 19, 2022: Terms of Jae-wan Bahk and Curie Ahn as Independent Director expired.
Apr 1, 2022: Executive Director Jong-hee Han was appointed as the Head of Management Committee.
Apr 20, 2022: Wha-jin Han resigned from her position as Independent Director.
Apr 28, 2022: Independent Director Han-jo Kim was appointed as the Head of Sustainability Committee.
May 17, 2022: Independent Director Byung-gook Park passed away.
Jul 28, 2022: Independent Director Jeong Kim was appointed as Compensation Committee member at the Board meeting.
Nov 3, 2022: Eun-nyeong Heo and Myung-hee Yoo were newly appointed as Independent Directors at the EGM.
Nov 3, 2022: Independent Directors Eun-nyeong Heo and Myung-hee Yoo were appointed as Sustainability Committee members at the Board meeting.
Jan 27, 2023: Independent Director Jeong Kim was appointed as the Head of Compensation Committee.

(The Management Committee)

Responsibilities: The Management Committee deliberates and decides on matters specified by Board regulations and resolutions or specifically delegated by the Board. The composition and operation of the management committee are determined by the Board.

- Authorities:

(A) General management

1. Annual or mid to long-term management policy and strategy
2. Key management strategy
3. Business planning and restructuring
4. Establishment, relocation, and withdrawal of overseas branch and corporation
5. Initiating cooperation such as strategic partnership with foreign companies
6. Acquisition or disposal of domestic and overseas subsidiaries
   (provided that the value of transaction exceeds 0.1% of total equity)
7. Other major management issues
8. Establishment, relocation, and withdrawal of branches and operations
9. Appointment or dismissal of supervisors
10. Suspension or shutdown of production over 5% of the total production in the recent year

11. Licensing agreements and technology transfer, partnership in regards to technology of over 0.5% of the total equity
12. Acquisitions and transfers of patents related to new material and new technology of over 0.5% of the total equity
13. Collection and destruction of products corresponding to over 5% of the total sales in the recent business year
14. Contracting for over 5% of the total sales in the recent business year
15. Contracting or canceling of single sales agency and suppliers over 5% of the total sales in the recent business year
16. Establishment of basic principles of organization management
17. Decision making on basic principles and any changes related to wages, bonus, and fringe benefits
18. Appointments, dismissals and changes of transfer agent
19. Closing of shareholder register and setting reference date
20. Establishment of corporate guidelines for business and management related activities

(B) Matters related to Finance

1. Acquisitions or disposals of equity investments with a value no less than 0.1% and less than 2.5% of the total equity
2. Direct overseas investments with a value no less than 0.1% and less than 2.5% of the total equity
3. New debt guarantee (excluding extension of period) or collateral issuance with a value no less than 0.1% and less than 2.5% of the total equity
   A. Collateral: Only in the case of providing collateral for others
   B. Guarantee: Excludes performance guarantee (e.g., bid, contract, defect, difference guarantee) and tax payment guarantee
4. New credit agreement contract (excluding extension of period) with a value no less than 0.1% and less than 5% of the total equity
5. Approval of related party transactions:
   Related party transactions with affiliates involving cash (loans and payments), equity (stocks and bonds) or assets (such as real estate and intangible property rights) with a value between KRW 3 billion and/or less than KRW 5 billion, as defined in the Monopoly Regulation and Fair Trade Act
   ※ Excluding cases where existing contracts are renewed without significant change.
6. Issuance of corporate bonds
7. Acquisition and disposal of real estate with a value of over 0.1% of the total equity, provided that the transaction is with a third party
8. Any matters that the CEO deems necessary and important for the business (e.g., capex)

(C) All other matters except for those delegated to the Board and other committees in accordance with Board regulations

(Related Party Transactions Committee)

- Responsibilities: Improve management transparency through the establishment of a voluntary compliance system
- Authorities:

1. Right to receive reports on related party transactions:
   The Committee can request reports on related party transactions with affiliates
   ※ According to the Monopoly Regulation and Fair Trade Act, the Related Party Transactions committee is permitted to conduct preliminary reviews and approves on related party transactions over KRW 5 billion and other transactions that are deemed as significant
2. Right to order ex officio investigation of related party transactions
3. Right to propose corrective measures for related party transactions

(Compensation Committee)

- Responsibilities: Provide transparent and objective decision making process related to remuneration of directors
- Authorities:

1. Propose remuneration limit of directors at AGM
2. Establish the director remuneration system
3. Other matters delegated by the Board

(Sustainability Committee)

- Responsibilities: Promote sustainability management in ESG areas and enhance shareholder value
- Authorities:

1. Matters related to corporate sustainability management
   - Key strategies and policies on sustainability management
   - Report on key activities for sustainability management including environment, society, and governance
   - Plans for publishing the Company's Sustainability Report
2. Matters related to shareholder value enhancement
   - Preliminary review on shareholder return policies
   - Report on key issues related to shareholder rights and interests
   - Other matters that may significantly impact sustainability management and shareholder value that are deemed necessary for the Committee to discuss
3. Establishment, composition, operation of organizations under the committee including research groups, councils, etc.
4. Other matters delegated by the Board

(2) Committee Activities

☐ The Management Committee (2022)

Date	Agenda	Voting results	Director (attendance)							
			Ki-nam Kim (100%)	Hyun-suk Kim (100%)	Dong-jin Koh (100%)	Jong-hee Han (100%)	Kye-hyun Kyung (100%)	Tae-moon Roh (89%)	Hark-kyu Park (89%)	Jung-bae Lee (100%)
Jan 27	① Investment in Memory Business	Approved	For	For	For	For	N/A (newly appointed)	N/A (newly appointed)	N/A (newly appointed)	N/A (newly appointed)
	② Investment in Memory Business (Pyeongtaek)	Approved	For	For	For	For				
	③ Establishment of overseas subsidiary	Approved	For	For	For	For				
	④ Lease agreement	Approved	For	For	For	For				
Feb 25	① Investment in Memory Business (Pyeongtaek Line 3)	Approved	For	For	For	For				
	② Investment in Memory Business (Pyeongtaek Line 4)	Approved	For	For	For	For				
	③ Investment in Memory Business	Approved	For	For	For	For				
	④ Investment in DS Division	Approved	For	For	For	For				
	⑤ Establishment of overseas subsidiary	Approved	For	For	For	For				
April 1	① Appointment of the Head of Management Committee	Approved	N/A (resigned)	N/A (resigned)	N/A (resigned)	For	For	For	For	For
	② Investment in Memory Business (2023)	Approved				For	For	For	For	For
	③ Investment in Memory Business (2025)	Approved				For	For	For	For	For
	④ Investment in Memory Business	Approved				For	For	For	For	For
	⑤ Investment in Foundry Business (Pyeongtaek)	Approved				For	For	For	For	For
	⑥ Investment in Foundry Business	Approved				For	For	For	For	For
	⑦ Investment in Test & System Package (Cheonan)	Approved				For	For	For	For	For
	⑧ Investment in Test & System Package	Approved				For	For	For	For	For
	⑨ Lease agreement	Approved				For	For	For	For	For
	⑩ Investment in semiconductor research center (Giheung)	Approved				For	For	For	For	For
	⑪ Investment in semiconductor research center	Approved				For	For	For	For	For
Apr 5	① Investment in memory business	Approved				For	For	For	For	For
Apr 28	① Investment in semiconductor research center	Approved				For	For	For	For	For
	② Investment in Memory Business	Approved				For	For	For	For	For
	③ Purchase of liability insurance	Approved				For	For	For	For	For
May 27	① Investment in Foundry Business (Pyeongtaek)	Approved				For	For	For	For	For
	② Investment in Foundry Business (Pyeongtaek)	Approved				For	For	For	For	For
Jun 30	① Investment in Memory Business	Approved				For	For	For	For	For
	② Investment in Cheonan plant	Approved				For	For	For	For	For
	③ Partnership agreement	Approved				For	For	For	For	For
Jul 13	① Licensing agreement	Approved				For	For	For	Absent	For
Jul 28	① Investment in Memory Business	Approved				For	For	Absent	For	For
Nov 17	① Investment in Memory Business (Pyeongtaek Line 3)	Approved				For	For	For	For	For
	② Investment in Memory Business (Pyeongtaek Line 4)	Approved				For	For	For	For	For
	③ Investment in Memory Business	Approved				For	For	For	For	For

Date	Agenda	Voting results	Director (attendance)							
			Ki-nam Kim (100%)	Hyun-suk Kim (100%)	Dong-jin Koh (100%)	Jong-hee Han (100%)	Kye-hyun Kyung (100%)	Tae-moon Roh (89%)	Hark-kyu Park (89%)	Jung-bae Lee (100%)
	④ Participation in an overseas subsidiary's share placing	Rejected				Against	Against	Against	Against	Against
Dec 14	① Licensing agreement	Approved				For	For	For	For	For

Agenda item 4 for the Management Committee meeting held on November 17, 2022, was rejected, because concerning the issue of securing investment resources of an overseas subsidiary, the Committee concluded that the overseas subsidiary is capable of carrying out a capital increase with its own reserve fund even if the Headquarters does not participate in the share placing.

☐ The Related Party Transactions Committee (2022)

Date	Agenda	Voting results	Directors (attendance)			
			Sun-uk Kim (100%)	Jae-wan Bahk (100%)	Han-jo Kim (100%)	Jeong Kim (100%)
Jan 25	① Report on 4Q21 related party transactions	-	-	-	-	N/A (newly appointed)
Feb 11	① Prior review on large-scale related party transactions 1) Purchase of product liability insurance	-	-	-	-	
Mar 11	① Prior review on large-scale related party transactions 1) Participation in Samsung Biologics' rights offering	-	-	-	-	
Apr 26	① Prior review on large-scale related party transactions 1) Real estate lease agreement of company building of SEC in Seocho 2) Purchase of employee insurance policy 3) Charitable contributions 4) Lease agreement with Samsung SDI	-	-	N/A (term expired)	-	-
	② Report on 1Q22 related party transactions	-	-		-	-
Jul 26	① Prior review on large-scale related party transactions 1) Joining of the New Technology Investment Association 2) Purchase of package insurance policy for domestic operations 3) Purchase of mobile device insurance 4) Real estate lease agreement with Samsung Display	-	-		-	-
	② Report on 2Q22 related party transactions	-	-		-	-
Oct 25	① Report on 3Q22 related party transactions	-	-		-	-
Nov 28	① Prior review on large-scale related party transactions 1) Payment of retirement pension plan 2) Approval of 2023 large-scale product and service transactions	-	-		-	-

☐ The Compensation Committee (2022)

Date	Agenda	Voting results	Directors (attendance)				
			Byung-gook Park (100%)	Jae-wan Bahk (100%)	Jeong Kim (100%)	Han-jo Kim (-)	Jun-sung Kim (-)
Feb 11	① Review on 2022 fixed annual salary for each Executive Director	Approved	For	For	For	N/A (newly appointed)	N/A (newly appointed)
	② Review on 2022 remuneration limit for Directors	Approved	For	For	For		

☐ The Sustainability Committee (2022)

Date	Agenda	Voting results	Directors (attendance)									
			Jae-wan Bahk (100%)	Sun-uk Kim (100%)	Byung-gook Park (100%)	Jeong Kim (100%)	Curie Ahn (100%)	Han-jo Kim (100%)	Wha-jin Han (-)	Jun-sung Kim (100%)	Eun-nyeong Heo (-)	Myung-hee Yoo (-)
Feb 11	※ Reporting Item											
	1) Social contribution activities 2.0	-	-	-	-	-	-	-	N/A (newly appointed)	N/A (newly appointed)	N/A (newly appointed)	N/A (newly appointed)
	2) Current status on joining the UN Global Compact	-	-	-	-	-	-	-				
	3) Updates of IR activities	-	-	-	-	-	-	-				
Apr 28	1) Appointment of the head of the Sustainability Committee	Approved	N/A (term expired)	For	For	For	N/A (term expired)	For	N/A (resigned)	For		
	※ Reporting Item											
	2) Updates of IR activities	-		-	-	-		-		-		
	3) Results of ESG meetings with investors	-		-	-	-		-		-		
	4) Plans for publishing the Sustainability Report	-		-	-	-		-		-		
	5) Key tasks in company-wide sustainability management	-		-	-	-		-		-		
	6) Results of survey on corporate reputation	-		-	-	-		-		-		
Jul 28	※ Reporting Item											
	1) Updates of IR activities	-		-		-		-		-		
	2) Progress on promoting diversity and inclusion	-		-		-		-		-		
Sep 1	1) Promotion of SEC's Environmental Strategy (proposal)	Approved		For		For		For		For		
Oct 27	※ Reporting Item											
	1) Updates of IR activities	-		-		-		-		-		
	2) Internal and external sustainability management trends	-		-		-		-		-		
	3) Joining of the Semiconductor Climate Consortium	-		-		-		-		-		
	4) Progress on promoting establishment of a standardized workplace for persons with disabilities as a subsidiary	-		-		-		-		-		

D. Director independence

(1) Appointment of Directors

The Board nominates Executive Director candidates and the Independent Director Recommendation Committee nominates Independent Director candidates. Directors are then appointed at the general meeting.

A candidate for Director needs to meet the requirements of relevant laws and the Articles of Incorporation. Executive Directors are appointed based on his or her expertise and leadership among a list of candidates that is constantly updated. Independent Directors should have no material interests with the Company and its major shareholder, possess knowledge and experience in IT, accounting, finance, law, economics, EHS, etc., and be able to fulfill the roles and responsibilities of supervising management from an independent position. The company has not set separate standards with respect to the independence of Directors besides the requirements in relevant laws and the Article of Incorporation.

Please refer to 『VIII. Executives and Employees』 for more information about the career of each Director.

The Board submits shareholders' proposal for appointment of Directors at the general shareholder meeting as a separate agenda if the proposal satisfies related laws and regulations.

The composition of the Board of Directors, as appointed by shareholders, is as follows:

[As of December 31, 2022]

Position	Name	Term (No. of reappointments)	Reasons for appointment	Nominator	Responsibility	Transaction with the Company	Relationship with the Company's major shareholders
Executive Director (CEO)	Jong-hee Han	Mar 2020 – Mar 2023 (None)	Director Jong-hee Han is an expert in display R&D and played a leading role in continuously achieving the top position in the global TV market. He will contribute to further solidifying TV leadership amid intensifying competition by using his outstanding business capabilities.	The Board	Overall management of the DX Division	N/A	Related party

Position	Name	Term (No. of reappointments)	Reasons for appointment	Nominator	Responsibility	Transaction with the Company	Relationship with the Company's major shareholders
Executive Director (CEO)	Kye-hyun Kyung	Mar 2022 – Mar 2025 (None)	As the Head of the DS Division, Director Kye-hyun Kyung has developed technologies in all three major memory products—DRAM, flash, and solution. He was judged to be the most qualified person to improve organization's fundamentals through communicative and empathetic leadership as well as to firmly solidify our position as a leader in the global semiconductor market.	The Board	Overall management of the DS Division	N/A	Related party
Executive Director	Tae-moon Roh	Mar 2022 – Mar 2025 (None)	Director Tae-moon Roh has served in various core positions in the MX Business, and in 2021, delivered record results—the highest since 2014—achieving KRW 104 trillion in revenue through products such as S21 and foldables. He is expected to contribute significantly to enhancing corporate fundamentals, such as improving profitability and solidifying business fundamentals.	The Board	Overall management of the MX Business	N/A	Related party

Position	Name	Term (No. of reappointments)	Reasons for appointment	Nominator	Responsibility	Transaction with the Company	Relationship with the Company's major shareholders
Executive Director	Hark-kyu Park	Mar 2022 – Mar 2025 (None)	Director Hark-kyu Park has held numerous key positions in core businesses and proved his risk management capabilities. Furthermore, he has successfully led business innovations with a broad perspective. As the Head of Corporate Management Office of the DX Division, his responsibilities include overall corporate support, management analysis, and even auditing to deliver business achievements, and he contributes significantly to coordinating management issues across the entire Company.	The Board	Overall management	N/A	Related party
Executive Director	Jung-bae Lee	Mar 2022 – Mar 2025 (None)	Director Jung-bae Lee is an expert who has the experience of serving in key positions, including development, quality, and strategy. He oversaw the Company achievement of being the top firm in terms of DRAM revenue for a 30th consecutive year by securing product competitiveness, and he spearheaded the efforts to regain the title of No.1 global semiconductor revenue in 2021, demonstrating his extensive experience and outstanding capabilities in DS Division businesses.	The Board	Overall management of the Memory Business	N/A	Related party

Position	Name	Term (No. of reappointments)	Reasons for appointment	Nominator	Responsibility	Transaction with the Company	Relationship with the Company's major shareholders
Independent Director	Han-jo Kim	Mar 2019 – Mar 2025 (1)	Director Han-jo Kim has built expertise in finance and business management through his experience as a President of Korea Exchange Bank and now serves as the chairman of a social contribution foundation. He will contribute to the Company by providing valuable insight on overall business issues and by utilizing expertise in finance, co-growth, etc.	Independent Director Recommendation Committee	Overall management	N/A	N/A
Independent Director	Sun-uk Kim	Mar 2018 – Mar 2024 (1)	Director Sun-uk Kim is a legal expert and has experience as a professor at a school of law and the Legislation Minister. She can present a new perspective to the Board based on objective and juridical reasoning.	Independent Director Recommendation Committee	Overall management	N/A	N/A
Independent Director	Jeong Kim	Mar 2018 – Mar 2024 (1)	Director Jeong Kim is an IT expert and an entrepreneur. He will contribute to the Board's strategic decisions by utilizing his expertise, wide network, and business capability.	Independent Director Recommendation Committee	Overall management	N/A	N/A
Independent Director	Jun-sung Kim	Mar 2022 – Mar 2025 (None)	Director Jun-sung Kim is an expert in the global economy and investment who has experience analyzing and investing in stock markets in advanced economies. He will effectively represent foreign markets and investors and contribute significantly to establishing investment strategies in line with current trends via global networking.	Independent Director Recommendation Committee	Overall management	N/A	N/A

Position	Name	Term (No. of reappointments)	Reasons for appointment	Nominator	Responsibility	Transaction with the Company	Relationship with the Company's major shareholders
Independent Director	Eun-nyeong Heo	Nov 2022 – Nov 2025 (None)	Director Eun-nyeong Heo is an expert in energy, resources, and the environment and, in particular, how they relate to economy and policy. As a renowned international scholar, he will contribute to strengthening the Company's management in the relevant fields and provide practical advice to the Board.	Independent Director Recommendation Committee	Overall management	N/A	N/A
Independent Director	Myung-hee Yoo	Nov 2022 – Nov 2025 (None)	Director Myung-hee Yoo is an expert in international trade who served as Korea's Trade Minister. Backed by her diplomatic communication skills and global network, she will enhance communication with the Company's key investors and stakeholders.	Independent Director Recommendation Committee	Overall management	N/A	N/A

Relationship with Company's major shareholders is in accordance with Article 542-8 of the Commercial Act.
Feb 15, 2022: Executive Directors Ki-nam Kim, Hyun-suk Kim, and Dong-jin Koh resigned from their positions as CEO; and Executive Director Jong-hee Han was appointed as CEO at the Board meeting.
Mar 16, 2022: Kye-hyun Kyung, Tae-moon Roh, Hark-kyu Park, and Jung-bae Lee were newly appointed as Executive Directors, Wha-jin Han and Jun-sung Kim as Independent Directors; and Han-jo Kim was reappointed as an Independent Director at the AGM.
Mar 16, 2022: Ki-nam Kim, Hyun-suk Kim, and Dong-jin Koh resigned from their positions as Executive Director.
Mar 16, 2022: Executive Director Kye-hyun Kyung was appointed as CEO at the Board meeting.
Mar 19, 2022: Terms of Jae-wan Bahk and Curie Ahn as Independent Director expired.
Apr 20, 2022: Wha-jin Han resigned from her position as Independent Director.
May 17, 2022: Independent Director Byung-gook Park passed away.
Nov 3, 2022: Eun-nyeong Heo and Myung-hee Yoo were newly appointed as Independent Directors at the EGM.

(2) Independent Director Recommendation Committee

The Independent Director Recommendation Committee assesses the independence and ability of potential candidates and recommends selected candidates to be appointed at the AGM. As of the reporting date (December 31, 2022), the committee is composed of two Independent Directors (Jeong Kim, Sun-uk Kim).

Date	Agenda	Voting results	Directors (attendance)				
			Jeong Kim (100%)	Byung-gook Park (100%)	Curie Ahn (100%)	Wha-jin Han (-)	Sun-uk Kim (100%)
Jan 27	① Appointment of Head of the Committee ② Decision on date of Independent Director candidate recommendation	Approved Approved	For For	For For	For For	N/A (newly appointed)	N/A (newly appointed)
Feb 11	① Recommendation of Independent Director candidate	Approved	For	For	For		
Aug 30	① Recommendation of Independent Director candidate	Approved	For	N/A (resigned)	N/A (term expired)	N/A (resigned)	For

Jan 27, 2022: Independent Director Jeong Kim was appointed as the Head of Independent Director Recommendation Committee.
Mar 16, 2022: Wha-jin Han was appointed as Independent Director Recommendation Committee member at the AGM.
Mar 19, 2022: Terms of Curie Ahn as Independent Director expired.
Apr 20, 2022: Wha-jin Han resigned from her position as Independent Director.
May 17, 2022: Independent Director Byung-gook Park passed away.
Jul 28, 2022: Independent Director Sun-uk Kim was appointed as Independent Director Recommendation Committee member at the Board meeting.

(3) Expertise of Independent Directors

1) Support team for Independent Directors

[As of December 31, 2022]

Team	Number of employees	Position (total years served/ years in support team)	Key activities
Board of Directors Office	3	Vice President: 1 person (17 years and 11 months / 1 month) Principal Professional: 1 person (19 years and 11 months / 3 year and 5 months) Senior Professional: 1 person (15 years and 11 months / 5 years and 11 months)	· Support operation of annual shareholders' meeting, Board meetings, and Committee meetings · Support education for Independent Directors and their activities · Establish database on Director candidates · Provide information for resolution process to each Directors · Administrative work for meetings · Record meeting agendas for the Board and committee meetings

2) Education programs to provide updates on key management issues for Independent Directors

① Inspection of domestic and overseas business sites

Date	Organizer	Participants	Reasons for absence	Education contents
Apr 28, 2022	MX Business	Han-jo Kim, Sun-uk Kim, Byung-gook Park, Jeong Kim, Jun-sung Kim	N/A	On-site visit to check the current management status of businesses
Jul 28, 2022	Memory Business	Han-jo Kim, Sun-uk Kim, Jeong Kim, Jun-sung Kim	N/A	On-site visit to check the current management status of businesses
Nov 30, 2022	Foundry Business	Han-jo Kim, Sun-uk Kim, Jeong Kim, Jun-sung Kim, Eun-nyeong Heo, Myung-hee Yoo	N/A	On-site visit to check the current management status of businesses

② Orientation for newly appointed Independent Directors

Date	Organizer	Participants	Reasons for absence	Education contents
Apr 27, 2022	Corporate Management Office	Jun-sung Kim	N/A	Key issues regarding Board activities and management
Nov 28, 2022	Corporate Management Office	Eun-nyeong Heo, Myung-hee Yoo	N/A	Key issues regarding Board activities and management

New Independent Directors are subject to the orientation.

③ Orientation for Independent Directors

Date	Organizer	Participants	Reasons for absence	Education contents
Nov 27, 2020	Planning Team	Jae-wan Bahk, Sun-uk Kim, Byung-gook Park, Jeong Kim, Curie Ahn, Han-jo Kim	N/A	Changing environment in post-COVID-19 era and mid- to long-term strategy

2. Audit System

A. Profiles of Audit Committee members

As of December 31, 2022, SEC operates an Audit Committee consisting of three Independent Directors. Director Han-jo Kim qualifies as an expert in finance in accordance with relevant regulations.

Name	Major experience	Accounting/financial expertise[1]	
		Classification	Relevant experience
Han-jo Kim	· 2021–present: CEO/Rep Director, Hana Nanum Foundation · 2019–2021: CEO/Rep Director, Hana Foundation · 2015–2019: CEO/Rep Director, Hana Nanum Foundation · 2015–2016: Vice Chairman, Hana Financial Group · 2014–2015: President, Korea Exchange Bank · 2013–2014: President, KEB Capital Inc.	Type 4[2]	· 2015–2016: Vice Chairman, Hana Financial Group · 2014–2015: President, Korea Exchange Bank · 2013–2014: President, KEB Capital · 2012–2013: Head of Corporate Business Group, Korea Exchange Bank · 1999–2002, 2004–2005: Head of Branch, Korea Exchange Bank
Sun-uk Kim	· 2018–present: Professor Emeritus, School of Law, Ewha Womans University · 1995–2018: Professor, Ewha Law School, Ewha Womans University · 2010–2014: President, Ewha Womans University · 2005–2007: Minister of Government Legislation	–	–
Jeong Kim	· 2013-present: Co-Founder and Executive Chairman, Kiswe Mobile · 2011-2013: Chief Strategy Officer, Alcatel-Lucent · 2005-2013: President, Alcatel-Lucent Bell Labs · 2002-2013: Professor of Electrical and Computer Engineering & Mechanical Engineering, University of Maryland · 1998-2001: President, Lucent Technologies · 1992-1998: Founder, Chairman & CEO, Yurie Systems	–	–

1) Defined in Public Disclosure Guideline and Article 37-2 of the Enforcement Decree of the Commercial Act
2) Experience at financial, government, securities-related organizations in charge of accounting or finance or in charge of supervision over accounting or finance for an aggregate of at least five years

During the reporting period, Independent Director Jae-wan Bahk resigned from his position and Independent Director Jeong Kim was appointed as Audit Committee member at the AGM on March 16, 2022.

B. Audit Committee independence

Pursuant to related laws and the Articles of Incorporation, SEC has prepared internal audit regulations which encompass composition, operation, authority, and responsibility of the Audit Committees to carry out audit related activities.

The Audit Committee is exclusively composed of Independent Directors recommended by the Board and appointed at the general shareholder meeting. Currently, it includes financial expert Han-jo Kim and legal expert Sun-uk Kim. Committee members do not have any relation to the Company's major shareholders that may undermine the independence of the Committee. Also, the Audit Committee satisfies requirements of relevant laws (e.g., the stipulation that the role of head of the committee be held by an Independent Director).

Requirements	Requirement status	Applicable acts, etc.
The audit committee shall consist of at least three directors.	Satisfied: the committee consists of three Directors	Article 415-2 (2) of the Commercial Act, Article 2 of the Company's Audit Committee Regulation
The ratio of independent directors shall exceed two thirds of the total number of members.	Satisfied: all members are independent directors)	
At least one member of the committee shall be an accounting or financing expert.	Satisfied: Independent Director Han-jo Kim	Article 542-11 (2) of the Commercial Act, Article 3 of the Company's Audit Committee Regulation
The representative of the committee shall be an Independent Director.	Satisfied: Independent Director Han-jo Kim	
Other conditions (related party of the major shareholder, etc.)	Satisfied (n/a)	Article 542-11 (3) of the Commercial Act

[As of December 31, 2022]

Name	Term (No. of reappointments)	Reasons for appointment	Nominator	Relationship with the Company	Relationship with the Company's major shareholders	Concurrent positions
Han-jo Kim (Head)	Mar 2019–Mar 2025 (1)	As an expert in finance with broad experience and expertise, he will offer impartial judgement on overall management activities while carrying out his duties.	Independent Director Recommendation Committee	N/A	N/A	-
Sun-uk Kim	Mar 2018–Mar 2024 (1)	Based on the legal expertise and experience running organizations in areas including administration, finance, international affairs, etc., she can carry out the duties in an aboveboard manner with strict standards.	Independent Director Recommendation Committee	N/A	N/A	-
Jeong Kim	Mar 2018–Mar 2024 (1)	As a global business leader with the experience of operating a number of companies transparently and fairly, he will offer independent and objective perspective while carrying out his duties	Independent Director Recommendation Committee	N/A	N/A	Chairman of Kiswe Mobile (2013-present)

Relationship with the Company and Company's major shareholders is in accordance with Article 542-8 of the Commercial Act.

The Audit Committee reviews accounting documents including financial statements and audit process related documents presented by the external auditor, and if needed, requests the external auditor to perform additional reviews on accounting books and records. To ensure the reliability of accounting related disclosures, the audit committee receives and reviews a report on internal accounting control systems prepared by internal accounting managers. In addition, the Committee attends the Board meetings and other significant meetings. The Committee receives reports on deliberations of the Management Committee and on business performance from Directors and requests additional reviews and supplementation of data as needed.

C. Major activities of the Audit Committee (2022)

Date	Agenda	Voting results	Directors (attendance)			
			Jae-wan Bahk (100%)	Sun-uk Kim (100%)	Han-jo Kim (100%)	Jeong Kim (100%)
Jan 25	- Report on 2021 internal accounting management system activities	-	-	-	-	N/A (newly appointed)
	- Report on evaluation of 2021 internal accounting management system activities	-	-	-	-	
	- Communication between external auditor and audit committee	-	-	-	-	
	- Report on 2021 financial statement and business report	-	-	-	-	
	- Report on 4Q21 non-audit activities	-	-	-	-	
	- Report on 4Q21 external contributions	-	-	-	-	
	- Report on 2021 audit activities	-	-	-	-	
Feb 11	- Review of the 53rd AGM agenda	-	-	-	-	
	- Revisions of internal accounting management system activities	Approved	For	For	For	
	- Report on activities of internal compliance system in 2021	-	-	-	-	
Apr 26	- Appointment of the Head of the Audit Committee	-	N/A (resigned)	-	-	-
	- Communication between external auditor and audit committee	Approved		For	For	For
	- Report on evaluation of 2021 external audit activities	-		-	-	-
	- Decision on the terms and conditions of the audit contract with the designated external auditor	Approved		For	For	For
	- Report on 1Q22 interim business report	-		-	-	-
	- Report on 1Q22 non-audit activities	-		-	-	-
	- Report on plans for reviewing 2022 internal accounting management system activities	-		-	-	-
	- Report on 1Q22 external contributions	-		-	-	-
	- Report on plans for evaluating 2022 internal accounting management system activities	-		-	-	-
Jul 26	- Communication between external auditor and audit committee	-		-	-	-
	- Report on 2022 half-year business report	-		-	-	-
	- Report on 2Q22 non-audit activities	-		-	-	-

	- Interim report on 2022 internal accounting management system activities - Report on 2Q22 external contributions - Report on 1H22 audit activities - Revision of external auditor appointment regulations - Interim report on evaluation of 2022 internal accounting management system activities	- - - Approved -		- - - For -	- - - For -	- - - For -
Aug 30	- Review of the EGM agenda	-		-	-	-
Oct 25	- Communication between external auditor and audit committee - Report on 3Q22 interim business report - Report on 3Q22 non-audit activities - Report on 3Q22 external contributions	- - - -		- - - -	- - - -	- - - -
Oct 27	- Decision on compliance with the appointment of an external auditor - Decision on appointing an external auditor - Establishment of the 2022 Retirement Pension Committee	Approved Approved -		For For -	For For -	For For -

D. Education programs for the Audit Committee

In accordance with the working guide for internal accounting management system, we are conducting additional training to ensure the expertise of the Audit Committee. Organized by external experts, finance team, and audit team, education on changes to internal control, internal accounting management system is provided more than once a year.

E. Previous education sessions

Date	Organizer	Participants	Reasons for absence	Education contents
Jul 28, 2020	External experts	Jae-wan Bahk Sun-uk Kim Han-jo Kim	N/A	Internal accounting management system
Jul 27, 2021	External experts	Jae-wan Bahk Sun-uk Kim Han-jo Kim	N/A	Internal accounting management system
May 25, 2022	Corporate Finance & Accounting Team, External experts	Jeong Kim	N/A	Introduction materials

F. Support team for the Audit Committee

[As of December 31, 2022]

Team	Composition	Service years on team	Major tasks
Audit team	1 Executive Vice President, 1 Principal Professional, 2 Senior Professionals	Executive Vice President: 3 years Principal professional: 5 years Senior Professional: 2 year and 5 months (average)	Support the Audit Committee
Internal accounting assessment support group	1 Vice President, 1 Lawyer, 1 Senior Professional	Vice President: 4 years Lawyer: 1 year and 9 months Senior Professional: 1 year and 11 months	Support assessment of the internal accounting management system

G. Compliance Officer

[As of December 31, 2022]

1. Personal information and major career	**Name**	Jung-ho Park
	Date of birth	September 1971
	Sex	Male
	Current position	Corporate Compliance Team leader at Samsung Electronics (December 2022–present)
	Career	May 2004: HR Team, Corporate Management Office, SEC (lawyer) Dec 2014: Corporate Legal Team, Corporate Legal Office, SEC (Vice President) Mar 2018: Legal & Compliance Team, DS Division, SEC (Vice President) Jan 2020: Compliance Team, SEC (Vice President) Dec 2022: Head of Compliance Team, SEC (Executive Vice President)
	Academic background	Bachelor's Degree in Law (Seoul National University) Master's Degree in Human Resources & Labor Relations (Michigan State University)
2. Date of Board resolution		December 20, 2022
3. Disqualifications		N/A
4. Others		N/A

Compliance officer meets the eligibility requirement (lawyer) stated in Article 542-13 (5) of the Commercial Act.
Dec 20, 2022: Jung-ho Park, Head of Compliance Team, was newly appointed as the compliance officer upon the Board's approval.

H. Major compliance activities

The Company conducts compliance assessments on a regular and ad-hoc basis and reflects the results in the Company's business activities to improve compliance of the Company and its employees.

Date	Assessment subject	Assessment area	Results
Jan 2022	Current status of management of secret information	Business secrets	Overall result was satisfactory. Internal policies were followed in areas where there was room for improvement.
Mar 2022	Compliance of domestic and overseas third-party production customers	Technology leak, product liability, etc.	
Apr 2022	Compliance of domestic organizations involved with development	Business secrets, technology misuse, etc.	
Jun 2022	Voluntary compliance of overseas subsidiaries	Status of compliance program	
	Compliance of overseas production subsidiaries	Technology misuse, anti-corruption, etc.	
	Compliance of overseas sales subsidiaries	Fair transaction, business secrets, etc.	
	Compliance of domestic and overseas third-party production customers	Technology leak, product liability, etc.	
Jul 2022	Compliance of overseas sales subsidiaries	Fair transaction, business secrets, etc.	
	Compliance of domestic sales & marketing organizations	Fair transaction, business secrets, etc.	
Aug 2022	Monitoring external contributions and related party transaction risks	Anti-corruption, fair transaction	
Sep 2022	Compliance of overseas production subsidiaries	Technology misuse, anti-corruption, etc.	
	Compliance of domestic organizations involved with development	Business secrets	
	Compliance of subsidiaries	Business secrets, personal information, etc.	
	Compliance of domestic and overseas third-party production customers	Technology leak, product liability, etc.	
Oct 2022	Monitoring external contributions and related party transaction risks	Anti-corruption, fair transaction, etc.	
Nov 2022	Compliance of patent application process	Technology misuse, business secrets, etc.	
	Violation of equipment company's business secrets	Business secrets	
Dec 2022	Compliance of domestic organizations involved with development	Business secrets	
	Compliance of overseas production subsidiaries	Technology misuse, anti-corruption, etc.	
	Compliance of domestic and overseas third-party production customers	Technology leak, product liability, etc.	

Assessment conducted in the final month of each quarter.
Each assessment was conducted on selected organizations.

I. Support team for the Compliance Officer

[As of December 31, 2022]

Team	Composition	Service years (average)	Major tasks
Compliance team, etc.	2 Vice Presidents, 15 Principal Professionals / Engineers, 11 Lawyers, 36 Senior Professionals, 5 Professionals (Total: 69)	Vice Presidents (7 years and 1 months) Principal Professionals (8 years and 3 months) Lawyers (4 years and 9 months) Senior Professionals (5 years and 2 months) Professionals (1 year and 10 months)	Supports activities of the Compliance Officer

3. General meeting of shareholders

A. Voting method

As of December 31, 2022, the Company has not adopted cumulative voting or paper voting and has adopted electronic voting, which was used at the AGM on March 16, 2022, and the EGM on November 3, 2022.
On January 30, 2020, the Board resolved to adopt electronic voting to enhance convenience in exercising voting rights for shareholders in accordance with Article 368-4 (Exercise of Voting Rights by Electronic Means) of the Commercial Act. E-voting has been used at every AGM since it was introduced at the AGM on March 18, 2020.
The convocation notice of general meeting of shareholders includes the information that voting rights can be exercised electronically. Owners of shares as of the last day of every settlement term can exercise their voting rights via the electronic voting system of Korea Securities Depository ten days prior to general meeting date until the day before the meeting, without being present at the meeting.

[As of December 31, 2022]

Classification	Cumulative voting	Paper voting	Electronic voting
Adoption	Excluded	Not adopted	Adopted
Implementation	-	-	AGM (2021) EGM (2022)

The Company as of the reporting date employs proxy voting and it contacts shareholders directly to recommend delegating voting rights, contacts shareholders by mail or email, and also made a power of attorney form available on the Company website.

B. Minority shareholder rights

No minority shareholder rights were exercised during the reporting period.

C. Competition over management rights

No competition over management rights occurred during the reporting period.

D. Voting shares

As of December 31, 2022, SEC has 5,969,782,550 issued shares of common stock, and 822,886,700 issued shares of preferred stock with no voting rights. There are 597,466,009 shares of common stock with limited voting rights under relevant laws. Thus, the total number of shares with full voting rights is 5,372,316,541.

[As of December 31, 2022]

Classification	Share type	Number of shares	Note
Number of issued shares (A)	Common	5,969,782,550	-
	Preferred	822,886,700	-

Classification	Share type	Number of shares	Note
Shares with no voting rights (B)	Common	-	-
Shares with no voting rights according to Articles of Incorporation (C)	Preferred	822,886,700	-
Shares with limited voting rights under relevant laws (D)	Common	596,959,200[1)]	508,157,148 shares held by Samsung Life Insurance & 88,802,052 shares held by Samsung Fire & Marine Insurance
	Common	506,809	Restricted by the Insurance Business Act: Shares held by Samsung Life Insurance in certain special accounts
Shares with voting rights (F = A - B - C - D)	Common	5,372,316,541	-
	Preferred	-	-

1) Pursuant to Korea's Monopoly Regulation and Fair Trade Act, owners can exercise certain rights on some shares in accordance with related laws, including the right to vote on agendas such as the appointment or dismissal of directors and revisions to the Articles of Incorporation.

E. Stock affairs

Preemptive rights in the Articles of Incorporation
1. New shares to be issued by the Company shall be allocated to the shareholders in proportion to their respective shareholdings in accordance with Paragraph 6, Article 8. If shares are not subscribed for as a result of waiver or loss of the preemptive right of the shareholders to subscribe for new shares, or if fractional shares remain at the time of allocation of new shares, such shares may be disposed of by a resolution of the Board of Directors in accordance with applicable laws and regulations. 2. Notwithstanding the above Paragraph 1, new shares may be allocated to persons other than shareholders in the following cases: a. If the Company issues new shares or causes underwriters to underwrite new shares by a resolution of the Board of Directors in accordance with applicable laws and regulations including the Financial Investment Services and Capital Markets Act; b. If the Company allocates new shares preferentially to members of the Employee Stock Ownership Association by a resolution of the Board of Directors in accordance with applicable laws and regulations including the Financial Investment Services and Capital Markets Act; c. If the Company issues new shares for the issuance of depositary receipts (DR) by a resolution of the Board of Directors in accordance with the applicable laws and regulations including the Financial Investment Services and Capital Markets Act; d. If the Company issues new shares by public offering in accordance with Article 11-3; e. If new shares are issued by the exercise of stock options in accordance with Article 11-4; f. If the Company issues new shares to the extent of 20% of the total issued and outstanding shares to domestic or foreign financial institutions for the purpose of obtaining financing urgently or to the relevant partner company for the purpose of inducing technology therefrom, etc., by a resolution of the Board of Directors; provided that the issue price of the new shares shall not be less than the price prescribed by the Financial Investment Services and Capital Markets Act and other applicable laws and regulations. ☞ (Note) Paragraph 6, Article 8 In the case of rights issue, bonus issue or stock dividend, the holders of common shares shall be entitled to common shares, and the holders of preferred shares shall be entitled to preferred shares, in proportion to their respective shareholdings; provided that in the case of rights issue and

stock dividend the Company may, if necessary, issue only one kind of shares, where all the shareholders shall be entitled to such kind of shares to be issued.

☞ (Note) Article 11-3 (Public Offering)

1. The Company may issue new shares by public offering to the extent that the new shares do not exceed 20% of the total number of issued and outstanding shares by a resolution of the Board of Directors, pursuant to Article 165-6, Paragraph 1, Item 3 of the Financial Investment Services and Capital Markets Act.

2. If the Company issues new shares by public offering, the type, quantity and issue price of the shares to be newly issued shall be determined by a resolution of the Board of Directors; provided that the issue price of such new shares shall not be less than the price prescribed by the Financial Investment Services and Capital Markets Act and other applicable laws and regulations.

☞ (Note) Article 11-4 (Stock Options)

1. The Company may grant stock options to its officers and employees (including officers and employees of the related companies as set forth in Article 542-3, Paragraph 1 of the Commercial Code; the same shall apply for the purpose of this Article) by a special resolution of the general meeting of shareholders pursuant to Article 542-3 of the Commercial Code, to the extent permitted by the Commercial Code; provided, however, that the Company may grant the stock options to its officers and employees (except for the directors of the Company) by a resolution of the Board of Directors to the extent determined by the relevant laws and regulations.

2. The person to whom stock options may be granted are the officers and employees who have contributed or have the capacity to contribute to the establishment, management, overseas business, technical innovation, etc. of the Company; provided, however, that the officers and employees who may not be entitled to stock options under the relevant laws and regulations shall be excluded.

3. The shares to be issued to the officers or employees by the exercise of their stock options (in case the Company pays, either in cash or treasury shares, the difference between the exercise price of stock options and the market price, they refer to the shares which are the basis for such calculation) shall be common shares in registered form or preferred shares in registered form.

4. Total number of shares to be delivered in accordance with the exercise of stock options shall be up to the extent permitted by the relevant laws and regulations.

5. The stock options may be exercised until an expiry date determined by a resolution of the general meeting of shareholders or the Board of Directors and such expiry date shall be determined within a period not exceeding eight (8) years from the date when two (2) years have elapsed from the date of the general meeting of shareholders or the date of the Board of Directors' meeting at which a resolution to grant such stock options is adopted; provided, however, that the person to whom a stock option is granted should serve the Company for at least two (2) years after the date of such resolution in order to exercise such stock option, unless otherwise set forth by relevant laws and regulations.

6. The terms and conditions for stock options, such as the contents and exercise price thereof shall be determined by a special resolution of the general meeting of shareholders or by a resolution of the Board of Directors in accordance with the relevant laws and regulations and the Articles of Incorporation; provided, however, that such matters which are not provided for as matters reserved for resolutions of the general meeting of shareholders or the Board of Directors' meeting under the relevant laws and regulations or the Articles of Incorporation may be determined by the Board of Directors or a committee authorized by the Board of Directors.

7. The Company may cancel the grant of stock options by a resolution of the Board of Directors in any of the following cases:

a. In case the relevant officer or employee voluntarily retires from his/her office or leaves the Company after the grant of stock options;
b. In case the relevant officer or employee causes substantial damages to the Company due to his/her willful misconduct or negligence;
c. In case any of the causes for cancellation set forth in the stock option agreement occurs.

Settlement date	Dec 31	Annual General Meetings of Shareholders	Within 3 months after the end of every business year
Record date (closing period)			Last day of fiscal year (One month from Jan 1)
Transfer agent	Korea Securities Depository (T: +82-51-519-1500): 40 Munhyeongeumyung-ro, Nam-gu, Busan, Korea		
Shareholder benefit	n/a	Published on	Joongang Daily

With Act on Electronic Registration of Stocks, Bonds, etc. ("Electronic Securities Act") taking effect Sep 16, 2019, rights specified on stocks and

subscription warrants are subject to mandatory electronic registration, therefore, "Stock types" are no longer applicable.
Related information is published on Joongang Daily in pursuant to our Articles of Incorporation, as well as on our website (https://www.samsung.com/sec/ir).

F. Results of shareholder meetings

[As of December 31, 2022]

Date	Agenda	Results
EGM (Nov 3, 2022)	1. Appointment of Independent Directors 1-1: Appointment of Eun-nyeong Heo as an Independent Director 1-2: Appointment of Myung-hee Yoo as an Independent Director	 Approved Approved
AGM (Mar 16, 2022)	1. Approval of FY21 financial statements, including balance sheet, income statement, and the statement of appropriation of retained earnings, etc. 2. Appointment of Directors 2-1: Appointment of Independent Directors 2-1-1: Appointment of Han-jo Kim as Independent Director 2-1-2: Appointment of Wha-jin Han as Independent Director 2-1-3: Appointment of Jun-sung Kim as Independent Director 2-2: Appointment of Executive Directors 2-2-1: Appointment of Kye-hyun Kyung as Executive Director 2-2-2: Appointment of Tae-moon Roh as Executive Director 2-2-3: Appointment of Hark-kyu Park as Executive Director 2-2-4: Appointment of Jung-bae Lee as Executive Director 2-3: Appointment of Audit Committee Member 2-3-1: Appointment of Han-jo Kim as Audit Committee Member 2-3-2: Appointment of Jeong Kim as Audit Committee Member 3. Approval of remuneration limit for Directors	Approved Approved Approved Approved Approved Approved Approved Approved Approved Approved Approved
AGM (Mar 17, 2021)	1. Approval of Balance Sheet, Income Statement, and Statement of Appropriation of Retained Earnings, etc. for 2020 2. Appointment of Directors 2.1: Appointment of Independent Directors 2.1.1: Appointment of Byung-gook Park as Independent Director 2.1.2: Appointment of Jeong Kim as Independent Director 2.2: Appointment of Executive Directors 2.2.1: Appointment of Ki-nam Kim as Executive Director 2.2.2: Appointment of Hyun-suk Kim as Executive Director 2.2.3: Appointment of Dong-jin Koh as Executive Director 3. Appointment of Sun-uk Kim as Independent Director for Audit Committee Member 4. Approval of remuneration limit for Directors	Approved Approved Approved Approved Approved Approved Approved Approved
AGM (Mar 18, 2020)	1. Approval of Balance Sheet, Income Statement, and Statement of Appropriation of Retained Earnings (draft), etc. for 2019 2. Appointment of Executive Directors 2.1: Appointment of Jong-hee Han as Executive Director 2.2: Appointment of Yoon-ho Choi as Executive Director 3. Approval of remuneration limit for Directors	Approved Approved Approved Approved

VII. Information on Shareholders

1. Ownership of shares by the major shareholder(s) and related parties

[As of December 31, 2022]

Name	Relationship[1)]	Type of share	Ownership				Notes
			Period start		Period end		
			Shares	Stake (%)	Shares	Stake (%)	
Samsung Life Insurance	Major shareholder	Common	508,157,148	8.51	508,157,148	8.51	-
		Preferred	43,950	0.01	43,950	0.01	–
Samsung Life Insurance (special accounts)	Major shareholder	Common	13,860,804	0.23	10,246,942	0.17	Open market transactions
		Preferred	548,463	0.07	403,278	0.05	Open market transactions
Samsung C&T	Affiliate	Common	298,818,100	5.01	298,818,100	5.01	-
Samsung Fire & Marine Insurance	Affiliate	Common	88,802,052	1.49	88,802,052	1.49	-
Samsung Welfare Foundation	Funded foundation	Common	4,484,150	0.08	4,484,150	0.08	-
Samsung Foundation Of Culture	Funded foundation	Common	1,880,750	0.03	1,880,750	0.03	-
Ra-hee Hong	Related party of the major shareholder	Common	137,244,666	2.30	117,302,806	1.96	Extended-hours transactions
		Preferred	206,633	0.03	206,633	0.03	-
Jae-yong Lee	Related party of the major shareholder	Common	97,414,196	1.63	97,414,196	1.63	-
		Preferred	137,757	0.02	137,757	0.02	-
Boo-jin Lee	Executive member of affiliate	Common	55,394,044	0.93	55,394,044	0.93	-
		Preferred	137,755	0.02	137,755	0.02	-
Seo-hyun Lee	Related party of the major shareholder	Common	55,394,044	0.93	55,394,044	0.93	-
		Preferred	137,755	0.02	137,755	0.02	-
Jong-hee Han	Executive member of affiliate	Common	5,000	0.00	15,000	0.00	Open market transactions
Kye-hyun Kyung	Executive member of affiliate	Common	0	0.00	18,050	0.00	Newly appointed
Tae-moon Roh	Executive member of affiliate	Common	0	0.00	13,000	0.00	Newly appointed
Hark-kyu Park	Executive member of affiliate	Common	0	0.00	22,500	0.00	Newly appointed

Name	Relationship[1]	Type of share	Ownership				Notes
			Period start		Period end		
			Shares	Stake (%)	Shares	Stake (%)	
Jung-bae Lee	Executive member of affiliate	Common	0	0.00	15,000	0.00	Newly appointed
Han-jo Kim	Executive member of affiliate	Common	2,175	0.00	3,655	0.00	Open market transactions
Ki-nam Kim	Executive member of affiliate	Common	210,000	0.00	0	0.00	Resigned from his position as registered director
Hyun-suk Kim	Executive member of affiliate	Common	99,750	0.00	0	0.00	Resigned from his position as registered director
Dong-jin Koh	Executive member of affiliate	Common	75,000	0.00	0	0.00	Resigned from his position as registered director
Curie Ahn	Executive member of affiliate	Common	3,800	0.00	0	0.00	Term expiration
Byung-gook Park	Executive member of affiliate	Common	1,000	0.00	0	0.00	Position vacated
Total		Common	1,261,846,679	21.14	1,237,981,437	20.74	-
		Preferred	1,212,313	0.15	1,067,128	0.13	-

Common shares carry full voting rights while preferred shares do not. (Owners of certain common shares have limited voting rights in accordance with relevant laws. See D. Voting shares in 『3. General meeting of shareholders』 in 『VI. Corporate Governance for details』 for more details.)
For changes after December 31, 2022, please refer to 'Ownership status of securities, etc. of executives and major shareholder' published in Korean in DART (https://dart.fss.or.kr).
1) In accordance with Article 3 Paragraph 1 of Enforcement Decree of the Act on Corporate Governance of Financial Companies.

2. Matters related to the major shareholder

A. Overview of the major shareholder (corporation or organization)

(1) Basic information of the major shareholder (Samsung Life Insurance Co., Ltd.)

1) Legal, commercial name: Samsung Life Insurance Co., Ltd.

2) Date of establishment: April 24, 1957

3) Address, phone number, and English language website of the corporate headquarters

- Address: 11, Seocho-daero 74-gil, Seocho-gu, Seoul, Republic of Korea
- Phone: +82-2-1588-3114
- Website: https://www.samsunglife.com

4) CEO and major shareholder of the major shareholder (Samsung Life Insurance)

Name	Number of investors	CEO		Major shareholder	
		Name	Share ratio (%)	Name	Share ratio (%)
Samsung Life Insurance Co., Ltd	100,800	Young-muk Jeon	0.00	Samsung C&T	19.34

As of December 31, 2022, based on common shares.

5) Changes to the CEO and major shareholder of the major shareholder (Samsung Life Insurance)

Date of change	CEO		Major shareholder	
	Name	Share ratio (%)	Name	Share ratio (%)
Mar 19, 2020	Sung-chul Hyun	0.00	-	-
Mar 19, 2020	Young-muk Jeon	-	-	-
Mar 23, 2020	Young-muk Jeon	0.00	-	-
Mar 24, 2020	Young-muk Jeon	0.00	-	-
Mar 16, 2021	Young-muk Jeon	0.00	-	-
Apr 29, 2021	-	-	Kun-hee Lee	-
Apr 29, 2021	-	-	Samsung C&T	19.34

Mar 19, 2020: Sung-chul Hyun resigned from his position as CEO, and Executive Director Young-muk Jeon was appointed as CEO.
Apr 29, 2021: The major shareholder changed to Samsung C&T as the shares of the previous major shareholder (who passed away on October 25, 2020) were inherited.

(2) Financial status of the recent settlement term of the major shareholder (Samsung Life Insurance)

(KRW mil)

Classification	
Name of the corporation or organization	Samsung Life Insurance Co., Ltd
Total assets	316,165,903
Total liabilities	291,997,434
Total equity	24,168,469
Revenue	40,330,993
Operating profit	1,386,595
Net profit	1,720,794

The financial status is as of December 31, 2022, based on the consolidated K-IFRS financial statements.

(3) Business conditions of the major shareholder (Samsung Life Insurance)

Samsung Life Insurance is a company in which life insurance and its related reinsurance contract are the key purpose of business operations, and it operates businesses in accordance with the Insurance Business Act and other related laws.

Its key subsidiary, Samsung Card, is a specialized credit finance business company that operates specialized credit finance businesses (including credit card business, facility leasing business, and installment financing business) in accordance with the Specialized Credit Finance Business Act and other related laws.

☞ Please refer to the business report (interim and half-year) of Samsung Life Insurance published in DART (https://dart.fss.or.kr) for more details of the major shareholder.

B. Certain transaction that may cause changes in the major shareholder

N/A

C. Overview of the major shareholder of the major shareholder

(1) Basic information of the major shareholder (Samsung C&T) of the major shareholder (Samsung Life Insurance)

1) Legal, commercial name: Samsung C&T Corporation

2) Date of establishment and period of existence: Dongwha Real Estate was first established on December 23, 1963, and the company name was changed to Cheil Industries in July 2014. It merged with Samsung C&T Corporation (founded as Samsung Sanghoe on March 1, 1938, and established as Samsung C&T in January 1951) and changed the company name to Samsung C&T Corporation on September 2, 2015 (merger registration date).

3) Address, phone number, and English language website of the corporate headquarters

- Address: 26, Sangil-ro 6-gil, Gangdong-gu, Seoul, Republic of Korea
- Phone: +82-2-2145-5114
- Website: https://www.samsungcnt.com

4) CEO and major shareholder of the major shareholder (Samsung C&T) of the major shareholder

Name	Number of investors	CEO		Major shareholder	
		Name	Share ratio (%)	Name	Share ratio (%)
Samsung C&T	174,953	Jung-suk Koh	0.00	Jae-yong Lee	18.13
		Se-chul Oh	0.00		
		Seung-hwan Han	0.00		

As of December 31, 2022, based on common shares

5) Changes to the CEO and major shareholder of the major shareholder (Samsung C&T) of the major shareholder (Samsung Life Insurance)

Date of change	CEO		Major shareholder	
	Name	Share ratio (%)	Name	Share ratio (%)
Mar 19, 2021	Young-ho Lee	-	-	-
Mar 19, 2021	Keum-yong Chung	-	-	-
Mar 19, 2021	Se-chul Oh	0.00	-	-
Mar 19, 2021	Seung-hwan Han	0.00	-	-
Mar 19, 2021	Jung-suk Koh	0.00	-	-
Apr 29, 2021	-	-	Jae-yong Lee	18.13

Mar 19, 2021: Young-ho Lee and Keum-yong Chung resigned from their positions as CEO, Executive Directors Se-chul Oh and Seung-hwan Han were appointed as CEOs, and Jung-suk Koh was reappointed as CEO.
Apr 29, 2021: The share ratio (common share) of the major shareholder was changed (17.48%→18.13%) as the shares were inherited (by Jae-yong Lee and three others).

(2) Financial status of the recent settlement term of the major shareholder (Samsung C&T) of the major shareholder (Samsung Life Insurance)

(KRW mil)

Classification	
Name of the corporation or organization	Samsung C&T
Total assets	58,981,492
Total liabilities	27,017,371
Total equity	31,964,121
Revenue	43,161,653
Operating profit	2,528,524
Net profit	2,544,957

The financial status is as of December 31, 2022, based on the consolidated K-IFRS financial statements.

(3) Business conditions of the major shareholder (Samsung C&T) of the major shareholder (Samsung Life Insurance)

Samsung C&T is consisted of Engineering & Construction, Trading & Investment, Fashion, and Resort Groups as well as biomedicine OEM and biosimilar businesses. The Engineering & Construction Group operates businesses in building, civil infrastructure, plant, and housing areas domestically and globally; Trading & Investment trades internationally in various fields, including resource development, steel, chemical, industrial materials, and textiles. The Fashion Group manufactures and sells clothing, and processes and sells wool products (fabric). The Resort Group manages landscaping business, Everland (dry park), Caribbean Bay (water park), golf course, food supply services, and food distribution business (Samsung Welstory).

☞ Please refer to the business report (interim and half-year) of Samsung C&T published in DART (https://dart.fss.or.kr) for more details of the major shareholder of the major shareholder.

3. Change of the major shareholder

[As of December 31, 2022]

Date of change	Name of major Shareholder	Number of shares owned	Share ratio (%)	Reason for change	Note
Apr 29, 2021	Samsung Life Insurance	1,263,050,053	21.16	Shares of the previous major shareholder were inherited by beneficiaries	-

Number of shares owned and share ratio are the sum of those of the major shareholder and its related parties, and the number of shares is based on shares with voting rights (including those with limited voting rights in accordance with relevant laws).

4. Ownership of shares

A. Share ownership status

[As of December 31, 2022]

Classification	Name	Number of shares owned	Share ratio (%)	Note
Shareholders with over 5% voting shares[1)]	Samsung Life Insurance	518,404,090	8.68	Including special accounts
	National Pension Service	449,387,577	7.53	-
	BlackRock Fund Advisors	300,391,061	5.03	Based on January 28, 2019
	Samsung C&T	298,818,100	5.01	-
Employee Stock Ownership Association		-	-	-

Number of shares owned and share ratio of BlackRock Fund Advisors is based on the "Report on Mass Holding of Securities" disclosed on DART (https://dart.fss.or.kr) on February 7, 2019.
The number of shares owned and share ratio of Samsung Life Insurance includes special accounts.
1) Including shares with limited voting rights in accordance with relevant laws. For more information, please refer to 『VI. Corporate Governance-3. General meeting of shareholders-D. Voting shares』

B. Minority shareholders

[As of December 31, 2022]

Classification	Shareholder			Shares owned[1)]			Note
	Number of shareholders	Total shareholders	Portion (%)	Number of shares	Total number of shares	Portion (%)	
Minority shareholder	5,813,977	5,814,080	99.99	3,992,080,268	5,969,782,550	66.87	-

Shareholders with shares less than 1/100 of total issued stocks
1) Number of voting shares, including those with limited voting rights in accordance with relevant laws.

5. Stock price and stock transactions

A. Domestic stock market

Type			Jul 2022	Aug 2022	Sep 2022	Oct 2022	Nov 2022	Dec 2022
Common stock	Stock price (KRW)	High	61,900	61,700	58,400	59,500	62,900	62,600
		Low	56,200	58,600	52,600	55,200	59,200	55,300
		Average	59,548	60,273	55,595	56,711	61,091	59,081
	Volume (shares)	High (day)	24,982,097	18,251,170	22,503,249	22,458,970	21,087,633	16,631,445
		Low (day)	6,597,211	5,767,902	7,503,086	11,456,060	6,677,933	6,756,411
		Month	301,826,933	251,681,339	288,615,372	326,537,635	290,682,036	234,543,029
Preferred stock	Stock price (KRW)	High	57,000	56,500	53,700	53,600	58,000	56,200
		Low	51,500	54,200	46,900	49,300	53,000	50,500
		Average	54,614	55,364	50,788	51,642	55,677	53,600
	Volume (shares)	High (day)	1,186,949	1,461,200	1,933,302	2,294,508	1,735,156	1,050,714
		Low (day)	403,293	400,765	457,773	673,346	414,256	371,155
		Month	17,923,841	16,784,714	22,399,891	24,238,262	19,724,856	13,711,304

Stock price is based on the closing exchange rate of the applicable trading day.

B. Overseas stock market

□ Name of stock exchange: London Stock Exchange (common stock)

Type				Jul 2022	Aug 2022	Sep 2022	Oct 2022	Nov 2022	Dec 2022
Common stock	Price per GDR	High	USD	1,193.00	1,176.50	1,066.00	1,044.00	1,193.00	1,188.50
			KRW	1,566,170	1,527,803	1,433,877	1,499,706	1,575,118	1,568,939
		Low	USD	1,067.50	1,075.00	907.00	930.20	1,033.00	1,101.50
			KRW	1,385,508	1,448,778	1,302,906	1,334,651	1,464,794	1,397,143
		Average	USD	1,134.48	1,137.86	992.71	983.74	1,123.45	1,133.38
			KRW	1,482,596	1,499,080	1,379,218	1,401,900	1,533,059	1,469,026
	Volume (shares)	High (day)		22,992	23,926	18,880	40,134	28,096	19,921
		Low (day)		6,503	4,184	5,145	8,647	4,992	2,281
		Month		253,038	241,613	251,472	434,156	278,312	238,590

Stock price in KRW is based on the closing exchange rate of the applicable trading day.
High and low price in KRW are based on the KRW/USD closing exchange rate of the applicable trading day; average price in KRW is based on monthly average KRW/USD exchange rate.
Conversion ratio between GDRs and original shares is 1:25.

□ Name of stock exchange: Luxembourg Stock Exchange (preferred stock)

Type				Jul 2022	Aug 2022	Sep 2022	Oct 2022	Nov 2022	Dec 2022
Preferred stock	Price per GDR	High	USD	1,092.00	1,082.00	986.00	955.00	1,090.00	1,068.00
			KRW	1,433,578	1,405,085	1,326,269	1,371,858	1,439,127	1,409,867
		Low	USD	979.00	992.00	821.00	824.00	928.00	998.00
			KRW	1,270,644	1,336,918	1,177,971	1,182,275	1,315,904	1,265,863
		Average	USD	1,041.19	1,048.18	910.38	895.90	1,024.18	1,026.80
			KRW	1,360,685	1,380,929	1,264,829	1,276,725	1,397,592	1,330,888
	Volume (shares)	High (day)		3,429	12,020	4,845	4,688	4,141	4,125
		Low (day)		328	345	502	270	164	192
		Month		19,559	31,347	39,750	24,646	26,804	26,944

Stock price in KRW is based on the closing exchange rate of the applicable trading day.
High and low price in KRW are based on the KRW/USD closing exchange rate of the applicable trading day; average price in KRW is based on monthly average KRW/USD exchange rate.
Conversion ratio between GDRs and original shares is 1:25.

VIII. Executives and Employees

1. Executives and employees

A. Registered Executives

[As of December 31, 2022] (Shares)

Name	Gender	Date of birth	Position	Registered Executive	Full/ part-time	Responsibility	Major career	Number of shares owned[1]		Relationship with the major shareholder[2]	Length of service (months)	Term expiration
								Common	Preferred			
Jong-hee Han	M	Mar 1962	Vice Chairman	Executive Director	Full	- CEO (head of the DX Division)	- Bachelor's degree in Electronic Engineering from Inha University - Head of DX Division	15,000	-	Executive Member of an affiliate	34	Mar 17, 2023
Kye-hyun Kyung	M	Mar 1963	President	Executive Director	Full	- CEO (head of the DS Division)	- Doctor's degree in Control and Measurement Engineering from Seoul National University - Head of DS Division	18,050	-	Executive Member of an affiliate	10	Mar 15, 2025
Tae-moon Roh	M	Sep 1968	President	Executive Director	Full	- Head of MX Business	- Doctor's degree in Electrical Engineering from Pohang University of Science and Technology - Head of MX Business	13,000	-	Executive Member of an affiliate	10	Mar 15, 2025
Hark-kyu Park	M	Nov 1964	President	Executive Director	Full	- CFO	- Master's degree in Business and Technology Management from Korea Advanced Institute of Science and Technology - Head of Corporate Management Office	22,500	-	Executive Member of an affiliate	10	Mar 15, 2025
Jung-bae Lee	M	Feb 1967	President	Executive Director	Full	- Head of Memory Business	- Doctor's degree in Electronic Engineering from Seoul National University - Head of Memory Business	15,000	-	Executive Member of an affiliate	10	Mar 15, 2025
Han-jo Kim	M	Jul 1956	Director	Independent Director	Part	- Board Chair - Head of Audit Committee - Related Party Transactions Committee Member - Compensation Committee Member - Head of Sustainability Committee	- Bachelor's degree in French language and Literature from Yonsei University - Chairman of Hana Foundation	3,655	-	Executive Member of an affiliate	46	Mar 19, 2025
Sun-uk Kim	F	Dec 1952	Director	Independent Director	Part	- Audit Committee Member - Head of the Related Party Transactions Committee - Independent Director Recommendation	- Doctor's degree in Administrative Law from University of Konstanz - Professor Emeritus at Ewha Womans University	-	-	Executive Member of an affiliate	58	Mar 22, 2024

						Committee Member - Sustainability Committee Member						
Jeong Kim	M	Aug 1960	Director	Independent Director	Part	- Audit Committee Member - Related Party Transactions Committee Member - Compensation Committee Member - Head of Independent Director Recommendation Committee -Sustainability Committee Member	- Doctor's degree in Reliability Engineering from the University of Maryland - President of Kiswe Mobile	-	-	Executive Member of an affiliate	58	Mar 22, 2024
Jun-sung Kim	M	Oct 1967	Director	Independent Director	Part	- Compensation Committee Member - Sustainability Committee Member	- Bachelor's degree in Economics & Business Administration from Carnegie Mellon University - Managing Director of Government of Singapore Investment Corporation (GIC) Total Return Group	-	-	Executive Member of an affiliate	10	Mar 15, 2025
Eun-nyeong Heo	M	Aug 1964	Director	Independent Director	Part	- Sustainability Committee Member	- Doctor's degree in Mineral Economics from The Pennsylvania State University - Professor of College of Engineering at Seoul National University	-	-	Executive Member of an affiliate	2	Nov 2, 2025
Myung-hee Yoo	F	Jun 1967	Director	Independent Director	Part	- Sustainability Committee Member	- Doctor's degree in Administrative Law from Vanderbilt University - Visiting Professor of Graduate School of International Studies at Seoul National University	-	-	Executive Member of an affiliate	2	Nov 2, 2025

1) As of the reporting date; for changes after the reporting date, please refer to 'Ownership status of securities, etc. of executives and major shareholder' published in Korean in DART (https://dart.fss.or.kr).
2) In accordance with Article 3 Paragraph 1 of the Enforcement Decree of the Act on Corporate Governance of Financial Companies.
Feb 15, 2022: Executive Directors Ki-nam Kim, Hyun-suk Kim, and Dong-jin Koh resigned from their positions as CEO; and Executive Director Jong-hee Han was appointed as CEO at the Board meeting.
Mar 16, 2022: Kye-hyun Kyung, Tae-moon Roh, Hark-kyu Park, and Jung-bae Lee were newly appointed as Executive Directors; Wha-jin Han and Jun-sung Kim were newly appointed as Independent Directors; and Han-jo Kim was reappointed as Independent Director at the AGM.
Mar 16, 2022: Ki-nam Kim, Hyun-suk Kim, and Dong-jin Koh resigned from their positions as Executive Director.
Mar 16, 2022: Executive Director Kye-hyun Kyung was appointed as CEO at the Board meeting.
Mar 19, 2022: Terms of Jae-wan Bahk and Curie Ahn as Independent Director expired.
Apr 20, 2022: Wha-jin Han resigned from her position as Independent Director.
May 17, 2022: Independent Director Byung-gook Park passed away.
Nov 3, 2022: Eun-nyeong Heo and Myung-hee Yoo were newly appointed as Independent Directors at the EGM.

B. Registered executive director candidates (or to be retired)

[As of Dec 31, 2022]

	Name	Gender	Date of birth	Executive or Independent Director	Career highlights	Due Date of appointment or retirement	Relationship with the major shareholder[1)]
Appointment	Jong-Hee Han	M	Mar 1962	Executive Director	- Bachelor's degree in Electronic Engineering from Inha University - Head of Product R&D Team, Visual Display Business, SEC - Head of R&D Office, Visual Display Business, SEC - Head of R&D Team, Visual Display Business, SEC - Head of Visual Display Business, SEC - Head of DX Division, SEC - President & CEO, SEC - Vice Chairman & CEO, SEC - Head of Digital Appliances Business, SEC	Mar 15, 2023	Executive member of an affiliate

This is an agenda item for the 54th AGM, which is held after the disclosure of the report, and if it is rejected or adjusted at the AGM, the details will be published in future reports.

1) In accordance with Article 3 Paragraph 1 of the Enforcement Decree of the Act on Corporate Governance of Financial Companies.

C. Registered Executives with concurrent positions

[As of December 31, 2022]

Concurrent office holder		Company		
Name	Position	Name of company	Position	Period
Jeong Kim	Independent Director	Kiswe Mobile	Chairman	2013–present
Myung-hee Yoo	Independent Director	Hyundai Construction Equipment	Independent Director	2022–present

D. Employees

[As of December 31, 2022] (KRW mil)

Division	Gender	Number of employees[1)]				Average length of service (years)	Total compensation (KRW mil)	Average compensation per employee[2)] (KRW mil)	Non-affiliated[3)]		
		Regular	Contract-based	Others	Total				Male	Female	Total
DX	M	38,023	333	-	38,356	16.0			26,721	11,771	38,492
	F	12,171	94	-	12,042	12.8	-	-			
DS	M	51,079	126	-	51,205	10.5	-	-			
	F	19,958	24	-	19,801	10.7	-	-			
Gender total	M	89,102	459	-	89,561	12.9	12,408,336	143			
	F	32,129	118	-	31,843	11.5	3,189,421	110			
Total		121,231	577	-	121,404	12.5	15,597,757	135			

Total compensation for 2022 and average compensation per employee were calculated before income tax and other deductions based on the earned income payment record submitted to the district tax office in accordance with Article 20 of the Income Tax Act.

1) Separate basis; represents employees of domestic headquarters in Korea, including employees on leave and excluding 11 registered executives (5 Executive Directors and 6 Independent Directors).

2) Calculated based on average number of employees: 115,231 employees (male: 86,373, female: 28,858).

D. Remuneration of non-registered Executives

[As of December 31, 2022]
(KRW mil)

Classification	Number of employees[1)]	Total compensation	Average compensation per employee	Note
Non-registered Executives	918	646,246	703	-

Total compensation for 2022 and average compensation per employee is calculated based on the earned income payment record (before earned income tax credit) submitted to the district tax office in accordance with Article 20 of the Income Tax Act.
Total compensation for 2022 includes incentives, and timing of the incentives being paid differ every year.
Average compensation per employee is calculated based on the average of the 919 employees.
1) In office as of the reporting date, and non-registered executives whose earned income was not domestic were excluded.

2. Remuneration for Directors

A. Summary on total remuneration

<Remuneration of directors and auditors>

(1) Remuneration approved at the annual general meetings of shareholders

(KRW mil)

	Number of persons[1)]	Amount approved at shareholders' meeting[2)]	Note
Registered Directors	5	-	-
Independent Directors	3	-	-
Audit Committee members or Auditor	3	-	-
Total	11	41,000	-

1) As of the day of AGM, as approved on the occasion
2) Remuneration limit for directors (including those retired) approved at the AGM on March 16, 2022, as per Article 388 of the Commercial Act and our Articles of Incorporation.

(2) Remuneration Paid

[Remuneration paid for directors and auditors]

(KRW mil)

Number of persons[1)]	Total amount of remuneration[2)]	Average remuneration per Director	Note
11	30,024	2,729	-

There are no recognized expenses (compensation expenses) in this term from granting stock options.
Based on the Income Tax Act that incumbent or retired registered directors, independent directors, and members of audit committee in the fiscal year received in accordance with Article 159 of the Financial Investment Services and Capital Markets Act and Article 168 of the Enforcement Decree of the same Act. 1) Based on the number of persons as of the reporting date.
2) Earned income as per Income Tax Act (Article 20: Wage and Salary Income, Article 21: Other Income, Article 22: Retirement income). Includes remuneration that newly appointed or resigned directors received as non-registered executives.

[Remuneration paid, by Director type]

(KRW mil)

	Number of persons[1)]	Total amount of remuneration[2)]	Average remuneration per Director
Registered Directors (excluding Independent Directors and Audit Committee members)	5	28,930	5,786
Independent Directors (excluding Audit Committee members)	3	449	150
Audit Committee members	3	644	215
Auditor	-	-	-

There are no recognized expenses (compensation expenses) in this term from granting stock options.
Based on the Income Tax Act that incumbent or retired registered directors, independent directors, and members of audit committee in the fiscal year received in accordance with Article 159 of the Financial Investment Services and Capital Markets Act and Article 168 of the Enforcement Decree of the same Act.
Remuneration for Independent Director Jeong Kim appointed as Audit Committee member at the AGM on March 16, 2022 was included in the total amount of remuneration for Audit Committee members.
1) Based on the number of persons as of the reporting date.
2) Earned income as per Income Tax Act (Article 20: Wage and Salary Income, Article 21: Other Income, Article 22: Retirement income). Includes remuneration that newly appointed or resigned directors received as non-registered executives.

(3) Criteria and methodology

Remuneration of directors is paid in accordance with internal regulations for Executive treatment and Independent Director treatment within the remuneration limit approved at the AGM.

Type	Criteria and methodology
Registered Directors (excluding Independent Directors and Audit Committee members)	• Salary: In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position, responsibilities, and performance results. • Traditional-holiday bonuses: 100% of monthly wage for each • Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) • Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax (± assessed considerations) and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance.) • Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. • Fringe benefits: Medical services, checkups, group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
Independent Directors (excluding Audit Committee members)	• Salary: In accordance with internal regulations for independent director treatment, remuneration is determined based on responsibilities, etc. • Fringe benefits: Medical services, checkups, group accident insurance are provided in line with the internal regulations for independent director treatment
Audit Committee members	• Salary: In accordance with internal regulations for independent director treatment, remuneration is determined based on responsibilities, etc. • Fringe benefits: Medical services, checkups, group accident insurance are provided in line with the internal regulations for independent director treatment

<Remuneration for individual Directors and Auditors who are paid KRW 500 million or more >

(1) Summary on Remuneration by Executive

(KRW mil)

Name	Position	Total amount of remuneration	Remuneration not included in total amount
Jong-hee Han	CEO	4,635	-
Kye-hyun Kyung	CEO	2,953	-
Tae-moon Roh	Executive Director	4,100	-
Hark-kyu Park	Executive Director	1,946	-
Jung-bae Lee	Executive Director	2,802	-
Ki-nam Kim	Chairman (former CEO)	5,672	-
Hyun-suk Kim	Senior Advisor (former CEO)	3,133	-
Dong-jin Koh	Senior Advisor (former CEO)	3,689	-

Based on the Income Tax Act that incumbent or retired registered directors, independent directors, and members of audit committee in the fiscal year received in accordance with Article 159 of the Financial Investment Services and Capital Markets Act and Article 168 of the Enforcement Decree of the same Act.

Earned income as per Income Tax Act (Article 20: Wage and Salary Income, Article 21: Other Income, Article 22: Retirement income). Includes remuneration that directors who were newly appointed or resigned during the fiscal year received as non-registered executives.

(2) Criteria and methodology

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Jong-hee Han (CEO)	Earned Income	Salary	1,229	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position (vice chairman), responsibilities, and performance results. He was paid KRW 77 million per month from January to February, KRW 170 million in March, and KRW 101 million per month from April to December.
		Bonus	3,228	- Traditional-holiday bonuses: 100% of monthly wage for each - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved a ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% over 2017–2019; and that the DX Division achieved revenue of KRW 182.5 trillion and operating profit of KRW 12.7 trillion in 2022. Qualitative indicators include his contributions to leading the improvement of product competitiveness of the DX Division by enhancing the company-wide common platform and boosting future competitiveness by reinforcing B2B and services businesses. The bonus amount was determined based on the indicators listed above.
		Profit from exercising	-	n/a

		stock option		
		Other Income	179	- Fringe benefits: Medical services, checkups, vehicle, and group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Kye-hyun Kyung (CEO)	Earned Income	Salary	1,019	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position (president), responsibilities, and performance results. He was paid KRW 53 million per month from January to February, KRW 170 million in March, and KRW 83 million per month from April to December.
		Bonus	1,795	- Traditional-holiday bonuses: 100% of monthly wage for each - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved a ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% over 2017–2019; and that the DS Division achieved revenue of KRW 98.5 trillion and operating profit of KRW 23.8 trillion in 2022. Qualitative indicators include his contributions to boosting future competitiveness of the semiconductor businesses, including through the development of the highly advanced 12nm-class DRAM, the world's first mass production of 3nm products in foundry, and the development of industry's first 200MP image sensor. The bonus amount was determined based on the indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	139	- Fringe benefits: Medical services, checkups, vehicle, and group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Tae-moon Roh	Earned Income	Salary	1,144	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (president), responsibilities, and

(Director)				performance results. He was paid KRW 82 million per month from January to February, 131 million in March and 94 million per month from April to December.
		Bonus	2,822	- Traditional-holiday bonuses: 100% of monthly wage for each - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the MX Business achieved revenue of KRW 115.4 trillion and operating profit of KRW 10.5 trillion in 2022. Qualitative indicators include his contributions to leading the efforts to fortify the Company's leadership position through technology innovations in mobile and by strengthening our sales strategy by region, as well as to improving the Company's brand image through risk management. The bonus amount was determined based on the indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	135	- Fringe benefits: Medical services, checkups, vehicle, and group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Hark-kyu Park (Director)	Earned Income	Salary	889	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (president), responsibilities, and performance results. He was paid KRW 67 million per month from January to February, KRW 94 million in March and KRW 74 million per month from April to December.
		Bonus	881	- Traditional-holiday bonuses: 100% of monthly wage for each - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the DX

Name	Type of remuneration		Total amount	Criteria and methodology
				Division achieved revenue of KRW 182.5 trillion and operating profit of KRW 12.7 trillion in 2022. Qualitative indicators include his contributions to driving solid performance through preemptive management of business risks and advanced operation of resources amid global economic crises; and securing future growth engines by effectively distributing mid- to long-term investment resources. The bonus amount was determined based on the indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	177	- Fringe benefits: Medical services, checkups, vehicle, and group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Jung-bae Lee (Director)	Earned Income	Salary	841	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (president), responsibilities, and performance results. He was paid KRW 55 million per month from January to February, KRW 110 million in March and KRW 69 million per month from April to December.
		Bonus	1,770	- Traditional-holiday bonuses: 100% of monthly wage for each - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the Memory Business achieved revenue of KRW 68.5 trillion and operating profit of KRW 20.8 trillion in 2022. Qualitative indicators include contributing to fortifying the Company's market leadership for DRAM/Flash and enhancing future competitiveness of the Company's memory products, including the development of the highly advanced 12nm-class DRAM and 8th generation V-NAND. The bonus amount was determined based on the indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	191	- Fringe benefits: Medical services, checkups, vehicle, and group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)

Name	Type of remuneration	Total amount	Criteria and methodology
	Retirement Income	-	n/a
	Other Income	-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Ki-nam Kim	Earned Income	Salary	1,723	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position (chairman), responsibilities, and performance results. He was paid KRW 144 million per month from January to December.
		Bonus	3,735	- Traditional-holiday bonuses: 100% of monthly wage for each - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved a ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% over 2017–2019; and that the DS Division achieved revenue of KRW 98.5 trillion and operating profit of KRW 23.8 trillion in 2022. Qualitative indicators include contributing to the Company's management, including through securing new technologies and presenting mid- to long-term R&D strategies. The bonus amount was determined based on the indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	214	- Fringe benefits: Medical services, checkups, vehicle, and group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Hyun-suk Kim	Earned Income	Salary	878	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (president-level), responsibilities, and performance results. He was paid KRW 73 million per month from January to December.
		Bonus	2,122	- Traditional-holiday bonuses: 100% of monthly wage for each - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.)

				- Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the DX Division achieved revenue of KRW 182.5 trillion and operating profit of KRW 12.7 trillion in 2022. Qualitative indicators include his contributions to the Company's management, including through discovering new business areas and providing insight on future changes, as a person in charge of future technologies. The bonus amount was determined based on the indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	132	- Fringe benefits: Medical services, checkups, vehicle, and group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Dong-jin Koh	Earned Income	Salary	936	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (president-level), responsibilities, and performance results. He was paid KRW 78 million per month from January to December.
		Bonus	2,659	- Traditional-holiday bonuses: 100% of monthly wage for each - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the DX Division achieved revenue of KRW 182.5 trillion and operating profit of KRW 12.7 trillion in 2022. Qualitative indicators include his contributions to the Company's management, including through discovering the next-generation executives and enhancing capabilities of the Company's human resources, as a person in charge of talent innovations. The bonus amount was determined based on the indicators listed above.
		Profit from exercising	-	n/a

Name	Type of remuneration		Total amount	Criteria and methodology
		stock option		
		Other Income	94	- Fringe benefits: Medical services, checkups, vehicle, and group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

< Remuneration for five highest-paid Executive Directors who are paid KRW 500 million or more >

(1) Summary on remuneration by Executive

(KRW mil)

Name	position	Total amount of remuneration	Remuneration not included in total amount
Eun-seung Jung	Senior Advisor	8,073	-
Ki-nam Kim	Chairman	5,672	-
Sebastian Seung	President	5,580	-
Won-jin Lee	President	5,453	-
Jun-young Jeon	Senior Advisor	5,251	-

Earned income as per Income Tax Act (Article 20: Wage and Salary Income, Article 21: Other Income, Article 22: Retirement income).

(2) Criteria and methodology

Name	Type of remuneration		Total amount	Criteria and methodology
Eun-seung Jung	Earned Income	Salary	942	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position (president-level), responsibilities, and performance results. He was paid KRW 79 million per month from January to December.
		Bonus	1,954	- Traditional-holiday bonuses: 100% of monthly wage for each - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved a ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% over 2017–2019; and that the DS Division achieved revenue of KRW 98.5 trillion and operating profit of KRW 23.8 trillion in 2022. Qualitative indicators include his contributions to boosting future

				competitiveness of semiconductor businesses, including establishment of technology development strategies for the DS Division and strengthening the next-generation research. The bonus amount was determined based on the indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	192	- Fringe benefits: Medical services, checkups, vehicle, and group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		4,985	- In accordance with internal regulations for severance pay of executives (Board resolution), calculated by multiplying KRW 79 million (monthly wage at the time of retirement), 19 (years of service), and a variable within a 1.0–3.5 range.
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Ki-nam Kim	Earned Income	Salary	1,723	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position (chairman), responsibilities, and performance results. He was paid KRW 144 million per month from January to December.
		Bonus	3,735	- Traditional-holiday bonuses: 100% of monthly wage for each - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved a ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% over 2017–2019; and that the DS Division achieved revenue of KRW 98.5 trillion and operating profit of KRW 23.8 trillion in 2022. Qualitative indicators include his contributions to the Company's management, including through securing new technologies and presenting mid- to long-term R&D strategies. The bonus amount was determined based on the indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	214	- Fringe benefits: Medical services, checkups, vehicle, and group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Sebastian Seung	Earned Income	Salary	2,116	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position (president), responsibilities, and performance results. He was paid KRW 176 million per month from January to December.
		Bonus	3,351	- Traditional-holiday bonuses: average of KRW 91 million - Target achievement incentive: Paid on biannual basis of the incentive based on the payment rate decided by CEO according to the level of target achieved by the relevant division and the amount set for the individual. - Performance incentive: Paid twice a year of the incentive based on the payment rate decided by CEO according to the level of achievement for the annual individual target (securing core technologies, such as AI, security, and IoT, and leading IPs; enhancing competitiveness in software) and the amount set for the individual. ※ Quantitative indicators suggest that the DX Division achieved revenue of KRW 182.5 trillion and operating profit of KRW 12.7 trillion in 2022. Qualitative indicators include his contributions to the Company's management, including through securing new technologies and improving external reputation. The bonus amount was determined based on the indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	112	- Fringe benefits: Medical services, checkups, vehicle, and group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Won-jin Lee	Earned Income	Salary	1,999	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on position (president), responsibilities, and performance results. He was paid KRW 167 million per month from January to December.
		Bonus	3,357	- Traditional-holiday bonuses: average of KRW 153 million - Target achievement incentive: Paid on biannual basis of the incentive based on the payment rate decided by CEO according to the level of target achieved by the relevant division and the amount set for the individual. - Performance incentive: Paid once a year of the incentive based on the payment rate decided by CEO according to the level of achievement for the annual individual target (strengthening gaming, media, and advertising services; and bolstering service partnership) and the amount set for the individual. ※ Quantitative indicators suggest that the VD Business achieved revenue of KRW 33.3 trillion and operating profit of KRW 1.7 trillion in 2022 and include revenue related to the MX Business and the growth of the service businesses he is in charge of. Qualitative indicators include his contributions to the Company's management by securing new growth engines based on services, breaking away from a business structure centered on products. The bonus amount was determined based on the

				indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	97	- Fringe benefits: Medical services, checkups, vehicle, and group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		-	n/a
	Other Income		-	n/a

(KRW mil)

Name	Type of remuneration		Total amount	Criteria and methodology
Jun-young Jeon	Earned Income	Salary	643	In accordance with internal regulations for executive treatment (Board resolution), remuneration is determined based on his position (EVP-level), responsibilities, and performance results. He was paid KRW 54 million per month from January to December.
		Bonus	1,173	- Traditional-holiday bonuses: 100% of monthly wage for each - Target achievement incentive: Paid on biannual basis within the range of 0–200% of monthly wage, and CEO decides the amount according to the level of target achieved. (Adjusted according to division performance.) - Performance incentive: Paid once a year within 0–50% of salary based on the compensation resources calculated according to financial factors such as profit after tax and cost of capital for the fiscal year by business unit. (Adjusted according to individual performance) - Long-term incentive: Calculated within the director remuneration limit, based on the average salary of 3 years, using ROE, stock performance, and EBIT margin as criteria. Paid over the course of 3 years. ※ Quantitative indicators suggest that the Company achieved ROE of 15.7%, EBIT margin of 20.7%, and stock performance of 54.8% in 2017–2019; and that the DS Division achieved revenue of KRW 98.5 trillion and operating profit of KRW 23.8 trillion in 2022. Qualitative indicators include his contributions to establishing a stable supply chain of raw materials and diversifying vendors for fab equipment. The bonus amount was determined based on the indicators listed above.
		Profit from exercising stock option	-	n/a
		Other Income	83	- Fringe benefits: Medical services, checkups, vehicle, and group accident insurance are provided in line with the internal regulations for executive treatment (Board resolution)
	Retirement Income		3,352	- In accordance with internal regulations for severance pay of executives (Board resolution), calculated by multiplying KRW 54 million (monthly wage at the time of retirement), 19 (years of service), and a variable within a 1.0-3.5 range.
	Other Income		-	n/a

B. Stock options granted and exercised

(1) Status of stock options granted to registered Directors

As of December 31, 2022, there were no accumulated-basis unexercised stock options granted to registered Directors, auditors, or people who instruct another person to conduct business.

(KRW mil)

Type	Number[1)]	Total fair value of stock options	Note
Registered Director	5	-	-
Independent Director	3	-	-
Audit Committee member or auditor	3	-	-
Person who instructs another person to conduct business	1,148	-	-
Total	1,159	-	-

1) Based on the number of persons as of the reporting date.

IX. Affiliates and Subsidiaries

1. *Affiliates & subsidiaries*

A. Affiliates

As of December 31, 2022, Samsung Group is consisted of 63 domestic affiliates. Among the Samsung Group's 63 domestic affiliates, sixteen (16) affiliates including Samsung Electronics are listed, and forty-seven (47) affiliates are unlisted.

[As of December 31, 2022]

Name of affiliated group	No. of Affiliates		
	Listed	Unlisted	Total
Samsung	16	47	63

B. Ownership status of affiliates and subsidiaries

1) Domestic

Investee / Investor	Samsung C&T Corporation	Samsung BioLogics	Samsung Life Insurance	Samsung SDI	Samsung SDS	Samsung Engineering	Samsung Electro-mechanics	Samsung Electronics	Samsung Heavy Industries	Samsung Securities	Samsung Card	Samsung Fire & Marine Insurance	MULTI CAMPUS	S1 Corporation	Cheil Worldwide	Hotel Shilla
Samsung C&T Corporation		43.1	19.3		17.1	7.0		5.0	0.1							
Samsung BioLogics																
Samsung Life Insurance	0.1	0.1		0.1	0.0	0.1	0.2	8.7	2.9	29.4	71.9	15.0	0.0	5.4	0.4	7.5
Samsung SDI						11.7			0.4					11.0		0.1
Samsung SDS													47.2			
Samsung Electro-mechanics									2.1							
Samsung Electronics		31.2		19.6	22.6		23.7		15.2						25.2	5.1
Samsung Heavy Industries																
Samsung Securities.														1.3		3.1
Samsung Card														1.9	3.0	1.3
Samsung Fire & Marine Insurance						0.2		1.5						1.0		
S1 Corporation																
Cheil Worldwide									0.1							
Hotel Shilla																
SDC																
Samsung Asset Management																
Samsung Electronics Service																
Miracom																
Samsung Global Research													15.2			
Harman International Industries, Inc.																
Total	0.1	74.3	19.3	19.7	39.7	19.0	23.8	15.2	20.8	29.4	71.9	15.0	62.4	20.7	28.6	17.1

※ Percent of ownership as of December 31, 2022 based on common shares

Investee / Investor	Samsung Display	Samsung Medison	Samsung BioEpis	Samsung Venture Investment	Samsung Life Service	Samsung Futures	Samsung Active Asset Management	Samsung SRA Asset Management	Samsung FN REITs	Samsung Welstory	Samsung Asset Management	Samsung Electronics Logitech	Samsung Electronics Service	Service CS	Samsung Electronics Sales	Samsung Card Customer Service
Samsung C&T Corporation				16.7						100.0						
Samsung BioLogics			100.0													
Samsung Life Insurance					99.8			100.0	19.7		100.0					
Samsung SDI	15.2			16.3												
Samsung SDS																
Samsung Electro-mechanics				17.0												
Samsung Electronics	84.8	68.5		16.3								100.0	99.3		100.0	
Samsung Heavy Industries				17.0												
Samsung Securities.				16.7		100.0			3.6							
Samsung Card																100.0
Samsung Fire & Marine Insurance									18.9							
S1 Corporation																
Cheil Worldwide																
Hotel Shilla																
SDC																
Samsung Asset Management							100.0									
Samsung Eelectronics Service														100.0		
Miracom																
Samsung Global Research																
Harman International Industries, Inc.																
Total	100.0	68.5	100.0	100.0	99.8	100.0	100.0	100.0	42.1	100.0	100.0	100.0	99.3	100.0	100.0	100.0

※ Percent of ownership as of December 31, 2022 based on common shares

Investee / Investor	Samsung Corning Advanced Glass	Samsung Hedge Asset Management	Samsung Fire & Marine Insurance Service	Samsung Claim Adjustment Service	SEMES	Suwon Samsung Bluewings FC	STECO	Shilla HM	SD Flex	SBTM	S-1CRM	SU Materials	S-Core	STM	HDC Shilla Duty Free LTD	Open Hands
Samsung C&T Corporation																
Samsung BioLogics																
Samsung Life Insurance																
Samsung SDI									50.0					100.0		
Samsung SDS													81.8			100.0
Samsung Electro-mechanics																
Samsung Electronics					91.5		70.0									
Samsung Heavy Industries																
Samsung Securities.																
Samsung Card																
Samsung Fire & Marine Insurance			100.0	100.0												
S1 Corporation											100.0		0.6			
Cheil Worldwide						100.0							5.2			
Hotel Shilla								100.0		100.0					50.0	
SDC	50.0											50.0				
Samsung Asset Management		100.0														
Samsung Eelectronics Service																
Miracom													0.5			
Samsung Global Research																
Harman International Industries, Inc.																
Total	50.0	100.0	100.0	100.0	91.5	100.0	70.0	100.0	50.0	100.0	100.0	50.0	88.1	100.0	50.0	100.0

※ Percent of ownership as of December 31, 2022 based on common shares

Investee / Investor	Cheil Fashion Retail	Miracom	Samsung Global Research	Samsung Lions	Samsung Life Financial Service	Samsung Fire & Marine Financial Service	Samwoo Architects & Engineers	Seoul Lakeside CC	SECUI	CVnet	SHP Corporation	Harman International Korea	Human TSS	Stellarforest
Samsung C&T Corporation	100.0		1.0				100.0	100.0	8.7	40.1				
Samsung BioLogics														
Samsung Life Insurance			14.8		100.0									
Samsung SDI			29.6											
Samsung SDS		83.6							56.5	9.4				
Samsung Electro-mechanics			23.8											
Samsung Electronics			29.8											100.0
Samsung Heavy Industries			1.0											
Samsung Securities.														
Samsung Card														
Samsung Fire & Marine Insurance						100.0								
S1 Corporation		0.6											100.0	
Cheil Worldwide		5.4		67.5										
Hotel Shilla											100.0			
SDC														
Samsung Asset Management														
Samsung Eelectronics Service														
Miracom														
Samsung Global Research														
Harman International Industries, Inc.												100.0		
Total	100.0	89.6	100.0	67.5	100.0	100.0	100.0	100.0	65.2	49.5	100.0	100.0	100.0	100.0

※ Percent of ownership as of December 31, 2022 based on common shares

2) Overseas

Investor	Investee	Ownership
Samwoo Architects & Engineers	SAMOO AUSTIN INC	100.0
Samwoo Architects & Engineers	SAMOO HU Designer and Engineering Services Limited	100.0
Samwoo Architects & Engineers	SAMOO DESIGNERS & ENGINEERS INDIA PRIVATE LIMITED	100.0
Samwoo Architects & Engineers	SAMOO (KL) SDN. BHD.	100.0
Samwoo Architects & Engineers	SAMOO Design Consulting Co.,Ltd	100.0
Samsung C&T America Inc.	Meadowland Distribution	100.0
Samsung C&T America Inc.	Samsung Green repower, LLC	100.0
Samsung C&T America Inc.	Samsung Solar Construction Inc.	100.0
Samsung C&T America Inc.	QSSC, S.A. de C.V.	20.0
Samsung C&T America Inc.	Samsung Solar Energy LLC	100.0
Samsung C&T America Inc.	Equipment Trading Solutions Group, LLC	70.0
Samsung Renewable Energy Inc.	SP Armow Wind Ontario LP	50.0
Samsung Renewable Energy Inc.	SRE GRW EPC GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE GRW EPC LP	100.0
Samsung Renewable Energy Inc.	SRE SKW EPC GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE SKW EPC LP	100.0
Samsung Renewable Energy Inc.	SRE WIND PA GP INC.	100.0
Samsung Renewable Energy Inc.	SRE WIND PA LP	100.0
Samsung Renewable Energy Inc.	SRE GRS Holdings GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE GRS Holdings LP	100.0
Samsung Renewable Energy Inc.	SRE K2 EPC GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE K2 EPC LP	100.0
Samsung Renewable Energy Inc.	SRE KS HOLDINGS GP INC.	100.0
Samsung Renewable Energy Inc.	SRE KS HOLDINGS LP	100.0
Samsung Renewable Energy Inc.	SP Belle River Wind LP	42.5
Samsung Renewable Energy Inc.	SRE Armow EPC GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Armow EPC LP	100.0
Samsung Renewable Energy Inc.	North Kent Wind 1 LP	35.0
Samsung Renewable Energy Inc.	SRE Wind GP Holding Inc.	100.0
Samsung Renewable Energy Inc.	South Kent Wind LP Inc.	50.0
Samsung Renewable Energy Inc.	Grand Renewable Wind LP Inc.	45.0
Samsung Renewable Energy Inc.	SRE North Kent 2 LP Holdings LP	100.0
Samsung Renewable Energy Inc.	SRE Solar Development GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Solar Development LP	100.0
Samsung Renewable Energy Inc.	SRE Windsor Holdings GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Southgate Holdings GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Solar Construction Management GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Solar Construction Management LP	100.0
Samsung Renewable Energy Inc.	SRE BRW EPC GP INC.	100.0
Samsung Renewable Energy Inc.	SRE BRW EPC LP	100.0
Samsung Renewable Energy Inc.	SRE North Kent 1 GP Holdings Inc	100.0
Samsung Renewable Energy Inc.	SRE North Kent 2 GP Holdings Inc	100.0
Samsung Renewable Energy Inc.	SRE Belle River GP Holdings Inc	100.0
Samsung Renewable Energy Inc.	SRE NK1 EPC GP Inc	100.0
Samsung Renewable Energy Inc.	SRE NK1 EPC LP	100.0
Samsung Renewable Energy Inc.	SRE Summerside Construction GP Inc.	100.0
Samsung Renewable Energy Inc.	SRE Summerside Construction LP	100.0
Samsung Green repower, LLC	Monument Power, LLC	100.0

Investor	Investee	Ownership
SP Armow Wind Ontario GP Inc	SP Armow Wind Ontario LP	0.0
Samsung C&T Oil & Gas Parallel Corp.	PLL Holdings LLC	83.6
Samsung C&T Oil & Gas Parallel Corp.	PLL E&P LLC	90.0
SRE GRW EPC GP Inc.	SRE GRW EPC LP	0.0
SRE SKW EPC GP Inc.	SRE SKW EPC LP	0.0
PLL Holdings LLC	Parallel Petroleum LLC	61.0
SRE WIND PA GP INC.	SRE WIND PA LP	0.0
SRE GRS Holdings GP Inc.	Grand Renewable Solar GP Inc.	50.0
SRE GRS Holdings GP Inc.	SRE GRS Holdings LP	0.0
SRE K2 EPC GP Inc.	SRE K2 EPC LP	0.0
SRE KS HOLDINGS GP INC.	KINGSTON SOLAR GP INC.	50.0
SRE KS HOLDINGS GP INC.	SRE KS HOLDINGS LP	0.0
SP Belle River Wind GP Inc	SP Belle River Wind LP	0.0
SRE Armow EPC GP Inc.	SRE Armow EPC LP	0.0
SRE Wind GP Holding Inc.	SP Armow Wind Ontario GP Inc	50.0
SRE Wind GP Holding Inc.	South Kent Wind GP Inc.	50.0
SRE Wind GP Holding Inc.	Grand Renewable Wind GP Inc.	50.0
South Kent Wind GP Inc.	South Kent Wind LP Inc.	0.0
Grand Renewable Wind GP Inc.	Grand Renewable Wind LP Inc.	0.0
North Kent Wind 1 GP Inc	North Kent Wind 1 LP	0.0
SRE Solar Development GP Inc.	SRE Solar Development LP	0.0
SRE Solar Construction Management GP Inc.	SRE Solar Construction Management LP	0.0
SRE BRW EPC GP INC.	SRE BRW EPC LP	0.0
SRE North Kent 1 GP Holdings Inc	North Kent Wind 1 GP Inc	50.0
SRE North Kent 2 GP Holdings Inc	SRE North Kent 2 LP Holdings LP	0.0
SRE Belle River GP Holdings Inc	SP Belle River Wind GP Inc	50.0
SRE NK1 EPC GP Inc	SRE NK1 EPC LP	0.0
SRE Summerside Construction GP Inc.	SRE Summerside Construction LP	0.0
Samsung Solar Energy LLC	Samsung Solar Energy 1 LLC	100.0
Samsung Solar Energy LLC	Samsung Solar Energy 2 LLC	100.0
Samsung Solar Energy LLC	Samsung Solar Energy 3, LLC	100.0
Samsung Solar Energy 1 LLC	CS SOLAR LLC	50.0
Samsung Solar Energy 2 LLC	5S ENERGY HOLDINGS, LLC	50.0
Samsung C&T Deutschland GmbH	SungEel Recycling Park Thüringen GmbH	100.0
Samsung C&T Deutschland GmbH	POSS-SLPC, S.R.O	20.0
Samsung C&T Deutschland GmbH	Solluce Romania 1 B.V.	20.0
Samsung C&T Deutschland GmbH	S.C. Otelinox S.A	99.9
Samsung C&T Malaysia SDN. BHD	WARIS GIGIH ENGINEERING AND TECHNOLOGY SDN. BHD.	70.0
Samsung C&T Singapore Pte., Ltd.	Samsung Chemtech Vina LLC	48.3
Samsung C&T Singapore Pte., Ltd.	Samsung C&T Thailand Co., Ltd	0.2
Samsung C&T Singapore Pte., Ltd.	PT. INSAM BATUBARA ENERGY	65.2
Samsung C&T Singapore Pte., Ltd.	Malaysia Samsung Steel Center Sdn.Bhd	30.0
Samsung C&T Singapore Pte., Ltd.	S&G Biofuel PTE.LTD	12.6
S&G Biofuel PTE.LTD	PT. Gandaerah Hendana	95.0
S&G Biofuel PTE.LTD	PT. Inecda	95.0
Vista Contracting and Investment Global Pte. Ltd.	VISTA CONTRACTING AND DEVELOPMENT BANGLADESH LTD.	100.0
CHEIL HOLDING INC.	SAMSUNG CONST. CO. PHILS.	75.0
Samsung C&T Hongkong Ltd.	Samsung C&T Thailand Co., Ltd	6.8
Samsung C&T Hongkong Ltd.	SAMSUNG TRADING (SHANGHAI) CO., LTD	100.0
Samsung C&T Hongkong Ltd.	Samsung Precision Stainless Steel(pinghu) Co.,Ltd.	45.0

Investor	Investee	Ownership
Samsung Electronics	Samsung Japan Corporation	100.0
Samsung Electronics	Samsung R&D Institute Japan Co. Ltd.	100.0
Samsung Electronics	Samsung Electronics America, Inc.	100.0
Samsung Electronics	Samsung Electronics Canada, Inc.	100.0
Samsung Electronics	Samsung Electronics Mexico S.A. De C.V.	63.6
Samsung Electronics	Samsung Electronics Ltd.	100.0
Samsung Electronics	Samsung Electronics (UK) Ltd.	100.0
Samsung Electronics	Samsung Electronics Holding GmbH	100.0
Samsung Electronics	Samsung Electronics Iberia, S.A.	100.0
Samsung Electronics	Samsung Electronics France S.A.S	100.0
Samsung Electronics	Samsung Electronics Hungarian Private Co. Ltd.	100.0
Samsung Electronics	Samsung Electronics Italia S.P.A.	100.0
Samsung Electronics	Samsung Electronics Europe Logistics B.V.	100.0
Samsung Electronics	Samsung Electronics Benelux B.V.	100.0
Samsung Electronics	Samsung Electronics Overseas B.V.	100.0
Samsung Electronics	Samsung Electronics Polska, SP.Zo.o	100.0
Samsung Electronics	Samsung Electronics Portuguesa, Unipessoal, Lda.	100.0
Samsung Electronics	Samsung Electronics Nordic Aktiebolag	100.0
Samsung Electronics	Samsung Electronics Austria GmbH	100.0
Samsung Electronics	Samsung Electronics Slovakia s.r.o	55.7
Samsung Electronics	Samsung Electronics Europe Holding Cooperatief U.A.	100.0
Samsung Electronics	Samsung Electronics Display (M) Sdn. Bhd.	75.0
Samsung Electronics	Samsung Electronics (M) Sdn. Bhd.	100.0
Samsung Electronics	Samsung Vina Electronics Co., Ltd.	100.0
Samsung Electronics	Samsung Asia Pte. Ltd.	100.0
Samsung Electronics	Samsung India Electronics Private Ltd.	100.0
Samsung Electronics	Samsung R&D Institute India-Bangalore Private Limited	100.0
Samsung Electronics	Samsung Electronics Australia Pty. Ltd.	100.0
Samsung Electronics	PT Samsung Electronics Indonesia	100.0
Samsung Electronics	Thai Samsung Electronics Co., Ltd.	91.8
Samsung Electronics	Samsung Malaysia Electronics (SME) Sdn. Bhd.	100.0
Samsung Electronics	Samsung Electronics Hong Kong Co., Ltd.	100.0
Samsung Electronics	Suzhou Samsung Electronics Co., Ltd.	69.1
Samsung Electronics	Samsung (CHINA) Investment Co., Ltd.	100.0
Samsung Electronics	Samsung Electronics Suzhou Semiconductor Co., Ltd.	100.0
Samsung Electronics	Tianjin Samsung Electronics Co., Ltd.	48.2
Samsung Electronics	Samsung Electronics Taiwan Co., Ltd.	100.0
Samsung Electronics	Tianjin Samsung Telecom Technology Co., Ltd.	90.0
Samsung Electronics	Shanghai Samsung Semiconductor Co., Ltd.	100.0
Samsung Electronics	Samsung Electronics Suzhou Computer Co., Ltd.	73.7
Samsung Electronics	Samsung Semiconductor (China) R&D Co., Ltd.	100.0
Samsung Electronics	Samsung (China) Semiconductor Co., Ltd.	100.0
Samsung Electronics	Samsung SemiConductor Xian Co., Ltd.	100.0
Samsung Electronics	Samsung Gulf Electronics Co., Ltd.	100.0
Samsung Electronics	Samsung Electronics Egypt S.A.E	0.1
Samsung Electronics	Samsung Electronics South Africa(Pty) Ltd.	100.0
Samsung Electronics	Samsung Electronics Latinoamerica(Zona Libre), S. A.	100.0
Samsung Electronics	Samsung Eletronica da Amazonia Ltda.	87.0
Samsung Electronics	Samsung Electronics Argentina S.A.	98.0
Samsung Electronics	Samsung Electronics Chile Limitada	4.1

Investor	Investee	Ownership
Samsung Electronics	Samsung Electronics Rus Company LLC	100.0
Samsung Electronics	Samsung Electronics Rus Kaluga LLC	100.0
Samsung Electronics	Tianjin Samsung LED Co., Ltd.	100.0
Samsung Biologics	Samsung Biologics America, Inc.	100.0
Samsung BioEpis	Samsung Bioepis United States Inc.	100.0
Samsung BioEpis	SAMSUNG BIOEPIS UK LIMITED	100.0
Samsung BioEpis	Samsung Bioepis NL B.V.	100.0
Samsung BioEpis	Samsung Bioepis CH GmbH	100.0
Samsung BioEpis	Samsung Bioepis PL Sp z o.o.	100.0
Samsung BioEpis	SAMSUNG BIOEPIS AU PTY LTD	100.0
Samsung BioEpis	SAMSUNG BIOEPIS NZ LIMITED	100.0
Samsung BioEpis	Samsung Biopeis TW Limited	100.0
Samsung BioEpis	Samsung Bioepis HK Limited	100.0
Samsung BioEpis	SAMSUNG BIOEPIS IL LTD	100.0
Samsung BioEpis	SAMSUNG BIOEPIS BR PHARMACEUTICAL LTDA	100.0
Samsung Display	Intellectual Keystone Technology LLC	41.9
Samsung Display	Samsung Display Slovakia, s.r.o.	100.0
Samsung Display	Samsung Display Vietnam Co., Ltd.	100.0
Samsung Display	Samsung Display Noida Private Limited	100.0
Samsung Display	Samsung Display Dongguan Co., Ltd.	100.0
Samsung Display	Samsung Display Tianjin Co., Ltd.	95.0
Samsung Display	Novaled GmbH	9.9
SEMES	SEMES America, Inc.	100.0
SEMES	SEMES (XIAN) Co., Ltd.	100.0
Samsung Electronics America, Inc.	NeuroLogica Corp.	100.0
Samsung Electronics America, Inc.	Dacor Holdings, Inc.	100.0
Samsung Electronics America, Inc.	Samsung HVAC America, LLC	100.0
Samsung Electronics America, Inc.	SmartThings, Inc.	100.0
Samsung Electronics America, Inc.	Samsung Oak Holdings, Inc.	100.0
Samsung Electronics America, Inc.	Joyent, Inc.	100.0
Samsung Electronics America, Inc.	TeleWorld Solutions, Inc.	100.0
Samsung Electronics America, Inc.	Samsung Semiconductor, Inc.	100.0
Samsung Electronics America, Inc.	Samsung Research America, Inc	100.0
Samsung Electronics America, Inc.	Samsung Electronics Home Appliances America, LLC	100.0
Samsung Electronics America, Inc.	Samsung International, Inc.	100.0
Samsung Electronics America, Inc.	Harman International Industries, Inc.	100.0
Dacor Holdings, Inc.	Dacor, Inc.	100.0
Samsung Semiconductor, Inc.	Samsung Austin Semiconductor LLC.	100.0
Samsung Electronics Canada, Inc.	AdGear Technologies Inc.	100.0
Samsung Research America, Inc	SAMSUNG NEXT LLC	100.0
SAMSUNG NEXT LLC	SAMSUNG NEXT FUND LLC	100.0
Samsung International, Inc.	Samsung Mexicana S.A. de C.V	100.0
Samsung Electronics Mexico S.A. De C.V.	Samsung Electronics Digital Appliance Mexico, SA de CV	100.0
Harman International Industries, Inc.	Harman International Japan Co., Ltd.	100.0
Harman International Industries, Inc.	Harman International Industries Canada Ltd.	100.0
Harman International Industries, Inc.	Harman Becker Automotive Systems, Inc.	100.0
Harman International Industries, Inc.	Harman Professional, Inc.	100.0
Harman International Industries, Inc.	Harman Connected Services, Inc.	100.0
Harman International Industries, Inc.	Harman Financial Group LLC	100.0
Harman International Industries, Inc.	Harman Belgium SA	100.0

Investor	Investee	Ownership
Harman International Industries, Inc.	Harman France SNC	100.0
Harman International Industries, Inc.	Red Bend Software SAS	100.0
Harman International Industries, Inc.	Harman Inc. & Co. KG	66.0
Harman International Industries, Inc.	Harman KG Holding, LLC	100.0
Harman International Industries, Inc.	Harman Becker Automotive Systems Italy S.R.L.	100.0
Harman International Industries, Inc.	Harman Finance International, SCA	100.0
Harman International Industries, Inc.	Harman Finance International GP S.a.r.l	100.0
Harman International Industries, Inc.	Harman Industries Holdings Mauritius Ltd.	100.0
Harman International Industries, Inc.	Harman International Mexico, S. de R.L. de C.V.	99.9
Harman Becker Automotive Systems, Inc.	Harman International Estonia OU	100.0
Harman Professional, Inc.	Harman Singapore Pte. Ltd.	100.0
Harman Professional, Inc.	Harman da Amazonia Industria Eletronica e Participacoes Ltda.	0.0
Harman Professional, Inc.	Harman do Brasil Industria Eletronica e Participacoes Ltda.	0.0
Harman Connected Services, Inc.	Harman Connected Services Engineering Corp.	100.0
Harman Connected Services, Inc.	Harman Connected Services AB.	100.0
Harman Connected Services, Inc.	Harman Connected Services UK Ltd.	100.0
Harman Connected Services, Inc.	Harman Connected Services Corp. India Pvt. Ltd.	1.6
Harman Connected Services, Inc.	Global Symphony Technology Group Private Ltd.	100.0
Harman Financial Group LLC	Harman International (India) Private Limited	0.0
Harman Financial Group LLC	Harman International Mexico, S. de R.L. de C.V.	0.1
Harman Financial Group LLC	Harman de Mexico, S. de R.L. de C.V.	0.0
Samsung Electronics (UK) Ltd.	Samsung Semiconductor Europe Limited	100.0
Samsung Electronics Holding GmbH	Samsung Semiconductor Europe GmbH	100.0
Samsung Electronics Holding GmbH	Samsung Electronics GmbH	100.0
Samsung Electronics Hungarian Private Co. Ltd.	Samsung Electronics Czech and Slovak s.r.o.	31.4
Samsung Electronics Hungarian Private Co. Ltd.	Samsung Electronics Slovakia s.r.o	44.3
Samsung Electronics Benelux B.V.	Samsung Electronics Mexico S.A. De C.V.	36.4
Samsung Electronics Benelux B.V.	SAMSUNG ELECTRONICS BALTICS SIA	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics West Africa Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics East Africa Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Saudi Arabia Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Egypt S.A.E	99.9
Samsung Electronics Benelux B.V.	Samsung Electronics Israel Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Tunisia S.A.R.L	99.0
Samsung Electronics Benelux B.V.	Samsung Electronics Pakistan(Private) Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics South Africa Production (pty) Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Türkiye	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Industry and Commerce Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Semiconductor Israel R&D Center, Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Levant Co.,Ltd.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Maghreb Arab	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Venezuela, C.A.	100.0
Samsung Electronics Benelux B.V.	Samsung Eletronica da Amazonia Ltda.	13.0
Samsung Electronics Benelux B.V.	Samsung Electronics Chile Limitada	95.9
Samsung Electronics Benelux B.V.	Samsung Electronics Peru S.A.C.	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Ukraine Company LLC	100.0
Samsung Electronics Benelux B.V.	Samsung R&D Institute Ukraine	100.0
Samsung Electronics Benelux B.V.	Samsung R&D Institute Rus LLC	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Central Eurasia LLP	100.0
Samsung Electronics Benelux B.V.	Samsung Electronics Caucasus Co. Ltd	100.0

Investor	Investee	Ownership
Samsung Electronics Benelux B.V.	Samsung Electronics Uzbekistan Ltd.	100.0
Samsung Electronics Benelux B.V.	Corephotonics Ltd.	100.0
Samsung Electronics Nordic Aktiebolag	Samsung Nanoradio Design Center	100.0
AKG Acoustics Gmbh	Harman Professional Denmark ApS	100.0
AKG Acoustics Gmbh	Studer Professional Audio GmbH	100.0
Harman Professional Denmark ApS	Martin Professional Japan Ltd.	40.0
Harman Becker Automotive Systems GmbH	Harman International Romania SRL	0.0
Harman Becker Automotive Systems GmbH	Apostera UA, LLC	100.0
Harman Holding Gmbh & Co. KG	Harman Becker Automotive Systems GmbH	100.0
Harman Holding Gmbh & Co. KG	Harman Deutschland GmbH	100.0
Harman Holding Gmbh & Co. KG	Harman Becker Automotive Systems Manufacturing Kft	100.0
Harman Holding Gmbh & Co. KG	Harman RUS CIS LLC	100.0
Harman Inc. & Co. KG	Harman Holding Gmbh & Co. KG	100.0
Harman Inc. & Co. KG	Harman Management Gmbh	100.0
Harman Inc. & Co. KG	Harman Hungary Financing Ltd.	100.0
Harman Connected Services GmbH	Harman Connected Services OOO	100.0
Harman KG Holding, LLC	Harman Inc. & Co. KG	34.0
Harman Becker Automotive Systems Manufacturing Kft	Harman Professional Kft	100.0
Harman Becker Automotive Systems Manufacturing Kft	Harman Consumer Nederland B.V.	100.0
Harman Becker Automotive Systems Manufacturing Kft	Harman International Romania SRL	100.0
Harman Becker Automotive Systems Manufacturing Kft	Red Bend Ltd.	100.0
Harman Becker Automotive Systems Manufacturing Kft	Harman do Brasil Industria Eletronica e Participacoes Ltda.	100.0
Harman Hungary Financing Ltd.	Harman International Industries Limited	100.0
Harman Finance International GP S.a.r.l	Harman Finance International, SCA	0.0
Harman Consumer Nederland B.V.	AKG Acoustics Gmbh	100.0
Harman Consumer Nederland B.V.	Harman Audio Iberia España Sociedad Limitada	100.0
Harman Consumer Nederland B.V.	Harman Holding Limited	100.0
Harman Audio Iberia España Sociedad Limitada	Harman France SNC	0.0
Harman Connected Services AB.	Harman Finland Oy	100.0
Harman Connected Services AB.	Harman Connected Services GmbH	100.0
Harman Connected Services AB.	Harman Connected Services Poland Sp.zoo	100.0
Harman Connected Services AB.	Harman Connected Services Solutions (Chengdu) Co., Ltd.	100.0
Harman International Industries Limited	Harman Automotive UK Limited	100.0
Harman International Industries Limited	Harman International Industries PTY Ltd.	100.0
Harman International Industries Limited	Harman de Mexico, S. de R.L. de C.V.	100.0
Harman Connected Services UK Ltd.	Harman Connected Services Morocco	100.0
Samsung Electronics Austria GmbH	Samsung Electronics Switzerland GmbH	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Czech and Slovak s.r.o.	68.6
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Romania LLC	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	SAMSUNG Zhilabs, S.L.	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Porta Nuova Varesine Building 2 S.r.l.	49.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Poland Manufacturing SP.Zo.o	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Greece S.M.S.A	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Electronics Air Conditioner Europe B.V.	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	FOODIENT LTD.	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Denmark Research Center ApS	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Samsung Cambridge Solution Centre Limited	100.0
Samsung Electronics Europe Holding Cooperatief U.A.	Novaled GmbH	40.0
Samsung Electronics Singapore Pte. Ltd.	Samsung Electronics Display (M) Sdn. Bhd.	25.0
Samsung Electronics Singapore Pte. Ltd.	iMarket Asia Co., Ltd.	11.4

Investor	Investee	Ownership
Samsung Asia Pte. Ltd.	Samsung Electronics Japan Co., Ltd.	100.0
Samsung Asia Pte. Ltd.	Samsung Electronics Singapore Pte. Ltd.	100.0
Samsung Asia Pte. Ltd.	Samsung Electronics New Zealand Limited	100.0
Samsung Asia Pte. Ltd.	Samsung Electronics Philippines Corporation	100.0
Samsung Asia Pte. Ltd.	Samsung R&D Institute BanglaDesh Limited	100.0
Samsung Asia Pte. Ltd.	Samsung Electronics Vietnam Co., Ltd.	100.0
Samsung Asia Pte. Ltd.	Samsung Electronics Vietnam THAINGUYEN Co., Ltd.	100.0
Samsung Asia Pte. Ltd.	Samsung Electronics HCMC CE Complex Co., Ltd.	100.0
Samsung India Electronics Private Ltd.	Samsung Nepal Services Pvt, Ltd	100.0
Samsung India Electronics Private Ltd.	Red Brick Lane Marketing Solutions Pvt. Ltd.	100.0
PT Samsung Electronics Indonesia	PT Samsung Telecommunications Indonesia	100.0
Thai Samsung Electronics Co., Ltd.	Laos Samsung Electronics Sole Co., Ltd	100.0
Samsung Electronics Hong Kong Co., Ltd.	iMarket Asia Co., Ltd.	11.3
Suzhou Samsung Electronics Co., Ltd.	Samsung Suzhou Electronics Export Co., Ltd.	100.0
Samsung (CHINA) Investment Co., Ltd.	Suzhou Samsung Electronics Co., Ltd.	19.2
Samsung (CHINA) Investment Co., Ltd.	Samsung Mobile R&D Center China-Guangzhou	100.0
Samsung (CHINA) Investment Co., Ltd.	Samsung R&D Institute China-Shenzhen	100.0
Samsung (CHINA) Investment Co., Ltd.	Tianjin Samsung Electronics Co., Ltd.	43.1
Samsung (CHINA) Investment Co., Ltd.	Beijing Samsung Telecom R&D Center	100.0
Samsung (CHINA) Investment Co., Ltd.	Samsung Electronics Suzhou Computer Co., Ltd.	26.3
Samsung (CHINA) Investment Co., Ltd.	Samsung Electronics China R&D Center	100.0
Harman International (China) Holdings Co., Ltd.	Harman (Suzhou) Audio and Infotainment Systems Co., Ltd.	100.0
Harman International (China) Holdings Co., Ltd.	Harman Technology (Shenzhen) Co., Ltd.	100.0
Harman International (China) Holdings Co., Ltd.	Harman (China) Technologies Co., Ltd.	100.0
Harman Holding Limited	Harman Commercial (Shanghai) Co., Ltd.	100.0
Harman Holding Limited	Harman International (China) Holdings Co., Ltd.	100.0
Harman Holding Limited	Harman Automotive Electronic Systems (Suzhou) Co., Ltd.	100.0
Samsung Gulf Electronics Co., Ltd.	Samsung Electronics Egypt S.A.E	0.1
Samsung Electronics Maghreb Arab	Samsung Electronics Tunisia S.A.R.L	1.0
Harman Industries Holdings Mauritius Ltd.	Harman International (India) Private Limited	100.0
Global Symphony Technology Group Private Ltd.	Harman Connected Services Corp. India Pvt. Ltd.	98.4
Red Bend Ltd.	Red Bend Software Ltd.	100.0
Samsung Electronics Latinoamerica(Zona Libre), S. A.	Samsung Electronics Latinoamerica Miami, Inc.	100.0
Samsung Electronics Latinoamerica(Zona Libre), S. A.	Samsung Electronica Colombia S.A.	100.0
Samsung Electronics Latinoamerica(Zona Libre), S. A.	Samsung Electronics Panama. S.A.	100.0
Samsung Eletronica da Amazonia Ltda.	Samsung Electronics Argentina S.A.	2.0
Harman do Brasil Industria Eletronica e Participacoes Ltda.	Harman da Amazonia Industria Eletronica e Participacoes Ltda.	100.0
Samsung Electronics Central Eurasia LLP	Samsung Electronics Caucasus Co. Ltd	0.0
Samsung SDI	Intellectual Keystone Technology LLC	41.0
Samsung SDI	Samsung SDI Japan Co., Ltd.	89.2
Samsung SDI	Samsung SDI America, Inc.	91.7
Samsung SDI	Samsung SDI Hungary., Zrt.	100.0
Samsung SDI	Samsung SDI Europe GmbH	100.0
Samsung SDI	Samsung SDI Battery Systems GmbH	100.0
Samsung SDI	Samsung SDI Vietnam Co., Ltd.	100.0
Samsung SDI	Samsung SDI Energy Malaysia Sdn, Bhd.	100.0
Samsung SDI	Samsung SDI India Private Limited	100.0
Samsung SDI	Samsung SDI(Hong Kong) Ltd.	97.6
Samsung SDI	Samsung SDI China Co., Ltd.	100.0

Investor	Investee	Ownership
Samsung SDI	Samsung SDI-ARN (Xi'An) Power Battery Co., Ltd.	65.0
Samsung SDI	Samsung SDI (Tianjin) Battery Co.,Ltd.	80.0
Samsung SDI	STARPLUS ENERGY LLC.	51.0
Samsung SDI	Novaled GmbH	50.1
Samsung SDI	SAMSUNG SDI WUXI CO.,LTD.	100.0
Samsung SDI	iMarket Asia Co., Ltd.	8.7
Samsung SDI(Hong Kong) Ltd.	Samsung SDI India Private Limited	0.0
Samsung SDI(Hong Kong) Ltd.	Tianjin Samsung SDI Co., Ltd.	80.0
Samsung Electro-Mechanics	Samsung Electro-Machanics Japan Co., Ltd.	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics America, Inc.	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics GmbH	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics Philippines, Corp.	100.0
Samsung Electro-Mechanics	Calamba Premier Realty Corporation	39.8
Samsung Electro-Mechanics	Samsung Electro-Mechanics Pte Ltd.	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics Vietnam Co., Ltd.	100.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics Software India Bangalore Private Limited	99.9
Samsung Electro-Mechanics	Dongguan Samsung Electro-Mechanics Co., Ltd.	100.0
Samsung Electro-Mechanics	Tianjin Samsung Electro-Mechanics Co., Ltd.	81.8
Samsung Electro-Mechanics	Samsung High-Tech Electro-Mechanics(Tianjin) Co., Ltd.	95.0
Samsung Electro-Mechanics	Samsung Electro-Mechanics (Shenzhen) Co., Ltd.	100.0
Samsung Electro-Mechanics	Kunshan Samsung Electro-Mechanics Co., Ltd.	100.0
Samsung Electro-Mechanics	iMarket Asia Co., Ltd.	8.7
Calamba Premier Realty Corporation	Batino Realty Corporation	100.0
Samsung Electro-Mechanics Pte Ltd.	Samsung Electro-Mechanics Software India Bangalore Private Limited	0.1
Samsung Fire & Marine Insurance	Samsung Fire & Marine Management Corporation	100.0
Samsung Fire & Marine Insurance	SAMSUNG FIRE & MARINE INSURANCE COMPANY OF EUROPE LTD.	100.0
Samsung Fire & Marine Insurance	PT. Asuransi Samsung Tugu	70.0
Samsung Fire & Marine Insurance	SAMSUNG VINA INSURANCE COMPANY LIMITED	75.0
Samsung Fire & Marine Insurance	Samsung Reinsurance Pte. Ltd.	100.0
Samsung Fire & Marine Insurance	Samsung Property & Casualty Insurance Company(China), Ltd	37.0
Samsung Fire & Marine Insurance	Samsung Fire & Marine Insurance Management Middle East Limited	100.0
Samsung Heavy Industries Co.,Ltd.	Camellia Consulting Corporation	100.0
Samsung Heavy Industries Co.,Ltd.	Samsung Heavy Industries India Pvt.Ltd.	100.0
Samsung Heavy Industries Co.,Ltd.	SAMSUNG HEAVY INDUSTRIES (M) SDN.BHD	100.0
Samsung Heavy Industries Co.,Ltd.	Samsung Heavy Industries(Ningbo) Co., Ltd	100.0
Samsung Heavy Industries Co.,Ltd.	Samsung Heavy Industries(Rongcheng) Co., Ltd	100.0
Samsung Heavy Industries Co.,Ltd.	SAMSUNG HEAVY INDUSTRIES NIGERIA LIMITED	100.0
Samsung Heavy Industries Co.,Ltd.	Samsung Heavy Industries Mozambique LDA	100.0
Samsung Heavy Industries Co.,Ltd.	Samsung Heavy Industries Rus LLC	100.0
SAMSUNG HEAVY INDUSTRIES NIGERIA LIMITED	SHI - MCI FZE	70.0
Samsung Life Insurance	Porta Nuova Varesine Building 2 S.r.l.	51.0
Samsung Life Insurance	Samsung Life Insurance (Thailand) Public Co., Ltd	48.9
Samsung Life Insurance	Beijing Samsung Real Estate Co.. Ltd	90.0
Samsung Asset Management	Samsung Asset Management (New York), Inc.	100.0
Samsung Asset Management	Samsung Global SME Private Equity Manager Fund Co., Ltd.	100.0
Samsung Asset Management	Samsung Asset Management U.S. Holdings, Inc.	100.0
Samsung Asset Management	Samsung Private Equity Fund 2022 GP, Ltd.	100.0
Samsung Asset Management	Samsung Co-Investment 2021 GP, Ltd.	100.0
Samsung Asset Management	Samsung Asset Management(London) Ltd.	100.0
Samsung Asset Management	Samsung Private Equity Manager I Co., Ltd.	100.0

Investor	Investee	Ownership
Samsung Asset Management	Samsung Asset Management (Hong Kong) Ltd.	100.0
Samsung Asset Management (Hong Kong) Ltd.	Samsung Asset Management (Beijing) Ltd.	100.0
Samsung C&T Corporation	Samsung C&T Japan Corporation	100.0
Samsung C&T Corporation	Samsung C&T America Inc.	100.0
Samsung C&T Corporation	Samsung E&C America, INC.	100.0
Samsung C&T Corporation	Samsung Renewable Energy Inc.	100.0
Samsung C&T Corporation	QSSC, S.A. de C.V.	80.0
Samsung C&T Corporation	Samsung C&T Oil & Gas Parallel Corp.	100.0
Samsung C&T Corporation	Samsung C&T Lima S.A.C.	100.0
Samsung C&T Corporation	Samsung C&T Deutschland GmbH	100.0
Samsung C&T Corporation	Samsung C&T U.K. Ltd.	100.0
Samsung C&T Corporation	Samsung C&T ECUK Limited	100.0
Samsung C&T Corporation	Whessoe engineering Limited	100.0
Samsung C&T Corporation	POSS-SLPC, S.R.O	50.0
Samsung C&T Corporation	Solluce Romania 1 B.V.	80.0
Samsung C&T Corporation	SAM investment Manzanilo.B.V	53.3
Samsung C&T Corporation	Samsung C&T (KL) Sdn.,Bhd.	100.0
Samsung C&T Corporation	Samsung C&T Malaysia SDN. BHD	100.0
Samsung C&T Corporation	Erdsam Co., Ltd.	100.0
Samsung C&T Corporation	Samsung Chemtech Vina LLC	51.7
Samsung C&T Corporation	Samsung C&T Thailand Co., Ltd	93.0
Samsung C&T Corporation	PT. INSAM BATUBARA ENERGY	34.8
Samsung C&T Corporation	Samsung C&T India Private Limited	100.0
Samsung C&T Corporation	Samsung C&T Corporation India Private Limited	100.0
Samsung C&T Corporation	Malaysia Samsung Steel Center Sdn.Bhd	70.0
Samsung C&T Corporation	Samsung C&T Singapore Pte., Ltd.	100.0
Samsung C&T Corporation	S&G Biofuel PTE.LTD	50.5
Samsung C&T Corporation	SAMSUNG C&T Mongolia LLC.	70.0
Samsung C&T Corporation	Samsung C&T Eng.&Const. Mongolia LLC.	100.0
Samsung C&T Corporation	S&WOO CONSTRUCTION PHILIPPINES,INC.	100.0
Samsung C&T Corporation	VSSC STEEL CENTER LIMITED LIABILITY COMPANY	70.0
Samsung C&T Corporation	Vista Contracting and Investment Global Pte. Ltd.	100.0
Samsung C&T Corporation	SAMSUNG CONST. CO. PHILS.	25.0
Samsung C&T Corporation	CHEIL HOLDING INC.	40.0
Samsung C&T Corporation	Samsung C&T Renewable Energy Australia Pty Ltd	100.0
Samsung C&T Corporation	Samsung C&T Hongkong Ltd.	100.0
Samsung C&T Corporation	Samsung C&T Taiwan Co., Ltd.	100.0
Samsung C&T Corporation	Samsung Precision Stainless Steel(pinghu) Co.,Ltd.	55.0
Samsung C&T Corporation	SAMSUNG C&T (SHANGHAI) CO., LTD.	100.0
Samsung C&T Corporation	Samsung C&T (Xi'an) Co., Ltd.	100.0
Samsung C&T Corporation	WARIS GIGIH ENGINEERING AND TECHNOLOGY SDN. BHD.	30.0
Samsung C&T Corporation	SAMSUNG C&T CORPORATION SAUDI ARABIA	100.0
Samsung C&T Corporation	SAM Gulf Investment Limited	100.0
Samsung C&T Corporation	Samsung C&T Chile Copper SpA	100.0
Samsung C&T Corporation	SCNT Power Kelar Inversiones Limitada	100.0
Samsung C&T Corporation	Samsung C&T Corporation Rus LLC	100.0
Samsung C&T Corporation	Samsung SDI America, Inc.	8.3
Samsung C&T Corporation	Samsung SDI(Hong Kong) Ltd.	2.4
Samsung C&T Corporation	Beijing Samsung Real Estate Co.. Ltd	10.0
Samsung C&T Corporation	CHEIL INDUSTRIES ITALY SRL	100.0

Investor	Investee	Ownership
Samsung C&T Corporation	Samsung Fashion Trading Co. ,Ltd	100.0
Samsung C&T Corporation	SAMSUNG C&T CORPORATION VIETNAM CO., LTD	100.0
Samsung C&T Corporation	Samsung C&T Corporation UEM Construction JV Sdn Bhd	60.0
Samsung C&T Corporation	iMarket Asia Co., Ltd.	19.3
Samsung Welstory	WELSTORY VIETNAM COMPANY LIMITED	100.0
Samsung Welstory	Shanghai Ever-Hongjun Business Mgt Service Co.,LTD	85.0
Samsung Welstory	Shanghai Welstory Food Company Limited	81.6
MULTICAMPUS	LANGUAGE TESTING INTERNATIONAL, INC.	82.4
Pengtai Greater China Company Limited	PENGTAI CHINA CO.,LTD.	100.0
Pengtai Greater China Company Limited	PengTai Taiwan Co., Ltd.	100.0
PENGTAI CHINA CO.,LTD.	PENGTAI E-COMMERCE CO.,LTD	100.0
PENGTAI CHINA CO.,LTD.	PENGTAI MARKETING SERVICE CO.,LTD.	100.0
PENGTAI INTERACTIVE ADVERTISING CO.,LTD	Medialytics Inc.	100.0
PENGTAI INTERACTIVE ADVERTISING CO.,LTD	Beijing Pengtai Baozun E-commerce Co., Ltd.	51.0
iMarket Asia Co., Ltd.	iMarket China Co., Ltd.	80.0
Samsung Securities	Samsung Securities (America), Inc.	100.0
Samsung Securities	Samsung Securities (Europe) Limited.	100.0
Samsung Securities	Samsung Securities (Asia) Limited.	100.0
Samsung SDS	iMarket Asia Co., Ltd.	40.6
Samsung SDS	Samsung SDS America, Inc.	100.0
Samsung SDS	SAMSUNG SDS GSCL Canada., Ltd.	100.0
Samsung SDS	Neo EXpress Transportation (NEXT) Inc.	51.0
Samsung SDS	Samsung SDS Europe, Ltd.	100.0
Samsung SDS	Samsung SDS Global SCL Hungary, Kft.	100.0
Samsung SDS	Samsung SDS Global SCL Slovakia, S.R.O.	100.0
Samsung SDS	Samsung SDS Global SCL Poland Sp. Z.o.o.	100.0
Samsung SDS	Samsung GSCL Sweden AB	100.0
Samsung SDS	Samsung SDS Global SCL France SAS	100.0
Samsung SDS	Samsung SDS Global SCL Italy S.R.L. A Socio Unico	100.0
Samsung SDS	Samsung SDS Global Supply Chain Logistics Spain S.L.U	100.0
Samsung SDS	Samsung SDS Global SCL Netherlands Cooperatief U.A.	100.0
Samsung SDS	Samsung SDS Global SCL Germany GmbH	100.0
Samsung SDS	Samsung SDS Global SCL Romania S.R.L	100.0
Samsung SDS	Samsung SDS Asia Pacific Pte, Ltd.	100.0
Samsung SDS	Samsung Data Systems India Private Limited	100.0
Samsung SDS	Samsung SDS Vietnam Co., Ltd.	100.0
Samsung SDS	PT. Samsung SDS Global SCL Indonesia	100.0
Samsung SDS	Samsung SDS Global SCL Philippines Co., Ltd.Inc.	100.0
Samsung SDS	Samsung SDS Global SCL Thailand Co.,Ltd	100.0
Samsung SDS	Samsung SDS Global SCL Malaysia SDN.BHD.	100.0
Samsung SDS	SAMSUNG SDS Global SCL Austraila Pty.,Ltd.	100.0
Samsung SDS	SDS-ACUTECH CO., Ltd.	50.0
Samsung SDS	ALS SDS Joint Stock Company	51.0
Samsung SDS	SDS-MP Logistics Joint Stock Company	51.0
Samsung SDS	Samsung SDS China Co., Ltd.	100.0
Samsung SDS	Samsung SDS Global SCL Hong Kong Co., Ltd.	100.0
Samsung SDS	SAMSUNG SDS Global SCL Egypt	100.0
Samsung SDS	Samsung SDS Global SCL South Africa (PTY) Ltd.	100.0
Samsung SDS	Samsung SDS Global SCL Nakliyat ve Lojistik Anonim Sirketi	100.0
Samsung SDS	Samsung SDS Global Supply Chain Logistics Middle East DWC-LLC	100.0

Investor	Investee	Ownership
Samsung SDS	Samsung SDS Latin America Solucoes Em Tecnologia Ltda.	99.7
Samsung SDS	INTE-SDS Logistics S.A. de C.V.	51.0
Samsung SDS	Samsung SDS Rus Limited Liability Company	100.0
Samsung SDS America, Inc.	Samsung SDS Mexico, S.A. DE C.V.	99.0
Samsung SDS America, Inc.	Samsung SDS Global SCL Panama S.A.	100.0
Samsung SDS America, Inc.	Samsung SDS Global SCL Chile Limitada	100.0
Samsung SDS America, Inc.	Samsung SDS Global SCL Peru S.A.C	100.0
Samsung SDS America, Inc.	Samsung SDS Global SCL Colombia S.A.S	100.0
Samsung SDS America, Inc.	Samsung SDS Latin America Solucoes Em Tecnologia Ltda.	0.3
Samsung SDS Europe, Ltd.	Samsung SDS Global SCL Netherlands Cooperatief U.A.	0.0
Samsung SDS Global SCL Netherlands Cooperatief U.A.	Samsung SDS Global SCL Poland Sp. Z.o.o.	0.0
Samsung SDS Global SCL Netherlands Cooperatief U.A.	Samsung SDS Global SCL Romania S.R.L	0.0
Samsung SDS Global SCL Netherlands Cooperatief U.A.	Samsung SDS Rus Limited Liability Company	0.0
Samsung SDS China Co., Ltd.	Samsung SDS Global Development Center Xi'an	100.0
Samsung Engineering	Samsung Engineering America Inc.	100.0
Samsung Engineering	Samsung Project Management Inc.	100.0
Samsung Engineering	Samsung Engineering Hungary Ltd.	100.0
Samsung Engineering	Samsung Engineering Italy S.R.L.	100.0
Samsung Engineering	Samsung Engineering (Malaysia) SDN. BHD.	100.0
Samsung Engineering	PT Samsung Engineering Indonesia Co., Ltd.	100.0
Samsung Engineering	Samsung Engineering (Thailand) Co., Ltd.	81.0
Samsung Engineering	Samsung Engineering India Private Limited	100.0
Samsung Engineering	Samsung Engineering Vietnam Co., Ltd.	100.0
Samsung Engineering	Samsung Engineering Global Private Limited	100.0
Samsung Engineering	Samsung Engineering Construction(Shanghai) Co., Ltd	100.0
Samsung Engineering	Samsung Engineering Construction Xi' an Co., Ltd.	100.0
Samsung Engineering	Samsung Saudi Arabia Co., Ltd.	100.0
Samsung Engineering	Muharraq Wastewater Services Company W.L.L.	99.8
Samsung Engineering	Muharraq STP Company B.S.C.	6.6
Samsung Engineering	Muharraq Holding Company 1 Ltd.	65.0
Samsung Engineering	Samsung Ingenieria Mexico Construccion Y Operacion S.A. De C.V.	99.9
Samsung Engineering	Samsung Engineering Trinidad Co., Ltd.	100.0
Samsung Engineering	Samsung Ingenieria Manzanillo, S.A. De C.V.	99.9
Samsung Engineering	Grupo Samsung Ingenieria Mexico, S.A. De C.V.	100.0
Samsung Engineering	Samsung Ingenieria Energia S.A. De C.V.	100.0
Samsung Engineering	Samsung Engineering Bolivia S.A	100.0
Samsung Engineering	Samsung Ingenieria DUBA S.A. de C.V.	100.0
Samsung Engineering	Samsung Engineering Kazakhstan L.L.P.	100.0
Samsung Engineering America Inc.	SEA Construction, LLC	100.0
Samsung Engineering America Inc.	SEA Louisiana Construction, L.L.C.	100.0
Samsung Engineering (Malaysia) SDN. BHD.	Muharraq Wastewater Services Company W.L.L.	0.3
Samsung Engineering India Private Limited	Samsung Engineering Global Private Limited	0.0
Samsung Engineering India Private Limited	Samsung Saudi Arabia Co., Ltd.	0.0
Samsung Saudi Arabia Co., Ltd.	Samsung EPC Company Ltd.	75.0
Muharraq Holding Company 1 Ltd.	Muharraq Holding Company 2 Ltd.	100.0
Muharraq Holding Company 2 Ltd.	Muharraq STP Company B.S.C.	89.9
Samsung Ingenieria DUBA S.A. de C.V.	Asociados Constructores DBNR, S.A. de C.V.	49.0
S1 Corporation	S-1 CORPORATION HUNGARY LLC	100.0
S1 Corporation	S-1 CORPORATION VIETNAM CO., LTD	100.0
S1 Corporation	Samsung Beijing Security Systems	100.0

Investor	Investee	Ownership
Cheil Worldwide	PENGTAI INTERACTIVE ADVERTISING CO.,LTD	100.0
Cheil Worldwide	Cheil USA Inc.	100.0
Cheil Worldwide	Cheil Central America Inc.	100.0
Cheil Worldwide	Iris Worldwide Holdings Limited	100.0
Cheil Worldwide	CHEIL EUROPE LIMITED	100.0
Cheil Worldwide	Cheil Germany GmbH	100.0
Cheil Worldwide	Cheil France SAS	100.0
Cheil Worldwide	CHEIL SPAIN S.L	100.0
Cheil Worldwide	Cheil Benelux B.V.	100.0
Cheil Worldwide	Cheil Nordic AB	100.0
Cheil Worldwide	Cheil India Private Limited	100.0
Cheil Worldwide	Cheil (Thailand) Ltd.	100.0
Cheil Worldwide	Cheil Singapore Pte. Ltd.	100.0
Cheil Worldwide	CHEIL VIETNAM COMPANY LIMITED	99.0
Cheil Worldwide	Cheil Integrated Marketing Philippines, Inc.	100.0
Cheil Worldwide	CHEIL MALAYSIA SDN. BHD.	100.0
Cheil Worldwide	Cheil New Zealand Limited	100.0
Cheil Worldwide	Pengtai Greater China Company Limited	3.1
Cheil Worldwide	CHEIL CHINA	100.0
Cheil Worldwide	Cheil Hong Kong Ltd.	100.0
Cheil Worldwide	Caishu (Shanghai) Business Consulting Co., Ltd	100.0
Cheil Worldwide	Cheil MEA FZ-LLC	100.0
Cheil Worldwide	Cheil South Africa (Pty) Ltd	100.0
Cheil Worldwide	CHEIL KENYA LIMITED	99.0
Cheil Worldwide	Cheil Communications Nigeria Ltd.	99.0
Cheil Worldwide	Cheil Worldwide Inc./Jordan LLC.	100.0
Cheil Worldwide	Cheil Ghana Limited	100.0
Cheil Worldwide	Cheil Egypt LLC	99.9
Cheil Worldwide	Cheil Brasil Comunicacoes Ltda.	100.0
Cheil Worldwide	Cheil Mexico, S.A. de C.V.	98.0
Cheil Worldwide	Cheil Chile SpA.	100.0
Cheil Worldwide	Cheil Peru S.A.C.	100.0
Cheil Worldwide	CHEIL ARGENTINA S.A.	98.0
Cheil Worldwide	Cheil Rus LLC	100.0
Cheil Worldwide	Cheil Ukraine LLC	100.0
Cheil Worldwide	Cheil Kazakhstan LLC	100.0
Hotel Shilla	Samsung Hospitality America Inc.	100.0
Hotel Shilla	Shilla Travel Retail Pte. Ltd.	100.0
Hotel Shilla	Samsung Shilla Business Service Beijing Co., Ltd.	100.0
Hotel Shilla	Shilla Travel Retail Hong Kong Limited	100.0
HDC Shilla Duty Free LTD	HDC SHILLA (SHANGHAI) CO., LTD	100.0
SBTM	Samsung Hospitality U.K. Ltd.	100.0
SBTM	Samsung Hospitality Europe GmbH	100.0
SBTM	SAMSUNG HOSPITALITY ROMANIA SRL	100.0
SBTM	Samsung Hospitality Vietnam Co., Ltd.	99.0
SBTM	Samsung Hospitality Philippines Inc.	100.0
SBTM	Samsung Hospitality India Private Limited	100.0
Samsung Venture Investment	Samsung Venture Investment (Shanghai) Co., Ltd.	100.0
Iris Americas, Inc.	Iris (USA) Inc.	100.0
Iris Americas, Inc.	Iris Atlanta, Inc.	100.0

Investor	Investee	Ownership
Iris Americas, Inc.	89 Degrees, Inc.	100.0
Cheil USA Inc.	The Barbarian Group LLC	100.0
Cheil USA Inc.	McKinney Ventures LLC	100.0
Cheil USA Inc.	Cheil India Private Limited	0.0
Cheil USA Inc.	Cheil Mexico, S.A. de C.V.	2.0
Iris Worldwide Holdings Limited	Iris Nation Worldwide Limited	100.0
Iris Nation Worldwide Limited	Iris Americas, Inc.	100.0
Iris Nation Worldwide Limited	Irisnation Latina No.2, S. de R.L. de C.V.	100.0
Iris Nation Worldwide Limited	Irisnation Latina, S. de R.L. de C.V.	100.0
Iris Nation Worldwide Limited	Pricing Solutions Ltd	100.0
Iris Nation Worldwide Limited	Iris London Limited	100.0
Iris Nation Worldwide Limited	Iris Promotional Marketing Ltd	100.0
Iris Nation Worldwide Limited	Iris Ventures 1 Limited	100.0
Iris Nation Worldwide Limited	Founded Partners Limited	100.0
Iris Nation Worldwide Limited	Iris Korea Limited	100.0
Iris Nation Worldwide Limited	Iris Digital Limited	100.0
Iris Nation Worldwide Limited	Iris Amsterdam B.V.	100.0
Iris Nation Worldwide Limited	Iris Ventures (Worldwide) Limited	100.0
Iris Nation Worldwide Limited	Iris Culture Limited	100.0
Iris Nation Worldwide Limited	Concise Consultants Limited	100.0
Iris Nation Worldwide Limited	Atom42 Ltd	100.0
Iris Nation Worldwide Limited	WDMP Limited	49.0
Iris Nation Worldwide Limited	Pricing Solutions (UK) Limited	100.0
Iris Nation Worldwide Limited	Iris Services Limited Dooel Skopje	100.0
Iris Nation Worldwide Limited	Irisnation Singapore Pte. ltd.	100.0
Iris Nation Worldwide Limited	Iris Worldwide Integrated Marketing Private Limited	100.0
Iris Nation Worldwide Limited	Iris Sydney PTY Ltd	100.0
Iris Nation Worldwide Limited	Iris Worldwide (Thailand) Limited	100.0
Iris London Limited	Iris Partners LLP	100.0
Iris Promotional Marketing Ltd	Holdings BR185 Limited	100.0
Iris Ventures 1 Limited	Iris Germany GmbH	100.0
Founded Partners Limited	Founded, Inc.	100.0
Iris Germany GmbH	Pepper NA, Inc.	100.0
Iris Germany GmbH	Pepper Technologies Pte. Ltd.	100.0
CHEIL EUROPE LIMITED	Beattie McGuinness Bungay Limited	100.0
CHEIL EUROPE LIMITED	Cheil Italia S.r.l	100.0
Cheil Germany GmbH	Cheil Austria GmbH	100.0
Cheil Germany GmbH	Centrade Integrated SRL	100.0
Centrade Integrated SRL	Centrade Cheil HU Kft.	100.0
Centrade Integrated SRL	Centrade Cheil Adriatic D.O.O.	100.0
Cheil India Private Limited	Experience Commerce Software Private Limited	100.0
Cheil Singapore Pte. Ltd.	Pengtai Greater China Company Limited	95.7
Cheil Singapore Pte. Ltd.	PT. CHEIL WORLDWIDE INDONESIA	100.0
Cheil Integrated Marketing Philippines, Inc.	Cheil Philippines Inc.	30.0
Shilla Travel Retail Pte. Ltd.	Shilla Retail Plus Pte. Ltd.	100.0
Samsung Shilla Business Service Beijing Co., Ltd.	Tianjin Samsung International Travel Service Co., Ltd	100.0
Shilla Travel Retail Hong Kong Limited	Shilla Retail Limited	100.0
Shilla Travel Retail Hong Kong Limited	Shilla Travel Retail Duty Free HK Limited	100.0
Cheil MEA FZ-LLC	One Agency FZ-LLC	100.0
Cheil MEA FZ-LLC	One RX Project Management Design and Production Limited Company	0.0

Investor	Investee	Ownership
Cheil MEA FZ-LLC	Cheil Egypt LLC	0.1
Cheil South Africa (Pty) Ltd	CHEIL KENYA LIMITED	1.0
Cheil South Africa (Pty) Ltd	Cheil Communications Nigeria Ltd.	1.0
One Agency FZ-LLC	One RX India Private Limited	100.0
One Agency FZ-LLC	One RX Project Management Design and Production Limited Company	100.0
One Agency FZ-LLC	ONE RX INTERIOR DECORATION L.L.C	100.0
One Agency FZ-LLC	ONE AGENCY PRINTING L.L.C	100.0
One Agency FZ-LLC	One Agency South Africa (Pty) Ltd	100.0
ONE RX INTERIOR DECORATION L.L.C	One RX India Private Limited	0.0
Holdings BR185 Limited	Brazil 185 Participacoes Ltda	100.0
Brazil 185 Participacoes Ltda	Iris Router Marketing Ltda	100.0
Cheil Brasil Comunicacoes Ltda.	CHEIL ARGENTINA S.A.	2.0

※ Percent of ownership as of December 31, 2022 based on common shares

C. Related statute & regulation

Restrictions on cross-holdings within Samsung Group in accordance with the Monopoly Regulation and Fair Trade Act

(1) Date of announcement by authorities of companies deemed Samsung Group companies for the current year:
May 1, 2022

(2) Summary of Regulation

- Restriction on cross-holdings
- Restriction on debt guarantee between affiliates
- Restriction on affiliate voting rights of financial & insurance companies
- Decision making of board committee and public disclosure of large-scale inter-affiliate transactions
- Public disclosure of important matters of unlisted companies
- Other public disclosures related to Group status

D. Concurrent position with other affiliates

[As of December 31, 2022]

		Concurrent position		
Name	Position	Name of company	Position	Full/part time
Yong-kwan Kim	Executive VP	Samsung Medison	Representative Director	Full time
Yeon-sung Kim	Executive VP	Samsung Electronics Sales	Auditor	Part time
		Samsung Electronics Logitech	Auditor	Part time
		Samsung Electronics Service	Auditor	Part time
Seung-ho Ryu	Executive VP	Samsung Medison	Auditor	Part time
Jeong-jun Choi	Executive VP	Samsung Venture Investment	Auditor	Part time
Han-jong Yoo	VP	Samsung Global Research	Auditor	Part time
Khi-jae Cho	Executive VP	Samsung Display	Auditor	Part time
Hyun-woo Kim	Executive VP	SEMES	Auditor	Part time
Myeong-cheol Kim	Executive VP	SEMES	Non-Executive director	Part time
Doug-yong Sung	VP	SEMES	Non-Executive director	Part time
Jae-kyun Oh	VP	STECO	Auditor	Part time
Dong-wook Park	VP	STECO	Non-Executive director	Part time
Seung-hwan Han	President	Samsung C&T Corporation	Representative Director	Part time
		Samsung Welstory		Full time
Kyu-tae Yoo	Executive VP	Samsung Medison	Internal Director	Full time

E. Equity investments in other corporations

The total book value of equity investments in other corporations as of December 31, 2022 is KRW 58,762 billion (for the purpose of management participation, etc.)

(As of December 31, 2022) (KRW Million)

Investment Purpose	No. of investees			Invested amount			
	Listed	Unlisted	Total	Beginning Balance	Increase(decrease)		Ending Balance
					Acquisition (Disposal)	Valuation gain(loss)	
Management Participation	20	80	100	57,768,459	1,107,793	-197,848	58,678,404
General Investment	-	-	-	-	-	-	-
Simple Investment	5	35	40	121,807	-14,928	-23,426	83,453
	25	115	140	57,890,266	1,092,865	-221,274	58,761,857

X. Transactions with Affiliates and Subsidiaries

1. Credit offerings for affiliates and subsidiaries

As of December 31, 2022, SEC provides a debt guarantee for financing of subsidiaries, including Samsung Electronics America, Inc. (SEA) and other subsidiaries as listed below.

(USD thousand)

Company	Relationship	Creditor	Type	Purpose	Guarantee start date	Guarantee expiry date	Limit of guarantee		Transactions			Interest Rate (%)
							Beginning of period	End of period	Beginning of period	Increase/ decrease	End of period	
SEA	Subsidiary	BOA etc.	Payment guarantee	Operating fund	Apr 16, 2022	Dec 16, 2023	1,328,000	1,278,000	-	-	-	
SEM	Subsidiary	BBVA etc.	Payment guarantee	Operating fund	Mar 28, 2022	Nov 8, 2023	906,000	715,000	-	-	-	
SAMCOL	Subsidiary	Citibank etc.	Payment guarantee	Operating fund	Jun 14, 2022	Dec 16, 2023	310,000	210,000	-	-	-	
SEDA	Subsidiary	BRADESCO etc.	Payment guarantee	Operating fund	Oct 1, 2022	Dec 16, 2023	409,000	409,000	-	-	-	
SECH	Subsidiary	Citibank etc.	Payment guarantee	Operating fund	Jun 14, 2022	Dec 16, 2023	62,000	62,000	-	-	-	
SEPR	Subsidiary	BBVA etc.	Payment guarantee	Operating fund	Jun 1, 2022	Dec 16, 2023	150,000	150,000	-	-	-	
SSA	Subsidiary	SCB etc.	Payment guarantee	Operating fund	Jun 14, 2022	Dec 16, 2023	318,000	318,000	-	-	-	
SEMAG	Subsidiary	SocGen etc.	Payment guarantee	Operating fund	Nov 9, 2022	Dec 16, 2023	110,000	110,000	-	-	-	
SETK	Subsidiary	BNP etc.	Payment guarantee	Operating fund	Jun 14, 2022	Dec 16, 2023	807,000	777,000	102,275	137,120	239,395	37.6%
SETK-P	Subsidiary	BNP etc.	Payment guarantee	Operating fund	Nov 9, 2022	Dec 16, 2023	130,000	130,000	33,334	-7,685	25,649	34.4%
SECE	Subsidiary	Citibank	Payment guarantee	Operating fund	Dec 17, 2022	Dec 16, 2023	73,722	60,000	-	-	-	
SEEG	Subsidiary	HSBC	Payment guarantee	Operating fund	Jun 14, 2022	Jun 13, 2023	85,000	85,000	-	-	-	
SEIN	Subsidiary	BNP etc.	Payment guarantee	Operating fund	Jun 14, 2022	Nov 8, 2023	70,000	70,000	-	-	-	
SJC	Subsidiary	Mizuho Bank etc.	Payment guarantee	Operating fund	Apr 28, 2022	Dec 16, 2023	877,579	832,572	-	-	-	
SEUC	Subsidiary	Credit Agricole etc.	Payment guarantee	Operating fund	Jun 14, 2022	Dec 16, 2023	150,000	150,000	-	-	-	
SEDAM	Subsidiary	Citibank etc.	Payment guarantee	Operating fund	Jun 14, 2022	Dec 16, 2023	141,000	537,000	-	155,768	155,768	11.6%
SECA	Subsidiary	BoA	Payment guarantee	Operating fund	Nov 9, 2022	Nov 8, 2023	70,000	70,000	-	-	-	
SELA	Subsidiary	Citibank	Payment guarantee	Operating fund	Dec 17, 2022	Dec 16, 2023	120,000	60,000	-	-	-	
SEEH	Subsidiary	HSBC etc.	Payment guarantee	Operating fund	Jun 14, 2022	Dec 16, 2023	712,400	888,400	-	-	-	
SERK	Subsidiary	SMBC etc.	Payment guarantee	Operating fund	Nov 9, 2022	Dec 16, 2023	290,000	45,000	-	-	-	
SELV	Subsidiary	Citibank	Payment guarantee	Operating fund	Dec 17, 2022	Dec 16, 2023	10,000	10,000	-	-	-	
SEIL	Subsidiary	Citibank	Payment guarantee	Operating fund	Dec 17, 2022	Dec 16, 2023	15,600	15,600	10,947	-1,283	9,664	1.3%
SAPL	Subsidiary	BOA etc.	Payment guarantee	Operating fund	Jun 14, 2022	Dec 16, 2023	345,000	404,000	-	-	-	
SAVINA	Subsidiary	HSBC	Payment guarantee	Operating fund	Jun 14, 2022	Jun 13, 2023	51,000	51,000	-	-	-	
SCIC	Subsidiary	HSBC etc.	Payment guarantee	Operating fund	Jun 14, 2022	Dec 16, 2023	300,000	300,000	-	-	-	
SME	Subsidiary	SCB	Payment guarantee	Operating fund	Nov 9, 2022	Nov 8, 2023	110,000	110,000	-	-	-	
SAMEX	Subsidiary	Citibank	Payment guarantee	Operating fund	Dec 17, 2022	Dec 16, 2023	5,000	5,000	-	-	-	
SEASA	Subsidiary	Citibank	Payment guarantee	Operating fund	Dec 17, 2022	Dec 16, 2023	2,000	2,000	-	-	-	
SSAP	Subsidiary	SCB	Payment guarantee	Operating fund	Nov 9, 2022	Nov 8, 2023	35,000	35,000	-	-	-	
SEPM	Subsidiary	HSBC	Payment guarantee	Operating fund	Jun 14, 2022	Jun 13, 2023	35,000	35,000	-	-	-	
SESAR	Subsidiary	HSBC	Payment guarantee	Operating fund	Jun 14, 2022	Jun 13, 2023	50,000	20,000	-	-	-	

AdGear Technologies Inc.	Subsidiary	BOA	Payment guarantee	Operating fund	Nov 9, 2022	Nov 8, 2023	2,000	2,000	-	-	-	
Harman International Industries, Inc.	Subsidiary	JP Morgan	Payment guarantee	Operating fund	Jun 14, 2022	Jun 13, 2023	100,000	100,000	-	-	-	
Harman International Japan Co., Ltd.	Subsidiary	MUFG	Payment guarantee	Operating fund	Nov 9, 2022	Nov 8, 2023	25,000	25,000	-	-	-	
Harman RUS CIS LLC	Subsidiary	SocGen	Payment guarantee	Operating fund	Nov 9, 2021	May 31, 2022	15,000	-	-	-	-	
Harman Holding Limited	Subsidiary	HSBC	Payment guarantee	Operating fund	Jun 14, 2022	Jun 13, 2023	30,000	30,000	-	-	-	
Harman do Brasil Industria Eletronica e Participacoes Ltda.	Subsidiary	SocGen	Payment guarantee	Operating fund	Nov 9, 2022	Nov 8, 2023	15,000	15,000	-	-	-	
Harman da Amazonia Industria Eletronica e Participacoes Ltda.												
Harman International Industries Limited	Subsidiary	HSBC	Payment guarantee	Operating fund	Jun 14, 2022	Jun 13, 2023	-	30,000	-	-	-	
Total							8,265,301	8,146,572	146,556	283,920	430,476	

Separate basis.
See 『1. Subsidiaries subject to consolidated accounting (detailed)』 in 『XII. Appendix』 for names of subsidiaries.
The approval decision is resolved by the Management Committee when the guarantee amount per transaction is between 0.1% and/or less than 2.5%, and by the Board of Directors when the guarantee amount per transaction is 2.5% and above.
SEC receives fees on the debt it guarantees depending on the maturity date of each debt guarantee, general loan interest rate, etc.
The Company claimed approximately USD 547 thousand in guarantee fees in 2022 and did not receive it in 2022.

2. Acquisitions and disposals of assets with affiliates and subsidiaries

In 2022, the Company sold assets to affiliates, including Samsung (China) Semiconductor Co., Ltd. (SCS), to increase production capacity of such affiliates. Also, the Company acquired assets including facility equipment from affiliates to improve efficiency of domestic production.

(KRW mil)

Company	Relationship	Transaction type	Transaction date[1)]	Asset	Purpose of transaction	Amount[2)]	Gain or loss on disposal
SCS	Affiliates	Asset sale/purchase	Dec 26, 2022	Machinery, etc.	Enhance capacity and production efficiency	16,177	4,072
SESS	Affiliates	Asset sale/purchase	Jul 12, 2022	Machinery, etc.	Enhance capacity and production efficiency	5,346	639
SEHC	Affiliates	Asset sale/purchase	Dec 14, 2022	Machinery, etc.	Enhance capacity and production efficiency	4,471	259
SAS	Affiliates	Asset purchase	Nov 21, 2022	Machinery, etc.	Enhance capacity and production efficiency	2,457	-
SEVT	Affiliates	Asset purchase	Nov 29, 2022	Machinery, etc.	Enhance capacity and production efficiency	831	-
SEA	Affiliates	Asset sale	Aug 9, 2022	Machinery, etc.	Enhance capacity and production efficiency	632	37
TSLED	Affiliates	Asset sale	Dec 21, 2022	Machinery, etc.	Enhance capacity and production efficiency	338	73
SEV	Affiliates	Asset sale/purchase	Dec 21, 2022	Machinery, etc.	Enhance capacity and production efficiency	306	42
SERK	Affiliates	Asset sale	May 19, 2022	Machinery, etc.	Enhance capacity and production efficiency	282	18

SEUZ	Affiliates	Asset sale	June 22, 2022	Machinery, etc.	Enhance capacity and production efficiency	224	6
SII	Affiliates	Asset sale	May 9, 2022	Machinery, etc.	Enhance capacity and production efficiency	216	-10
Samsung Life Insurance	Affiliates	Asset sale	Dec 27, 2022	Machinery, etc.	Enhance capacity and production efficiency	188	-74
SEH	Affiliates	Asset sale	Apr 13, 2022	Machinery, etc.	Enhance capacity and production efficiency	142	14
SIEL	Affiliates	Asset sale	Oct 12, 2022	Machinery, etc.	Enhance capacity and production efficiency	112	26
Samsung Medison	Affiliates	Asset sale	Mar 17, 2022	Machinery, etc.	Enhance capacity and production efficiency	5	5

Separate basis

See 『1. Subsidiaries subject to consolidated accounting (detailed)』 in 『XII. Appendix』 for names of subsidiaries.

The above acquisition and disposal transactions of assets are not subject to the Board's approval.

1) Most recent transaction.

2) Properly calculated by an appropriate method based upon market value assessment. Transaction was made under normal conditions (eg, terms of cash payment within the 15th, 30th of the following month of transaction).

3. Business transactions with affiliates and subsidiaries

In 2022, the Company had transactions such as sales and purchases with affiliates, including Samsung Semiconductor, Inc. (SSI).

(KRW mil)

Company	Relationship	Type of transaction	Date	Details	Amount
SSI	Affiliates	Sales, purchases, etc.	Jan–Dec 2022	Semiconductors, etc.	41,440,223
SEA	Affiliates	Sales, purchases, etc.	Jan–Dec 2022	HHPs, consumer electronics, etc.	35,513,203
SEVT	Affiliates	Sales, purchases, etc.	Jan–Dec 2022	HHPs, etc.	34,609,927
SEV	Affiliates	Sales, purchases, etc.	Jan–Dec 2022	HHPs, etc.	22,246,267
SSS	Affiliates	Sales, purchases, etc.	Jan–Dec 2022	Semiconductors, etc.	16,490,868
SIEL	Affiliates	Sales, purchases, etc.	Jan–Dec 2022	HHPs, consumer electronics, etc.	13,238,315

Separate basis; Transactions worth 5% and above of revenue of the current business year are subject to public disclosure.
See 『1. Subsidiaries subject to consolidated accounting (detailed)』 in 『XII. Appendix』 for names of subsidiaries.

4. Transactions with stakeholders other than affiliates and subsidiaries

As of December 31, 2022, the Company's outstanding loan amount is KRW 140.1 billion related to support for supplier companies for product competitiveness and mutual development as well as home loan and educational expenses for employee welfare.

(KRW mil)

Company	Relationship	Loans			
		Account title	Transaction		
			Beginning of period (Jan 1, 2022)	Change	End of period (Dec 31, 2022)
Elentec Co., Ltd., etc.	Partner company and employee	Short-term loans	42,999	4,162	47,161
Bumjin I&D, etc.	Partner company and employee	Long-term loans	71,604	21,294	92,898
Total			114,603	25,456	140,059

Separate basis; amounts reflect the discounted present value of debts before accounting for impaired debts (impairment losses).

XI. Other Information

1. Changes in public disclosure

- N/A

2. Contingent liabilities

A. Litigation

The Company is involved in various claims, disputes, and investigations conducted by regulatory bodies, which arose during the normal course of business with numerous entities. Although the outflow of resources and timing of these matters are uncertain, as of the reporting date, the Company believes the outcome will not have a material impact on the financial position of the Company.

Samsung Electronics and SDC are liable to fulfill in solidarity the debts of SDC which relate to the periods prior to SDC's separation from the Company.

For information related to other contingent liabilities and commitments, see retained earnings in 『3. Notes to consolidated financial statements』 and 『5. Notes to non-consolidated financial statements』 in 『III. Financial Affairs』.

B. Guarantees

(USD thousand)

Company	Relationship	Creditor	Guarantee	Transactions				Limit of guarantee
			Expiry date	Beginning of period	Increase	Decrease	End of period	
SEA	Subsidiary	BOA etc.	16-Dec-23	-	-	-	-	1,278,000
SEM	Subsidiary	BBVA etc.	08-Nov-23	-	-	-	-	715,000
SAMCOL	Subsidiary	Citibank etc.	16-Dec-23	-	-	-	-	210,000
SEDA	Subsidiary	BRADESCO etc.	16-Dec-23	-	-	-	-	409,000
SECH	Subsidiary	Citibank etc.	16-Dec-23	-	-	-	-	62,000
SEPR	Subsidiary	BBVA etc.	16-Dec-23	-	-	-	-	150,000
SSA	Subsidiary	SCB etc.	16-Dec-23	-	-	-	-	318,000
SEMAG	Subsidiary	SocGen etc.	16-Dec-23	-	-	-	-	110,000
SETK	Subsidiary	BNP etc.	16-Dec-23	102,275	137,120	-	239,395	777,000
SETK-P	Subsidiary	BNP etc.	16-Dec-23	33,334	-	-7,685	25,649	130,000
SECE	Subsidiary	Citibank etc.	16-Dec-23	-	-	-	-	60,000
SEEG	Subsidiary	HSBC	13-Jun-23	-	-	-	-	85,000
SEIN	Subsidiary	BNP etc.	08-Nov-23	-	-	-	-	70,000
SJC	Subsidiary	Mizuho Bank etc.	16-Dec-23	-	-	-	-	832,572
SEUC	Subsidiary	Credit Agricole etc.	16-Dec-23	-	-	-	-	150,000
SEDAM	Subsidiary	Citibank etc.	16-Dec-23	-	155,768	-	155,768	537,000
SECA	Subsidiary	BoA	08-Nov-23	-	-	-	-	70,000
SELA	Subsidiary	Citibank	16-Dec-23	-	-	-	-	60,000
SEEH	Subsidiary	HSBC etc.	16-Dec-23	-	-	-	-	888,400
SERK	Subsidiary	SOCGEN etc.	16-Dec-23	-	-	-	-	45,000
SELV	Subsidiary	Citibank	16-Dec-23	-	-	-	-	10,000
SEIL	Subsidiary	Citibank	16-Dec-23	10,947	-	-1,283	9,664	15,600
SAPL	Subsidiary	BOA etc.	16-Dec-23	-	-	-	-	404,000
SAVINA	Subsidiary	HSBC	13-Jun-23	-	-	-	-	51,000
SCIC	Subsidiary	HSBC etc.	16-Dec-23	-	-	-	-	300,000
SME	Subsidiary	SCB	08-Nov-23	-	-	-	-	110,000
SAMEX	Subsidiary	Citibank	16-Dec-23	-	-	-	-	5,000
SEASA	Subsidiary	Citibank	16-Dec-23	-	-	-	-	2,000

SSAP	Subsidiary	SCB	08-Nov-23	-	-	-	-	35,000
SEPM	Subsidiary	HSBC	13-Jun-23	-	-	-	-	35,000
SESAR	Subsidiary	HSBC	13-Jun-23	-	-	-	-	20,000
AdGear Technologies Inc.	Subsidiary	BOA	08-Nov-23	-	-	-	-	2,000
Harman International Industries, Inc.	Subsidiary	JP Morgan	13-Jun-23	-	-	-	-	100,000
Harman International Japan Co., Ltd.	Subsidiary	MUFG	08-Nov-23	-	-	-	-	25,000
Harman RUS CIS LLC	Subsidiary	SocGen	31-May-22	-	-	-	-	-
Harman Holding Limited	Subsidiary	HSBC	13-Jun-23	-	-	-	-	30,000
Harman do Brasil Industria Eletronica e Participacoes Ltda. Harman da Amazonia Industria Eletronica e Participacoes Ltda.	Subsidiary	SocGen	08-Nov-23	-	-	-	-	15,000
Harman International Industries Limited	Subsidiary	HSBC	13-Jun-23	-	-	-	-	30,000
Harman Finance International, SCA	Subsidiary	JP Morgan etc.	01-Mar-22	396,304	-	-396,304	-	-
SDN	Subsidiary	SIEL	22-Nov-24	571,121	-	-57,755	513,366	603,960
SAS	Subsidiary	Epcor	The date of debt expiration	-	-	-	-	340,000
DOWOOINSYS VINA COMPANY LIMITED	Subsidiary	ANZ	09-Nov-25	-	20,000	-	20,000	20,000
Total				1,113,981	312,888	-463,027	963,842	9,110,532

Consolidated basis.

Debt guarantees for Harman Finance International and SCA are provided by Harman International Industries, Inc.; SDN by SDC; and SAS by SEA; and DOWOOINSYS VINA COMPANY LIMITED by Dowooinssys Co., Ltd.

For names of subsidiaries, see 『1. Subsidiaries subject to consolidated accounting (detailed)』 in 『XII. Appendix』.

SEC requires Board approval for individual guarantees exceeding 2.5% of total equity; the approval decision is delegated to the Management Committee when the guarantee amount is between 0.1% and/or less than 2.5%.

SDC requires Board approval for individual guarantees over KRW 10,000 million.

SEC claims fees on the debt guarantees depending on the maturity date of each debt guarantee, general loan interest rate, etc.: the Company in 2022 claimed approximately USD 547,000 as guarantee fee and, as of the reporting date, has not collected the amount; and SDC in 2022 claimed approximately USD 3,080,000 as guarantee fee to SDN and, as of the reporting date, has not collected the amount.

3. Sanctions and others

A. Sanctions of investigative and judicial agencies

[Summary]

(KRW mil)

Date	Agency	Subject	Punishment or measure	Amount of monetary sanction	Amount of embezzlement/breach of trust	Relevant laws
Apr 18, 2019.	Seoul Central District Court	Employees of SEC	Fine	100	-	Article 14 Paragraph 4 and Article 68 Subparagraph 4 of the Monopoly Regulation and Fair Trade Act
Dec 9, 2019	Seoul Central District Court (Appeal in progress)	Employees of SEC	Imprisonment	-	-	Article 155 Paragraph 1, Article 31 Paragraph 1, and Article 30 of the Criminal Act
Feb 14, 2020	Suwon District Court	SEC and employees of SEC	Fine	12	-	Articles 23, 24, 29, 67, 68, 70, 71, etc., of the former Occupational Safety and Health Act
Jan 25, 2021	Seoul High Court (Retrial)	Employees of SEC	Imprisonment	-	Approximately 8,681	Act on the Aggravated Punishment, etc. of Specific Economic Crimes
Feb 4, 2021		Employees of SEC	Imprisonment	-	-	Articles 90, 81, etc., of the Trade Union and Labor Relations Adjustment Act

Date	Agency	Subject	Punishment or measure	Amount of monetary sanction	Amount of embezzlement/breach of trust	Relevant laws
	Supreme Court of Korea	Subsidiary and employees (Samsung Electronics Service)	Fine, Imprisonment	50	-	Articles 90, 81, etc., of the Trade Union and Labor Relations Adjustment Act, Article 10 of the Punishment of Tax Offenses Act
Jul 7, 2022	Gwangju District Court	Employees of SEC	Fine	6	-	Article 33 Paragraph 7, Article 34, Article 18 Paragraph 1, etc., of the Environmental Testing and Inspection Act

The Fair Trade Commission on November 21, 2018, filed a complaint against Chairman Kun-hee Lee for omitting Samoo Architects & Engineers and Seoyoung Engineering from Samsung affiliates when submitting required materials in 2014 under Article 14 Paragraph 4 of the Monopoly Regulation and Fair Trade Act, and the prosecution filed a summary indictment.

Chairman Kun-hee Lee on April 18, 2019, was ordered to pay a fine of KRW 100 million by the Seoul Central District Court, and the fine was subsequently paid.

On December 9, 2019, the Seoul Central District Court ruled on allegations that an SEC executive ordered executives and employees of Samsung Biologics and Samsung Bioepis to hide or destroy evidence related to the alleged fraudulent accounting. For violating Article 30, Article 31 Paragraph 1, and Article 155 Paragraph 1 of the Criminal Act, prison sentences were handed down to Executive Vice President K (27 service years) of 1 year and 6 months; Executive Vice President L (31 service years) of 1 year and 6 months; Executive Vice President M (9 service years) of 2 years; Vice President N (16 service years) of 1 year and 6 months and a 3-year suspended sentence; Vice President O (10 service years) of 1 year and 6 months and a 3-year suspended sentence.

An appeal against the decision has been filed. The Company will check on future developments of the court proceedings and relevant matters.

On February 14, 2020, regarding matters related to a CO_2 leak accident at the Giheung plant on September 4, 2018, the Suwon District Court ordered the Company to pay a fine of KRW 7 million and Executive Vice President P (27 service years), the person in general charge of safety and health, to pay KRW 5 million for violating Article 23 (Safety Measures), Article 24 (Health Measures), and Article 29 (Safety and Health Measures in Contracting) of the former Occupational Safety and Health Act, and the fines were subsequently paid.

To prevent recurrences and comply with the relevant law, the Company has strengthened the capabilities of its employees and partner companies to guarantee safety and health.

Regarding matters related to the allegations of violation of the Act on the Aggravated Punishment, etc., of Specific Economic Crimes (embezzlement) by five of the Company's executives (Vice Chairman Jae-yong Lee, former Vice Chairman Gee-sung Choi, former President Choong-ki Chang, former President Sang-jin Park, and former Senior Vice President Seong-soo Hwang) in the case of an influence-peddling scandal involving South Korea's president, the Supreme Court of Korea on August 29, 2019 rejected part of a lower court's ruling and ordered a retrial to the Seoul High Court. On January 18, 2021 at the retrial, the Seoul High Court sentenced Vice Chairman Jae-yong Lee, former Vice Chairman Gee-sung Choi, and former President Choong-ki Chang each to 2 years and 6 months in prison. Former President Sang-jin Park and former Senior Vice President Seong-soo Hwang each received sentences of 2 years and 6 months in prison and a 4-year suspended sentence. The judgments were confirmed on January 25, 2021.

To prevent recurrences, the Company has strengthened its process regarding external contributions and newly established the Samsung Compliance Committee, an external and independent organization.

On February 4, 2021, the Supreme Court dismissed an appeal regarding the violation of Articles 90 and 81 of the Trade Union and Labor Relations Adjustment Act by SEC and employees of SEC and confirmed the sentences of 1 year and 4 months for Executive Vice President A (29 service years), 1 year and 2 months and a 2-year suspended sentence for former Executive Vice President B, 10 months and a 2-year suspended sentence for Executive Vice President C (34 service years), 1 year and a 2-year suspended sentence for former Executive Vice President D, 1 year for Senior Vice President E (32 service years), 1 year and 2 months and a 2-year suspended sentence for Senior Vice President F (24 service years), 10 months and a 2-year suspended sentence for Vice President G (27 service years), 10 months and a 2-year suspended sentence for Vice President H (18 service years) as ordered by the Seoul High Court on August 10, 2020; and SEC and former SEC Chairman of the Board (39 service years) were pronounced not guilty. Moreover, regarding the violation of Articles 90 and 81 of the Trade Union and Labor Relations Adjustment Act and violation of Article 10 of the Punishment of Tax Offenses Act with regard to receiving fake tax invoices (amount of violation approximately KRW 1,678 million) by Samsung Electronics Service and employees, the court issued a penalty of KRW 50 million for Samsung Electronics Service (amount of tax collected is approximately KRW 97 million), and confirmed sentencing of prison terms for Samsung Electronics Service's former CEO (4 service years) of 1 year and 4 months, Senior Vice President I (11 service years) of 1 year, Vice President J (21 service years) of 10 months and a 2-year suspended sentence.

To prevent recurrence, the Company has specified the guarantee of labor's three primary rights in the code of conduct and provides education on the prevention of unfair labor practices to all employees.

On January 20, 2021, the Suncheon Branch of Gwangju District Court ordered SEC employees A (11 service years) and B (8 service years) to pay a fine of KRW 3 million each for violating Article 18, etc., of the Environmental Testing and Inspection Act, and on July 7, 2022 at the retrial, the Gwangju District Court dismissed the appeal, and the employees subsequently paid the fine. To prevent recurrence, the Company is conducting regular cross measurement, etc.

B. Sanctions of administrative agencies

(1) Sanctions of Fair Trade Commission (FTC)

[Summary]

(KRW mil)

Date	Agency	Subject	Punishment or measure	Amount of monetary sanction	Reasons and relevant laws
Oct 4, 2018	FTC	SEC	Corrective order, penalty surcharge	488	Article 3 (Prohibition, etc. against Unfair Labeling or Advertising) Paragraph 1 Subparagraph 2 of the Act on Fair Labeling and Advertising and Article 3 Paragraph 2 of the Enforcement Decree of the same Act
Nov 21, 2018	FTC	Employees of SEC	Prosecution charge	-	Article 14 (Designation of Business Groups Subject to Limitations on Cross Shareholding) Paragraph 4 of the Monopoly Regulation and Fair Trade Act
Aug 23, 2019	FTC	SEC	Corrective measure, fine	0.5	Article 5 Paragraph 4 (Duty to Provide Online Completion Service) and Article 10 Paragraph 1 (Cybermall Operators' Indication Duty) of the Act on the Consumer Protection in Electronic Commerce, etc.
Jun 22, 2021	FTC	SEC and employees of SEC	Prosecution charge	-	Article 23 (Prohibition on Unfair Trade Practices) Paragraph 1 Subparagraph 7 of the Monopoly Regulation and Fair Trade Act
Aug 27, 2021	FTC	SEC	Corrective measure, penalty surcharge	101,217	Article 23 (Prohibition on Unfair Trade Practices) Paragraph 1 Subparagraph 7 of the Monopoly Regulation and Fair Trade Act
		Subsidiary (Samsung Display)	Corrective measure, penalty surcharge	22,857	Article 23 (Prohibition on Unfair Trade Practices) Paragraph 1 Subparagraph 7 of the Monopoly Regulation and Fair Trade Act
Nov 17, 2021	FTC	Subsidiary (Samsung Electronics Service CS)	Fine	2.4	Article 11-4 (Disclosure of Status of Business Groups) of the Monopoly Regulation and Fair Trade Act
Mar 17, 2022	FTC	Employees of SEC	Warning	-	Article 31 (Designation of Business Groups Subject to Limitations on Cross Shareholding) Paragraph 4 of the Monopoly Regulation and Fair Trade Act
Jun 27, 2022	FTC	SEC	Fine	10	Article 5 (Duty to Prepare Agency Transaction Contract) Paragraph 1 of the Fair Agency Transactions Act

On October 4, 2018, regarding matters related to the advertising of the Company's air purifying products, including air purifiers, the Fair Trade Commission issued a corrective order against the Company and ordered the Company to pay a penalty surcharge of KRW 488 million for violating Article 3 (Prohibition, etc., against Unfair Labeling or Advertising) Paragraph 1 Subparagraph 2 of the Act on Fair Labeling and Advertising and Article 3 Paragraph 2 of the Enforcement Decree of the same Act, and the Company has subsequently paid the fine. In litigation to cancel the order, the Supreme Court on March 11, 2021 ruled partially in favor of the Company.

The Fair Trade Commission on November 21, 2018, filed a complaint against Chairman Kun-hee Lee for omitting Samoo Architects & Engineers and Seoyoung Engineering from Samsung affiliates when submitting required materials in 2014 under Article 14 (Designation of Business Groups Subject to Limitations on Cross Shareholding) Paragraph 4 of the Monopoly Regulation and Fair Trade Act.

※ Please refer to 『A. Sanctions of investigative and judicial agencies』 for more information, such as the details of the punishment.

On August 23, 2019, regarding matters related to Milk Music, the Fair Trade Commission issued corrective measures against the Company and ordered the Company to pay a fine of KRW 0.5 million under the Act on the Consumer Protection in Electronic Commerce, etc., for violating Article 5 Paragraph 4 (Duty to Provide Online Completion Service) and Article 10 Paragraph 1 (Cybermall Operators' Indication Duty). The Company subsequently paid the fine.

On June 22, 2021, the Fair Trade Commission, regarding matters related to food service transactions with Samsung Welstory, filed a complaint against the Company and the former Head of Future Strategy Office Gee-sung Choi, a retiree, for violating Article 23 (Prohibition on Unfair Trade Practices) Paragraph 1 Subparagraph 7 of the Monopoly Regulation and Fair Trade Act.

On August 27, 2021, the Fair Trade Commission, regarding matters related to food service transactions with Samsung Welstory, issued corrective measures and ordered Samsung Electronics and Samsung Display to pay penalties (SEC: KRW 101.217 billion; SD: 22.857 billion) for violating Article 23 Paragraph 1 Subparagraph 7 of the Act of the Monopoly Regulation and Fair Trade Act. The administrative litigation against the disposition is in progress, and on January 27, 2022, the decision to suspend the execution of the corrective measures was finalized.

On November 5, 2021, the Fair Trade Commission, regarding a voluntary correction disclosure of Status of Large Business Groups (omission of member of the Board of Directors) of the Company's subsidiary, Samsung Electronics Service CS, ordered the company to pay a fine of KRW 2.4 million for violating Article 11-4 (Disclosure of Status of Business Groups) of the Monopoly Regulation and Fair Trade Act, and on November 17, 2021, the company has subsequently paid the fine.

To prevent recurrences and comply with the relevant law, Samsung Electronics Service CS has strengthened its internal management standard, including adding more people in charge.

On March 17, 2022, the Fair Trade Commission issued a warning against SEC's Vice Chairman Jae-yong Lee for omitting three companies—Balbec KPL Korea, Balbec KPL Partners, and Balbec KPL Asset Management—controlled by an Independent Director of Samsung Card from the affiliate list of Samsung, a business group subject to limitations on cross shareholding, when submitting materials in 2018 and 2019 pursuant to Article 31 Paragraph 4.

On June 27, 2022, the Fair Trade Commission ordered the Company to pay a fine of KRW 10 million for violating Article 5 (Duty to Prepare Agency Transaction Contract) Paragraph 1 of the Fair Agency Transactions Act, and the Company is in the middle of a procedure to object to the order.

To comply with the Monopoly Regulation and Fair Trade Act, the Act on Fair Labeling and Advertising, Fair Agency Transactions Act, and relevant laws, the Company has strengthened its internal management standard and is providing relevant prevention education for executives and employees.

(2) Sanctions of other administrative or public agencies (including financial supervision and tax authorities)

[Summary]

(KRW mil)

Date	Agency	Subject	Punishment or measure	Amount of monetary sanction	Reasons and relevant laws
Jan 18, 2019	Yongin Fire Station	SEC (Giheung site)	Fine	0.5	Article 20 (Fire Safety Control of Specific Objects of Fire Service) Paragraph 6 of the Act on Fire Prevention and Installation, Maintenance, and Safety Control of Firefighting Systems
Jan 3, 2019–Feb 23, 2022	Ministry of Employment and Labor	SEC (Pyeongtaek, Onyang, Cheonan, Giheung/ Hwaseong sites)	Fine	14.7	Article 48 (Submission of Hazard Prevention Plans) Paragraph 1 of the former Occupational Safety and Health Act, Article 46 (Implementation of Process-Safety Reports) Paragraph 1, etc., of the Occupational Safety and Health Act

Date	Agency	Subject	Punishment or measure	Amount of monetary sanction	Reasons and relevant laws
Dec 2, 2019– Dec 28, 2020	Ministry of Employment and Labor	SEC (Gwangju site)	Fine	386.3	Article 41 (Preparation and Keeping of Material Safety Data Sheets) Paragraph 3, Article 10 (Record and Report of Industrial Accidents) Paragraph 2, etc., of the former Occupational Safety and Health Act, Article 57 (Prohibition on Concealing Occurrence of Industrial Accidents and Reporting Thereof) Paragraph 3, Article 164 (Retention of Documents) Paragraph 1, etc., of the Occupational Safety and Health Act
Mar 2, 2021	Ministry of Environment	SEC (Gwangju site)	Cancellation of designation of green enterprise	-	Article 16-3 (Cancellation of Designation of Green Enterprise) Paragraph 1 Subparagraph 1 of the Environmental Technology and Industry Support Act
Aug 10, 2021	Ministry of Justice	SEC	Fine	0.1	Article 19 (Obligation to Report by Employers of Aliens) of the Immigration Act
Jul 8, 2020	Korea Communications Commission	Subsidiary (Samsung Electronics Sales)	Corrective order, fine	36	Article 3 (Prohibition of Discriminative Subsidy Payment) Paragraph 1 and Article 4 (Restriction on Payment of Excessive Subsidies and Public Announcement) Paragraph 5 of the Mobile Device Distribution Improvement Act
Sep 18, 2020	Ministry of Employment and Labor	Subsidiary (Samsung Electronics Sales)	Suspension of construction work order, fine	5	Article 55 (Measures for Suspension of Work by the Minister of Employment and Labor in Cases of Serious Accidents) and Article 68 (Safety and Health Coordinators) Paragraph 1 of the Occupational Safety and Health Act
Apr 1, 2021	Ministry of Employment and Labor	Subsidiary (Samsung Electronics Service CS)	Fine	1	Article 15 (Reporting, etc. on Insured Status) of the Employment Insurance Act
Sep 29, 2021	Ministry of Employment and Labor	Subsidiary (Samsung Electronics Service)	Partial suspension of work order, fine	14	Article 16 (Supervisors) Paragraph 1, Article 41 (Measures for Preventing Health Impairments Caused by Abusive Language of Customers) Paragraph 7, Article 53 (Corrective Measures by Minister of Employment and Labor) Paragraph 3, and Article 114 (Posting of Material Safety Data Sheets and Education) Paragraph 3 of the Occupational Safety and Health Act
Nov 23, 2021	Ministry of Employment and Labor	Subsidiary (Samsung Display)	Fine	0.2	Article 46 (Implementation of Process-Safety Reports) Paragraph 1 of the Occupational Safety And Health Act
Oct 13, 2022	City of Gwangju	SEC (Gwangju site)	Fine	3.2	Article 39 Paragraph 1 of the Clean Air Conservation Act
Dec 14, 2022	Ministry of Environment	SEC (Overall domestic operations)	Fine	2.0	Article 17 Paragraph 2 of the Act on the Allocation and Trading of Greenhouse-gas Emission Permits

Date	Agency	Subject	Punishment or measure	Amount of monetary sanction	Reasons and relevant laws
Dec 22, 2022	Ministry of Environment	SEC (Gwangju site)	Fine	1.6	Article 31 Paragraph 1 Subparagraph 4 of the Clean Air Conservation
Dec 23, 2022	Ministry of Employment and Labor	SEC (Gwangju site)	Fine	0.08	Article 37 Paragraph 1 of the Occupational Safety And Health Act

With regards to a CO_2 leak accident at the Giheung plant on September 4, 2018, pursuant to the results of a special investigation by the Yongin Fire Station conducted from November 27 through December 6, 2018, the Company was ordered to pay a fine of KRW 0.5 million for violating Article 20 Paragraph 6 of the Occupational Safety and Health Act on January 18, 2019, and the Company has subsequently paid the fine.

To prevent recurrence and strengthen compliance, the Company has built a legal safety assessment evaluation system and conducts regular assessment.

Pursuant to the results of the 2nd process safety management (PSM) inspection on the Pyeongtaek site (P1-2) by the Ministry of Employment and Labor over September 10 through September 13, 2018, the Company was ordered to pay a fine of KRW 10 million for violating Article 48 (Submission, etc. of Plans for Prevention of Harm and Dangers) Paragraph 1 of the former Occupational Safety and Health Act on January 3, 2019 and has subsequently paid the fine.

Pursuant to results of monitoring the implementation of a PSM system on the Onyang site by the Ministry of Employment and Labor on February 19, 2020, the Company was ordered to pay a fine of KRW 0.2 million for violating Article 46 (Implementation of Process-Safety Reports) Paragraph 1, etc., of the Occupational Safety and Health Act on February 25, 2020 and has subsequently paid the fine.

Pursuant to results of monitoring the implementation of a PSM system on the Cheonan site by the Ministry of Employment and Labor from May 26–28, 2020, the Company was ordered to pay a fine of KRW 0.9 million for violating Article 46 (Implementation of Process-Safety Reports) Paragraph 1, etc., of the Occupational Safety and Health Act on June 29, 2020 and has subsequently paid the fine.

Pursuant to results of monitoring the implementation of a PSM system on the Pyeongtaek site by the Ministry of Employment and Labor from November 16–18, 2020, the Company was ordered to pay a fine of KRW 2.1 million for violating Article 46 (Implementation of Process-Safety Reports) Paragraph 1, etc., of the Occupational Safety and Health Act on November 26, 2020 and has subsequently paid the fine.

Pursuant to results of monitoring the implementation of a PSM system on the Giheung·Hwaseong site by the Ministry of Employment and Labor from December 7–11, 2020, the Company was ordered to pay a fine of KRW 0.9 million for violating Article 46 (Implementation of Process-Safety Reports) Paragraph 1, etc. of the Occupational Safety and Health Act on December 14, 2020 and has subsequently paid the fine.

Pursuant to the regular assessment of the implementation of a PSM system at the Onyang site by the Ministry of Employment and Labor from February 21–23, 2022, the rating went up by one stage, but the Company was ordered to pay a fine of KRW 0.6 million for violating Article 46 (Implementation of Process-Safety Reports) Paragraph 1 of the Occupational Safety and Health Act on April 21, 2022 and has subsequently paid the fine.

The Company took measures regarding the violations above and submitted a report on improvements to the Ministry of Employment and Labor. We also established a PSM Innovation Organization and a PSM Management System which manages activities related to approval, design, 12 key tasks, expertise improvement, etc. We also foster development of on-site process safety experts and conduct voluntary process safety evaluation.

Following the investigation on MSDS warning signs compliance on November 28, 2019 at Gwangju office by the Ministry of Employment and Labor, the Company on December 2, 2019, was ordered to pay a fine of KRW 1.4 million for violating Article 41 (Preparation, Keeping, etc. of Material Safety Data Sheets) Paragraph 3, etc., of the Occupational Safety and Health Act, and has subsequently paid the fine. (Paragraph 3 has since been deleted.) We conducted a company-wide investigation on the handling space of chemical substances and implemented relevant improvement measures. In addition, we are improving the prior evaluation process on new G-EHS chemical substances and providing education for supervisors in departments handling chemical substances.

Regarding the industrial incident at Gwangju site on May 19, 2020, the Company delayed the submission of industrial accident questionnaire to the Gwangju Regional Employment and Labor Office of the Ministry of Employment and Labor and as a result was ordered to pay a fine of KRW 7 million for violating Article 57 (Prohibition of Concealment; Reporting of Incidents) Paragraph 3 of Occupational Safety and Health Act on June 26, 2020, and the Company has subsequently paid the fine.
To prevent the recurrence and strengthen compliance, the Company has provided special education for the on-site environment and safety managers and supervisors.

With regards to the investigation from August 18, 2020 to January 18, 2021 by the Gwangju Regional Employment and Labor Office of Ministry of Employment and Labor on the Gwangju operation, the Company was ordered to pay the following fines regarding industrial incidents that have taken place since 2015: KRW 6 million for violating Article 10 (Recording and Reporting of Industrial Accidents) Paragraph 2 of the Occupational Safety and Health Act on September 1, 2020 (Paragraph 2 has since been deleted); KRW 60.4 million and 11.5 million, respectively, for violating Article 57 (Prohibition of Concealment; Reporting of Incidents) Paragraph 3 and Article 164 (Preservation of Documents) Paragraph 1 of the Occupational Safety and Health Act on September 10 and 23, 2020. The Company has subsequently paid the fines. Other fines include: KRW 20 million for violating Article 57 (Prohibition of Concealment; Reporting of Incidents) Paragraph 3 of the Occupational Safety and Health Act on October 19, 2020; and KRW 280 million for violating Article 10 (Prohibition of Concealment; Reporting of Incidents) Paragraph 2 of the former Occupational Safety and Health Act on December 28, 2020. The Company subsequently paid the fines.

To prevent the recurrence and strengthen compliance, the Company has provided special education for the on-site environment and safety managers and supervisors.

On March 2, 2021, Yeongsangang River Basin Environmental Office of Ministry of Environment, based on its air pollutant measurement, cancelled the Green Enterprise designation on our Gwangju site in pursuant to Article 16-3 (Cancellation of Designation of Green Enterprise) Paragraph 1 Subparagraph 1 of the Environmental Technology and Industry Support Act.

To enhance the credibility of the measurement, the Company is conducting regular cross measurement, etc.

On August 10, 2021, the Suwon Immigration Office ordered the Company to pay a fine of KRW 100,000 for violating the obligation to report changes to the employment status of non-Korean employees under Article 19 (Obligation to Report by Employers of Aliens) Paragraph 1 of the Immigration Act and the Company has subsequently paid the fine.
To strengthen compliance of the deadline for reporting changes in employment of non-Korean employees no longer employed by the Company, the Company has improved the exit process.

On July 7, 2022, the Gwangju District Court ruled that two employees of the Company had violated Article 18, etc., of the Environmental Testing and Inspection Act, and on October 13, 2022, the City of Gwangju levied a fine of KRW 3.2 million for violating Article 39 (Self-Measurement) Paragraph 1 of the Clean Air Conservation Act concerning the record of the results of self-measurement of air pollutants, and the Company subsequently paid the fine.

To enhance credibility of measurements, the Company conducts regular cross measurements, etc.

Pursuant to the results of the inspection of the air pollution prevention facilities on the Gwangju site by the Ministry of Environment on November 28–29, 2022, the Company was ordered to pay a fine of KRW 1.6 million for violating Article 31 (Operation of Emission Facilities and Prevention Facilities) Paragraph 1 of the Clean Air Conservation Act on December 22, 2022, and it has subsequently paid the fine.

To prevent the recurrence and strengthen compliance, the Company has strengthened inspection of the air pollution prevention facilities.
On December 14, 2022, the Ministry of Environment ordered the Company to pay a fine of KRW 2 million for violating Article 17 (Revocation of Allocation of Emission Permits) Paragraph 2 of the Act on the Allocation and Trading of Greenhouse-gas Emission Permits, and the Company is currently in the process of objecting to the order.

Pursuant to the results of the inspection of the Occupational Safety and Health Management on the Gwangju site by the Ministry of Employment and Labor on December 19–21, 2022, the Company was ordered to pay a fine of KRW 80 thousand for violating Article 37 (Installation and Affixing of Safety and Health Signs) Paragraph 1 of the Occupational Safety and Health Act on December 23, 2022, and it has subsequently paid the fine.

To prevent the recurrence and strengthen compliance, the Company has strengthened monitoring of the installation and affixing of safety signs.

Korea Communications Commission ordered Samsung Electronics Sales to implement corrective measures and to pay a fine of KRW 36 million for violating Article 3 (Prohibition of Discriminative Subsidy Payment) Paragraph 1 and Article 4 (Restriction on Payment of Excessive Subsidies and Public Announcement) Paragraph 5 of the Mobile Device Distribution Improvement Act on July 8, 2020 and have subsequently paid the fine.

In order to prevent reoccurrences and comply with the relevant law, Samsung Electronics Sales strengthened its internal management standard, provided education for executives and employees.

Regarding a fatal accident on September 16, 2020 during the construction of an elevator wall structure, part of the construction process of newly-opening Hongdae branch of Samsung Digital Plaza, a site inspection was conducted on September 17, 2020 and Seoul West District Office of Seoul Regional Employment and Labor Office of Ministry of Employment and Labor on September 18, 2020 ordered Samsung Electronics Sales to suspend construction in pursuant to Article 55 (Suspension, etc. of Work on Occurrence of Serious Accidents) of the Occupational Safety and Health Act. In addition, Samsung Electronics Sales was ordered to pay a fine of KRW 5 million for violating Article 68 (Safety and Health Coordinator) Paragraph 1 of the Occupational Safety and Health Act and has subsequently paid the fine, and the Company appointed a safety and health coordinator.

To prevent reoccurrences and comply with the relevant law, Samsung Electronics Sales provided a special training for on-site safety managers and supervisors.

On April 1, 2021, Samsung Electronics Service CS was ordered by the Jungbu Regional Employment and Labor Office of Ministry of Employment and Labor to pay a fine of KRW 1 million for the delayed report of the attainment of the employment insurance, violating Article 15 (Reporting, etc. on Insured Status) of the Employment Insurance Act, and the Company has subsequently paid the fine.

To prevent reoccurrences and strengthen compliance, Samsung Electronics Service CS is monitoring the revision of the Employment Insurance Act periodically and providing education for managers.

Regarding an electrocution accident of a worker who was repairing a washing machine on September 28, 2021, the Southern Seoul District Office of the Seoul Regional Employment and Labor Office of the Ministry of Employment and Labor ordered Samsung Electronics Service on September 29, 2021 to partially suspend work in pursuant to Article 53 (Corrective Measures by Minister of Employment and Labor) of the Occupational Safety and Health Act.

In response, Samsung Electronics Service submitted plans to improve safety and health measures for all of its domestic worksites, and the order of partial suspension was withdrawn on November 10, 2021.

Moreover, on November 15, 2021, Samsung Electronics Service was ordered to pay fines of KRW 14 million in total for violating Article 16 (Supervisors) Paragraph 1, Article 41 (Measures for Preventing Health Impairments Caused by Abusive Language of Customers) Paragraph 7, and Article 114 (Posting of Material Safety Data Sheets and Education) Paragraph 3 of the Occupational Safety and Health Act, and on December 28, 2021, it has subsequently paid the fine.

Pursuant to results of monitoring the implementation of a PSM system at the Giheung site by the Ministry of Employment and Labor from November 15–16, 2021, Samsung Display was ordered to pay a fine of KRW 0.16 million for violating

Article 46 (Implementation of Process-Safety Reports) Paragraph 1, etc., of the Occupational Safety and Health Act on November 23, 2021 and has subsequently paid the fine.

C. Sanctions from Korea Exchange

- N/A

D. Return of short-swing profits

- N/A

4. Subsequent events and other matters

A. Subsequent events

- N/A

B. External contributions

Contribution	Amount	Details	Date of Board approval
Contribution to Samsung Dream Scholarship Foundation	KRW 1.12 billion	· The contribution was made to support education of low-income high school students.	Jan 30, 2020
Management plans for Social Contribution Fund for 2020	KRW 11.89 billion	· The Social Contribution Fund consists of voluntary contributions of employees and matching funds raised by SEC. SEC plans to contribute KRW 11.89 billion in matching funds for 2020. · The contribution was made to support adolescent education.	Feb 21, 2020
Donation to Chung-nam Samsung Institute	KRW 2.576 billion	· The contribution was made to improve education of the region.	
Donation to support emergency relief related to COVID-19	KRW 23.0 billion	· The contribution was made to support emergency relief measures for persons and communities impacted by COVID-19.	Feb 26, 2020
Donation to Samsung Welfare Foundation, etc.	KRW 51.8 billion	· The contribution was made to support Dream Class, a program to support learning for underprivileged middle school students (Samsung Welfare Foundation, KRW 10.6 billion) · The contribution was made to improve facilities and research infrastructure at Samsung Medical Center and support research for MERS vaccine development (Samsung Life Public Welfare Foundation, KRW 26.5 billion) · The contribution was made for the Ho-Am Prize (Ho-Am Foundation) · The contribution was made to provide funds for legal expenses for faculty members and Samsung scholarships for students (Sungkyunkwan University, KRW 14.7 billion)	Apr 29, 2020
Performance incentive to suppliers of the DS division	Approximately KRW 62.0 billion	· The incentive was provided to prevent safety incidents at sites, enhance productivity, and promote co-growth with suppliers · For the first and secondary suppliers of the DS division stationed at the sites	
Donation to Ho-Am Foundation	KRW 4.1 billion	· The contribution was made to help award those with significant contributions in the field of academia, art, and human welfare	May 27, 2020
Donation to Heemang 2021 Nanum Campaign	KRW 33.8 billion	· The contribution was made to Community Chest of Korea to fulfill corporate social responsibilities and help the marginalized.	Nov 30, 2020
Contribution to the United Nations Development Programme (Samsung Global Goals)	USD 1,421,154 (approximately KRW 1.57 billion)	· The contribution was made to the UNDP (United Nations Development Programme) for relief activities in different countries.	

Contribution	Amount	Details	Date of Board approval
Management plans for Social Contribution Fund for 2021	KRW 11.61 billion	· The Fund consists of voluntary contributions of employees and matching funds raised by SEC. SEC plans to contribute KRW 11.61 billion in matching funds in 2021. · The contribution will be used for educating adolescents and vulnerable population.	Feb 16, 2021
Donation to Chung-nam Samsung Institute	KRW 2.446 billion	· The contribution was made to improve education of the region.	
Donation to Samsung Welfare Foundation, etc.	KRW 60.1 billion	· The contribution was made to support Dream Class, a program to support learning for underprivileged middle school students (Samsung Welfare Foundation, KRW 11.5 billion) · The contribution was made to support facilities and research infrastructure at Samsung Medical Center and support the operation of emergency helicopters (Samsung Life Public Welfare Foundation, KRW 29.9 billion) · The contribution was made to provide funds for legal expenses for faculty members and Samsung scholarships for students (Sungkyunkwan University, KRW 15 billion) · The contribution was made to help award those with significant contributions in the field of academia, art, and human welfare (Ho-Am Foundation, KRW 3.7 billion)	Apr 29, 2021
Performance incentive to suppliers of the DS division	Approximately KRW 63.2 billion	· The incentive was provided to prevent safety incidents at sites, enhance productivity, and promote co-growth with suppliers · For the first and secondary suppliers of the DS division stationed at the sites	

Contribution	Amount	Details	Date of Board approval
Sponsoring the WorldSkills Competition	EUR 1.5 million (approximately KRW 2.09 billion)	· The contribution was made to support WorldSkills International and WorldSkills Shanghai 2020.	Oct 28, 2021
Contribution to Joint Investment Technology Development Agreement Fund	KRW 15 billion	· Participated in Joint Investment Technology Development Agreement Fund supervised by the Ministry of SMEs and Startups. · The contribution was made to establish an agreement fund with the Ministry of SMEs and Startups, which will be allocated to chosen SMEs based on evaluations of tasks related to robotics, AI, biohealth, system semiconductors, and domestic production of materials, parts, and equipment.	Oct 28, 2021
Donation to Heemang 2022 Nanum Campaign	KRW 25.6 billion	· The contribution was made to Community Chest of Korea to fulfill corporate social responsibilities and help the marginalized.	Nov 30, 2021
Contribution to the United Nations Development Programme (Samsung Global Goals)	USD 2,689,094 (approximately KRW 3.20 billion)	· The contribution was made to the UNDP (United Nations Development Programme) for relief activities in different countries.	Nov 30, 2021
Management plans for Social Contribution Fund for 2022	KRW 11.75 billion	· The Fund consists of voluntary contributions of employees and matching funds raised by SEC. SEC plans to contribute KRW 11.75 billion in matching funds in 2022. · The contribution will be used for educating adolescents and vulnerable population.	Feb 15, 2022
Donation to Chung-nam Samsung Institute	KRW 2.324 billion	· The contribution was made to improve education of the region.	
Donation to Samsung Welfare Foundation, etc.	KRW 46.8 billion	· The contribution was made to support Dream Class, a program to support learning for underprivileged middle school students (Samsung Welfare Foundation, KRW 4.4 billion)The contribution was made to support the construction expenses for the renovation of Samsung Medical Center (Samsung Life Public Welfare Foundation, KRW 23.2 billion)The contribution was made to provide funds for legal expenses for faculty members and Samsung scholarships for students (Sungkyunkwan University, KRW 15 billion) · The contribution was made to help award those with significant contributions in the field of academia, art, and human welfare (Ho-Am Foundation, KRW 4.2 billion)	Apr 28, 2022
Performance incentive to suppliers of the DS division	Approximately KRW 74.0 billion	· The incentive was provided to prevent safety incidents at sites, enhance productivity, and promote co-growth with suppliers · For the first and secondary suppliers of the DS division stationed at the sites	
Donation to the Inter-University Semiconductor Research Center of Seoul National University to help cover operating costs	KRW 5 billion	· Support of operating costs for education infrastructure and employment of research talents for the Inter-University Semiconductor Research Center of Seoul National University	Jul 28, 2022

External contributions are based on a resolution of the Board.

C. Green management

The Company is actively securing "Designation of Green Enterprise" and "Green Technology Certifications" to follow the Low Carbon Green Growth policy of the Korean government. In particular, greenhouse gas emission and energy consumption generated at our operations are reported to the government, required by relevant law. Also, relevant information are provided transparently to stakeholders through the Sustainability Report, etc.

(Designation of Green Enterprise)

The Company strives to fulfill its responsibility as an eco-friendly enterprise by reducing pollutants, conserving resources and energy, establishing/utilizing a green management system, etc. As of December 31, 2022 (on a separate basis), our business sites in Suwon, Gumi, Giheung, Hwaseong, Pyeongtaek, and Onyang have been designated as green enterprises in accordance with Article 16-2 (Designation, etc., of Green Enterprise) of the Environmental Technology and Industry Support Act. In March 2021, the Green Enterprise designation was cancelled for Gwangju site pursuant to Article 16-3 (Cancellation of Designation of Green Enterprise) Paragraph 1 Subparagraph 1 of the Environmental Technology and Industry Support Act.

(Green Technology Certification)

The Company is acquiring Green Technology Certifications in accordance with Article 32 (Standardization and Certification and Green Technology Green Industries) Paragraph 2 of the Framework Act on Low Carbon Green Growth. By concentrating on developing eco-friendly products and expanding the supply of these products with our "Planet First" strategy, which strives to conduct business activities in a manner that respect people and the nature, the Company, as of December 31, 2022, has secured 11 valid Green Technology Certifications since the certification system was introduced in 2010. In addition, the Company has acquired 'Green Technology' product certificates for 183 models of commercialized products.

Certified Green Technologies as of December 31, 2022, are as follows:

Division	Certified Green Technologies	No.
DX	Technology to reduce stand-by power use by laptops using high-efficiency power conversion technology; enhance energy efficiency of dryers using high-efficiency heat pump and heat exchanger; and reduce stand-by power use by monitors etc.	11

Separate basis.

(Greenhouse gas emission and energy consumption management)

The Company is a "controlled entity" according to Article 42 (Coping with Climate Change and Management of Targets for Energy) Paragraph 6 of the Framework Act on Low Carbon, Green Growth. Thus, the Company has been reporting the amount of greenhouse gas emission and energy consumption, verified by a third-party, to the authorities and disclosing it to stakeholders according to Article 44 (Reporting on Quantity of Greenhouse Gases Emitted and Quantity of Energy Consumed) of the same Act since May 2011.

The reported amount of greenhouse gas emission and energy use on a separate basis are provided below:

(Unit: tCO_2-eq, TJ)

	2022	2021	2020
Greenhouse gas (tCO2-eq)	15,208,803	15,208,803	15,208,803
Energy (TJ)	14,515,620	14,515,620	14,515,620

Separate basis.
Domestic manufacturing facilities, office buildings, buildings owned by the Company, leased buildings, etc.
Reported Greenhouse gas emission excludes ozone depletion substances (ODS).
Amounts may differ based on the result of governmental evaluations on emissions.

From 2015, in accordance with Article 8 (Designation of Business Entities Eligible for Allocation) of the Act on the Allocation and Trading of Greenhouse-Gas Emission Permits, the Company is an eligible business entity under the Act.

D. Certification as health-friendly company

The Company operates various medical facilities—including an in-house clinic, physiotherapy room, musculoskeletal disorder prevention center, and mental health clinic—to promote employee health, and through health promotion programs, the Company helps employees care for their own health. In recognition of our efforts, the DS Division was certified as a health-friendly company by the Minister of Health and Welfare on December 7, 2022, pursuant to Article 6-2 Paragraph 1 of the National Health Promotion Act (Validity period: December 7, 2022–December 6, 2025).

XII. Appendix

1. Subsidiaries subject to consolidated financial statements (detailed)

As of December 31, 2022, Samsung Electronics' consolidated subsidiaries numbered 232 with the addition of 8 subsidiaries and reduction of 4 subsidiary when compared to totals as of December 31, 2021. Below is the list of consolidated subsidiaries.

(KRW mil)

Subsidiary	Date established	Major business	Assets as of Dec 31, 2022	Ownership	Classified as major subsidiary (Y/N)
Samsung Electronics America, Inc. (SEA)	Jul 1978	Electronic goods sales	37,883,156	Over 50%	Y
Samsung International, Inc. (SII)	Oct 1983	Electronic goods production	1,595,348	Over 50%	Y
Samsung Mexicana S.A. de C.V (SAMEX)	Mar 1988	Electronic goods production	114,887	Over 50%	Y
Samsung Electronics Home Appliances America, LLC (SEHA)	Aug 2017	Home appliance production	1,004,065	Over 50%	Y
Samsung Research America, Inc (SRA)	Oct 1988	R&D	824,812	Over 50%	Y
SAMSUNG NEXT LLC (SNX)	Aug 2016	Subsidiary management (overseas)	190,103	Over 50%	Y
SAMSUNG NEXT FUND LLC (SNXF)	Aug 2016	Tech/emerging-tech venture firm investments	305,097	Over 50%	Y
NeuroLogica Corp.	Feb 2004	Medical device production and sales	236,677	Over 50%	Y
Samsung HVAC America, LLC	Jul 2001	Air conditioner sales	62,570	Over 50%	N
Joyent, Inc.	Mar 2005	Cloud services	190,791	Over 50%	Y
Dacor Holdings, Inc.	Dec 1998	Subsidiary management (overseas)	8,533	Over 50%	N
Dacor, Inc.	Mar 1965	Home appliance production and sales	8,457	Over 50%	N
SmartThings, Inc.	Apr 2012	Smart home platform	205,450	Over 50%	Y
TeleWorld Solutions, Inc. (TWS)	May 2002	Network equipment installation and optimization	31,801	Over 50%	N
Samsung Semiconductor, Inc. (SSI)	Jul 1983	Semiconductor and display panel sales	12,199,102	Over 50%	Y
Samsung Austin Semiconductor LLC. (SAS)	Feb 1996	Semiconductor production	9,301,017	Over 50%	Y
Samsung Oak Holdings, Inc. (SHI)	Jun 2016	Subsidiary management (overseas)	550,459	Over 50%	Y
SEMES America, Inc.	Oct 1998	Semiconductor equipment services	2,292	Over 50%	N
Samsung Electronics Canada, Inc. (SECA)	Jul 1980	Electronic goods sales	1,652,195	Over 50%	Y
AdGear Technologies Inc.	Aug 2010	Digital advertising platform	125,162	Over 50%	Y
Samsung Eletronica da Amazonia Ltda. (SEDA)	Jan 1995	Electronic goods production and sales	4,600,508	Over 50%	Y
Samsung Electronics Mexico S.A. De C.V. (SEM)	Jul 1995	Electronic goods sales	1,816,895	Over 50%	Y
Samsung Electronics Digital Appliance Mexico, SA de CV (SEDAM)	Dec 2012	Home appliance production	1,257,964	Over 50%	Y
Samsung Electronics Latinoamerica (Zona Libre), S. A. (SELA)	Apr 1989	Electronic goods sales	1,234,491	Over 50%	Y
Samsung Electronics Latinoamerica Miami, Inc. (SEMI)	May 1995	Electronic goods sales	395,124	Over 50%	Y
Samsung Electronica Colombia S.A. (SAMCOL)	Mar 1997	Electronic goods sales	487,904	Over 50%	Y

Subsidiary	Date established	Major business	Assets as of Dec 31, 2022	Ownership	Classified as major subsidiary (Y/N)
Samsung Electronics Argentina S.A. (SEASA)	Jun 1996	Marketing and services	102,325	Over 50%	Y
Samsung Electronics Chile Limitada (SECH)	Dec 2002	Electronic goods sales	646,185	Over 50%	Y
Samsung Electronics Peru S.A.C. (SEPR)	Apr 2010	Electronic goods sales	357,460	Over 50%	Y
Samsung Electronics Venezuela, C.A. (SEVEN)	May 2010	Marketing and services	37	Over 50%	N
Samsung Electronics Panama. S.A. (SEPA)	Jul 2012	Consulting	5,636	Over 50%	N
Harman International Industries, Inc.	Jan 1980	Subsidiary management (overseas)	15,627,849	Over 50%	Y
Harman Becker Automotive Systems, Inc.	Jun 1981	Audio product production, sales, and R&D	2,930,229	Over 50%	Y
Harman Connected Services, Inc.	Feb 2002	Connected Service Provider	2,249,385	Over 50%	Y
Harman Connected Services Engineering Corp.	Sep 2004	Connected Service Provider	2,980	Over 50%	N
Harman da Amazonia Industria Eletronica e Participacoes Ltda.	Jul 2005	Audio product production and sales	134,845	Over 50%	Y
Harman de Mexico, S. de R.L. de C.V.	Feb 1997	Audio product production	180,271	Over 50%	Y
Harman do Brasil Industria Eletronica e Participacoes Ltda.	Nov 1958	Audio product sales and R&D	273,861	Over 50%	Y
Harman Financial Group LLC	Jun 2004	Management Company	755	Over 50%	N
Harman International Industries Canada Ltd.	May 2005	Audio product sales	313	Over 50%	N
Harman International Mexico, S. de R.L. de C.V.	Dec 2014	Audio product sales	31,954	Over 50%	N
Harman KG Holding, LLC	Mar 2009	Subsidiary management (overseas)	-	Over 50%	N
Harman Professional, Inc.	Jul 2006	Audio product sales and R&D	892,007	Over 50%	Y
Beijing Integrated Circuit Industry International Fund, L.P	Dec 2014	Venture firm investments	13,443	Over 50%	N
China Materialia New Materials 2016 Limited Partnership	Sep 2017	Venture firm investments	8,089	Over 50%	N
Samsung Electronics (UK) Ltd. (SEUK)	Jul 1995	Electronic goods sales	2,819,792	Over 50%	Y
Samsung Electronics Ltd. (SEL)	Jan 1999	Subsidiary management (overseas)	6,711	Over 50%	N
Samsung Semiconductor Europe Limited (SSEL)	Apr 1997	Semiconductor and display panel sales	102,683	Over 50%	Y
Samsung Electronics GmbH (SEG)	Dec 1984	Electronic goods sales	1,968,273	Over 50%	Y
Samsung Electronics Holding GmbH (SEHG)	Feb 1982	Subsidiary management (overseas)	651,158	Over 50%	Y
Samsung Semiconductor Europe GmbH (SSEG)	Dec 1987	Semiconductor and display panel sales	816,633	Over 50%	Y
Samsung Electronics France S.A.S (SEF)	Jan 1988	Electronic goods sales	1,053,910	Over 50%	Y
Samsung Electronics Italia S.P.A. (SEI)	Apr 1991	Electronic goods sales	959,801	Over 50%	Y
Samsung Electronics Iberia, S.A. (SESA)	Jan 1989	Electronic goods sales	1,098,852	Over 50%	Y
Samsung Electronics Portuguesa, Unipessoal, Lda. (SEP)	Sep 1982	Electronic goods sales	273,915	Over 50%	Y
Samsung Electronics Hungarian Private Co. Ltd. (SEH)	Oct 1989	Electronic goods production and sales	2,374,317	Over 50%	Y
Samsung Electronics Europe Logistics B.V. (SELS)	May 1991	Logistics	2,194,975	Over 50%	Y
Samsung Electronics Benelux B.V. (SEBN)	Jul 1995	Electronic goods sales	2,377,730	Over 50%	Y

Subsidiary	Date established	Major business	Assets as of Dec 31, 2022	Ownership	Classified as major subsidiary (Y/N)
Samsung Electronics Europe Holding Cooperatief U.A. (SEEH)	Oct 2008	Subsidiary management (overseas)	10,841,515	Over 50%	Y
Samsung Electronics Nordic Aktiebolag (SENA)	Mar 1992	Electronic goods sales	697,034	Over 50%	Y
Samsung Electronics Slovakia s.r.o (SESK)	Jun 2002	TV and monitor production	1,585,901	Over 50%	Y
Samsung Display Slovakia, s.r.o. (SDSK)	Mar 2007	Display panel processing	28,179	Over 50%	N
Samsung Electronics Polska, SP.Zo.o (SEPOL)	Apr 1996	Electronic goods sales	1,172,265	Over 50%	Y
Samsung Electronics Poland Manufacturing SP.Zo.o (SEPM)	Feb 2010	Home appliance production	808,474	Over 50%	Y
Samsung Electronics Romania LLC (SEROM)	Sep 2007	Electronic goods sales	371,708	Over 50%	Y
Samsung Electronics Austria GmbH (SEAG)	Jan 2002	Electronic goods sales	574,106	Over 50%	Y
Samsung Electronics Switzerland GmbH (SESG)	May 2013	Electronic goods sales	390,327	Over 50%	Y
Samsung Electronics Czech and Slovak s.r.o. (SECZ)	Jan 2010	Electronic goods sales	344,331	Over 50%	Y
SAMSUNG ELECTRONICS BALTICS SIA (SEB)	Oct 2001	Electronic goods sales	146,994	Over 50%	Y
Samsung Electronics Greece S.M.S.A (SEGR)	Apr 2010	Electronic goods sales	129,431	Over 50%	Y
Samsung Electronics Air Conditioner Europe B.V. (SEACE)	Apr 2017	Air conditioner sales	286,316	Over 50%	Y
Samsung Nanoradio Design Center (SNDC)	Feb 2004	R&D	26,918	Over 50%	N
Samsung Denmark Research Center ApS (SDRC)	Sep 2012	R&D	24,563	Over 50%	N
Samsung Cambridge Solution Centre Limited (SCSC)	Sep 2012	R&D	170,489	Over 50%	Y
Samsung Zhilabs, S.L.	Nov 2008	Network solution R&D and sales	9,812	Over 50%	N
FOODIENT LTD.	Mar 2012	R&D	2,349	Over 50%	N
Samsung Electronics Rus Company LLC (SERC)	Oct 2006	Electronic goods sales	876,346	Over 50%	Y
Samsung Electronics Rus Kaluga LLC (SERK)	Jul 2007	TV production	1,149,970	Over 50%	Y
Samsung Electronics Ukraine Company LLC (SEUC)	Sep 2008	Electronic goods sales	244,279	Over 50%	Y
Samsung R&D Institute Ukraine (SRUKR)	Feb 2022	R&D	8,119	Over 50%	N
Samsung Electronics Central Eurasia LLP (SECE)	Sep 2008	Electronic goods sales	606,726	Over 50%	Y
Samsung Electronics Overseas B.V. (SEO)	Jan 1997	Electronic goods sales	1,960	Over 50%	N
Samsung R&D Institute Rus LLC (SRR)	Nov 2011	R&D	52,581	Over 50%	N
Samsung Electronics Caucasus Co. Ltd (SECC)	Oct 2014	Marketing	2,500	Over 50%	N
Samsung Electronics Uzbekistan Ltd. (SEUZ)	Mar 2022	Marketing	6,418	Over 50%	N
AKG Acoustics Gmbh	Mar 1947	Audio product production and sales	350,440	Over 50%	Y
Apostera UA, LLC	Oct 2020	Connected Service Provider	631	Over 50%	N
Harman Audio Iberia Espana Sociedad Limitada	Nov 2012	Audio product sales	1,399	Over 50%	N
Harman Automotive UK Limited	Oct 2012	Audio product production	-	Over 50%	N
Harman Becker Automotive Systems GmbH	Jul 1990	Audio product production, sales, and R&D	3,962,309	Over 50%	Y

Subsidiary	Date established	Major business	Assets as of Dec 31, 2022	Ownership	Classified as major subsidiary (Y/N)
Harman Becker Automotive Systems Italy S.R.L.	Dec 2005	Audio product sales	1,047	Over 50%	N
Harman Becker Automotive Systems Manufacturing Kft	Aug 1994	Audio product R&D and production	3,291,277	Over 50%	Y
Harman Belgium SA	Apr 1967	Audio product sales	2,944	Over 50%	N
Harman Connected Services AB.	Oct 1984	Connected Service Provider	12,527	Over 50%	N
Harman Finland Oy	Jul 1998	Connected Service Provider	-	Over 50%	N
Harman Connected Services GmbH	Dec 2005	Connected Service Provider	51,968	Over 50%	N
Harman Connected Services Poland Sp.zoo	Jun 2007	Connected Service Provider	10,015	Over 50%	N
Harman Connected Services UK Ltd.	Sep 2008	Connected Service Provider	54,603	Over 50%	N
Harman Consumer Nederland B.V.	Dec 1995	Audio product sales	489,585	Over 50%	Y
Harman Deutschland GmbH	Mar 1998	Audio product sales	13,547	Over 50%	N
Harman Finance International GP S.a.r.l	Apr 2015	Subsidiary management (overseas)	-	Over 50%	N
Harman France SNC	Nov 1995	Audio product sales	167,450	Over 50%	Y
Harman Holding Gmbh & Co. KG	Jun 2002	Management Company	5,700,548	Over 50%	Y
Harman Hungary Financing Ltd.	Jun 2012	Financing Company	45,415	Over 50%	N
Harman Inc. & Co. KG	Jun 2012	Subsidiary management (overseas)	4,540,799	Over 50%	Y
Harman International Estonia OU	May 2015	R&D	232	Over 50%	N
Harman International Industries Limited	Mar 1980	Audio product sales and R&D	79,014	Over 50%	Y
Harman International Romania SRL	Feb 2015	R&D	17,145	Over 50%	N
Harman Finance International, SCA	Apr 2015	Financing Company	10,320	Over 50%	N
Harman Management Gmbh	Apr 2002	Subsidiary management (overseas)	-	Over 50%	N
Harman Professional Kft	Dec 2014	Audio product R&D and production	68,463	Over 50%	N
Harman Professional Denmark ApS	Jul 1987	Audio product sales and R&D	55,117	Over 50%	N
Red Bend Software Ltd.	Aug 2004	Software design	-	Over 50%	N
Red Bend Software SAS	Oct 2002	Software design	7,259	Over 50%	N
Studer Professional Audio GmbH	Nov 2003	Audio product sales and R&D	4,586	Over 50%	N
Harman Connected Services OOO	Nov 1998	Connected Service Provider	37,721	Over 50%	N
Harman RUS CIS LLC	Aug 2011	Audio product sales	52,838	Over 50%	N
Samsung Gulf Electronics Co., Ltd.(SGE)	May 1995	Electronic goods sales	1,031,216	Over 50%	Y
Samsung Electronics Turkiye (SETK)	Dec 1984	Electronic goods sales	693,954	Over 50%	Y
Samsung Electronics Industry and Commerce Ltd. (SETK-P)	Feb 2021	Electronic goods production	130,961	Over 50%	Y
Samsung Electronics Levant Co.,Ltd. (SELV)	Jul 2009	Electronic goods sales	262,165	Over 50%	Y
Samsung Electronics Maghreb Arab (SEMAG)	Nov 2009	Electronic goods sales	291,185	Over 50%	Y

Subsidiary	Date established	Major business	Assets as of Dec 31, 2022	Ownership	Classified as major subsidiary (Y/N)
Samsung Electronics Egypt S.A.E (SEEG)	Jul 2012	Electronic goods production and sales	1,055,570	Over 50%	Y
Samsung Electronics Israel Ltd. (SEIL)	Sep 2012	Marketing	16,764	Over 50%	N
Samsung Electronics Tunisia S.A.R.L (SETN)	Sep 2012	Marketing	5,294	Over 50%	N
Samsung Electronics Pakistan(Private) Ltd. (SEPAK)	Nov 2012	Marketing	3,765	Over 50%	N
Samsung Electronics Saudi Arabia Ltd. (SESAR)	Nov 2019	Electronic goods sales	469,588	Over 50%	Y
Samsung Semiconductor Israel R&D Center, Ltd. (SIRC)	Oct 2007	R&D	153,328	Over 50%	Y
Corephotonics Ltd.	Jan 2012	R&D	21,964	Over 50%	N
Samsung Electronics South Africa(Pty) Ltd. (SSA)	Jun 1994	Electronic goods sales	573,688	Over 50%	Y
Samsung Electronics South Africa Production (pty) Ltd. (SSAP)	Jul 2014	TV and monitor production	81,698	Over 50%	Y
Samsung Electronics West Africa Ltd. (SEWA)	Mar 2010	Marketing	33,487	Over 50%	N
Samsung Electronics East Africa Ltd. (SEEA)	Dec 2011	Marketing	18,273	Over 50%	N
Global Symphony Technology Group Private Ltd.	Jan 2002	Subsidiary management (overseas)	61,038	Over 50%	N
Harman Connected Services Morocco	Apr 2012	Connected Service Provider	73	Over 50%	N
Harman Industries Holdings Mauritius Ltd.	Oct 2009	Subsidiary management (overseas)	93,636	Over 50%	Y
Red Bend Ltd.	Feb 1998	Audio product production	129,006	Over 50%	Y
Samsung Asia Pte. Ltd. (SAPL)	Jul 2006	Subsidiary management (overseas)	26,894,611	Over 50%	Y
Samsung Electronics Singapore Pte. Ltd. (SESP)	Oct 2020	Electronic goods sales	625,194	Over 50%	Y
Samsung Malaysia Electronics (SME) Sdn. Bhd. (SME)	May 2003	Electronic goods sales	541,255	Over 50%	Y
Samsung Electronics Display (M) Sdn. Bhd. (SDMA)	Mar 1995	Electronic goods production	24,689	Over 50%	N
Samsung Electronics (M) Sdn. Bhd. (SEMA)	Sep 1989	Home appliance production	278,943	Over 50%	Y
Samsung Vina Electronics Co., Ltd. (SAVINA)	Jan 1995	Electronic goods sales	129,160	Over 50%	Y
Samsung Electronics Vietnam Co., Ltd. (SEV)	Mar 2008	Electronic goods production	10,931,037	Over 50%	Y
Samsung Electronics Vietnam THAINGUYEN Co., Ltd. (SEVT)	Mar 2013	Telecom product production	15,718,299	Over 50%	Y
Samsung Electronics HCMC CE Complex Co., Ltd. (SEHC)	Feb 2015	Electronic goods production and sales	3,732,057	Over 50%	Y
Samsung Display Vietnam Co., Ltd. (SDV)	Jul 2014	Display panel production	7,471,680	Over 50%	Y
DOWOOINSYS VINA COMPANY LIMITED	Jun 2022	Display panel component production	58,171	Over 50%	N
PT Samsung Electronics Indonesia (SEIN)	Aug 1991	Electronic goods production and sales	883,023	Over 50%	Y
PT Samsung Telecommunications Indonesia (STIN)	Mar 2003	Electronic goods sales and service	58,012	Over 50%	N
Thai Samsung Electronics Co., Ltd. (TSE)	Oct 1988	Electronic goods production and sales	3,263,473	Over 50%	Y
Laos Samsung Electronics Sole Co., Ltd (LSE)	Sep 2016	Marketing	1,099	Over 50%	N
Samsung Electronics Philippines Corporation (SEPCO)	Mar 1996	Electronic goods sales	353,596	Over 50%	Y
Samsung Electronics Australia Pty. Ltd. (SEAU)	Nov 1987	Electronic goods sales	593,991	Over 50%	Y

Subsidiary	Date established	Major business	Assets as of Dec 31, 2022	Ownership	Classified as major subsidiary (Y/N)
Samsung Electronics New Zealand Limited (SENZ)	Sep 2013	Electronic goods sales	178,053	Over 50%	Y
Samsung India Electronics Private Ltd. (SIEL)	Aug 1995	Electronic goods production and sales	6,772,537	Over 50%	Y
Red Brick Lane Marketing Solutions Pvt. Ltd.	Jan 2012	Marketing	2,082	Over 50%	N
Samsung Display Noida Private Limited (SDN)	Jul 2019	Display panel production	597,383	Over 50%	Y
Samsung R&D Institute India-Bangalore Private Limited (SRI-Bangalore)	May 2005	R&D	351,226	Over 50%	Y
Samsung R&D Institute BanglaDesh Limited (SRBD)	Aug 2010	R&D	16,386	Over 50%	N
Samsung Nepal Services Pvt, Ltd (SNSL)	Nov 2017	Service	506	Over 50%	N
Samsung Japan Corporation (SJC)	Dec 1975	Semiconductor and display panel sales	1,445,517	Over 50%	Y
Samsung R&D Institute Japan Co. Ltd. (SRJ)	Aug 1992	R&D	157,868	Over 50%	Y
Samsung Electronics Japan Co., Ltd. (SEJ)	Sep 2008	Electronic goods sales	906,235	Over 50%	Y
Harman Connected Services Corp. India Pvt. Ltd.	Apr 2002	Connected Service Provider	305,295	Over 50%	Y
Harman International (India) Private Limited	Jan 2009	Audio product sales and R&D	370,100	Over 50%	Y
Harman International Industries PTY Ltd.	Dec 2014	Subsidiary management (overseas)	-	Over 50%	N
Harman International Japan Co., Ltd.	Jun 1991	Audio product sales and R&D	77,535	Over 50%	Y
Harman Singapore Pte. Ltd.	Aug 2007	Audio product sales	14,332	Over 50%	N
Samsung (CHINA) Investment Co., Ltd. (SCIC)	Mar 1996	Electronic goods sales	13,830,988	Over 50%	Y
Samsung Electronics Hong Kong Co., Ltd. (SEHK)	Sep 1988	Electronic goods sales	1,366,841	Over 50%	Y
Samsung Electronics Taiwan Co., Ltd. (SET)	Nov 1994	Electronic goods sales	1,364,801	Over 50%	Y
Tianjin Samsung Electronics Co., Ltd. (TSEC)	Apr 1993	TV and monitor production	392,205	Over 50%	Y
Suzhou Samsung Electronics Co., Ltd. (SSEC)	Apr 1995	Home appliance production	668,331	Over 50%	Y
Samsung Suzhou Electronics Export Co., Ltd. (SSEC-E)	Apr 1995	Home appliance production	504,994	Over 50%	Y
Samsung Electronics Suzhou Computer Co., Ltd. (SESC)	Sep 2002	R&D	150,161	Over 50%	Y
Tianjin Samsung Telecom Technology Co., Ltd. (TSTC)	Mar 2001	Telecom product production	643,732	Over 50%	Y
Beijing Samsung Telecom R&D Center (SRC-Beijing)	Sep 2000	R&D	106,400	Over 50%	Y
Samsung Electronics China R&D Center (SRC-Nanjing)	May 2004	R&D	25,344	Over 50%	N
Samsung Mobile R&D Center China- Guangzhou (SRC-Guangzhou)	Jan 2010	R&D	109,198	Over 50%	Y
Samsung R&D Institute China-Shenzhen (SRC-Shenzhen)	Mar 2013	R&D	38,911	Over 50%	N
Shanghai Samsung Semiconductor Co., Ltd. (SSS)	Oct 2001	Semiconductor and display panel sales	5,067,891	Over 50%	Y
Samsung (China) Semiconductor Co., Ltd. (SCS)	Sep 2012	Semiconductor production	17,095,000	Over 50%	Y
Samsung SemiConductor Xian Co., Ltd. (SSCX)	Apr 2016	Semiconductor and display panel sales	906,967	Over 50%	Y
Samsung Electronics Suzhou Semiconductor Co., Ltd. (SESS)	Dec 1994	Semiconductor processing	1,494,205	Over 50%	Y
Tianjin Samsung LED Co., Ltd. (TSLED)	May 2009	LED production	509,355	Over 50%	Y

Subsidiary	Date established	Major business	Assets as of Dec 31, 2022	Ownership	Classified as major subsidiary (Y/N)
Samsung Semiconductor (China) R&D Co., Ltd. (SSCR)	Apr 2003	R&D	76,826	Over 50%	Y
Samsung Display Dongguan Co., Ltd. (SDD)	Nov 2001	Display panel production	2,135,132	Over 50%	Y
Samsung Display Tianjin Co., Ltd. (SDT)	Jun 2004	Display panel production	1,446,605	Over 50%	Y
SEMES (XIAN) Co., Ltd.	Jul 2013	Semiconductor/FPD equipment services	3,712	Over 50%	N
Samsung Semiconductor Investment L.P. Ⅰ	Dec 2021	Tech/emerging-tech venture firm investments	14,754	Over 50%	N
Harman (China) Technologies Co., Ltd.	Mar 2011	Audio product production	181,150	Over 50%	Y
Harman (Suzhou) Audio and Infotainment Systems Co., Ltd.	Mar 2013	Audio product sales	9,890	Over 50%	N
Harman Automotive Electronic Systems (Suzhou) Co., Ltd.	Sep 2006	Audio product R&D and production	351,647	Over 50%	Y
Harman Commercial (Shanghai) Co., Ltd.	Oct 2010	Audio product sales	347	Over 50%	N
Harman Connected Services Solutions (Chengdu) Co., Ltd.	Aug 2007	Connected Service Provider	10,427	Over 50%	N
Harman Holding Limited	May 2007	Audio product sales	765,662	Over 50%	Y
Harman International (China) Holdings Co., Ltd.	Jun 2009	Audio product sales and R&D	589,116	Over 50%	Y
Harman Technology (Shenzhen) Co., Ltd.	Sep 2004	Audio product sales and R&D	48,247	Over 50%	N
Samsung Display	Apr 2012	Display panel production and sales	57,302,567	Over 50%	Y
SU Materials	Aug 2011	Display panel component production	36,204	Over 50%	N
STECO	Jun 1995	Semiconductor component production	133,987	Over 50%	Y
SEMES	Jan 1993	Semiconductor/FPD manufacturing equipment production and sales	2,065,558	Over 50%	Y
Samsung Electronics Service	Oct 1998	Electronics goods repair services	711,020	Over 50%	Y
Samsung Electronics Service CS	Oct 2018	Customer management services	15,593	Over 50%	N
Samsung Electronics Sales	Jul 1996	Electronic goods sales	1,393,235	Over 50%	Y
Samsung Electronics Logitech	Apr 1998	Total logistics services	415,659	Over 50%	Y
Samsung Medison	Jul 1985	Medical device production and sales	528,834	Over 50%	Y
Stellarforest	Dec 2022	Food manufacturing and processing	895	Over 50%	N
Mirero System	Jan 1994	Semiconductor software development and supply	39,440	Over 50%	N
Dowoo Insys	Mar 2010	Display panel component production	128,665	Over 50%	Y
GF Co., Ltd.	Oct 2015	Display panel component production	7,241	Over 50%	N
Harman Korea	Jan 2005	Semiconductor software development and supply	24,424	Over 50%	N
SVIC #21 Venture Capital Union	Nov 2011	Tech/emerging-tech venture firm investments	82,214	Over 50%	Y
SVIC #22 Venture Capital Union	Nov 2011	Tech/emerging-tech venture firm investments	56,370	Over 50%	N
SVIC #26 Venture Capital Union	Nov 2014	Tech/emerging-tech venture firm investments	50,614	Over 50%	N
SVIC #28 Venture Capital Union	Feb 2015	Tech/emerging-tech venture firm investments	370,503	Over 50%	Y

Subsidiary	Date established	Major business	Assets as of Dec 31, 2022	Ownership	Classified as major subsidiary (Y/N)
SVIC #29 Venture Capital Union	Apr 2015	Tech/emerging-tech venture firm investments	27,519	Over 50%	N
SVIC #32 Venture Capital Union	Aug 2016	Tech/emerging-tech venture firm investments	283,547	Over 50%	Y
SVIC #33 Venture Capital Union	Nov 2016	Tech/emerging-tech venture firm investments	334,846	Over 50%	Y
SVIC #37 Venture Capital Union	Nov 2017	Tech/emerging-tech venture firm investments	22,549	Over 50%	N
SVIC #40 Venture Capital Union	Jun 2018	Tech/emerging-tech venture firm investments	40,354	Over 50%	N
SVIC #42 Venture Capital Union	Nov 2018	Tech/emerging-tech venture firm investments	35,845	Over 50%	N
SVIC #43 Venture Capital Union	Dec 2018	Tech/emerging-tech venture firm investments	11,034	Over 50%	N
SVIC #45 Venture Capital Union	May 2019	Tech/emerging-tech venture firm investments	221,274	Over 50%	Y
SVIC #48 Venture Capital Union	Dec 2019	Tech/emerging-tech venture firm investments	75,744	Over 50%	Y
SVIC #52 Venture Capital Union	May 2021	Tech/emerging-tech venture firm investments	46,829	Over 50%	N
SVIC #55 Venture Capital Union	Sep 2021	Tech/emerging-tech venture firm investments	136,758	Over 50%	Y
SVIC #56 Venture Capital Union	Nov 2021	Tech/emerging-tech venture firm investments	31,135	Over 50%	N
SVIC #57 Venture Capital Union	Aug 2022	Tech/emerging-tech venture firm investments	18,681	Over 50%	N
Private Equity Fund for Semiconductor Growth	Mar 2017	Semiconductor industry investments	69,862	Over 50%	N
Private Equity Fund for Co-existence of System Semiconductor Firms	Apr 2020	Semiconductor industry investments	79,664	Over 50%	Y

Companies with over KRW 75 billion in total assets as of December 31, 2022 are classified as major subsidiaries.

See 『II. Businesses Overview』 for detailed information about major business segments.

(Changes in subsidiaries)

	Americas	Europe/ CIS	MEA/Africa	Asia ex China	China	Domestic	Total	Increase	Decrease
As of Dec 31 2019	54	75	19	30	34	28	240	-	-
Changes in 2020	1	-	-	-	(1)	1	1	**[Americas: 4]** TeleWorld Solutions, Inc. (TWS) TWS LATAM B, LLC TWS LATAM S, LLC SNB Technologies, Inc. Mexico, S.A. de C.V **[Asia ex China: 1]** Samsung Electronics Singapore Pte. Ltd. (SESP) **[Domestic: 1]** Private Equity Fund for Co-existence of System Semiconductor Firms	**[Americas: 3]** Harman Connected Services South America S.R.L. EverythingDacor.com, Inc. Distinctive Appliances of California, Inc. **[Asia ex China: 1]** Martin Professional Pte. Ltd. **[China: 1]** Samsung Tianjin Mobile Development Center (SRC-Tianjin)
As of Dec 31 2020	55	75	19	30	33	29	241	-	-
Changes in 2021	(9)	(4)	1	-	(3)	2	(13)	**[China: 1]** Samsung Semiconductor Investment L.P. Ⅰ **[MEA/Africa: 1]** Samsung Electronics Industry and Commerce Ltd. (SETK-P) **[Domestic: 3]** SVIC #52 Venture Capital Union SVIC #55 Venture Capital Union SVIC #56 Venture Capital Union	**[Americas: 9]** Viv Labs. Inc. Stellus Technologies, Inc. SigMast Communications Inc. Prismview, LLC Zhilabs, Inc. TWS LATAM B, LLC TWS LATAM S, LLC SNB Technologies, Inc. Mexico, S.A. de C.V・RT SV CO-INVEST, LP **[Europe/CIS: 4]** Arcam Limited A&R Cambridge Limited Harman Connected Services Limited Martin Manufacturing (UK) Ltd. **[China: 4]** Samsung Suzhou Module Co., Ltd. (SSM) Samsung Suzhou LCD Co., Ltd. (SSL) Samsung Electronics Huizhou Co., Ltd.(SEHZ) Shenzhen Samsung Electronics Telecommunication Co., Ltd.(SSET) **[Domestic: 1]** SVIC #27 Venture Capital Union
As of Dec 31 2021	46	71	20	30	30	31	228	-	-
Changes in 2022	(1)	1	-	2	-	2	4	**[Europe/CIS: 4]** Samsung R&D Institute Ukraine (SRUKR) Samsung Electronics Uzbekistan Ltd. (SEUZ) Apostera GmbH Apostera UA, LLC **[Asia ex China: 2]** DOWOOINSYS VINA COMPANY LIMITED Red Brick Lane Marketing Solutions Pvt. Ltd. **[Domestic: 2]** SVIC #57 Venture Capital Union Stellarforest	**[Americas: 1]** Dacor Canada Co. **[Europe/CIS: 3]** AMX UK Limited Harman International s.r.o Apostera GmbH
As of Dec 31 2022	45	72	20	32	30	33	232	-	-

2. *Affiliates*

A. Domestic Affiliates

As of December 31, 2022, Samsung Group is consisted of 63 domestic affiliates. Among the Samsung Group's 63 domestic affiliates, sixteen (16) affiliates including Samsung Electronics are listed, and forty-seven (47) affiliates are unlisted.

[As of December 31, 2022]

Listing	No. of affiliates	Name of affiliates
Listed	**16**	Samsung C&T; Samsung Biologics; Samsung Life Insurance; Samsung SDI; Samsung SDS; Samsung Engineering; Samsung Electro-mechanics; Samsung Electronics; Samsung Heavy Industries; Samsung Securities; Samsung Card; Samsung Fire & Marine Insurance; Multicampus; S1; Cheil Worldwide; Hotel Shilla
Unlisted	**47**	Samsung Display; Samsung Medison; Samsung Bioepis; Samsung Venture Investment Corporation; Samsung Life Service; Samsung Futures; Samsung Active Asset Management; Samsung SRA Asset Management; SamsungFN REIT Co.,Ltd; Samsung Welstory; Samsung Asset Management; Samsung Electronics Logitech; Samsung Electronics Service; Samsung Electronics Service CS; Samsung Electronics Sales; Samsung Card Customer Service; Samsung Corning Advanced Glass; Samsung Hedge Asset Management; Samsung Fire & Marine Insurance Service; Samsung Claim Adjustment Service; SUNGKYUNKWAN Holdings Co., Ltd.; SEMES; Suwon Samsung Bluewings FC; STECO; Shilla HM; SD Flex; SBTM; S-1CRM; SU Materials; S-Core; STM; HDC Shilla Duty Free LTD; OpenHands; Cheil Fashion Retail Co., Ltd.; Miracom; Samsung global research(SGR); Samsung Lions; Samsung Life Financial Service; Samsung Fire & Marine Insurance Financial Service; Samwoo Architects & Engineers; Seoul Lakeside CC; SECUI; CVnet Corporation; SHP Corporation; Harman International Korea; Human TSS; Stellarforest
Total	**63**	

B. Foreign Affiliates

[As of December 31, 2022]

Listing	No. of affiliates	Name of affiliates	Country
Unlisted	573	SAMOO AUSTIN INC	USA
		SAMOO HU Designer and Engineering Services Limited	Hungary
		SAMOO DESIGNERS & ENGINEERS INDIA PRIVATE LIMITED	India
		SAMOO (KL) SDN. BHD.	Malaysia
		SAMOO Design Consulting Co.,Ltd	China
		Meadowland Distribution	USA
		Samsung Green repower, LLC	USA
		Samsung Solar Construction Inc.	USA
		QSSC, S.A. de C.V.	Mexico
		Samsung Solar Energy LLC	USA
		Equipment Trading Solutions Group, LLC	USA
		SP Armow Wind Ontario LP	Canada
		SRE GRW EPC GP Inc.	Canada
		SRE GRW EPC LP	Canada
		SRE SKW EPC GP Inc.	Canada
		SRE SKW EPC LP	Canada
		SRE WIND PA GP INC.	Canada
		SRE WIND PA LP	Canada
		SRE GRS Holdings GP Inc.	Canada
		SRE GRS Holdings LP	Canada
		SRE K2 EPC GP Inc.	Canada
		SRE K2 EPC LP	Canada
		SRE KS HOLDINGS GP INC.	Canada
		SRE KS HOLDINGS LP	Canada
		SP Belle River Wind LP	Canada
		SRE Armow EPC GP Inc.	Canada
		SRE Armow EPC LP	Canada
		North Kent Wind 1 LP	Canada
		SRE Wind GP Holding Inc.	Canada
		South Kent Wind LP Inc.	Canada
		Grand Renewable Wind LP Inc.	Canada
		SRE North Kent 2 LP Holdings LP	Canada
		SRE Solar Development GP Inc.	Canada
		SRE Solar Development LP	Canada
		SRE Windsor Holdings GP Inc.	Canada
		SRE Southgate Holdings GP Inc.	Canada
		SRE Solar Construction Management GP Inc.	Canada
		SRE Solar Construction Management LP	Canada
		SRE BRW EPC GP INC.	Canada
		SRE BRW EPC LP	Canada

Listing	No. of affiliates	Name of affiliates	Country
		SRE North Kent 1 GP Holdings Inc	Canada
		SRE North Kent 2 GP Holdings Inc	Canada
		SRE Belle River GP Holdings Inc	Canada
		SRE NK1 EPC GP Inc	Canada
		SRE NK1 EPC LP	Canada
		SRE Summerside Construction GP Inc.	Canada
		SRE Summerside Construction LP	Canada
		Monument Power, LLC	USA
		PLL Holdings LLC	USA
		PLL E&P LLC	USA
		Parallel Petroleum LLC	USA
		Grand Renewable Solar GP Inc.	Canada
		KINGSTON SOLAR GP INC.	Canada
		SP Armow Wind Ontario GP Inc	Canada
		South Kent Wind GP Inc.	Canada
		Grand Renewable Wind GP Inc.	Canada
		North Kent Wind 1 GP Inc	Canada
		SP Belle River Wind GP Inc	Canada
		Samsung Solar Energy 1 LLC	USA
		Samsung Solar Energy 2 LLC	USA
		Samsung Solar Energy 3, LLC	USA
		CS SOLAR LLC	USA
		5S ENERGY HOLDINGS, LLC	USA
		SungEel Recycling Park Thuringen GmbH	Germany
		POSS-SLPC, S.R.O	Slovakia
		Solluce Romania 1 B.V.	Romania
		S.C. Otelinox S.A	Romania
		WARIS GIGIH ENGINEERING AND TECHNOLOGY SDN. BHD.	Malaysia
		Samsung Chemtech Vina LLC	Vietnam
		Samsung C&T Thailand Co., Ltd	Thailand
		PT. INSAM BATUBARA ENERGY	Indonesia
		Malaysia Samsung Steel Center Sdn.Bhd	Malaysia
		S&G Biofuel PTE.LTD	Singapore
		PT. Gandaerah Hendana	Indonesia
		PT. Inecda	Indonesia
		VISTA CONTRACTING AND DEVELOPMENT BANGLADESH LTD.	Bangladesh
		SAMSUNG CONST. CO. PHILS.	Philippines
		SAMSUNG TRADING (SHANGHAI) CO., LTD	China
		Samsung Precision Stainless Steel(pinghu) Co.,Ltd.	China
		Samsung Japan Corporation	Japan
		Samsung R&D Institute Japan Co. Ltd.	Japan
		Samsung Electronics America, Inc.	USA
		Samsung Electronics Canada, Inc.	Canada

Listing	No. of affiliates	Name of affiliates	Country
		Samsung Electronics Mexico S.A. De C.V.	Mexico
		Samsung Electronics Ltd.	United Kingdom
		Samsung Electronics (UK) Ltd.	United Kingdom
		Samsung Electronics Holding GmbH	Germany
		Samsung Electronics Iberia, S.A.	Spain
		Samsung Electronics France S.A.S	France
		Samsung Electronics Hungarian Private Co. Ltd.	Hungary
		Samsung Electronics Italia S.P.A.	Italy
		Samsung Electronics Europe Logistics B.V.	Netherlands
		Samsung Electronics Benelux B.V.	Netherlands
		Samsung Electronics Overseas B.V.	Netherlands
		Samsung Electronics Polska, SP.Zo.o	Poland
		Samsung Electronics Portuguesa, Unipessoal, Lda.	Portugal
		Samsung Electronics Nordic Aktiebolag	Sweden
		Samsung Electronics Austria GmbH	Austria
		Samsung Electronics Slovakia s.r.o	Slovakia
		Samsung Electronics Europe Holding Cooperatief U.A.	Netherlands
		Samsung Electronics Display (M) Sdn. Bhd.	Malaysia
		Samsung Electronics (M) Sdn. Bhd.	Malaysia
		Samsung Vina Electronics Co., Ltd.	Vietnam
		Samsung Asia Pte. Ltd.	Singapore
		Samsung India Electronics Private Ltd.	India
		Samsung R&D Institute India-Bangalore Private Limited	India
		Samsung Electronics Australia Pty. Ltd.	Australia
		PT Samsung Electronics Indonesia	Indonesia
		Thai Samsung Electronics Co., Ltd.	Thailand
		Samsung Malaysia Electronics (SME) Sdn. Bhd.	Malaysia
		Samsung Electronics Hong Kong Co., Ltd.	Hong Kong
		Suzhou Samsung Electronics Co., Ltd.	China
		Samsung (CHINA) Investment Co., Ltd.	China
		Samsung Electronics Suzhou Semiconductor Co., Ltd.	China
		Tianjin Samsung Electronics Co., Ltd.	China
		Samsung Electronics Taiwan Co., Ltd.	Taiwan
		Tianjin Samsung Telecom Technology Co., Ltd.	China
		Shanghai Samsung Semiconductor Co., Ltd.	China
		Samsung Electronics Suzhou Computer Co., Ltd.	China
		Samsung Semiconductor (China) R&D Co., Ltd.	China
		Samsung (China) Semiconductor Co., Ltd.	China
		Samsung SemiConductor Xian Co., Ltd.	China
		Samsung Gulf Electronics Co., Ltd.	Utd.Arab Emir.
		Samsung Electronics Egypt S.A.E	Egypt
		Samsung Electronics South Africa(Pty) Ltd.	South Africa
		Samsung Electronics Latinoamerica(Zona Libre), S. A.	Panama

Listing	No. of affiliates	Name of affiliates	Country
		Samsung Eletronica da Amazonia Ltda.	Brazil
		Samsung Electronics Argentina S.A.	Argentina
		Samsung Electronics Chile Limitada	Chile
		Samsung Electronics Rus Company LLC	Russian Fed.
		Samsung Electronics Rus Kaluga LLC	Russian Fed.
		Tianjin Samsung LED Co., Ltd.	China
		Samsung Biologics America, Inc.	USA
		Samsung Bioepis United States Inc.	USA
		SAMSUNG BIOEPIS UK LIMITED	United Kingdom
		Samsung Bioepis NL B.V.	Netherlands
		Samsung Bioepis CH GmbH	Switzerland
		Samsung Bioepis PL Sp z o.o.	Poland
		SAMSUNG BIOEPIS AU PTY LTD	Australia
		SAMSUNG BIOEPIS NZ LIMITED	New Zealand
		Samsung Biopeis TW Limited	Taiwan
		Samsung Bioepis HK Limited	Hong Kong
		SAMSUNG BIOEPIS IL LTD	Israel
		SAMSUNG BIOEPIS BR PHARMACEUTICAL LTDA	Brazil
		Intellectual Keystone Technology LLC	USA
		Samsung Display Slovakia, s.r.o.	Slovakia
		Samsung Display Vietnam Co., Ltd.	Vietnam
		Samsung Display Noida Private Limited	India
		Samsung Display Dongguan Co., Ltd.	China
		Samsung Display Tianjin Co., Ltd.	China
		Novaled GmbH	Germany
		SEMES America, Inc.	USA
		SEMES (XIAN) Co., Ltd.	China
		NeuroLogica Corp.	USA
		Dacor Holdings, Inc.	USA
		Samsung HVAC America, LLC	USA
		SmartThings, Inc.	USA
		Samsung Oak Holdings, Inc.	USA
		Joyent, Inc.	USA
		TeleWorld Solutions, Inc.	USA
		Samsung Semiconductor, Inc.	USA
		Samsung Research America, Inc	USA
		Samsung Electronics Home Appliances America, LLC	USA
		Samsung International, Inc.	USA
		Harman International Industries, Inc.	USA
		Dacor, Inc.	USA
		Samsung Austin Semiconductor LLC.	USA
		AdGear Technologies Inc.	Canada
		SAMSUNG NEXT LLC	USA

Listing	No. of affiliates	Name of affiliates	Country
		SAMSUNG NEXT FUND LLC	USA
		Samsung Mexicana S.A. de C.V	Mexico
		Samsung Electronics Digital Appliance Mexico, SA de CV	Mexico
		Harman International Japan Co., Ltd.	Japan
		Harman International Industries Canada Ltd.	Canada
		Harman Becker Automotive Systems, Inc.	USA
		Harman Professional, Inc.	USA
		Harman Connected Services, Inc.	USA
		Harman Financial Group LLC	USA
		Harman Belgium SA	Belgium
		Harman France SNC	France
		Red Bend Software SAS	France
		Harman Inc. & Co. KG	Germany
		Harman KG Holding, LLC	USA
		Harman Becker Automotive Systems Italy S.R.L.	Italy
		Harman Finance International, SCA	Luxembourg
		Harman Finance International GP S.a.r.l	Luxembourg
		Harman Industries Holdings Mauritius Ltd.	Mauritius
		Harman International Mexico, S. de R.L. de C.V.	Mexico
		Harman International Estonia OU	Estonia
		Harman Singapore Pte. Ltd.	Singapore
		Harman da Amazonia Industria Eletronica e Participacoes Ltda.	Brazil
		Harman do Brasil Industria Eletronica e Participacoes Ltda.	Brazil
		Harman Connected Services Engineering Corp.	USA
		Harman Connected Services AB.	Sweden
		Harman Connected Services UK Ltd.	United Kingdom
		Harman Connected Services Corp. India Pvt. Ltd.	India
		Global Symphony Technology Group Private Ltd.	Mauritius
		Harman International (India) Private Limited	India
		Harman de Mexico, S. de R.L. de C.V.	Mexico
		Samsung Semiconductor Europe Limited	United Kingdom
		Samsung Semiconductor Europe GmbH	Germany
		Samsung Electronics GmbH	Germany
		Samsung Electronics Czech and Slovak s.r.o.	Czech Republic
		SAMSUNG ELECTRONICS BALTICS SIA	Latvia
		Samsung Electronics West Africa Ltd.	Nigeria
		Samsung Electronics East Africa Ltd.	Kenya
		Samsung Electronics Saudi Arabia Ltd.	Saudi Arabia
		Samsung Electronics Israel Ltd.	Israel
		Samsung Electronics Tunisia S.A.R.L	Tunisia
		Samsung Electronics Pakistan(Private) Ltd.	Pakistan
		Samsung Electronics South Africa Production (pty) Ltd.	South Africa
		Samsung Electronics Turkiye	Turkiye

Listing	No. of affiliates	Name of affiliates	Country
		Samsung Electronics Industry and Commerce Ltd.	Turkiye
		Samsung Semiconductor Israel R&D Center, Ltd.	Israel
		Samsung Electronics Levant Co.,Ltd.	Jordan
		Samsung Electronics Maghreb Arab	Morocco
		Samsung Electronics Venezuela, C.A.	Venezuela
		Samsung Electronics Peru S.A.C.	Peru
		Samsung Electronics Ukraine Company LLC	Ukraine
		Samsung R&D Institute Ukraine	Ukraine
		Samsung R&D Institute Rus LLC	Russian Fed.
		Samsung Electronics Central Eurasia LLP	Kazakhstan
		Samsung Electronics Caucasus Co. Ltd	Azerbaijan
		Samsung Electronics Uzbekistan Ltd.	Uzbekistan
		Corephotonics Ltd.	Israel
		Samsung Nanoradio Design Center	Sweden
		Harman Professional Denmark ApS	Denmark
		Studer Professional Audio GmbH	Switzerland
		Martin Professional Japan Ltd.	Japan
		Harman International Romania SRL	Romania
		Apostera UA, LLC	Ukraine
		Harman Becker Automotive Systems GmbH	Germany
		Harman Deutschland GmbH	Germany
		Harman Becker Automotive Systems Manufacturing Kft	Hungary
		Harman RUS CIS LLC	Russian Fed.
		Harman Holding Gmbh & Co. KG	Germany
		Harman Management Gmbh	Germany
		Harman Hungary Financing Ltd.	Hungary
		Harman Connected Services OOO	Russian Fed.
		Harman Professional Kft	Hungary
		Harman Consumer Nederland B.V.	Netherlands
		Red Bend Ltd.	Israel
		Harman International Industries Limited	United Kingdom
		AKG Acoustics Gmbh	Austria
		Harman Audio Iberia Espana Sociedad Limitada	Spain
		Harman Holding Limited	Hong Kong
		Harman Finland Oy	Finland
		Harman Connected Services GmbH	Germany
		Harman Connected Services Poland Sp.zoo	Poland
		Harman Connected Services Solutions (Chengdu) Co., Ltd.	China
		Harman Automotive UK Limited	United Kingdom
		Harman International Industries PTY Ltd.	Australia
		Harman Connected Services Morocco	Morocco
		Samsung Electronics Switzerland GmbH	Switzerland
		Samsung Electronics Romania LLC	Romania

Listing	No. of affiliates	Name of affiliates	Country
		SAMSUNG Zhilabs, S.L.	Spain
		Porta Nuova Varesine Building 2 S.r.l.	Italy
		Samsung Electronics Poland Manufacturing SP.Zo.o	Poland
		Samsung Electronics Greece S.M.S.A	Greece
		Samsung Electronics Air Conditioner Europe B.V.	Netherlands
		FOODIENT LTD.	United Kingdom
		Samsung Denmark Research Center ApS	Denmark
		Samsung Cambridge Solution Centre Limited	United Kingdom
		iMarket Asia Co., Ltd.	Hong Kong
		Samsung Electronics Japan Co., Ltd.	Japan
		Samsung Electronics Singapore Pte. Ltd.	Singapore
		Samsung Electronics New Zealand Limited	New Zealand
		Samsung Electronics Philippines Corporation	Philippines
		Samsung R&D Institute BanglaDesh Limited	Bangladesh
		Samsung Electronics Vietnam Co., Ltd.	Vietnam
		Samsung Electronics Vietnam THAINGUYEN Co., Ltd.	Vietnam
		Samsung Electronics HCMC CE Complex Co., Ltd.	Vietnam
		Samsung Nepal Services Pvt, Ltd	Nepal
		Red Brick Lane Marketing Solutions Pvt. Ltd.	India
		PT Samsung Telecommunications Indonesia	Indonesia
		Laos Samsung Electronics Sole Co., Ltd	Laos
		Samsung Suzhou Electronics Export Co., Ltd.	China
		Samsung Mobile R&D Center China-Guangzhou	China
		Samsung R&D Institute China-Shenzhen	China
		Beijing Samsung Telecom R&D Center	China
		Samsung Electronics China R&D Center	China
		Harman (Suzhou) Audio and Infotainment Systems Co., Ltd.	China
		Harman Technology (Shenzhen) Co., Ltd.	China
		Harman (China) Technologies Co., Ltd.	China
		Harman Commercial (Shanghai) Co., Ltd.	China
		Harman International (China) Holdings Co., Ltd.	China
		Harman Automotive Electronic Systems (Suzhou) Co., Ltd.	China
		Red Bend Software Ltd.	United Kingdom
		Samsung Electronics Latinoamerica Miami, Inc.	USA
		Samsung Electronica Colombia S.A.	Colombia
		Samsung Electronics Panama. S.A.	Panama
		Samsung SDI Japan Co., Ltd.	Japan
		Samsung SDI America, Inc.	USA
		Samsung SDI Hungary., Zrt.	Hungary
		Samsung SDI Europe GmbH	Germany
		Samsung SDI Battery Systems GmbH	Austria
		Samsung SDI Vietnam Co., Ltd.	Vietnam
		Samsung SDI Energy Malaysia Sdn, Bhd.	Malaysia

Listing	No. of affiliates	Name of affiliates	Country
		Samsung SDI India Private Limited	India
		Samsung SDI(Hong Kong) Ltd.	Hong Kong
		Samsung SDI China Co., Ltd.	China
		Samsung SDI-ARN (Xi'An) Power Battery Co., Ltd.	China
		Samsung SDI（Tianjin）Battery Co.,Ltd.	China
		STARPLUS ENERGY LLC.	USA
		SAMSUNG SDI WUXI CO.,LTD.	China
		Tianjin Samsung SDI Co., Ltd.	China
		Samsung Electro-Machanics Japan Co., Ltd.	Japan
		Samsung Electro-Mechanics America, Inc.	USA
		Samsung Electro-Mechanics GmbH	Germany
		Samsung Electro-Mechanics Philippines, Corp.	Philippines
		Calamba Premier Realty Corporation	Philippines
		Samsung Electro-Mechanics Pte Ltd.	Singapore
		Samsung Electro-Mechanics Vietnam Co., Ltd.	Vietnam
		Samsung Electro-Mechanics Software India Bangalore Private Limited	India
		Dongguan Samsung Electro-Mechanics Co., Ltd.	China
		Tianjin Samsung Electro-Mechanics Co., Ltd.	China
		Samsung High-Tech Electro-Mechanics(Tianjin) Co., Ltd.	China
		Samsung Electro-Mechanics (Shenzhen) Co., Ltd.	China
		Kunshan Samsung Electro-Mechanics Co., Ltd.	China
		Batino Realty Corporation	Philippines
		Samsung Fire & Marine Management Corporation	USA
		SAMSUNG FIRE & MARINE INSURANCE COMPANY OF EUROPE LTD.	United Kingdom
		PT. Asuransi Samsung Tugu	Indonesia
		SAMSUNG VINA INSURANCE COMPANY LIMITED	Vietnam
		Samsung Reinsurance Pte. Ltd.	Singapore
		삼성재산보험 (중국) 유한공사	China
		Samsung Fire & Marine Insurance Management Middle East Limited	Utd.Arab Emir.
		Camellia Consulting Corporation	USA
		Samsung Heavy Industries India Pvt.Ltd.	India
		SAMSUNG HEAVY INDUSTRIES (M) SDN.BHD	Malaysia
		삼성중공업(영파)유한공사	China
		삼성중공업(영성)유한공사	China
		SAMSUNG HEAVY INDUSTRIES NIGERIA LIMITED	Nigeria
		Samsung Heavy Industries Mozambique LDA	Mozambique
		Samsung Heavy Industries Rus LLC	Russian Fed.
		SHI - MCI FZE	Nigeria
		Samsung Life Insurance (Thailand) Public Co., Ltd	Thailand
		Beijing Samsung Real Estate Co.. Ltd	China
		Samsung Asset Management (New York), Inc.	USA
		Samsung Global SME Private Equity Manager Fund Co., Ltd.	Cayman Islands
		Samsung Asset Management U.S. Holdings, Inc.	USA

Listing	No. of affiliates	Name of affiliates	Country
		Samsung Private Equity Fund 2022 GP, Ltd.	Cayman Islands
		Samsung Co-Investment 2021 GP, Ltd.	Cayman Islands
		Samsung Asset Management(London) Ltd.	United Kingdom
		Samsung Private Equity Manager I Co., Ltd.	Cayman Islands
		Samsung Asset Management (Hong Kong) Ltd.	Hong Kong
		Samsung Asset Management (Beijing) Ltd.	China
		Samsung C&T Japan Corporation	Japan
		Samsung C&T America Inc.	USA
		Samsung E&C America, INC.	USA
		Samsung Renewable Energy Inc.	Canada
		Samsung C&T Oil & Gas Parallel Corp.	USA
		Samsung C&T Lima S.A.C.	Peru
		Samsung C&T Deutschland GmbH	Germany
		Samsung C&T U.K. Ltd.	United Kingdom
		Samsung C&T ECUK Limited	United Kingdom
		Whessoe engineering Limited	United Kingdom
		SAM investment Manzanilo.B.V	Netherlands
		Samsung C&T (KL) Sdn.,Bhd.	Malaysia
		Samsung C&T Malaysia SDN. BHD	Malaysia
		Erdsam Co., Ltd.	Hong Kong
		Samsung C&T India Private Limited	India
		Samsung C&T Corporation India Private Limited	India
		Samsung C&T Singapore Pte., Ltd.	Singapore
		SAMSUNG C&T Mongolia LLC.	Mongolia
		Samsung C&T Eng.&Const. Mongolia LLC.	Mongolia
		S&WOO CONSTRUCTION PHILIPPINES,INC.	Philippines
		VSSC STEEL CENTER LIMITED LIABILITY COMPANY	Vietnam
		Vista Contracting and Investment Global Pte. Ltd.	Singapore
		CHEIL HOLDING INC.	Philippines
		Samsung C&T Renewable Energy Australia Pty Ltd	Australia
		Samsung C&T Hongkong Ltd.	Hong Kong
		Samsung C&T Taiwan Co., Ltd.	Taiwan
		SAMSUNG C&T (SHANGHAI) CO., LTD.	China
		Samsung C&T (Xi'an) Co., Ltd.	China
		SAMSUNG C&T CORPORATION SAUDI ARABIA	Saudi Arabia
		SAM Gulf Investment Limited	Utd.Arab Emir.
		Samsung C&T Chile Copper SpA	Chile
		SCNT Power Kelar Inversiones Limitada	Chile
		Samsung C&T Corporation Rus LLC	Russian Fed.
		CHEIL INDUSTRIES ITALY SRL	Italy
		Samsung Fashion Trading Co. ,Ltd	China
		SAMSUNG C&T CORPORATION VIETNAM CO., LTD	Vietnam
		Samsung C&T Corporation UEM Construction JV Sdn Bhd	Malaysia

Listing	No. of affiliates	Name of affiliates	Country
		WELSTORY VIETNAM COMPANY LIMITED	Vietnam
		Shanghai Ever-Hongjun Business Mgt Service Co.,LTD	China
		Shanghai Welstory Food Company Limited	China
		LANGUAGE TESTING INTERNATIONAL, INC.	USA
		PENGTAI CHINA CO.,LTD.	China
		PengTai Taiwan Co., Ltd.	Taiwan
		PENGTAI E-COMMERCE CO.,LTD	China
		PENGTAI MARKETING SERVICE CO.,LTD.	China
		Medialytics Inc.	China
		Beijing Pengtai Baozun E-commerce Co., Ltd.	China
		iMarket China Co., Ltd.	China
		Samsung Securities (America), Inc.	USA
		Samsung Securities (Europe) Limited.	United Kingdom
		Samsung Securities (Asia) Limited.	Hong Kong
		Samsung SDS America, Inc.	USA
		SAMSUNG SDS GSCL Canada., Ltd.	Canada
		Neo EXpress Transportation (NEXT) Inc.	USA
		Samsung SDS Europe, Ltd.	United Kingdom
		Samsung SDS Global SCL Hungary, Kft.	Hungary
		Samsung SDS Global SCL Slovakia, S.R.O.	Slovakia
		Samsung SDS Global SCL Poland Sp. Z.o.o.	Poland
		Samsung GSCL Sweden AB	Sweden
		Samsung SDS Global SCL France SAS	France
		Samsung SDS Global SCL Italy S.R.L. A Socio Unico	Italy
		Samsung SDS Global Supply Chain Logistics Spain S.L.U	Spain
		Samsung SDS Global SCL Netherlands Cooperatief U.A.	Netherlands
		Samsung SDS Global SCL Germany GmbH	Germany
		Samsung SDS Global SCL Romania S.R.L	Romania
		Samsung SDS Asia Pacific Pte, Ltd.	Singapore
		Samsung Data Systems India Private Limited	India
		Samsung SDS Vietnam Co., Ltd.	Vietnam
		PT. Samsung SDS Global SCL Indonesia	Indonesia
		Samsung SDS Global SCL Philippines Co., Ltd.Inc.	Philippines
		Samsung SDS Global SCL Thailand Co.,Ltd	Thailand
		Samsung SDS Global SCL Malaysia SDN.BHD.	Malaysia
		SAMSUNG SDS Global SCL Austraila Pty.,Ltd.	Australia
		SDS-ACUTECH CO., Ltd.	Thailand
		ALS SDS Joint Stock Company	Vietnam
		SDS-MP Logistics Joint Stock Company	Vietnam
		Samsung SDS China Co., Ltd.	China
		Samsung SDS Global SCL Hong Kong Co., Ltd.	Hong Kong
		SAMSUNG SDS Global SCL Egypt	Egypt
		Samsung SDS Global SCL South Africa (PTY) Ltd.	South Africa

Listing	No. of affiliates	Name of affiliates	Country
		Samsung SDS Global SCL Nakliyat ve Lojistik Anonim Sirketi	Turkiye
		Samsung SDS Global Supply Chain Logistics Middle East DWC-LLC	Utd.Arab Emir.
		Samsung SDS Latin America Solucoes Em Tecnologia Ltda.	Brazil
		INTE-SDS Logistics S.A. de C.V.	Mexico
		Samsung SDS Rus Limited Liability Company	Russian Fed.
		Samsung SDS Mexico, S.A. DE C.V.	Mexico
		Samsung SDS Global SCL Panama S.A.	Panama
		Samsung SDS Global SCL Chile Limitada	Chile
		Samsung SDS Global SCL Peru S.A.C	Peru
		Samsung SDS Global SCL Colombia S.A.S	Colombia
		Samsung SDS Global Development Center Xi'an	China
		Samsung Engineering America Inc.	USA
		Samsung Project Management Inc.	Canada
		Samsung Engineering Hungary Ltd.	Hungary
		Samsung Engineering Italy S.R.L.	Italy
		Samsung Engineering (Malaysia) SDN. BHD.	Malaysia
		PT Samsung Engineering Indonesia Co., Ltd.	Indonesia
		Samsung Engineering (Thailand) Co., Ltd.	Thailand
		Samsung Engineering India Private Limited	India
		Samsung Engineering Vietnam Co., Ltd.	Vietnam
		Samsung Engineering Global Private Limited	India
		Samsung Engineering Construction(Shanghai) Co., Ltd	China
		Samsung Engineering Construction Xi' an Co., Ltd.	China
		Samsung Saudi Arabia Co., Ltd.	Saudi Arabia
		Muharraq Wastewater Services Company W.L.L.	Bahrain
		Muharraq STP Company B.S.C.	Bahrain
		Muharraq Holding Company 1 Ltd.	Utd.Arab Emir.
		Samsung Ingenieria Mexico Construccion Y Operacion S.A. De C.V.	Mexico
		Samsung Engineering Trinidad Co., Ltd.	Trinidad,Tobago
		Samsung Ingenieria Manzanillo, S.A. De C.V.	Mexico
		Grupo Samsung Ingenieria Mexico, S.A. De C.V.	Mexico
		Samsung Ingenieria Energia S.A. De C.V.	Mexico
		Samsung Engineering Bolivia S.A	Bolivia
		Samsung Ingenieria DUBA S.A. de C.V.	Mexico
		Samsung Engineering Kazakhstan L.L.P.	Kazakhstan
		SEA Construction, LLC	USA
		SEA Louisiana Construction, L.L.C.	USA
		Samsung EPC Company Ltd.	Saudi Arabia
		Muharraq Holding Company 2 Ltd.	Utd.Arab Emir.
		Asociados Constructores DBNR, S.A. de C.V.	Mexico
		S-1 CORPORATION HUNGARY LLC	Hungary
		S-1 CORPORATION VIETNAM CO., LTD	Vietnam
		Samsung Beijing Security Systems	China

Listing	No. of affiliates	Name of affiliates	Country
		PENGTAI INTERACTIVE ADVERTISING CO.,LTD	China
		Cheil USA Inc.	USA
		Cheil Central America Inc.	USA
		Iris Worldwide Holdings Limited	United Kingdom
		CHEIL EUROPE LIMITED	United Kingdom
		Cheil Germany GmbH	Germany
		Cheil France SAS	France
		CHEIL SPAIN S.L	Spain
		Cheil Benelux B.V.	Netherlands
		Cheil Nordic AB	Sweden
		Cheil India Private Limited	India
		Cheil (Thailand) Ltd.	Thailand
		Cheil Singapore Pte. Ltd.	Singapore
		CHEIL VIETNAM COMPANY LIMITED	Vietnam
		Cheil Integrated Marketing Philippines, Inc.	Philippines
		CHEIL MALAYSIA SDN. BHD.	Malaysia
		Cheil New Zealand Limited	New Zealand
		CHEIL CHINA	China
		Cheil Hong Kong Ltd.	Hong Kong
		Caishu (Shanghai) Business Consulting Co., Ltd	China
		Cheil MEA FZ-LLC	Utd.Arab Emir.
		Cheil South Africa (Pty) Ltd	South Africa
		CHEIL KENYA LIMITED	Kenya
		Cheil Communications Nigeria Ltd.	Nigeria
		Cheil Worldwide Inc./Jordan LLC.	Jordan
		Cheil Ghana Limited	Ghana
		Cheil Egypt LLC	Egypt
		Cheil Brasil Comunicacoes Ltda.	Brazil
		Cheil Mexico, S.A. de C.V.	Mexico
		Cheil Chile SpA.	Chile
		Cheil Peru S.A.C.	Peru
		CHEIL ARGENTINA S.A.	Argentina
		Cheil Rus LLC	Russian Fed.
		Cheil Ukraine LLC	Ukraine
		Cheil Kazakhstan LLC	Kazakhstan
		Samsung Hospitality America Inc.	USA
		Shilla Travel Retail Pte. Ltd.	Singapore
		Samsung Shilla Business Service Beijing Co., Ltd.	China
		Shilla Travel Retail Hong Kong Limited	Hong Kong
		HDC SHILLA (SHANGHAI) CO., LTD	China
		Samsung Hospitality U.K. Ltd.	United Kingdom
		Samsung Hospitality Europe GmbH	Germany
		SAMSUNG HOSPITALITY ROMANIA SRL	Romania

Listing	No. of affiliates	Name of affiliates	Country
		Samsung Hospitality Vietnam Co., Ltd.	Vietnam
		Samsung Hospitality Philippines Inc.	Philippines
		Samsung Hospitality India Private Limited	India
		Samsung Venture Investment (Shanghai) Co., Ltd.	China
		Iris (USA) Inc.	USA
		Iris Atlanta, Inc.	USA
		89 Degrees, Inc.	USA
		The Barbarian Group LLC	USA
		McKinney Ventures LLC	USA
		Iris Nation Worldwide Limited	United Kingdom
		Iris Americas, Inc.	USA
		Irisnation Latina No.2, S. de R.L. de C.V.	Mexico
		Irisnation Latina, S. de R.L. de C.V.	Mexico
		Pricing Solutions Ltd	Canada
		Iris London Limited	United Kingdom
		Iris Promotional Marketing Ltd	United Kingdom
		Iris Ventures 1 Limited	United Kingdom
		Founded Partners Limited	United Kingdom
		Iris Korea Limited	United Kingdom
		Iris Digital Limited	United Kingdom
		Iris Amsterdam B.V.	Netherlands
		Iris Ventures (Worldwide) Limited	United Kingdom
		Iris Culture Limited	United Kingdom
		Concise Consultants Limited	United Kingdom
		Atom42 Ltd	United Kingdom
		WDMP Limited	United Kingdom
		Pricing Solutions (UK) Limited	United Kingdom
		Iris Services Limited Dooel Skopje	Macedonia
		Irisnation Singapore Pte. ltd.	Singapore
		Iris Worldwide Integrated Marketing Private Limited	India
		Iris Sydney PTY Ltd	Australia
		Iris Worldwide (Thailand) Limited	Thailand
		Iris Partners LLP	United Kingdom
		Holdings BR185 Limited	Brit.Virgin Is.
		Iris Germany GmbH	Germany
		Founded, Inc.	USA
		Pepper NA, Inc.	USA
		Pepper Technologies Pte. Ltd.	Singapore
		Beattie McGuinness Bungay Limited	United Kingdom
		Cheil Italia S.r.l	Italy
		Cheil Austria GmbH	Austria
		Centrade Integrated SRL	Romania
		Centrade Cheil HU Kft.	Hungary

Listing	No. of affiliates	Name of affiliates	Country
		Centrade Cheil Adriatic D.O.O.	Serbia/Monten.
		Experience Commerce Software Private Limited	India
		Pengtai Greater China Company Limited	Hong Kong
		PT. CHEIL WORLDWIDE INDONESIA	Indonesia
		Cheil Philippines Inc.	Philippines
		Shilla Retail Plus Pte. Ltd.	Singapore
		Tianjin Samsung International Travel Service Co., Ltd	China
		Shilla Retail Limited	Macau
		Shilla Travel Retail Duty Free HK Limited	Hong Kong
		One Agency FZ-LLC	Utd.Arab Emir.
		One RX Project Management Design and Production Limited Company	Turkiye
		One RX India Private Limited	India
		ONE RX INTERIOR DECORATION L.L.C	Utd.Arab Emir.
		ONE AGENCY PRINTING L.L.C	Utd.Arab Emir.
		One Agency South Africa (Pty) Ltd	South Africa
		Brazil 185 Participacoes Ltda	Brazil
		Iris Router Marketing Ltda	Brazil

3. Equity investments in other corporations (Details)

The total book value of equity investments in other corporations as of December 31, 2022 is KRW 58,762 billion (for the purpose of management participation, etc.).

[As of December 31, 2022] (1,000 shares, KRW million, %)

Listing	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Listed	Samsung Electro-Mechanics	1977.01	Management Participation	250	17,693	23.7	445,244	-	-	-	17,693	23.7	445,244	10,997,171	993,519
Listed	Samsung SDI	1977.01	Management Participation	304	13,463	19.6	1,242,605	-	-	-	13,463	19.6	1,242,605	30,257,525	1,952,149
Listed	Samsung Heavy Industries	1977.09	Management Participation	125	134,027	15.2	759,935	-	-	-75,056	134,027	15.2	684,879	14,491,679	-627,412
Listed	Hotel Shilla	1979.12	Management Participation	252	2,005	5.1	156,368	-	-	10,224	2,005	5.1	166,592	2,938,545	-50,164
Listed	Cheil Worldwide	1988.09	Management Participation	185	29,038	25.2	491,599	-	-	-	29,038	25.2	491,599	2,751,445	193,732
Listed	Samsung SDS	1992.07	Management Participation	6,160	17,472	22.6	560,827	-	-	-	17,472	22.6	560,827	11,952,424	1,099,745
Listed	Samsung BioLogics	2011.04	Management Participation	30,000	20,837	31.5	443,193	1,380	1,152, 699	-	22,217	31.2	1,595,892	16,582,051	798,056
Unlisted	Samsung Display	2012.04	Management Participation	16,009,547	221,969	84.8	18,509,307	-	-	-	221,969	84.8	18,509,307	57,302,567	4,365,588
Unlisted	STECO	1995.06	Management Participation	24,000	2,590	70.0	35,861	-	-	-	2,590	70.0	35,861	133,987	5,544
Unlisted	SEMES	1992.12	Management Participation	1,000	2,173	91.5	71,906	-	-	-	2,173	91.5	71,906	2,065,558	185,762
Unlisted	Samsung Electronics Service	1998.01	Management Participation	30,000	6,000	99.3	48,121	-	-	-	6,000	99.3	48,121	711,020	9,446
Unlisted	Samsung Electronics Sales	2000.12	Management Participation	3,100	1,767	100.0	247,523	-	-	-	1,767	100.0	247,523	1,393,235	13
Unlisted	Samsung Electronics Logitech	1999.04	Management Participation	76	1,011	100.0	46,669	-	-	-	1,011	100.0	46,669	415,659	12,376
Unlisted	Samsung Medison	2011.02	Management Participation	286,384	87,350	68.5	369,169	-	-	63,857	87,350	68.5	433,026	528,834	69,172
Unlisted	Samsung Global Research	1991.05	Management Participation	320	3,576	29.8	24,942	-	-	-	3,576	29.8	24,942	178,806	241
Unlisted	Samsung Venture Investment	1999.11	Management Participation	4,900	980	16.3	22,198	-	-	9,875	980	16.3	32,073	204,057	12,157

Listing	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
Unlisted	SVIC #21	2011.11	Management Participation	19,800	-	99.0	5,707	-0	-4,737	-	0	99.0	970	96,117	4,016
Unlisted	SVIC #22	2011.11	Management Participation	19,800	1	99.0	75,458	-0	-25,938	-	0	99.0	49,520	54,415	-14,289
Unlisted	SVIC #26	2014.11	Management Participation	19,800	2	99.0	96,443	-0	-20,790	-	1	99.0	75,653	45,827	-4,049
Unlisted	SVIC #28	2015.02	Management Participation	7,425	1	99.0	69,710	-0	-34,224	-	0	99.0	35,486	395,545	-19,969
Unlisted	SVIC #32	2016.08	Management Participation	19,800	2	99.0	171,141	-0	-27,720	-	1	99.0	143,421	283,767	3,175
Unlisted	SVIC #33	2016.11	Management Participation	4,950	2	99.0	166,974	-0	-44,352	-	1	99.0	122,622	334,846	9,875
Unlisted	SVIC #42	2018.11	Management Participation	4,950	-	99.0	18,657	0	24,820	-	0	99.0	43,477	35,845	-1,443
Unlisted	SVIC #45	2019.05	Management Participation	19,800	2	99.0	173,042	0	18,281	-	2	99.0	191,323	221,522	-3,064
Unlisted	SVIC #52	2021.05	Management Participation	9,900	-	99.0	9,900	0	39,699	-	0	99.0	49,599	46,829	-147
Unlisted	SVIC #56	2021.11	Management Participation	22,084	-	99.0	22,084	0	10,296	-	0	99.0	32,380	31,984	651
Unlisted	SVIC #57	2022.08	Management Participation	14,850	-	-	-	0	18,860	-	0	99.0	18,860	18,681	-320
Unlisted	Semiconductor Growth Fund	2017.03	Management Participation	500	50,000,000	66.7	50,000	-	-	-	50,000,000	66.7	50,000	69,862	-4,574
Unlisted	System LSI Mutual benefit private equity trust	2020.04	Management Participation	25,000	50,000,000	62.5	50,000	-	-	-	50,000,000	62.5	50,000	79,664	-49
Unlisted	Stellarforest	2022.12	Management Participation	900	-	-	-	180	900	-	180	100.0	900	895	-5
Listed	iMarket Korea	2000.12	Management Participation	1,900	647	1.9	6,926	-	-	-388	647	1.9	6,538	1,228,690	29,087
Listed	KT Skylife	2001.12	Simple Investment	3,344	240	0.5	2,194	-	-	-240	240	0.5	1,954	1,361,298	23,086
Listed	Yongpyong Resort	2007.05	Simple Investment	1,869	400	0.8	1,958	-	-	-546	400	0.8	1,412	841,500	8,674
Listed	ATech Solution	2009.11	Simple Investment	26,348	1,592	15.9	26,188	-	-	-13,309	1,592	15.9	12,879	204,679	4,686

Listing	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Listed	Wonik Holdings	2013.12	Management Participation	15,411	1,759	2.3	8,761	-	-	-2,789	1,759	2.3	5,972	1,946,027	141,203
Listed	Wonik IPS	2016.04	Management Participation	16,214	1,851	3.8	78,295	-	-	-32,484	1,851	3.8	45,811	1,127,557	97,900
Listed	Dongjin Semichem	2017.11	Management Participation	48,277	2,468	4.8	125,863	-	-	-51,950	2,468	4.8	73,913	1,085,264	144,946
Listed	Soulbrain Holdings	2017.11	Management Participation	30,752	462	2.2	15,976	-	-	-4,987	462	2.2	10,989	1,523,516	29,996
Listed	Soulbrain	2020.07	Management Participation	24,866	373	4.8	103,983	-	-	-22,626	373	4.8	81,357	829,947	152,221
Listed	S&S Tech	2020.08	Management Participation	65,933	1,716	8.0	63,153	-	-	-17,933	1,716	8.0	45,220	226,610	17,323
Listed	YIK Corp	2020.08	Management Participation	47,336	9,602	11.7	59,530	-	-	-32,597	9,602	11.7	26,933	519,025	33,065
Listed	KCTech	2020.11	Management Participation	20,720	1,022	4.9	24,584	-	-	-9,455	1,022	4.9	15,129	483,313	55,386
Listed	Iotvacuum	2020.11	Management Participation	18,990	1,268	7.1	21,804	-	-	-7,479	1,268	7.1	14,325	323,108	20,575
Listed	NEW POWER PLASMA	2020.11	Management Participation	12,739	2,141	4.9	13,723	-	-	-6,144	2,141	4.9	7,579	635,198	22,261
Listed	FineSemitech	2021.03	Management Participation	43,009	1,523	7.0	38,607	-	-	-14,849	1,523	7.0	23,758	391,197	37,576
Listed	DNF	2021.08	Management Participation	20,964	810	7.0	18,509	-	-	-7,817	810	7.0	10,692	191,897	7,152
Listed	Marvell	2021.10	Simple Investment	11,705	173	0.0	17,963	-	-	-9,833	173	0.0	8,130	28,542,257	-207,204
Unlisted	The Korea Economic Daily	1987.05	Simple Investment	150	72	0.4	365	-	-	-	72	0.4	365	517,215	44,984
Unlisted	Korea Business Banking	1995.01	Simple Investment	5,000	1,000	17.2	2,964	-	-	-	1,000	17.2	2,964	86,276	1,236
Unlisted	Cyber Bank	2000.12	Simple Investment	8,000	1,083	7.5	-	-	-	-	1,083	7.5	-	-	-
Unlisted	FineChips	2001.12	Simple Investment	10	2	3.2	10	-	-	-	2	3.3	10	15,919	3,878
Unlisted	Inkel	2006.11	Simple Investment	130	-	0.0	-	-	-	-	0	0.0	0	56,198	-5,524

Listing	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	Intellectual Discovery	2011.05	Simple Investment	5,000	357	10.7	1,922	-	-	-	357	10.7	1,922	79,972	14,984
Unlisted	Maltani Corp.	2012.04	Simple Investment	16,544	45	15.0	8,825	-	-	-1,394	45	15.0	7,431	72,421	2,891
Unlisted	Pantech	2013.06	Simple Investment	53,000	53,000	10.0	-	-	-	-	53,000	10.0	-	8,151	-11,411
Unlisted	AI Research Institute	2016.07	Simple Investment	3,000	600	14.3	3,000	-	-	-	600	14.3	3,000	5,935	3,021
Unlisted	Mico Ceramics	2020.11	Management Participation	21,667	747	13.7	24,636	-	-	4,749	747	13.7	29,385	180,809	20,984
Unlisted	Shinsung Eng & Construction	2010.07	Simple Investment	1	-	0.0	-	-	-	-	0	0.0	0	135,006	-17,958
Unlisted	Woobang	2010.07	Simple Investment	-	1	0.0	-	-	-	-	1	0.0	0	493,942	4,378
Unlisted	Sambo Computer	2012.09	Simple Investment	-	-	0.0	-	-	-	-	0	0.0	0	55,572	-2,832
Unlisted	Daewoo Development	2012.12	Simple Investment	-	-	0.0	-	-	-	-	0	0.0	0	321,513	-3,342
Unlisted	Daewoo Songdo Development	2012.12	Simple Investment	-	9	0.0	-	-	-	-	9	0.0	0	19,369	-350
Unlisted	Zyle Motor Sales	2012.12	Simple Investment	-	1	0.0	-	-	-	-	1	0.0	0	382,807	-8,162
Unlisted	Sungwon Construction	2014.04	Simple Investment	-	1	0.0	-	-	-	-	1	0.0	0	27,744	-627
Unlisted	Inhee	2014.04	Simple Investment	-	-	0.1	-	-	-	-	0	0.1	0	2,753	211
Unlisted	Point Anybeam	2019.12	Simple Investment	61	12	3.5	61	-	-	-	12	3.5	61	-	-
Unlisted	JNT	2011.02	Simple Investment	1,800	-	24.0	1,758	-	-	-	0	24.0	1,758	4,856	1,355
Unlisted	Daishin Aju IB	2011.08	Simple Investment	258	-	3.0	258	-	-	-258	-	-	-	-	-
Unlisted	L&S	2012.07	Simple Investment	848	-	7.5	1	-	-	-	-	7.5	1	3,241	171
Unlisted	KTCNP-GC	2013.12	Simple Investment	960	-	3.6	1,816	-	-1,594	-	-	3.6	222	28,999	-4,695

Listing	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal		Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
								Qty	Amount						
Unlisted	POSCO Social Enterprise Fund	2013.12	Simple Investment	600	-	10.0	60	-	-	-	0	10.0	60	245	-481
Unlisted	Bearport Resort	2022.04	Simple Investment	-	-	-	-	51	-	-	51	0.5	0	94,074	641
Unlisted	SEA	1978.07	Management Participation	59,362	492	100.0	17,166,557	-	-	-	492	100.0	17,166,557	37,883,156	219,670
Unlisted	SECA	1992.08	Management Participation	3,823	-	100.0	90,922	-	-	-	0	100.0	90,922	1,652,195	126,200
Unlisted	SEDA	1994.01	Management Participation	13,224	77,205, 709	87.0	647,620	-	-	-	77,205, 709	87.0	647,620	4,600,508	-38,490
Unlisted	SEM	1995.07	Management Participation	3,032	3,837	63.6	165,638	-	-	-	3,837	63.6	165,638	1,816,895	110,386
Unlisted	SELA	1989.04	Management Participation	319	40	100.0	86,962	-	-	-	40	100.0	86,962	683,447	43,364
Unlisted	SEASA	1996.06	Management Participation	4,696	21,854	98.0	6,779	-	-	-	21,854	98.0	6,779	102,325	9,879
Unlisted	SECH	2002.12	Management Participation	597	-	4.1	597	-	-	-	-	4.1	597	646,185	43,112
Unlisted	SEUK	1995.07	Management Participation	33,908	109,546	100.0	433,202	-	-	-	109,546	100.0	433,202	2,819,792	243,396
Unlisted	SEL	1998.12	Management Participation	8,280	4,393	100.0	-	-	-	-	4,393	100.0	-	7,030	-
Unlisted	SEHG	1982.02	Management Participation	28,042	-	100.0	354,846	-	-	-	-	100.0	354,846	651,158	114,185
Unlisted	SEF	1991.08	Management Participation	230	2,700	100.0	234,115	-	-	-	2,700	100.0	234,115	1,053,910	72,776
Unlisted	SEI	1993.05	Management Participation	862	677	100.0	143,181	-	-	-	677	100.0	143,181	959,801	59,143
Unlisted	SESA	1989.01	Management Participation	3,276	8,021	100.0	142,091	-	-	-	8,021	100.0	142,091	1,098,852	51,972
Unlisted	SEP	1982.09	Management Participation	204	1,751	100.0	37,616	-	-	-	1,751	100.0	37,616	273,915	11,737
Unlisted	SEH	1991.05	Management Participation	1,954	753	100.0	650,157	-	-	-	753	100.0	650,157	2,374,317	199,742
Unlisted	SELS	1991.05	Management Participation	18,314	1,306	100.0	24,288	-	-	-	1,306	100.0	24,288	2,194,975	20,347
Unlisted	SEBN	1995.07	Management Participation	236	539,138	100.0	914,751	-	-	-	539,138	100.0	914,751	2,377,730	25,411

Listing	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal Qty	Acquisition/Disposal Amount	Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
Unlisted	SEEH	2008.01	Management Participation	4,214	-	100.0	1,369,992	-	-	-	-	100.0	1,369,992	10,841,515	57,997
Unlisted	SENA	1992.03	Management Participation	392	1,000	100.0	69,372	-	-	-	1,000	100.0	69,372	697,034	46,974
Unlisted	SESK	2002.06	Management Participation	8,976	-	55.7	263,767	-	-	-	-	55.7	263,767	1,585,901	74,065
Unlisted	SEPOL	1996.04	Management Participation	5,462	106	100.0	78,267	-	-	-	106	100.0	78,267	1,172,265	83,313
Unlisted	SEAG	2002.01	Management Participation	40	-	100.0	32,162	-	-	-	-	100.0	32,162	574,106	22,506
Unlisted	SERC	2006.01	Management Participation	24,877	-	100.0	188,290	-	-	-	-	100.0	188,290	876,346	-48,890
Unlisted	SERK	2007.07	Management Participation	4,600	-	100.0	204,555	-	-	-	-	100.0	204,555	1,149,970	-104,424
Unlisted	SEO	1997.01	Management Participation	120	-	100.0	-10,043	-	-	-	0	100.0	-10,043	1,960	-76
Unlisted	SGE	1995.05	Management Participation	827	-	100.0	32,836	-	-	-	0	100.0	32,836	1,031,216	23,024
Unlisted	SEEG	2012.07	Management Participation	23	-	0.1	39	-	-	-	-	0.1	39	1,055,570	90,110
Unlisted	SSA	1998.12	Management Participation	263	2,000	100.0	32,622	-	-	-	2,000	100.0	32,622	573,688	27,116
Unlisted	SAPL	2006.07	Management Participation	793	877,133	100.0	981,483	-	-	-	877,133	100.0	981,483	26,894,611	8,699,679
Unlisted	SME	2003.05	Management Participation	4,796	17,100	100.0	7,644	-	-	-	17,100	100.0	7,644	541,255	19,997
Unlisted	SDMA	1995.03	Management Participation	21,876	71,400	75.0	18,741	-	-	-	71,400	75.0	18,741	24,689	-653
Unlisted	SEMA	1989.09	Management Participation	4,378	16,247	100.0	103,402	-	-	-	16,247	100.0	103,402	278,943	27,678
Unlisted	SAVINA	1995.01	Management Participation	5,839	-	100.0	28,365	-	-	-	-	100.0	28,365	129,160	23,545
Unlisted	SEIN	1991.08	Management Participation	7,463	46	100.0	118,909	-	-	-	46	100.0	118,909	883,023	81,977
Unlisted	TSE	1988.01	Management Participation	1,390	11,020	91.8	279,163	-	-	-	11,020	91.8	279,163	3,263,473	168,524
Unlisted	SEAU	1987.11	Management Participation	392	53,200	100.0	111,964	-	-	-	53,200	100.0	111,964	593,991	89,655

Listing	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal Qty	Acquisition/Disposal Amount	Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
Unlisted	SIEL	1995.08	Management Participation	5,414	216,787	100.0	75,263	0	-	-	216,787	100.0	75,263	6,772,537	508,510
Unlisted	SRI-B	2005.05	Management Participation	7,358	17	100.0	31,787	-	-	-	17	100.0	31,787	351,226	70,907
Unlisted	SJC	1975.12	Management Participation	273	1,560	100.0	253,108	-	-	-	1,560	100.0	253,108	1,445,517	1,698
Unlisted	SRJ	1992.08	Management Participation	3,120	122	100.0	117,257	-	-	-	122	100.0	117,257	157,868	3,705
Unlisted	SCIC	1996.03	Management Participation	23,253	-	100.0	640,452	-	-	-	-	100.0	640,452	13,830,988	257,878
Unlisted	SEHK	1988.09	Management Participation	349	274,250	100.0	79,033	-	-	-	274,250	100.0	79,033	1,366,841	27,953
Unlisted	SET	1994.11	Management Participation	456	27,270	100.0	112,949	-	-	-	27,270	100.0	112,949	1,364,801	39,316
Unlisted	TSEC	1993.04	Management Participation	15,064	-	48.2	103,134	-	-	-	-	48.2	103,134	392,205	78,285
Unlisted	SSEC	1995.04	Management Participation	32,128	-	69.1	130,551	-	-	-	-	69.1	130,551	668,331	27,284
Unlisted	SESC	2002.09	Management Participation	5,471	-	73.7	34,028	-	-	-	-	73.7	34,028	150,161	6,470
Unlisted	TSTC	2001.03	Management Participation	10,813	-	90.0	260,092	-	-	-	-	90.0	260,092	643,732	6,712
Unlisted	SSS	2001.01	Management Participation	1,200	-	100.0	19,189	-	-	-	-	100.0	19,189	5,067,891	318,578
Unlisted	SCS	2012.09	Management Participation	111,770	-	100.0	5,275,760	-	-	-	-	100.0	5,275,760	17,095,000	638,385
Unlisted	SSCX	2016.04	Management Participation	1,141	-	100.0	1,141	-	-	-	-	100.0	1,141	906,967	44,249
Unlisted	SESS	1994.12	Management Participation	18,875	-	100.0	504,313	-	-	-	-	100.0	504,313	1,494,205	101,122
Unlisted	TSLED	2012.04	Management Participation	119,519	-	100.0	119,519	-	-	-	-	100.0	119,519	509,355	31,809
Unlisted	SSCR	2006.09	Management Participation	3,405	-	100.0	9,332	-	-	-	-	100.0	9,332	76,826	11,076
Unlisted	TSST Japan	2004.03	Management Participation	1,639	30	49.0	-	-	-	-	30	49.0	-	159	-21
Unlisted	STE	1996.01	Management Participation	4,206	2	49.0	-	-	-	-	2	49.0	-	8,040	0

Listing	Name of Company	Acquisition Date	Objective	Acquisition Cost	Beginning Balance			Increase/Decrease			Ending Balance			Current Financial Stats	
					Qty	Owner ship (%)	Book Value	Acquisition/Disposal Qty	Acquisition/Disposal Amount	Valuation	Qty	Owner ship (%)	Book Value	Total Asset	Net Income (Loss)
Unlisted	Semiconductor Portal	2002.12	Simple Investment	38	-	1.2	10	-	-	-	0	1.2	10	1,981	159
Unlisted	Nanosys	2010.08	Simple Investment	4,774	2,000	0.8	2,387	-	-	-1,305	2,000	0.6	1,082	-	-
Unlisted	One-Blue	2011.07	Management Participation	1,766	-	16.7	1,766	-	-	-	-	16.7	1,766	19,098	599
Unlisted	TidalScale	2013.08	Simple Investment	1,112	2,882	4.3	1,112	-	-	-	2,882	4.3	1,112	-	-
Unlisted	Sentiance	2012.12	Simple Investment	3,422	7	7.2	3,422	-	-	-	7	7.2	3,422	14,481	-2,875
Unlisted	Mantis Vision	2014.01	Simple Investment	1,594	355	2.1	1,980	-	-	-	355	2.1	1,980	19,901	-27,332
Unlisted	Leman	2014.08	Simple Investment	1,019	17	3.4	1,019	-	-	-	17	3.4	1,019	3,602	-3,363
Unlisted	Keyssa	2016.01	Simple Investment	3,332	1,235	1.9	3,332	-1,235	-3,332	-	-	-	-	-	-
Unlisted	SensiFree	2016.01	Simple Investment	2,111	666	9.5	2,111	-	-	-	666	9.5	2,111	1,119	-1,710
Unlisted	Unispectral	2016.02	Simple Investment	1,112	2,308	7.9	2,130	-	-	-	2,308	7.9	2,130	3,059	-3,170
Unlisted	Quobyte	2016.04	Simple Investment	2,865	729	11.8	2,865	-	-	-	729	11.8	2,865	1,909	-831
Unlisted	Afero	2016.05	Simple Investment	5,685	723	5.5	5,685	-	-	-	723	5.5	5,685	59,600	-6,289
Unlisted	Graphcore	2016.06	Simple Investment	3,494	12,000	1.4	3,494	-	-	-	12,000	1.4	3,494	279,496	-148,852
Listed	Soundhound	2016.12	Simple Investment	7,059	306	1.1	7,059	1,415	973	-4,212	1,703	0.9	3,820	58,330	-91,002
Unlisted	Aimotive	2017.12	Simple Investment	3,302	2	3.2	3,302	-2	-10,976	7,674	-	-	-	-	-
Unlisted	Fasetto	2019.01	Simple Investment	6,701	475	5.2	12,554	-	-	-	475	5.2	12,554	1,973	-10,269

※ Based on separate financial statements
※ Ownership percentage is calculated based on the number of common shares issued
※ The Company measures fairvalue of financial instruments (equity shares) in accordance with K-IFRS. The Company annually evaluates if there is indication of impairment that investment in subsidiaries or affiliates may be impaired, and estimates the recoverable amount of assets with indication of impairment.
※ Financial stats of Sungwon Construction is as of December 31 2016, financial stats of Daewoo Songdo Development is as of December 31 2017, financial stats of Mantis Vision is as of December 31 2019, financial stats of Sentiance, SensiFree, Unispectral, Afero, Graphcore, Soundhound, Leman Micro Devices SA, Soulbrain Holdings, Soulbrain, Pantech, TSST Japan, Semiconductor Portal, One-Blue, Bearport Resort, Yongpyong Resort is as of December 31 2021, due to difficulties in obtaining the most recent financial data.

4. R&D results (detailed)

DX Division	
Research project	**Details**
Visual Display	
QLED 8K TV February 2019–June 2020	□ Flat QLED 8K TV (65/75/85”) - Blends well with walls: flat design and Infinity screen; no border between screen and bezel—a world’s first. - Innovative form factor: metal stand which gives a floating impression - QLED 8K enables picture quality close to real life, high resolution via AI upscaling, True Reality picture quality in any given environment - Multi-sound channel and Object Tracking Sound+ synchronize video and sound, maximizing surround sound experience - Wide range of content, multimedia experiences, and entertainment-specific functions provide convenient and colorful experiences
Neo QLED 8K March 2021–March 2022	- □ Ultra high-resolution, slim 8K TV based on Mini LED technology (65 · 75 · 85") - QN900 (65 · 75 · 85") / QN800 (65 · 75 · 85") / QN700 (65 · 75 ") - QLED 8K resolution offers viewing experience as if looking at real-life objects, with enhanced contrast of sophisticated Mini LED - Added the feature of 'OTS Pro (Object Tracking Sound Pro)'
Neo QLED 4K March 2021-March 2022	□ Mini LED-based products come in 3 series and up to 7 sizes (43 · 50 · 55 · 65 · 75 · 85 · 98") □ Slim design by adopting Mini LED, premium look with bezel-less/metal design - New LED with Quantum Nano-Layer Multi-Cell structure, enabling slim design, high luminance efficiency, luminance profile control - Enhanced gradation by four times; expresses bright and dark areas more elaborately
QD-Display TV -March 2022	□ Quantum-Dot-based self-emitting Display Flat 4K TV (55 · 65") □ QD-Display TV that provides true value of TV with full applications from Quantum-Dot-based high-definition self-emitting Display and sleek Blade Slim Design to OTS and True Ch. ATMOS
QLED 4K TV -March 2022	□ Flat QLED 4K TV (43 · 50 · 55 · 60 · 65 · 70 · 75 · 82 · 85") □ Specs and features - Flagship QLED maximizes viewing experience with unrivaled picture quality within 4K (AI/brightness/viewing angle) and sound quality (OTS) - Maximizes immersive experience with ideal brightness contrast, free viewing angle, life-like color, and optimal brightness - Optimal viewing experience by identifying user context based on voice recognition and AI technologies - Supports Google Duo when connected with a webcam
UHD TV -March 2022	□ Flat UHD TV (43 · 50 · 55 · 58 · 65 · 70 · 75 · 82 · 85") □ Specs and features - UHD Smart TV with slim, bezel-less design provides colors close to real-life - UHD picture quality expresses picture quality of original content through Dynamic Crystal Color and Dual LED - Provides a multi-media screen experience, rich content, and complete smart experience via smart home experience - Enhanced Smart experiences with the addition of Game Home, IoT Hub, and Watch/Chat together functions

DX Division	
Research project	**Details**
Lifestyle TV -March 2022	□ The SERO (43") - Simple, modern vertical screen that rotates 360 degrees with flat-type speaker - Easily installed in any living space, mobile floor stand included - Significantly improved VoC compared to existing products with anti-glare/anti-reflective screen even for rotated form factor □ The Frame (32・43・50・55・65・75・85") - Design resembles a real picture frame; completes a picture frame experience - Exhibit various famous paintings and pictures; adopted lifestyle design which blends in with the interior - Additional introduction of 85" to meet the needs for ultra-large Lifestyle products - Completes the Real Frame experience with the anti-glare/anti-reflective screen that shows a paper-like image □ The Serif (43・49・55・65") - I-shaped serif font design; distinct from other products; works as beautiful interior design object - Additional introduction of 65" to expand the position of large screen products - Design that resembles a piece of furniture with the anti-glare/anti-reflective screen that shows a matte image □ Outdoor TV (55・65・75") - Differentiated product tailored to a lifestyle of relaxing and enjoying entertainment outdoors □ The Premiere (100–130") - Ultra-short-throw laser projector with high-resolution, providing a top-notch Smart UX/OTT experience - Complements any environment with blended design, can be placed directly in front of a wall and has an easily adjustable screen size. - Complete experience of our TV models including the differentiated picture quality and sound □ The Freestyle (30–100") - Movable Smart Screen that enables users to enjoy content anytime, anywhere - Easy to set up in various locations and provides an optimal viewing experience regardless of angle/distance (Auto Focus/Auto Keystone) - Added usability via the basic cradle, enabling easy placement in various locations; and the socket adapter expands usability.
Micro-LED TV -January 2022	□ The Wall 2.0 (110") - Released completed version of Micro-LED to strengthen technology leadership and dominance of Micro-LED market - Ultra-large Home Screen that reproduces the real world on display - Micro-LED picture quality with a sense of space and depth that seems like the real thing without limitation on resolution
Sound Bar -March 2022	□ Soundbar - Bar-shaped audio product well suited to TVs - Adopted AI solution enabling voice recognition - Adopted 3D surround system, creating enriching sounds close to first-hand experiences □ Sound Bar Q990B - Industry's first wireless ATMOS transmission from TV to soundbar - Provides the optimal Cinema True ATMOS just like in the cinema, utilizing all channels of TV and soundbar - Equipped with soundbar room-correction technology

DX Division	
Research project	**Details**
Monitor January 2021–December 2022	□ Space monitor - Application of integrated arm stand that minimizes space needed for the monitor □ Neo QLED Gaming monitor (49”) - Strengthened black gamut based on enhanced brightness contrast by applying Neo QLED - More immersive gaming experience with 1000R curvature—the world’s highest □ High-resolution QHD monitor (34”) - Offers picture solution comfortable to the eye with Intelligent Eye Care solution, etc. □ LCD Smart monitor - Enjoy VOD services without using a PC via Smart TV services (Netflix, YouTube, etc.) □ Smart monitor M80B (32") - Ultra-slim, flat back, lifestyle design that adopts Warm White color - Includes magnetic-mount webcam - Strengthened smart experiences (watching VOD/connecting mobile devices/PC-less function/IoT/communication/game) □ Gaming monitor G85NB (32") - World’s first UHD 240Hz 1ms (GTG) gaming monitor with premium gaming performance features (1000R Curved) - Odyssey Neo that offers a new level of picture quality experience (Mini LED, Quantum HDR2000) □ World’s first 1000R large game screen G97NB (55") - Offers top-notch immersive experience with a large screen-size without viewing-angle limitations—even near-field viewing angles—via 1000R, 16:9, 55" Big Curved Screen - Provides a new immersive experience, almost like sitting in the cockpit of a space shuttle, by allowing users to rotate the screen vertically and in any direction - Game-exclusive panel that offers a 4K 165Hz refresh rate and 1ms response time □ QD-OLED gaming monitor (G85SB 34") - Exquisite expression of various colors with the combination of True RGB self-luminous display and quantum dot technology - Can play games with an extremely fast response time of 0.1ms and clear screen with 175Hz refresh rate - Implemented an all-in-one game streaming discovery platform, including cloud gaming and consoles, with the adoption of the Samsung Gaming Hub
Signage October 2019–December 2022	□ LCD-based B2B Smart Signage (LFD, Video Wall, etc.) (49・55・65・75・85・98") □ Indoor/outdoor signage using LED □ All-in-one Kiosk (24”), all additional equipment embedded - Payment platform for developing Tizen payment module and ordering app, antibacterial finishing □ Flip-edu (75・85”) interactive feature for education
Home appliances	
Refrigerators -February 2022	□ Chef Collection refrigerator - High-end, premium refrigerator - Premium Bespoke design and new CMF - Features water & ice solution: Auto fill pitcher, auto ice maker (dual mode: cocktail Ice, standard Ice) - FDSR energy efficiency grade 1 □ Cube refrigerator - Multi Cube refrigerator: customized design and storage (different temperatures for storing wine, beer, and cosmetic products) - Peltier System identifies and creates optimal temperature (between 5–18℃) - Double Glass System blocks UV and maintains the right temperature - Wi-Fi Control enables real-time monitoring and control - RM (Remote Management) Function: remote assessment and repair, provides information on expiration date of beverages in the fridge □ New TMF in North/Latin America - Strengthened competitiveness and offered differentiation with large capacity (440L/480L), specialized storage compartments, and new design - Flex Zone (fridge 1℃ / chilled -1℃ / soft freezing) & Quick Chill Smart Alarm - Strengthened competitiveness with flat door & Bespoke CMF, capacity (20L more), and optimal size - Dual voltage, auto ice maker, water dispenser, Big Box, Hygienic □ 1-Door Premium Kitchen Fit Refrigerator (freezer/fridge/kimchi/wine) - Adopted premium Bespoke design and new CMF - Automatic door opening technology - Applied Water & Ice Solution: Auto Fill Pitcher, Dual Auto Ice Maker (cocktail ice, standard ice)

DX Division	
Research project	**Details**
Washer -January 2022	□ Bespoke washer & dryer - Bespoke flat design that perfectly fits into your space - Korea's highest capacity all-in-one Control UX design - AI clothing care (AI tailored washing and drying) from washing to drying - Hygiene management solution from 99.9% sterilization to dehumidification of laundry room □ Agitator washer - Entrance to the North American market for Agitator (occupied 50% of the Top Loader market) - Implementation of ActiveWave™ Agitator which enables heavy washing along with the reduction of noise, vibration, and entanglement - Implementation of Active Water Jet which enables pretreating of soiled or heavily stained clothes □ Eco-friendly dryer with new refrigerant for Europe - Eco-friendly refrigerant: applied environmentally friendly R290 to reduce GHG emissions - Energy label of A+++: achieved the highest energy rating in Europe - Sensor Dry: senses the degree of dryness during the drying process, capable of automatically adjusting from additional drying to ending the process - Simple UX: improved product usability (delivery of detailed information on drying and customized panel setting) Hygiene Care: eliminates over 99% of three common types of harmful bacteria (Bacillus pyocyaneus, Escherichia coli, and Staphylococcus aureus) □ Grande AI 24kg washer - 24kg, Flat Design (glass type) - Features pet-care cycle (removes stains, smell, and allergens) - Applied auto door opening (door opens automatically after the washing cycle ends) □ BESPOKE Grande AI 20kg dryer - Largest available and first 20kg dryer in Korean market, flat design - Features pet-care cycle (specialized in removing fur) - Applied auto door opening (door opens automatically after the drying cycle ends) - Added temperature/humidity sensor to provide dehumidification solutions that sense humidity in the laundry room
Air conditioner -April 2021	□ Wind-Free™ Gallery Floor-standing (56.9・62.6・75.5・81.8・92.5 m^2) - Developed next-gen wind-free platform with exceptionally high energy efficiency (56.9 m^2 single duct model achieved energy efficiency grade 2) - Equipped with wind-free panel 1.5 times larger than previous model and strong booster wind - Booster purification: Filter with 99.95% dust collection efficiency, Design resembling that of furniture, fits comfortably into the surroundings □ Wind-Free™ Gallery Wide air conditioner (24.4・29.3・39.6・49.5 m^2) - Secured cost competitiveness by developing new integrated QMD-based platform, strengthened product competitiveness - 12% larger fans cools air faster - Wind-free ultra-energy-efficient technology saves up to 77% on electricity - PM1.0 wind-free filtration system removing particles as small as ultra-fine dust □ Bespoke Window Fit air conditioner (17m^2, green/blue/pink/beige/gray) - Convenient self-installation with the integrated indoor/outdoor unit - Strong rotational cooling with double wings which quickly circulate cold air - Twin inverter compressor that enables low noise and vibration level of 37dB, as quiet as a library - Up to 70% lower power consumption in silent mode
Vacuums -May 2021	□ Bespoke Jet stick vacuum (up to 210W suction) - Embedded auto-empty dustbin, smart display of information via LCD Display - Wet Brush dispenses water, thinner cotton-flannel brush □ Jet Bot AI Robot Vacuum - Seamless navigation with the realization of world's best object recognition capability (up to 1 cm3) by developing Active 3D sensor and applying it—a world's first - AI autonomous navigation that recognizes house structure and types of objects - Strong suction with jet cyclone and digital inverter motor - Integrated Clean Station which automatically empties dustbin when the Jet Bot starts charging - More convenient cleaning with SmartThings (AI Smart Control) □ Bespoke slim stick vacuum - Up to 150W suction with a strong cyclone and digital invertor mode - Self-standing, convenient emptying of the dustbin without having to bend over (Pop & Shoot) - Easy cleaning without pressure on the wrist (ergonomic design)

DX Division	
Research project	**Details**
Cooking appliances March 2021	□ Bespoke Qooker - Multi-cook function allows cooking multiple dishes with different heat sources, temperatures, and cooking times. - Cook more than one dish and finish at the same time with Multi-cook mode - Collaborated with eight food companies to apply Qooker-exclusive algorithm - Easy automatic cooking with just one scan using SmartThings - Oven interior material changed from enamel to STS for more heat-efficient, sophisticated design.
Water Purifier March 2021	□ Water Purifier for homes - Modularized water purifier upgradable and customizable to customer's lifestyle; includes auto-care feature - May be modularized to users' needs (ambient/cold/hot water) - Smart AI care, filter received highest number of NSF certification for tankless water purifier - Bespoke water purifier, customized to users' lifestyle and space
Clothing Care Machine February 2019–May 2021	□ Bespoke Air Dresser (18・24") - AI drying and washing cycle syncing - Long clothing care zone, holds 5 hangers, compared to 3 for 18" model - Real-care (inner-garment care, low noise level), real purification with ultra-fine dust filter, real odor elimination with odor decomposing filter, real-sanitization with jet steam, wrinkle care, real dehumidification dehumidifies the room even with the door closed □ Shoe Dresser - Powerful odor elimination with Air Wash and UV odor decomposing filter - Low temperature, delicate drying to make your everyday shoes a pleasure to wear. - 99.9% sterilization with the application of a Xenon UVC disinfection system—a first for home appliances in Korea - Tailored care and management of various types of shoes with Jet Shoe Tree
Air purifier December 2020	□ Bespoke Cube air purifier - Premium air purifier in Bespoke lineup - Use one of the three specialized filters as needed: sterilization, deodorization, pet - Customizable to the space, interior, and lifestyle - Mountable on walls to fit the interior without compromising dust-removing function with cubic filtration feature
Air-purification ventilation system September 2020	□ Air-purification ventilation system - Ventilation capacity 33 m^2, Airflow 40–50CMH - Ventilates and purifies air indoors by linking ventilation system with air-purification module - Individual air-purification for each separate space, circulation & wind-free purification - Sensors detecting CO_2, etc. enables automatic ventilation depending on air quality change
Inverter dehumidifier May 2022	□ Ultra-quiet inverter dehumidifier with first-class energy efficiency rating in Korea - Fast and strong large-capacity dehumidifier with a wide blade - Smart space care that keeps spaces from bathroom to dressing room pleasant - Dries a wide range of clothing—even delicate items—with swing blade - Simple design and compact size that fits anywhere - Low-noise mode that remains quiet throughout extended hours of use
Dishwasher June 2022	□ In-house technology platform that has a competitive edge in the European/Korean markets - Fit for Tall Tubs for the European market - Secured competitiveness with top-notch energy/water/low-noise specifications - Strengthened premium experiences via differentiating features, such as an automatic dispenser (for Korean detergents) and a simple UX - Differentiated specifications of Z-wash, Smart, Flexible Basket
Mobile eXperience	
Galaxy Foldable -August 2022	-
	□ Galaxy Z flip (February 2020) - Design: New style with innovative foldable display - Screen: Main 6.7" flexible ultra-thin glass (2,636 x 1080) - cover 1.1" super AMOLED (300 x 112) - Size (W x H x D): (unfolded) 73.6mm x 167.3mm x 6.9–7.2mm (folded) 73.6mm x 87.4mm x 15.4–17.3mm - Platform (H/W, S/W): SDM855+, Android 10.0 - Ultra-thin glass technology allows foldable glass display—a first among Galaxy models—and enhances durability - Easy to carry with a new form factor allowing compact size by flip fold - Free-stop feature enables users to freely control the angle of the flip, allowing Flex Mode experience - Screen ratio 21.9:9 enhances suitability of multi active window

DX Division	
Research project	**Details**
	□ Galaxy Z Fold 2 (September 2020) - Screen: Main display 7.6”, cover display 6.2” - Size (W x H x D): (folded) 68mm x 159.2mm x 13.8 (~16.8) mm - Platform (H/W, S/W): SDM 865 Plus, Android 10, One UI 2.5 - Supports ultra-high speed 5G and 12MP camera - Infinity Flex Display supports flex mode - Dynamic AMOLED 2X display with 120Hz flexible scan rate - Samsung Ultra Thin Glass - Supports wireless Samsung DeX and UWB - Evolved multi-active window enabling simultaneous use of three apps maximum - Provides app continuity from cover display to main display
	□ Galaxy Z Fold 3 5G (August 2021) - Screen: Main display 7.6”, cover display 6.2” - Size (W x H x D): (folded) 158.2mm x 67.1mm x 14.4~16.0mm (unfolded) 158.2mm x 128.1mm x 6.4mm - Platform (H/W, S/W): 5nm 64-bit octa-core processor, Android 11, One UI 3.1.1 - Supports IPX8 rating (water resistance with a depth of up to 1.5m of freshwater for up to thirty minutes), which is a first for a foldable smartphone - Strengthened durability with the application of Armor Aluminum and tempered glass of Corning Gorilla Glass Victus - Equipped with 7.6” Infinity Flex Display and applied Under Display Camera - Display screen approximately 29% brighter with the new Eco² technology - Main/cover display all support 120Hz screen refresh rate - Applied S-pen for the first time for foldables - Supports both top and bottom half of the screen at any angle with Flex mode panel feature even for apps that are not optimized - Supports Multi Active Window, which splits the screen and allows using up to three apps at once
	□ Galaxy Z Flip 3 5G (August 2021) - Screen: Main display 6.7”, cover display 1.9” - Size (W x H x D): (folded) 72.2mm x 86.4mm x 15.9~17.1mm (unfolded) 72.2mm x 166mm x 6.9mm - Platform (H/W, S/W): 5nm 64-bit octa-core processor, Android 11, One UI 3.1.1 - Supports IPX8 rating (water resistance with a depth of up to 1.5m of freshwater for up to thirty minutes), which is a first for a foldable smartphone - Strengthened durability with the application of Armor Aluminum and tempered glass of Corning Gorilla Glass Victus - Enhanced usability of cover display: allows to scroll through up to 8 lines of notification/message and supports weather, daily step count, and Samsung Pay - Enhanced Flex mode: supports Auto Framing, which automatically adjusts the frame according to the number of people within the frame, and Dual Preview - Main display supports 120Hz screen refresh rate
	□ Galaxy Z Fold 4 (August 2022) - Screen: Main display 7.6”, cover display 6.2” - Size (W x H x D): (folded) 155.1mm x 67.1mm x 14.2–15.8mm (unfolded) 155.1mm x 130.1mm x 6.3mm - Platform (H/W, S/W): SM8475, Android 12.0, One UI 4.1.1 - Improved camera experience via Nightography picture/video, high-resolution (50M/8K), Space Zoom (30X) lens - Easier and faster multi-tasking with the new Taskbar feature - Easy-to-use Multi window thanks to various entry points - AI-based recommendation of related features after recognition of text from an image
	□ Galaxy Z Flip 4 (August 2022) - Screen: Main display 6.7”, cover display 1.9” - Size (W x H x D): (folded) 71.9mm x 84.9mm x 15.9–17.1mm (unfolded) 71.9mm x 165.2mm x 6.9mm - Platform (H/W, S/W): SM8475, Android 12.0, One UI 4.1.1 - Supports 25W charging and offers 3700mAh battery - Supports FlexCam, optimized for taking pictures/videos from various angles - Easy and quick switch to and manipulation of applications in Flex mode - Expanded the Cover screen function (simple reply, Samsung Wallet platform, increased Quick settings, etc.)

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Research project	**Details**
Galaxy S -February 2022	□ Galaxy S20・S20+・S20 Ultra 5G (March 2020) - Design: Best Fit in hand compact, yet large screen design - Screen: S20 6.2", S20+ 6.7", S20 U 6.9" - Size (W x H x D): S20 69.1mm x 151.7mm x 7.9mm; S20+ 73.7 x 161.9 x 7.8mm; S20 U 76.0 x 166.9 x 8.8mm - Platform (H/W, S/W): Exynos990 ・ SDM865, Android 10.0, One UI 2.1 - Smartphone that will change the future of mobile and pictures: significantly higher resolution and 8K video recording allows taking pictures and videos in unprecedented quality and easy and swift sharing with 5G - Pictures and videos with significantly higher resolution: S20 ・ S20+ 64MP, S20 U 108MP - 100x zoom, the highest space zoom yet in smartphones: S20 U 108MP - Take higher quality, clearer and brighter pictures and videos even at night with three times bigger sensor (using AI technology) - Take videos in 8K, the highest quality yet in smartphones - Super steady feature reduces blur from shaking but captures dynamic movements - Single take allows the best pictures and videos with a single shot
	□ Galaxy S20 FE (October 2020) - Makes S series experience available to more customers - Screen: 6.5" FHD+ sAMOLED Infinity-O (2,400 x 1,080) - Size (W x H x D): 74.5mm x 159.8mm x 8.4mm - Platform (H/W, S/W): Exynos990, SDM865, Android 10.0, One UI 2.5 - New entry-level flagship product equipped with premium features enhances market influence and provides experiences for various functions optimal to customers - Provides major S20 features: 120Hz display, same specs for camera and battery, same AP with flagship models, One UI 2.5 UX
	□ Galaxy S21 5G・S21+ 5G・S21 Ultra 5G (January 2021) - Design: Iconic and premium full metal camera housing, bezel-less design - Screen: S21 5G 6.2", S21+ 5G 6.7", S21 Ultra 5G 6.8" - Size (W x H x D): S21 5G 71.2mm x 151.7mm x 7.9mm, S21+ 5G 75.6mm x 161.5mm x 7.8 mm, S21 Ultra 5G 75.6mm x 165.1mm x 8.9 mm - Platform (H/W, S/W): Exynos2100 | SDM888, Android 11.0, One UI 3.1 - Supports ultra-high speed 5G, Wi-Fi 6E, high-resolution camera ・Camera: S21 Ultra 108MP, S21 ・ S21+ 64MP, Multi Camera Recording function ・Dynamic AMOLED 2X Infinity-O display with maximum adaptive frequency of 120Hz ・Easy registration and finding objects synced with SmartTag ・Supports Digital Car Key service (S21+ 5G ・ S21 Ultra 5G only) - Supports S Pen (S21 Ultra 5G only)
	□ Galaxy S22・S22+・S22 Ultra (February 2022) - Design: Enhanced Galaxy Design attractiveness with geometric bold design and integrity on quality - Screen: S22 6.1", S22+ 6.6", S22 Ultra 6.8" - Size (W x H x D): S22 70.6mm x 146.0mm x 7.6 mm, S22+ 75.8mm x 157.4mm x 7.6 mm, S22 Ultra 77.9mm x 163.3mm x 8.9 mm - Platform (H/W, S/W): SM8450 | Exynos2200, Android 12.0, One UI 4.1 - Strengthened camera video filming and low-light function performance ・Video: Improved HDR and OIS+AI Stabilizer performance to support rich colors and minimize shaking/jittering ・Enhanced low-light performance: Applies Big Pixel sensor and On-device AI algorithm - Integrated Ultra/Note by equipping with S Pen * Optimized latency : 5.6ms (S21 Ultra) → 2.8ms (S22 Ultra) - Improved outdoor visibility of display * Peak brightness: 1,500nit (S21 Ultra) → 1,750nit (S22 Ultra) - Battery that can be used all-day and 45W ultra-fast charging speed (S22 Ultra/S22+) - Enhanced durability: Adopts Amor AL and Victus+ Glass with a 10% improvement in durability - Improved completion of Galaxy foundation experience ・One UI 4.1: sophisticated, sensible interaction experience and personal experience of users ・Galaxy Eco: improved end-to-end completion and enhanced convenient experience

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Research project	**Details**
Galaxy Note -August 2020	□ Galaxy Note20・20 Ultra (6.7・6.9") (August 2020) - Size (W x H x D): Note20 75.2mm x 161.6mm x 8.3 mm, Note20 Ultra 77.2mm x 164.8mm x 8.1 mm - Platform (H/W, S/W): Exynos 990 ・ SDM 865 Plus, Android 10, One UI 2.5 - Supports high-speed 5G and Wi-Fi 6 - First in the Galaxy lineup to support Ultra Wide Band (Note 20 Ultra) - 108MP camera (Note 20 Ultra), 64MP camera (Note 20) - Maximum 120Hz scan rate display (Note 20 Ultra) - First to support wireless Samsung DeX - Supports S pen and Samsung Note; easy-to-use and perfectly resembling pen-writing experience; supports MS Xbox Game
	□ Galaxy Tab S7・S7+ (August 2020) - Design: Premium Tablet (display, pen, performance) - Screen: 12.4" WQXGA AMOLED (16:10, 2800x1752/120Hz), 11" WQXGA LTPS TFT (16:10, 2,560x1,600/120Hz) - Size (W x H x D): 285.0mm x 185.0mm x 5.7mm (12.4"), 253.8 x 165.3 x 6.3mm (11") - Platform (H/W, S/W): SDM865+, Android 10, One UI 2.5 - Secured premium competitiveness by developing a thin large-display metal design - The first tablet that supports 5G (mmWave) for global carriers and the four major carriers in the US - Enhanced usability of Samsung Notes with 120Hz display and optimal pen latency (9ms) - N-generation AP maximizes performance (seamless multi-tasking & gaming experience)
Galaxy Tab -February 2022	□ Galaxy Tab S7 FE (June 2021) - Screen: 12.4" WQXGA (2560x1600) - Size (W x H x D) & weight: 284.8mm x 185.0mm x 6.3mm, 608g (based on the LTE model) - Immersive display with 12.4" large-screen display and slim bezel - Long play time (10,090mAh, up to 13 hours of video play) - Rich sound with the application of Dolby Atmos - Enhanced usability of Samsung Note ・Simple conversion of handwriting to text ・Direct input with S Pen into the input box - Enhanced function of PENUP Drawing ・Applies layer structure and provides coloring and live drawing - Lightweight keyboard cover (330g) - Delivery of clear voice with 50% reduction of background noise through 3 Mic - Stronger device connectivity ・Second screen: using tablet as a supplementary monitor of PC ・Hands off: sending and continuing what you were doing on your phone to your tablet (Internet, Samsung Notes) ・Copy & paste: copy & paste of texts and images between Phone-Tablet - Auto switching: auto-buds switching between Phone-Tablet
	□ Galaxy Tab A8 (December 2021) - Screen: 10.5" WUXGA (1920 x 1200) - Size (W x H x D) & weight: 246.8mm x 161.9mm x 6.9mm, 508 g - Platform (H/W, S/W): UniSOC T618(12nm) processor, Android 11, One UI 3 - Memory : 3GB + 32GB / 4GB + 64GB / 4GB + 128GB, microSD up to 1TB Provides new options of RAM 4GB and ROM 128GB compared to previous model - Established and applied the Company's Tablet Design ID (Samsung Logo, shape and location of camera, symmetrical sides and front & back), same colors as the Tab S8 Flagship Family (Gray, Silver, Pink Gold) - Applies the Company's standard tablet display ratio of 16:10, provides immersive multimedia experience with 10.5" large-screen display and slim bezel - Supports Dolby Atmos and features Quad Speaker, free load of apps that specialize in contents such as Samsung TV Plus (offers free Live Streaming and VOD) - Supports 2 Split Windows and Pop-up view with Multi-Active Window, enhanced multi-tasking experience with the support of Drag & Split function—applied in Fold3—for the first time for tablets - Improved usability for online classes with the support of Screen Recorder for the first time among Tab A series ・Wider support of One UI 3.1.1 Galaxy Experience (Copy&Paste, Auto Sync, Auto Switch)

DX Division	
Research project	**Details**
	□ Galaxy Tab S8・S8+・S8 Ultra (February 2022) - Screen: Tab S8 11" WQXGA+ (2560 x 1600) Tab S8+ 12.4" WQXGA+ (2800 x 1752) Tab S8 Ultra 14.6" WQXGA+ (2960 x 1848) - Size (W x H x D) & weight: Tab S8 253.8mm x 165.3mm x 6.3mm, 503g Tab S8+ 285.0mm x 185.0mm x 5.7mm, 567g Tab S8 Ultra 326.4mm x 208.6mm x 5.5mm, 726g - Platform (H/W, S/W): SM8450 processor, Android 12, One UI 4.1 - Memory : 8GB+128GB / 8GB+256GB / 12GB+256GB / 16G+512G, microSD up to 1TB - Enhanced video call experienced [Tab S8 Ultra] Provides dual front cameras (12M 80-degrees, 12M 120-degrees) and Auto Framing function [Tab S8+ / Tab S8] Provides 12M 120-degree front camera and Auto Framing function - Enhanced AP Sustain performance by improving heat sink design (gpu 70%, cpu 25%↑ compared to previous model), enhanced gaming performance - Improved S pen latency (5.6ms → 2.65ms) and optimized prediction algorithm Provides seamless and precise writing experience when writing & drawing, just like a real pen, enhancements to lessen the parallax effect - Enhanced the audio experience of video calls by upgrading 3 MIC noise cancellation performance (3 types of noise cancellation mode) - Equipped with WiFi 6E function—a first for a tablet—and improved big data transmission time between devices - Reduced charging time of Phone Power Share by half compared to the previous model by adopting D2D 15W charging function
Galaxy A -September 2022	□ Galaxy A52 LTE・5G (March 2021) - Offers enhanced user experience and increased competitiveness via strengthened core features - Screen: 6.5" FHD+ sAMOLED HID (2,400 x 1,080) - Size (W x H x D): 75.1mm x 159.9mm x 8.4mm - Platform (H/W, S/W): SDM750G (5G)/SDM720G (LTE), Android 11, One UI 3.1 - Supreme smooth UX/Dynamic refresh rate and Brightest (6.5" sAMOLED with 120Hz (5G)/90Hz (LTE), 800nit) - High-resolution 64MP Quad Camera (64M OIS/12M UW/5M Depth/5M Macro) - Powerful AP with High Capacity Battery (4,500mAh)
	□ Galaxy A72 (March 2021) - Offers enhanced user experience and increase competitiveness via strengthened core features - Screen: 6.7" FHD+ sAMOLED HID (2,400 x 1,080) - Size (W x H x D): 77.4mm x 165.0mm x 8.4mm - Platform (H/W, S/W): SDM720G, Android 11, One UI 3.1 - High refresh Rate Brightest Display (6.7" FHD+ sAMOLED with 90Hz, 800nit) - Advanced High-res/Multi Camera, More detail with blur-less (64M OIS/12M UW/8M Tele/5M Macro) - Long-lasting Battery with bigger capacity (5,000mAh)
	□ Galaxy A32 LTE・5G (LTE: March 2021; 5G: January 2021) - Offer enhanced user experience and increase competitiveness by strengthening core features - Screen: LTE 6.4" FHD+ sAMOLED (2,400 x 1,080)/5G 6.5" HD+ TFT (1,600 x 720) - Size (W x H x D): LTE 73.6mm x 158.9mm x 8.4mm/5G 76.1mm x 164.2mm x 9.1mm - Platform (H/W, S/W): LTE MT6769T/5G MT6853V, Android 11, One UI 3.1 - LTE ・Brightest Display: 800nit Super AMOLED ・High Resolution Camera: 64MP Quad (64M W/8M UW/5M Macro/5M Depth) ・High Capacity Battery: 5,000mAh - 5G ・Rich Camera Experience of 48MP Quad, Penta Mode Camera (48M W/8M UW/5M Macro/2M Depth) - High Capacity Battery: 5000mAh
	□ Galaxy Quantum2 A82 (April 2021) - Screen: 6.7" QHD+ (3,200 x 1,440) - Size (W x H x D) & weight: 161.9mm x 73.8mm x 8.1mm, 176g - Platform (H/W, S/W): SDM855+, Android 11, One UI 3.1 - Applied QRNG security chip set - Supports expansive large-screen and smooth screen transition of 120Hz ・Powerful camera that enables photographing on a professional level (ultra-wide 12MP, main 64MP, close-up 5MP)

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Research project	**Details**
	□ Galaxy A03-Core (December 2021) - Screen: 6.5" HD+(1480 x 720) TFT 60Hz - Size (W x H x D) & weight: 164.2mm x 75.9mm x 9.1mm, 211g - Platform (H/W, S/W): 28nm octa-core processor, Android 11(Android GO) ・Enhanced CPU performance compared to previous model A01-Core (28nm quad-core processor) - Highly price efficient product that applies large-screen/high-capacity battery to address the entry market - Enhanced display (5.3"→6.5" HD+) and battery (3,000→5,000mAh) compared to previous model A01-Core
	□ Galaxy A23 (March 2022) - Screen: 6.6” FHD+ (2408 x 1080) 90Hz - Size (W x H x D) & weight: 76.9mm x 165.4mm x 8.4mm, 195g - Platform (H/W, S/W):SDM680, Android 12, One UI 4.1 - 6.6" FHD+ display, supports 90Hz screen refresh rate (previous model: A22 6.4" HD+ 90Hz) - Vivid pictures in the dark without camera shake with the adoption of high-definition 50MP OIS camera ・Adoption of high-capacity 5,000mAh battery and supports 25W ultra-fast charging
	□ Galaxy A13 5G (January 2022) - Screen: 6.5” HD+ (1600 x 720) 90Hz - Size (W x H x D) & weight: 76.5mm x 164.5mm x 8.8mm, 195g - 6.5" HD+ display, supports 90Hz screen refresh rate (previous model: A12 6.5" HD+ 60Hz) - Super-low priced 5G model for LTE user migration and expansion of the 5G market - Strengthened AP (5G) AP (MT6765 → MT6833v) to address entry market - Higher definition of pictures compared to the previous model (A12 16MP) with the application of 50MP camera
	□ Galaxy A13 LTE (March 2022) - Screen: 6.6” FHD+ (2400 x 1080) 60Hz - Size (W x H x D) & weight: 76.4mm x 165.1mm x 8.8mm, 195g - Platform (H/W, S/W): 8nm octa-core processor, Android 12, One UI Core 4.1 - Provides better large screen experience compared to the previous model (A12 6.5" HD+) by adopting 6.6" FHD+ display - Higher definition of pictures compared to the previous model (A12 48MP) by adopting 50MP camera - Able to use up to two days on a single charge by applying 5,000mAh high-capacity battery and AI Power mode
	□ Galaxy A73 5G (April 2022) - Screen: 6.7” FHD+ Super AMOLED+ (1080 x 2400) 120Hz - Size (W x H x D) & weight: 76.1mm x 163.7mm x 7.6mm, 181g - Platform (H/W, S/W): SDM778G, Android 12, One UI 4.1 - Vivid pictures in the dark without camera shake with the support of 108MP high-resolution picture quality and OIS - Soft and clear screen experience with the adoption of high refresh rate of 120Hz and sAMOLED display - Adopts 5,000mAh high-capacity battery (2-day battery life) and supports 25W ultra-fast charging speed - Offers strong durability with the adoption of Gorilla Glass 5 and IP67 rating - Provides the latest flagship experience with the support of One UI 4.1
	□ Galaxy A53 5G (April 2022) - Screen: 6.5” FHD+ Super AMOLED (1080 x 2400) 120Hz - Size (W x H x D) & weight: 74.8mm x 159.6mm x 8.1mm, 189g - Platform (H/W, S/W): Exynos1280, Android 12, One UI 4.1 - 8.1t slim design and 5,000 mAh high-capacity battery (0.3t↓, 500 mAh↑ compared to previous model) - Soft and clear screen experience provided by the combination of high refresh rate of 120Hz and fast response speed of sAMOLED - Enhanced glass durability with the adoption of Gorilla Glass 5 - Provides the latest flagship experience with the support of One UI 4.1
	□ Galaxy A33 5G (April 2022) - Screen: 6.4” FHD+ Super AMOLED (1080 x 2400) 90Hz - Size (W x H x D) & weight: 74.0mm x 159.7mm x 8.1mm, 186g - Platform (H/W, S/W): Exynos1280, Android 12, One UI 4.1 - Delivers enhanced screen experience with the support of 6.4” FHD+ display and 90Hz (previous model: A32-5G HD+ TFT 60Hz) - High-definition pictures without camera shake with the adoption of 48MP OIS camera - Enhanced durability with the adoption of Gorilla Glass 5 and support of IP67 rating for dust and water resistance - Adopts 5,000 mAh high-capacity battery (2-day battery) and supports 25W ultra-fast charging speed

DX Division	
Research project	**Details**
	□ Galaxy A23 5G (September 2022) - Screen: 6.6''FHD+ TFT LCD (1080 x 2400) 120Hz - Size (W x H x D) & weight: 76.9mm x 165.4mm x 8.4mm, 197g - Platform (H/W, S/W): SDM695, Android 12, One UI 4.1 - Upgraded AP performance compared to previous model (A22-5G MT6833V) with the application of SDM695 - High-resolution pictures without camera shake with the adoption of 50MP OIS camera (OIS is not supported in the North America region) - Provides enhanced large-screen experience compared to previous model (A22-5G 6.6" HD+ 90Hz) by adopting 6.6" FHD+ - Applies 5,000mAh large-capacity battery (2-day battery) and supports 25W ultra-fast charging
Galaxy Book -December 2022	□ Galaxy Book Flex 2 (December 2020) - Design: 2-in-1 PC with S Pen, QLED display - Screen: 15.6" QLED FHD (16:9, 1920 x 1080), 13.3" QLED FHD (16:9, 1920 x 1080) - Size (W x H x D): (15.6") 355.0mm x 227.2mm x 14.9mm (13.3") 302.6mm x 202.9mm x 12.9mm - Platform, OS: Intel 11th generation CPU, Windows 10 - QLED: Color Volume 100%, Super Bright Outdoor Mode Max 600nit - S Pen: Samsung Notes, Clip Studio, Gesture - SSD: Powerful performance & Latest Gen4 SSD
	□ Galaxy Book Flex2 5G (December 2020) - Screen: 13.3" QLED FHD Up to 600nit Brightness, Color Volume 100% - Size (W x H x D): 304.9mm x 202.3mm x 13.9–14.9mm - Platform, OS: 11th-generation Intel CPU, Intel Iris Xe Graphics, Windows 10 - Supports ultra-fast 5G (Sub-6) Connects to state-of-the art wireless LAN 802.11 ax (Wi-Fi6) - Double Camera ・World-facing camera (13M AF) and front-facing camera (1M) Camera - Long battery life (20 hours battery life, based on MM14) - Comes with S-Pen, allowing quick expression of inspiration (Digitizer) - Stronger connection to Tablets, Phones ・ Link to Windows: Smartphone apps opens seamlessly on PCs - Samsung Notes: Syncs notes between Phone-Tablet-PC
	□ Galaxy Book Go (April 2021) - Screen: 14" FHD (1920 x 1080) - Size (W x H x D) & weight: 323.9mm x 224.8mm x 14.9mm, 1,380g - Platform: 2nd-generation Snapdragon 7C, Windows 10 - Supports LTE that enables Internet anywhere anytime - Slim design optimized for portability (14.9mm thick) - Rich sound with the application of Dolby Atmos - Long play time (up to 18 hours of battery life) - Stronger connectivity between Tablet-Phone ・Quick Share: easy share of files between phone and tablet ・Second Screen: using tablet as a supplementary monitor of PC ・Galaxy Book Smart Switch: simple sending of data from the previous notebook ・SmartThings: syncing smart devices

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Research project	**Details**
	□ Galaxy Book2 Pro 360 (April 2022) - Screen: 15.6” FHD Super AMOLED (16:9), up to 500nit (HDR), Color Volume 120% 13.3” FHD Super AMOLED (16:9), up to 500nit (HDR), Color Volume 120% - Size (W x H x D) & weight: 15.6” 354.85 x 227.97 x 11.9mm, 1.41kg 13.3” 302.5 x 202 x 11.5 mm, 1.04kg - Platform, OS: 12th Gen Intel CPU (EVO Verified by Intel), Windows 11 - sAMOLED: Default 370nit/HDR 500nit, Color volume 120% - S Pen & Touchscreen support - 1080p FHD Camera (87-degree wide angle, supports Auto Framing, which recognizes users and adjusts them to the center of the screen) - SSD: Gen4 SSD, Expendable SSD (M.2 2230) - Supports WiFi 6E - Battery: 15.6” 68Wh (21hrs), 13.3” 63Wh (21hrs) - Galaxy Apps: Quick Share, 2nd Screen, Multi-Control, etc. ・QR Sign-in: logs into Galaxy Book with a QR scan linked to the account on your phone ・Security: supports Secured-Core PC with enhanced security for each stage for hardware, firmware, and software
	□ Galaxy Book2 Pro (April 2022) - Screen: 15.6” FHD AMOLED (16:9), up to 500nit (HDR), Color Volume 120% 13.3” FHD AMOLED (16:9), up to 500nit (HDR), Color Volume 120% - Size (W x H x D) & weight: 15.6” 355.4 x 225.8 x 11.7mm, 1.11kg 13.3” 304.4 x 199.8 x 11.2mm, 0.87kg - Platform, OS: 12th Gen Intel CPU (EVO Verified by Intel), Windows 11 - AMOLED: Default 400nit/HDR 500nit, Color volume 120% - 1080p FHD Camera (87-degree wide angle, supports Auto Framing, which recognizes users and adjusts them to the center of the screen) - SSD: Gen4 SSD, Expendable SSD (15.6” Only, M.2 2280) - Supports WiFi 6E, 5G Sub6 (15.6”Only) - Battery: 15.6” 68Wh (21hrs), 13.3” 63Wh (21hrs) - Galaxy Apps: Quick Share, 2nd Screen, Multi-Control, etc. ・QR Sign-in: logs into Galaxy Book with a QR scan linked to the account on your phone - Security: supports Secured-Core PC with enhanced security for each stage for hardware, firmware, and software
	□ Galaxy Book2 Go 5G (December 2022) - Screen: 14" IPS (1920 x 1080) - Size (W x H x D): 323.6mm x 224.8mm x 15.5mm - Platform: WoA 7C+ Gen3, Window 11 - Developed Mass WoA product adopting 7C+ Gen3 (CPU 63%↑, GPU 102%↑ compared to 7C Gen2) - Improved picture quality of display (TN →IPS) - Supports WiFi 6E, 5G Sub6 - Adopted 5G model for the mass market which supports ENDC/eSIM - Supports 45W charging - Completed eight tests from the MIL-STD-810H certification ・Shock, high/low temperature, thermal shock, dust, vibration, low pressure, humidity
	□ Galaxy Book2 Pro 360 (2023) (December 2022) - Screen: 13.3” FHD AMOLED (16:9), Touch Screen, Color Volume (DCI-P3) 100%, S Pen - Size (W x H x D) & weight: 13.3” 302.5 x 202.0 x 11.5mm, 1.04kg - Platform, OS: Qualcomm Snapdragon 8cx Gen3, Windows 11 Home - AMOLED: 13.3" FHD Super AMOLED (16:9), Color Volume (DCI-P3) 100%, up to 370nit, S Pen - Speakers: Stereo 2 x 4W (Smart AMP), AKG, Dolby Atmos - SSD: eUFS on board, 256GB - WiFi 6E (802.11ax) - Battery: 63Wh (Video Play 35hrs↑) - Galaxy ecosystem: Smart Switch, Samsung Account, Samsung Apps, Keyboard & Touch Pad Sharing between Galaxy devices - Security: fingerprint recognition, Secured Core PC (Level 3, H/W & F/W Protection) - AI: Noise Reduction, Video Call with Neural Engine

DX Division	
Research project	**Details**
Galaxy Watch -August 2022	□ Galaxy Watch3 (August 2020) - Design: Premium smart watch resembling the design of a traditional watch - Display: 1.4" (45mm), 1.2" (41mm) OLED (360 x 360) - Size (W x H x D): 45.0 x 46.2 x 11.1 (45mm) 41.0 x 42.5 x 11.3 (41mm) - Platform (H/W, S/W): Exynos9110, Tizen 5.5 - Expanding portfolio to titanium models (high-end segment) - Identifying and have included differentiated health-related services - Blood pressure, ECG, fall detection features commercialized globally
	□ Galaxy Watch4 & Galaxy Watch4 Classic (August 2021) - Display: Watch4: (44mm) 1.4” (450 x 450), (40mm) 1.2” (396 x 396); Watch4 Classic: (46mm) 1.4” (450 x 450), (42mm) 1.2” (396 x 396) - Size (W x H x D): Watch4: (44mm) 44.4 x 43.3 x 9.8mm, (40mm) 40.4 x 39.3 x 9.8mm; Watch4 Classic: (46mm) 45.5 x 45.5 x 11.0mm, (42mm) 41.5 x 41.5 x 11.2mm - Platform (H/W, S/W): AP Exynos W920 (5nm 64-bit Dual-Core), Wear OS Powered By Samsung, One UI Watch of Wear OS 3.0 - Memory: improved performance and increased storage with 1.5GB RAM + 16GB ROM - Higher resolution 330 ppi display - Pursuing differentiation by featuring body composition measurement for the first time and enhancing usability - Advanced sleep tracking, including blood oxygen level measurement and snore detection - Wider app ecosystem and enhanced sync experience based on Wear OS ・Provides key services of Google, including Play Store/Google Map/YT Music ・Supports specialized fitness apps and other various service apps
	□ Galaxy Watch5 & Galaxy Watch5 Pro (August 2022) - Display: Watch5 Pro (46mm) : 34.6mm AMOLED (450 x 450) 330PPI Watch5 (44mm) : 34.6mm AMOLED (450 x 450) 330PPI Watch5 (40mm) : 30.4mm AMOLED (396 x 396) 330PPI - Size (W x H x D) & weight: Watch5 Pro (46mm) → 45.4 x 45.4 x 10.5 mm, 46.5g Watch5 (44mm) → 44.4 x 43.3 x 9.8 mm, 33.5g Watch5 (40mm) → 40.4 x 39.3 x 9.8 mm, 28.7g - Platform (H/W, S/W): Exynos W920, Wear OS Powered by Samsung (Wear OS 3.5) - Signature circular design with adoption of sapphire crystal glass - Enhanced integrated health monitoring function equipped with the advanced BioActive Sensor ・Improved accuracy of body composition, heart rate, blood pressure, and ECG; and advanced sleep monitoring function - Equipped with One UI Watch 4.5 based on Wear OS, which enables various Google mobile services and apps - Premium titanium body; optimized for outdoor activities with enhanced GPS tracking features (Watch5 Pro) ・Enhanced performance and durability for better utilization in outdoor activities, such as hiking and cycling ・Provides Magnetic D-Buckle Sport Band, which offers better durability, convenience, and style ・Save and share workout journey using Route Workout and GPS Exchange Format (GPX) files ・Provides turn-by-turn navigation along previous routes through the Track Back feature ・Enables lengthy use for outdoor activities via the adoption of large-capacity battery (590mAh)
Galaxy buds -August 2022	□ Galaxy Buds+ (January 2020) - Design: Canal-type TWS (True Wireless Stereo) - Platform (HW, SW): MCU (BCM43015), OS (RTOS), BT 5.0 - Battery: (Earbuds) 85mAh x 2, (cradle) 270mAh - Powerful mid to low keys and outstanding sound quality with application of 2-way speaker (woofer & tweeter) - 2 outer beamforming mic and 1 inner mic optimizes phone call sound - Improved errors in proximity sensor by adding grip sensor ・Longest play time compared to products in the same class, with upgraded battery: 22 hours for streaming (earbuds 11H & cradle 11H)
	□ Galaxy Buds Live (August 2020) - Design: Open-type TWS with innovative design and high-quality sound - Size (W x H x D): (Earbuds)16.5mm x 27.3mm x 14.9mm, (Cradle) 50.0mm x 50.2mm x 27.8mm - Platform (H/W, S/W): BCM43015, RTOS - Ergonomic design that fits ears perfectly, provides all-day comfort sitting softly inside the ear. - Open type Active Noise Cancellation reduces background noises but let you hear what you want to hear. - Large-size 12mm speakers and Bass Duct deliver rich, spacious live sound - Three built-in mics and a Voice Pickup Unit enables the best call quality

DX Division	
Research project	**Details**
	□ Galaxy Buds Pro (January 2021) - Design: Premium TWS, in-ear type with Intelligent ANC feature - Size (W x H x D): (earbuds) 20.5 x 19.5 x 20.8mm, (cradle) 50 x 50.2 x 27.8mm - Platform (H/W, S/W): BCM43015, RTOS - 2Way (woofer + tweeter) 11mm speaker offers enhanced sound quality ・High-quality phone call sound with 3 mics and accelerometer (voice pickup sensor) ・In-ear type, Intelligent ANC and voice detect function instantly switches from ANC to Ambient sound when it hears your voice ・3D Audio provides a truly immersive experience resembling that of a movie theater - IPx7-level water resistant
	□ Galaxy Buds 2 (August 2021) - Enhanced competitiveness of the Buds mass-market model by enhancing basic functions and adding ANC - Size (W x H x D): (earbuds) 17.0 x 20.9 x 21.1 mm, (cradle) 50.0 x 50.2 x 27.8 mm - BES2500 ZP-83 (BT + Codec + Flash) new low-power management solution* ・Provides ANC ・Play time of up to 29 hours (based on streaming, with ANC off) - Optimized RF frequency performance by applying integrated Touch + BT Antenna FPCB - Enhanced audio performance of canal-type wireless earbuds ・Applied algorithm that maximizes noise cancelling performance by utilizing DNN (DNN + 3-Mic +VPU) * DNN: Deep Neural Network , VPU: Voice Pickup Unit ・Improved latency of switching to Ambient Sound Mode (3.2ms→0.65ms) ・Better low frequency sounds by applying new materials to the woofer cone ・Better noise cancelling of the microphone with the adoption of flawless microphone ・Enhanced ANC and sound quality by changing the density of the ventilation duct and improving the pipe conduit of feedback mic ・Reduced wind noise by maximizing and optimizing the location of the chamber space of the microphone
	□ Galaxy Buds 2 (August 2021) - Enhanced competitiveness of the Buds mass-market model by enhancing basic functions and adding ANC - Size (W x H x D): (earbuds) 17.0 x 20.9 x 21.1 mm, (cradle) 50.0 x 50.2 x 27.8 mm - BES2500 ZP-83 (BT + Codec + Flash) new low-power management solution ・Provides ANC ・Play time of up to 29 hours (based on streaming, with ANC off) - Optimized RF frequency performance by applying integrated Touch + BT Antenna FPCB - Enhanced audio performance of canal-type wireless earbuds ・Applied algorithm that maximizes noise cancelling performance by utilizing DNN (DNN + 3-Mic +VPU) * DNN: Deep Neural Network , VPU: Voice Pickup Unit ・Improved latency of switching to Ambient Sound Mode (3.2ms→0.65ms) ・Better low frequency sounds by applying new materials to the woofer cone ・Better noise cancelling of the microphone with the adoption of flawless microphone ・Enhanced ANC and sound quality by changing the density of the ventilation duct and improving the pipe conduit of feedback mic ・Reduced wind noise by maximizing and optimizing the location of the chamber space of the microphone
	□ Galaxy Buds 2 Pro (August 2022) - Kernel-type premium TWS that offers high-quality 24bit Hi-Fi audio and comfortable fit - Size (W x H x D): Earbuds 21.6mm x 19.9mm x 18.7mm Cradle 50.2mm x 50.1mm x 27.7mm - Platform (H/W, S/W): BES2700YP 1Chip solution, RTOS ・First Samsung Buds to apply 24bit/48kHz Hi-Fi technologies to offer a high-quality audio experience by minimizing loss of sound quality of the original recording; Intelligence ANC which adopts All High-SNR MIC, noise cancelling solution, and voice detect technology ・Strengthened listening experience of the immersive 360 Audio feature via multi-channel audio and enhanced technology that tracks head movements ・Provides clear and upgraded call quality through improved VPU and personalized beamforming technology - Offers comfortable and stable fit thanks to the ergonomic design ・Improved fit through smaller size—15% size reduction compared to previous model—and enhanced structure of vent holes - Strengthened user experience via easy connection between Galaxy Devices ・Expanded the Auto Switch feature from smartphones, tablets, and watches to TVs, and the transition between devices is made easier and faster

DX Division	
Research project	**Details**
Network	
RAN S/W Package April 2019–June 2021	□ SVR18.3 5G S/W package (April 2019) - S/W Package to commercialize domestic 5G NR for the first time in the world ・Commercialized 5G NSA by using LTE network links in the Seoul and the capital area ・Supports 5G base station (3.5GHz, 28GHz, 39GHz 5G Massive MIMO) □ SVR21B NR vDU SW package (June 2021) - TDD-based C-Band vDU ・Flexible base station upgrade without H/W change and resource allocation * vDU (virtual DU): realizing the function of 5G base station by developing commercial server-based S/W
Core S/W Package March 2020	□ SVR19B 5G core S/W package (March 2020) - Developed containerized-based 5G Core Network Function ・Efficient and quick service distribution and maintenance cost reduction possible by flexibly containerizing host OS resource
Base stations September 2019–November 2022	□ Developed NR DU (September 2019) - New dual CPU based main card and first 5G SoC modem using channel card - Single HW can accommodate a combination of LTE, NR above and NR below products, offering different channels at the same time - Supports high capacity, low power consumption (including power saving) and virtualization/non virtualization S/W structure □ Developed 26GHz NR RFIC Chip (February 2020) - 2nd generation RFIC Chip, following SEC's 1st generation products (28GHz/39GHz) ・2nd generation has improved evm function, power efficiency, and mass production □ Developed FSU10 (May 2020) - FSU (fronthaul switch unit) to support vRAN business - Makes spectrum sharing between LTE and NR (below 6GHz) possible ・One RU fits both LTE DU and NR vRAN via spectrum sharing □ Developed NR Indoor AU (August 2020) - Our first 5G In-building Solution AU product - Small form-factor enables low-power consumption, indoor installation on walls, pillars, and ceilings □ Developed NR C-Band MMU (3.7G 64T64R 200W MMU) (December 2020) - First ever TDD-based MMU (Massive MIMO Unit) that operates in C-BAND in North America - Supports broadband IBW 280M, thus any carrier with C-Band across the country may use the product □ Developed MMU Beam Forming SoC (February 2021) - SoC performs functions that Beam Forming FPGA, within MMU board, performs - 30% more power efficient than previous model (Maximum power consumption: less than 40W) □ Developed 5 types of ORAN* RU for the US (September 2021) - Defined DU-RU standard interface, which allows to connect any vendor DU to any vendor RU - AWS/PCS, two types of 700/850 4T4R 40W, two types of 320W, C-Band 8T8R 320W □ AWS/PCS Dual Band 16T16R FDD MMU for North America (October 2021) - The Company's first commercialized 16T16R FDD dual band MMU product that applies our in-house-developed chip □ Domestic 3.5GHz NR 32T32R TDD MMU (February 2022) - Applied Mechanical PSA (phase shift antenna) for the first time * Automatically controls the antenna angle (tilt 0-12°) inside the MMU with a motor □ Developed high-performance RFIC + DFE integrated chip (April 2022) * RFIC (Radio Frequency Integrated Circuit): high-frequency integrated circuit suitable for wireless communication * DFE (Digital Front End): last stage of digital signal processing for communication □ Two types of FDD RU for Dish (Dual Band/Tri Band RU) (September 2022) - Developed 5G FDD RU product that complies with the O-RAN standard and supports multiple frequency bands at the same time * frequency supported by RU: n71(600MHz), n29(700MHz), n66(AWS: 1.7GHz/2.1GHz), n70(AWS: 1.7GHz/1.9GHz) □ Gen.3 Dual Band NR 2T2R AU (October 2022) - Developed the world's first Dual Band (28GHz+39GHz) AU - Upgraded product performance by increasing output and capacity twofold with the same size compared to the existing 2nd generation AU □ Domestic 3.5GHz NR 64T64R MMU (November 2022) - Developed 64T64R Massive MIMO MMU, which was commercialized in the domestic market for the first time - Increased antenna elements twofold and output by 2.7 times compared to the existing 32T32R MMU (old model) for the domestic market

DS Division	
Research project	**Details**
Memory	
DRAM for mobile July 2019–October 2022	□ Mass production of 2nd generation 10nm class (1y) 12Gb LPDDR5 DRAM for mobile, with top-level speed and capacity - Next-generation mobile solution with better speed, capacity, and power efficiency - Contributed to introducing 5G smartphones with 1.3 times the speed (5,500Mbps), and 30% lower power consumption - 12Gb LPDDR5-based line up (6GB, 12GB) provided for the first time □ World's first mass production of 16GB LPDDR5 mobile DRAM: top-level speed and capacity - Performance improved by 30%, capacity by 2 times, and 20% less power consumption vs 8GB LPDDR4X - Gaming performance (picture quality, haptic feedback) same or better than PCs possible with smartphones □ Development of LPDDR5X DRAM - Improved speed by over 30% and power efficiency by approximately 20% compared to previous model - Based on 14nm; expansion of application areas that use high performance, low power consumption memory from mobile to server and automotives, with expansion to up to 64GB per memory package - Verified the industry-leading operating speed (8.5Gbps) by mounting the 8GB LPDDR5X DRAM package on Qualcomm's Snapdragon mobile platform
DRAM for server August 2019–December 2022	□ Mass Production of 1st generation 10nm-class (1x) 256GB 3DS DDR4 DRAM for servers, highest capacity in the world - World's first mass production of 256GB DRAM with ultra-high performance and capacity - 2 times the capacity and 30% increase in power efficiency compared to 128GB □ Development of 3rd generation 10nm-class (1z) 8Gb DDR4 DRAM - Secured ultra-fast, ultra-power-efficient solutions for mass production of DDR5 · LPDDR5 - Efficiency up by more than 20% compared to 2nd generation (1y-nano) DRAM - Expand portion of 1z-nano DRAM lineup in the next-generation products by mass production beginning in September in Pyeongtaek □ Development of high-capacity DDR5 memory applying HKMG process—an industry first - Realization of 512GB DDR5 module with the application of High-K Metal Gate and 8-stack TSV - Reduced power consumption by around 13% and more than double performance compared to the existing process - Planning to apply it in the next-generation computing, super computers, and high capacity data centers □ Development of the highly advanced 12nm-class DRAM - Developed industry's first 12nm-class 16Gb DDR5 DRAM; offers high-performance and low-power, which are optimized for the next-generation computing services - Reduced power consumption by approximately 23% and enhanced productivity by approximately 20% compared to the existing model - Upon mass production in 2023, it is expected to provide memory solutions optimized for our customers' next-generation systems and to expand application areas in datacenters, AI, next-generation computing, etc.

DS Division	
Research project	**Details**
Graphic DRAM July 2022–November 2022	□ Development of GDDR6 DRAM, industry's one of the fastest graphic DRAMs - First in the industry to deliver speeds up to 24Gbps by applying 3rd generation 10nm-class (1z) process - Met customer needs by enhancing performance by more than 30% compared to the previous product, leading to processing speeds of up to 1.1TB per second; supporting operation voltage of 1.1V; and improving power efficiency by 20% - Secured compatibility by being fully compliant with specifications of JEDEC, an international semiconductor standardization body - Expanded applications, including next-generation graphics cards, AI, and HPC □ Development of GDDR6W, graphics memory that applies advanced packaging technology - GDDR6W is manufactured by introducing Fan-Out Wafer-Level Packaging (FOWLP) technology—a construction and stacking technology—without developing a new memory die - Increased performance (bandwidth) and capacity by twofold while maintaining the same packaging size of GDDR6
HBM DRAM October 2019–October 2022	□ Development of 12-stack 3DS TSV PKG, with world's highest HBM DRAM capacity - Development of unrivaled performance and capacity 12GB HBM DRAM for supercomputers—industry's first - 1.5 times the capacity and convenience of system design improved with 8GB package - Strengthened leadership in next-generation HPC DRAM by breakthrough in package technology - Plan to mass produce 24GB HBM, the industry's highest, to meet customer needs □ Rollout of ultra-fast DRAM for AI and next-generation super computer for the first time in the world (16GB HBM2E 'Flashbolt') - Stacked 8 10nm (1y) 16Gb DRAM, enabling 16GB, the largest capacity - Able to send 82 Full HD movies (410GB) at 3.2Gb/sec - Continue to lead market expansion by supplying 2nd generation HBM2 and 3rd generation HBM2E at the same time □ Developed world's first AI HBM-PIM with an AI engine - More than two times the performance compared to previous HBM2, system energy reduced by approximately 70%. - Unveiled academic paper in Feb 2021 at conference held by ISSCC, a highly reputable organization in the semiconductor industry - Enables application without changing the system by using existing memory interface - Cooperate with data center and AI customers on standardization of PIM and establishing eco system. □ Expanded memory product lines that integrate an AI engine (performance evaluation of HBM-PIM and development of AXDIMM/LPDDR5-PIM) - Unveiled the case in which the HBM-PIM developed last February was incorporated in the system (integration with the Xilinx Alveo AI accelerator system boosts overall system performance by 2.5 times while reducing energy consumption by more than 60%) - AXDIMM, a DRAM module with an AI engine, offers twice the performance and a 40% decrease in energy usage - Unveiled LPDDR5-PIM that integrated mobile DRAM and PIM technology □ Developed AI-accelerator equipped with HBM-PIM and GPU - Materialized HBM-PIM Cluster by installing HBM-PIM memory in AMD's GPU accelerator - Compared to existing GPU accelerators, on average, the addition of HBM-PIM improved performance by more than double and reduced energy consumption by more than 50% - In preparation to provide software that supports accelerators equipped with HBM-PIM, so consumers are expected to be able to use PIM memory solutions in an integrated software environment
NAND November 2022	□ Mass production of 8th generation V-NAND - Mass production of 1Tb 8th generation V-NAND, which is amowhich is ng the highest capacities in the world - Significantly enhanced bit productivity per wafer and secured one of the industry's highest bit density - Enhanced performance by 1.2 times compared to existing model, featuring an input and output (I/O) speed of up to 2.4Gbps with the adoption of a next-generation interface - Expected to lead the trend of expanding storage capacity in next-generation enterprise servers and extend use into the automotive market, in which reliability is critical

DS Division	
Research project	**Details**
eStorage February 2019–May 2022	□ Mass production of next-generation smartphone memory, eUFS 3.0—a world's first - Embedded 5th generation (9x-layers) cell stacked 512Gb 3 bit V-NAND for the first time in the industry - Reading and writing 2 times faster compared to eUFS 2.0 - Securing early foothold and high growth in next-generation ultra-high-resolution mobile market □ Industry's only mass production of 1TB eUFS 2.1, with a writing speed of 1200MB/s - 3 times the performance compared to 512GB eUFS 3.0 (continued writing speed of 410MB/s) - Smartphone memory storage (1200MB/s) is 2 times faster than PC (SSD 540MB/s) □ Development of highly advanced UFS 4.0 - Improved reading/writing speed by approximately twofold compared to UFS 3.1 product - Enhanced power efficiency by approximately 46% for processing the same amount of data, which allows longer hours of use - Improved a function that reads and saves customer's important data by adopting the latest security technologies - Expected to expand into consumer devices, such as smartphones, automotives, and VR/AR
SSD for server August 2019–July 2022	□ Mass production of 5th generation (9x-layer) V-NAND-based 30.72TB NVMe SSD for servers— highest speed and capacity in the world - Secured next-generation SSD solution with improved speed, capacity, and efficiency - Introduced 8GB/s PCIe Gen4 SSD with 2.2 times the speed - Exclusively offers top 3 SW (Never Die SSD, FIP, ML) solution □ Mass production of high-performance OCP SSD specialized for data centers - Mass production of OCP SSD, the first in the industry for 6th-generation V-NAND - Satisfies performance, power efficiency, reliability, and security demanded by the data center industry - Contributes to cost reduction and carbon emission reduction with industry's most power efficient feature □ Mass production of industry's highest performing SAS 24Gbps SSD for server - Supports speed that is around two times faster than the previous generation SSD - Provides high capacity from 800GB to 30.72TB based on 6th generation V-NAND - Expected to reduce server operation cost and carbon emission via a 40% improvement in power efficiency □ Industry's first mass production of next-generation ZNS SSD for company server - Applies ZNS technology, which categorizes and saves data by zone depending on characteristics - Lifespan and maximum utilization of SSD capacity increased compared to existing SSDs - Contributes to enhancing the efficiency of next-generation servers—in areas such as AI, big data, and IoT—as well as storage systems, while expanding the foundation for ZNS SSD through various open source projects □ Development of PCIe 5.0-based high-performance SSD PM1743 - Improved reading/writing speed by approximately twofold and power efficiency by approximately 30% compared to PCIe 4.0-based SSD - Stability of server operation guaranteed with the support of dual-port and application of latest security technologies □ Development of '2nd generation smart SSD' with upgraded processing functionality - Enhances processing functionality by twofold and cuts processing time by over 50%, energy consumption by up to 70%, and CPU utilization by up to 97% - Processes data directly, thereby improving system performance and energy efficiency at the same time - Actively address various market needs, including database and video transcoding - Lead standardization of computational storage and increase development of next-generation storage products

DS Division	
Research project	**Details**
Brand SSD January 2020–August 2022	□ Launched 'T7 Touch', premium portable SSD—highest performance in the industry - 5th generation 512Gb V-NAND with world's highest performance and NVMe controller with ultra-fast embedded interface - Supports reading and writing speed of 1,050MB/s and 1,000MB/s, respectively, up to 9.5 times faster than external HDD (110MB/s) and about 2 times faster than the previous model (SEC's portable SSD T5) □ Global launch of high-capacity 4-bit SSD '870 QVO' - Introduced 4 SATA SSD models including 1/2/4TB and 8TB model, the highest in the industry - Provides optimal solution to customers with need for high-performance/high-capacity computing environment, with quick data-process speed close to the maximum speed of SATA interface - Boasts high speed/capacity, reasonable price, launched in 40 countries in several phases □ Global launch of PCIe-Gen4-applied SSD '980 PRO', boasting highest performance in the industry - Provides ultra-high resolution via consumer SSD with the highest-speed in the industry - Continue to lead market for professional PC and workstation used for editing of 8K, 4K videos and games requiring high-specs - 5-year warranty (longest in the industry) □ Global launch of SATA SSD 870 EVO for consumers - Latest V-NAND and controller included, intelligent turbolight technology - Highest durability in the industry, run time enhanced by more than 30% - Five models in 250GB to 4TB range, introduced in steps in Korea, US, Germany, and China □ Launched NVMe SSD 980, which boasts high performance and is economical. - 6th-generation V-NAND, maximum 6 times the speed compared to SATA SSD - DRAM-less design to save cost, applied optimization technology for controllers and firmware - Heat-control feature, applied to high-end products - Power efficiency enhanced by 56%, compared to 970 EVO, allowing "good consumption" for consumers □ Released portable SSD 'T7 Shield' for experts that offers both performance and durability - Built with dust and water resistance and drop resistance up to 3m - Transmits data stably without performance degradation, including when recording and editing high-resolution videos □ Unveiled high-performance SSD '990 PRO' optimized for gaming - Offers unparalleled performance by featuring the latest V-NAND technology and a new proprietary controller - Enhanced speed by up to 55% and power efficiency by up to 50% compared to previous model - Offers optimal performance for an environment in which ultra-high speed data processing is required, such as high-performance graphic games and 4K/8K high-resolution videos
EUV March 2020-October 2021	□ Supplied 1 million 1st generation 10nm-class (D1x) DRAM modules - Mass production of EUV DRAM—the only company in the industry with EUV DRAM mass production system - Secured 10nm-class advanced process and mass production, enabling next-generation DRAM in a timely manner. - EUV process applied to all 4th generation 10nm-class DRAM, and is now expanding to 5th generation and 6th generation products □ Mass production of 14nm EUV DDR5 DRAM - Enhanced productivity by approximately 20% with multilayer EUV implementation and realization of industry's highest DRAM bit density - Enhanced speed by twofold compared to DDR4 and improved power consumption by approximately 20% compared to previous process
CXL May 2021-October 2022	□ Development of industry's first CXL-based DRAM memory - Next-generation memory solution to meet the needs of high capacity data centers; overcomes physical limitations of DRAM modules, revolutionary expansion of capacity bandwidth becomes possible - Supports interface converting, error management, etc. through CXL controller - Development of controller and software technology optimized for CXL DRAM memory by collaborating with data centers and server and chipset companies □ Development of industry's first open-source software solution for CXL memory - Enables expansion of system memory's performance/capacity by enabling the main memory and the CXL memory to work seamlessly □ Development of industry's first high-capacity 512GB CXL DRAM - Enhanced capacity of CXL DRAM by four times, which allows expansion of over tens of terabytes per server - Equipped with CXL-exclusive controller, reducing data latency by 1/5 □ Development of CXL-based PNM solution for high-capacity AI models - PNM's (Processing-near-Memory) computational functions are performed closer to the memory to reduce the bottleneck between the CPU and memory data transference and to improve system performance - Enhanced performance by approximately twofold in applications, such as recommendation systems or in-memory databases, that require high memory bandwidth

DS Division	
Research project	**Details**
Multi-chip June 2021	□ Mass production of industry's best performing uMCP5 (LPDDR5 + UFS3.1) multi-chip package - Speed upgrade by 1.5 times compared to the existing LPDDR4X, 2 times compared to UFS2.2 - Spearhead popularization of 5G by installing them into low- to mid-priced 5G smartphones
Brand Card September 2021-May 2022	□ Released a new micro SD card product with enhanced performance and stability - 'PRO Plus' provides 1.6 times faster read speed and 1.3 times faster write speed than the previous generation - 'EVO Plus' provides 1.3 times faster read speed than the previous generation - With improved performance and a design that offers better protection against external shocks, not only general consumers, but also creators who make high-quality contents such as 4K UHD videos, are looking forward to it □ Released memory card 'PRO Endurance' with enhanced performance and durability - Adopts high-quality server-level NAND durability that allows up to 16 years of continuous recording time - Optimized for high-resolution (4K, Full HD) video recording equipment, such as surveillance video and black box - Keeps stable recording performance even in tough conditions, applies 6-proof protection - Supports speed of Class 10, UHS Class U3, and video speed of Class V30; can continuously record Full HD · 4K high-resolution videos
Automotives December 2021	□ Mass production of memory total solutions for automotives - 256GB SSD and 2GB DDR4/GDDR6 for IVI; 2GB GDDR6 and 128GB UFS for AD - Supplies high performance SSDs and graphics DRAM delivering server-level performance and capacity; and secures high stability that is required in the automotive semiconductor market (operation is guaranteed in the -40℃-105℃ range)

DS Division	
Research project	**Details**
System LSI	
Image Sensor January 2019–June 2022	□ ISOCELL Slim sensor with ultra-small pixel size (3T2, 0.8um/20Mp) - Highest resolution (20Mp) among 1/3.4" sensors, offers high-resolution optimized for bezel-less displays - Tetracell technology for front camera, allowing high performance under low lighting, high magnification for back camera reduces module size, improving picture quality □ Ultra-high resolution ISOCELL Bright sensor (GW1, 0.8um/64Mp) - DCG structure enhances dynamic range - Super PD technology maximizes auto-focus function and enables 480-frames-per-second, full-HD slow motion function - Rich colors by supporting real-time HDR □ High resolution ISOCELL Bright sensor (GM2, 0.8um/48Mp) - Super PD technology maximizes auto-focus function and enables 240-frames-per-second, full-HD slow motion function □ World's first 108Mp ISOCELL Bright sensor (HMX, 0.8um/108Mp) - AI-ISO-applied S/W controls the amount of light, enhancing color reproduction - Can shoot 30 frames per second in 6k - Improved sensitivity with ISOCELL plus and Tetracell technology □ ISOCELL Slim sensor with world's smallest pixel size (GH1, 0.7um/43.7Mp) - Enables easier application of full-screen display set thanks to smaller and thinner module - Supports high-resolution videos and minimizes loss of viewing angle - Improved sensitivity with ISOCELL plus and Tetracell technology □ Industry's first next-generation 108Mp ISOCELL Bright sensor with 2-times the sensitivity enabled by Nonacell technology - Enables preview function without compromising picture quality in 3x magnification, thanks to enhanced zoom feature - Features state-of-the-art technologies: smart ISO, real-time HDR, digital correction of shaking images □ Dual-pixel and Tetracell-technology-based sensors (GN1, 1.2um/50Mp) - Offers images in 100Mp with dual-pixel technology (2 photodiodes in a pixel) - Takes bright, sophisticated images with Tetracell technology (enables 4 times the sensitivity in the dark) □ Established industry's first lineup of 0.7um-pixel-based image sensors (HM2, GW3, GM5, JD1) - Leadership in ultra-small, high-resolution image sensor technology with state-of-the-art 'ISOCELL 2.0' technology and more - (HM2) first to offer 108Mp with 0.7um pixel - (GW3) takes 60-frames-per-second 4K 64Mp images - (GM5) takes 48 Mp images supporting ultra-wide angle and folded zoom - (JD1) ultra-small 32Mp product, optimal for bezel-less design □ Introduced ISOCELL HM3, 108MP premium image sensor (HM3, 0.8um/108Mp) - Concentrated 108 million 0.8 ㎛-size pixels in 1/1.33 inch - Minimizes afterimage with Smart ISO Pro, enabling bright, vivid images - Lens optimal for autofocus with Super PD Plus, enhanced phase detection ability by 50% - Optimal design saves approximately 6% of power under preview mode, compared to previous model □ Introduced image sensor ISOCELL GN2, operating similar to human eyes (GN2, 1.4um/50Mp) - Dual Pixel Pro splits pixels diagonally—a world's first - 1.4um pixel delivers brighter and more vivid images - Staggered HDR saves power by approximately 24% compared to previous model □ Introduced ISOCELL JN1 with the industry's first 0.64um pixel (JN1, 0.64um/50Mp) - Mass production of ultra-small pixel size, applies high-resolution mobile camera slim design - Applies the most advanced image sensor technology that enhances sensitivity in the dark - Cooperation with camera lens module manufacturers, establishes the ecosystem that is compatible with 1/2.8" products □ Released automotive image sensor ISOCELL Auto 4AC (4AC, 3.0um/1.2Mp) - Designed for surround view monitors or rear-view cameras - A safety solution that supports drivers even in tough conditions and minimizes blind spots □ Unveiled a new super-gap mobile image sensor technology (HP1, 0.64um/200Mp and GN5, 1.0um/50Mp) - Industry's first "200 million pixels" ISOCELL HP1 - Industry's smallest-sized dual pixel image cell ISOCELL GN5 □ Unveiled 200 million pixel image sensor, industry's smallest pixel size (HP3, 0.56um/200Mp) - Reduced camera module area by up to 20% with 12% smaller pixels compared to the previous HP1(0.64um) - With the Super Quad Phase Detection (QPD) technology, enables auto-focusing feature for all 200 megapixels - Utilizes Tetra2pixel technology, which offers vivid picture quality even in low-light environments

DS Division	
Research project	**Details**
Exynos January 2019–March 2022	□ World's first modem solution for 5G smartphones (Exynos modem 5100, Exynos RF 5500, Exynos SM 5800) - Data transmission 1.7 times faster compared to LTE - New RF ・ SM, improved power efficiency for transmission □ Best-in-class 7nm 5G modem (Exynos 5123) - Maximum 2 times faster compared to previous model in sub-6GHz 5G network - Achieved maximum speed of 3.0Gbps in 4G network - Supports global Sub-6GHz/mmWave □ SoC for automobile infotainment (Exynos auto V9) - Octa-core CPU simultaneously controls 6 displays and 12 cameras - 3 GPU respectively supports dashboard ・ CID ・ HUD - NPU enables digital recognition of voice ・ face ・ movement - Enhanced stability by securely supporting ASIL-B function □ SoC exclusively for short-distance IoT with low power consumption and enhanced security (Exynos i T100) - Processor ・ memory ・ communications function in a package □ One-chip integrating 5G modem supporting sub-6GHz and AP (Exynos 980) - Supports latest communications feature including EN-DC, Wi-Fi 6 - Enhanced NPU function compared to previous generation and premium products □ Enhanced functions with 5th-generation CPU and premium GPU (Exynos 990) - AI processing higher than 10 TOPS enhanced image analyzing and face recognition function - Supports latest LPDDR5 DRAM and high-resolution camera of 50MP↑ □ Launched Exynos 2100, 5G-integrated premium mobile AP - Applied state-of-the-art 5nm EUV process and the latest CPU/GPU, enhancing performance significantly - Optimal design improves performance compared to previous model: more than 30% for CPU, more than 40% for GPU - Enhanced on-device AI function, performs 26 trillion operations per second - Saves power consumption by maximum 20%, features its own power management solution AMIGO - Supports ultrahigh-frequency 5G network, operates maximum 6 image sensors □ Released Exynos W920 built on EUV process for wearable devices - Improved performance and power-efficiency by applying advanced 5nm EUV process and design technology - Comes in the smallest package currently available for wearables by applying the most advanced packaging technologies - Boasts 20% more efficient CPU performance and 10 times better graphics performance than its predecessor (Exynos 9110) with the application of the newest ARM cores - Improved power consumption of the processor by 97% under AOD (Always On Display) mode by applying low-power cores for display □ Released Exynos Auto T5123, communications chip for automotives that provide 5G communications service - Supports download speed of 5.1Gb/sec, enables seamless access high-capacity, high-definition content even while driving - Equipped with the latest 5G-based multi-mode communication chip that supports both 5G single net and LTE combined net □ Released Exynos Auto V7, processor for automotive infotainment - Applies the latest automotive technologies, including Neural Processing Unit (NPU), technology that corrects bad pixel and lens distortion of camera sensors, and image compression technology - GPU supports four independent displays, including digital dashboard, Center Information Display (CID), and Head Up Display (HUD), and up to 12 camera sensors - Equipped with security processor which offers technology that safely stores and prevents physical replication of key information of the car □ Released premium mobile AP 'Exynos 2200' - Adopted the next-generation GPU Xclipse jointly developed with AMD, maximized gaming performance and power efficiency - Enabled Ray Tracing technology based on hardware on mobile devices—a first in the industry - Strengthened performance and security by adopting the core based on the latest ARM CPU architecture 'Armv9' - Enhanced NPU performance by more than twofold compared to the previous model, significantly enhanced machine learning performance

DS Division	
Research project	**Details**
LSI January 2019–March 2022	□ PDIC for TA supporting USB-PD 3.0 standard and high-speed charge protocol (MM101) - Moisture detection, voltage protection function □ World's first one-chip integrating PDIC and SE (SE8A) - Blocks unauthorized products by supporting type-C authorization - Supports advanced security features such as saving security key · authorization certificate, supporting encryption · decryption □ Industry's first integrated power-managing chip for wireless earphones (MUA01, MUB01) - Integrates multiple chips, optimized for small-size batteries - Provides optimal solution for rapidly-growing wireless earphone market □ DDI enables optimized ultra-high resolution for 8K TVs and enhanced transmission efficiency (S6CT93P) - Enhanced signal quality and development efficiency by utilizing equalizer S/W □ Best integrated security solution for mobile (S3K250AF) - Independently developed S/W in H/W security chip, which received EAL 5+ in Common Criteria - Mobile security solution lays the foundation for new mobile services □ Received EAL 6+, the highest rank for mobile device, solution with independently-developed S/W (S3FV9RR) - Useable for various smart devices, as the solution operates independently for various processors - Various functions including H/W secure boot, device authentication offer stronger security □ Power management IC for DDR5 DRAM modules (S2FPD01, S2FPD02, S2FPC01) - Essential for the next-generation device performance improvement and power saving, three types of power management IC - Applies our own technology of reducing power consumption and overheating, improves operational efficiency up to 91% - Continued expansion of the lineup for power management IC for memory and strengthen technology leadership □ Power management IC for processor for automotive infotainment (S2VPS01) - Certified with ASIL-B, a safety standard for automotive systems, and strengthened functional safety - Strengthened stability of the system, including heat prevention and auto-diagnostic functions □ Released all-in-one fingerprint security IC for biometric payment cards (S3B512C) - Combines hardware security chip (SE, Secure Element), fingerprint sensor, and Secure Processor in one IC - Received globally accredited certifications in security, EAL6+ from Common Criteria (CC) and global online card payment technical standard (EMVCo) and proved security in line with Mastercard's Biometric Evaluation Plan Summary.
Foundry	
3D IC packaging technology 'X-Cube' August 2020	□ Developed 3D IC packaging technology 'X-Cube' and the infrastructure for the design - Uses TSV technology to stack different chips individually made from different wafers to make them into one chip · Allows greater flexibility in design by reducing the chip size and using high-capacity memory solution · Significant leaps in data-processing speed and power efficiency of system semiconductors - Design method and tools to apply 'X-Cube' on 5nm and 7nm processes have been verified. · Produced industry's first test chip that stacks SRAM on top of EUV 7nm logic die
2.5D packaging technology 'I-Cube4' May 2021	□ Realized logic chip and four HBM chips into one package to operate it like one semiconductor chip □ Supplied electricity stably and realized ultra-thin electrical wires applying silicon interposer - Applied semiconductor process/manufacturing knowhow that prevents the deformation of thin interposers 100μm thick □ Reduced production time and enhanced yield with our distinctive structure that has excellent thermal release performance
8nm RF process June 2021	□ Radio Frequency (RF) process for 5G communication that supports sub-6GHz and millimeter frequency - Provides small, low-power, high quality communication with one-chip solution that supports multi-channel and multi-antenna □ Improved performance of RF with the application of RF-exclusive semiconductor device 'RFeFET (RF extremeFET)' that we developed in house - Maximized electrons' movement characteristics by physically stimulating the neighboring areas of channels, which are electrons' moving path □ Power efficiency increased by 35%, analogue circuit area decreased by 35% compared to the previous generation 14nm RF process - Total number of transistors of chips decreased with the drastic improvement of RFeFET performance

DS Division	
Research project	**Details**
2.5D packaging technology 'H-Cube' November 2021	□ 2.5D solution 'Hybrid Cube', which applies silicon interposer technology and hybrid-substrate structure - Logic chips and high-bandwidth memory (HBM) are placed on top of a silicon interposer, integrating up to 6HBMs - The hybrid substrate is a dual structure in which the high-end main substrate at the top connects logic/memory chips, and the subsidiary substrate at the bottom that is easy to implement in large-area connects the system board - Minimized the size of the substrate by decreasing the pitch of solder ball, which electrically connects two substrates - Applied chip analysis technology to stably supply power while minimizing signal distortion and loss - Specialized for semiconductors for data center, AI, and network products that require high-performance and large-area packaging technology
World's first 3nm process that adopts GAA technology June 2022	□ World's first mass production of 3nm process that adopts Gate-All-Around (GAA) transistor technology - Maximized power efficiency and performance by implementing 'MBCFET', our in-house GAA technology that utilizes nanosheets - 1st-generation 3nm process reduced power consumption by 45%, improved performance by 23%, and reduced surface area by 16% compared to 5nm □ GAA technology overcomes the performance limitations of FinFET, allowing to continue to make smaller chips - The gate surrounds all four faces of the channel, which enables finer control of current flow and reduces operating voltage and power consumption - The structure in which the channels are piled up vertically boosts performance as it increases channel width per unit area and allows greater amount of current to flow - The width of channels can be adjusted, giving better design flexibility □ Providing verified 3nm design infrastructure and services with ecosystem partners □ Planning to expand adoption into high-performance, low-power system semiconductors for HPC, mobile SoCs, etc.

SDC	
Research project	**Details**
Display panel	
Hole in Display OLED for Galaxy S10 March 2019	□ Maximized screen size via world's first commercialization of Flexible Hole in Display - One S10 6.1" 3K QHD+(3,040×1,440) Hole, Two S10+ 6.4" Holes □ Offers a comfortable display by significantly decreasing blue light - Decreased blue light emission 42% from S9 (TUV Rheinland Eye Comfort Certification)
15.6" UHD OLED for NPC May 2019	□ Developed world's first 4K OLED display for NPC - 15.6" UHD (3,840 x 2,160), 16:9 - Blue light reduction, shorter response time, wide field of view allow vivid images
4K high-resolution OLED for smartphones June 2019	□ Developed world's first 4K mobile OLED display - 6.5" UHD (1,644×3,840), 643ppi,16M Color - Offers original cinematic movie ratio of 21:9
Curved LCD for gaming monitors June2019	□ Developed world's first 240Hz Curved LCD display - 27" FHD (1920×1080), 16:9 - High refresh rate of 240Hz, supports G-sync, allowing uninterrupted gaming environment - Curvature of 1500R, wide viewing angle allow highly-immersive gaming experience
Foldable OLED for Galaxy Fold September 2019	□ Display innovation by developing the world's first foldable display - In-foldable AMOLED (radius: 1.5R) - 7.3" QXGA+ (1,536×2,152), 4:3 - Decreased display thickness by approximately 50% (vs existing panels) by developing polymer composite material
Foldable OLED for Galaxy Z Flip February 2020	□ Mass production of world's first glass type window foldable display - 6.7" Full HD+(1,080x 2,640) - Improved durability and applied camera hole (first in foldable phones) by using UTG (ultra-thin glass)
WQ+ high-speed OLED for Galaxy S20 March 2020	□ Maximized touch feature with world's first WQ+ resolution, 120Hz, high speed - S20 6.23"/6.67"/6.87" QHD+(3,200×1,440) - Harmful blue light less than 6.5%, Eye Care Display certified (SGS, international certification institution)
Foldable OLED for Galaxy Z Fold2 September 2020	□ World's first mass production of foldable display with a 1.4R curvature - 7.6" (2,208 ×1,768) in – foldable - Achieved 1.4R curvature radius via structural design that minimizes folding stress - Improved power efficiency with adaptive frequency (adjusts scan rate from 10-120Hz to screen)

SDC	
Research project	**Details**
Power-efficient OLED for Galaxy S21 January 2021	□ Mass production of innovative power-efficient, high-luminance OLED displays - S21: 6.24"/6.67"/6.81" QHD+(3,200×1,440) - New organic material improves luminance efficiency: improved power efficiency by 16% compared to previous model - Enhanced luminance and contrast offers good visibility outdoors (Max/HBM 420/800 → 500/1100nit, Peak 1,785nit) → Sunlight Visibility certification by UL (global safety solutions company)
Foldable OLED for Galaxy Z Fold3 August 2021	□ Application of various new technologies to foldables for the first time - 7.6" QXGA+7.55" (2,208×1,768) - Removed screen blind spots with the Under Panel Camera technology - Reduced battery consumption compared to its predecessor with the Eco² technology
55/65" QD-Display January 2022	□ World's first QD-Display for TV (55" UHD, 65" UHD) - Exceptional wide color gamut of BT2020 90% - Expresses outstanding brightness and color at any angle with QD display which emits light evenly across all directions - Excellent HDR performance, deep and detailed black expression
34" QD-Display March 2022	□ World's first QD-Display for monitor (34" QHD) - Provides superb gaming experience by supporting 175Hz, 0.1ms, 1800r, HDR True Black, and G-Sync - Outstanding color, viewing angle, and contrast ratio and minimized exposure to blue light
Foldable OLED for Galaxy Z Fold 4 August 2022	□ Promoting additional improvements compared to previous model - Significantly improved display quality in the location of the Under Panel Camera while maintaining camera performance and emphasized large-screen experience - Enhanced energy efficiency with Eco2 OLED Plus with improved transmittance efficiency - Reduced costs and weight via integrated FRP-Digitizer panel

CAMBRIDGE INSTITUTE OF TECHNOLOGY, BENGALURU-36
Department of Basic Sciences

Samsung PRISM collaboration with Engineering Colleges

The Department of CSE and AI&ML jointly organized a webinar on "Samsung Prism Collaboration with Engineering Colleges" for first year students on 11th May 2021 5:00PM to 6:00PM, as a part of student Induction Program.

Mr. Suresh N , General Manager, Samsung R&D, Bangalore, presented the webinar for all first year students.

The speaker excelled in delivering the key aspects of the session including, Educating about Samsung R&D, Prism Program and why participate in Prism program?

Innovation is inevitable in a growing economy and Samsung R&D is one such growing innovation center. The areas of focus of this ingenious research Centre includes Intelligence (Artificial Intelligence), Privacy, Multimedia, Communication (Devices, Networks), IOT(Cloud, IOTivity, Services (Web, Developed apps).Few of its achievements include the flagship devices (galaxy S20 and note 20 line, Galaxy Gear watch 3), following Make For IndiaProgram by introducing programs like Samsung pay, Samsung Finance+, My Galaxy App, Emotify, Social Camera, Dual Rear Camera etc.. It has 179 patents and 56 industrial papers published.

PRINCIPAL
CAMBRIDGE INSTITUTE OF TECHNOLOGY
K.R. PURAM BANGALORE-560 036

CAMBRIDGE INSTITUTE OF TECHNOLOGY, BENGALURU-36
Department of Basic Sciences

The program PRISM (Preparing and Inspiring Student Minds) has these driving goals: Tobridge the gap between Academia and Industry, to build a tech centered culture and to make India an innovation hub.

In this regard, the speaker spoke about the ongoing process under the program including MoU sign off, Areas of Interest analysis, Worklet sharing and professor assignment. To help students understand what is worklet is all about, the speaker explained it as an Industry problem which includes core technologies. Worklet is a student team mentored by industrial experts work on a technology for 4-5 months. Hence, the speaker insisted upon student participation in such initiatives which are gateway to live project opportunities to students and build industrial connection and in return give incentives and value added certificates. The webinar witnessed huge participation of 250+ students who were educated about the initiatives of Samsung R&D Center.

PRINCIPAL
CAMBRIDGE INSTITUTE OF TECHNOLOGY
K.R. PURAM BANGALORE-560 036

PRISM-Metaverse POGRAM

Nurturing ideas to build future ready Metaverse Apps

1. **What is Samsung PRISM Metaverse Program-**The Samsung PRISM Metaverse Program is a platform developed to provide opportunities to students to come up with ideas on metaverse apps,get trained by Samsung experts in Unity to develop those apps and finally upload the apps to PlayStore for public usage.

2. **Who can participate-** Any student who has some knowledge of Unity App Development

3. **Areas/Topics-** Enhanced user experience, Immersive experience, Workforce mobilization, Industrial use – manufacturing, maintenance, healthcare (Focus on combination of different industries)

4. **Duration of Program-** 4-5 months from launch to final uploading apps to PlayStore

5. **Team strength**- 3-4 students

6. **Prize-** INR 40000 to top 3 teams

7. **End goal-** High quality applications submitted to marketplace store for public usage

8. **Autonomous/Mentorship from Samsung –** Student team has to work autonomously post training in Unity from Samsung experts

9. **Date for Team Registration and upload ideas-** Jan 12th- Feb 5th 2024

Frequently Asked Questions

- **Do we need to have the entire idea fully working?**
  The complete proposal does not have to be fully implemented; however, a workable solution on the workbook would help earn some brownie points.

- **Is there a format for submission?**
  Yes, the submissions are to be made in the specified format only. The name of the file should be in <TeamName>_<Theme#>_<HackName>. Some of the examples of valid filenames are WisePeople_3_Summarizer.ipynb

- **Can two themes be combined?**
  You can combine multiple themes to bring out the best solution, however the submission must be made in only of the themes.

- **How do I submit what I have made for the Hackathon?**
  You will need to submit a .ipynb file in the given format. The submission must be done only through form (https://forms.gle/akQum3Wd6mrbQLrf8) circulated.

- **Who should I reach out to incase of any query/issue?**
  If you have any query pertaining to this challenge or face any issue while submission, please reach out to **prism@samsung.com**. Please make sure to put **[Gen AI Hackathon | Query]** in your subject line.

- **What is the duration of this challenge?**
  The event will span over a week starting from **25th Jan, 2024 10AM IST to 5th Feb 2024 11:59PM IST.**

- **Do I need to have any specific qualifications to be a participant for the Hackathon?**
  Your zeal to learn and create is all we seek. The hackathon will be open to all the students of the institute.

- **What are the guidelines to be followed while making a submission?**
  Submissions should be made in the given prescribed format only.
  Attach both the HTML(.html) document as well as the notebook(.ipynb) file during submission.
  Prepare a requirements.txt file to list all the dependent libraries and packages.
  Avoid putting unnecessary stuff (installation logs, warnings, errors etc) in the notebook, it will not only make it bulky, but also reduces visibility of relevant data.

- **Is there a restriction over models to be used?**
  No, there are no restrictions over the models to be used. It is open-ended. Hence you can go for either open-sourced or paid.

- **I don't have setup for Jupyter-notebook. What to do?**

  You can either set it up using "pip install notebook". Else you can get started with online platforms like Google Collab too.

- **Will APIs of different platforms like Gemini, ChatGPT be provided?**

  No, we will not distribute these resources during the first round. Please use your free quota on these platforms. You can also use the open-source models that are available.

- **How can we add supplementary material?**

  The notebook will be considered your primary submission; however, you may attach other documents using the same naming format as described above. Also try mentioning the same in your notebook.

- **Can we have multiple cells in each of the sections?**

  Yes, you can break down each of the sections into multiple cells for better representation of your methodology and technique. Do add relevant comments in each of them for enhanced understanding.

- **Can we make submissions on more than one theme?**

  Yes, you are allowed to make submission on more than one theme. However, a single submission by the primary member should come for each theme or solution.

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SAMSUNG PRISM™

PREPARING AND INSPIRING STUDENT MINDS

Generative AI Hackathon-Voice Technology

Launch Event at Vellore Institute of Technology | 24th January

Agenda

Setting The Bigger Picture For Hackathon

Rashmi T S
(Speech Recognition & Natural Language Processing)

Introduction To Themes

Santanu Bhattacharjee
(Data Analysis)

Introduction To Themes And Evaluation Criteria

Sourabh Tiwari
(Machine Learning)

Submission Details,Examples,Do’s & Don’t’s

Gaurav
(Speech Recognition & Natural Language Processing)

Generative AI Landscape

Bixby

Expected Outcome

Solutions for Next gen Voice Assistant using LLM

Optimal ways of using LLM

Effective method of writing prompt

Then select Live translate

*Live Translate requires a network connection and Samsung Account login. Live Translate is only available on the pre-installed Samsung Phone app. Certain languages may require language pack download. Service availability may vary by language. Accuracy of results is not guaranteed.
*Video simulated for illustrative purposes. Actual UX/UI may be different.

Themes

1

Multi-Lingual Voice Assistant

- Can understand and respond in multiple languages.
- Can understand code mixed languages and provide response in same manner.

2

Multimodal

- Accept and respond in different modes of input including voice and visual.
- Maintaining context between conversations.

3

Voice Assistant for Conversations

- Can be part of virtual calls, Teams meeting, online classes, webinars, phone calls and texts
- Process the conversations, prepare MoM and action items
- Interactive QnA.
- Extraction of Actionable Information from multi-party Conversation.

4

Voice Assistant for Vibing

- Should be able to create ambiences with smart devices.
- Should handle device coordination and functionality.
- Leverage SmartThings data.

5

Voice Assistant for Day Planner

- Utilized user's to do list, calendar, meeting info's, notes, bills etc. and provide proactive prompts for suggestions.
- User should be able to do QnA, interact with his data.

THEME #1 “Multi-Lingual Voice Assistant”

#ThePolyglot

THEME #1

Objectives

- ***Language Diversity***: A solution that can understand and respond in multiple languages.
- *Contextual Understanding*: Comprehending language nuance, context and idiomatic expressions, Sequence Labelling and Question Answering
- *Code-mixed*: Understand and respond in code-mixed languages.
- ***Cross-Cultural***: Responses should be decent and respectful in accordance with language.
- *Multilingual Prompting*: Prompting can be done in under-represented non-English data.

Judging Criteria

- **Accurate** understanding of different languages.
- Maintaining **Context** between conversations.
- **User-friendly** interface and unique functionalities

Extra Points

- **Adaptability** to different cultural and dialect sensitivities.
- Voice interaction with **other modes** of accessibility

THEME #2 “A Multimodal Voice Assistant”

#TheEclectic

THEME #2

Objectives

- ***Multimodal*:** Accept multiple modes(text, audio, video, files etc.)user inputs.
- ***Intermodal*:** Understand user inputs with multiple interlaced (combination of two or more) modes**.**
- ***Smart*:** Understand the relationship between all inputs and provides multimodal responses.
- ***Contextual Understanding***: Comprehending and maintaining context from different modes of input.
- ***Scalable***: Viable solution with potential to scale and integrate with real-world applications.

Judging Criteria

- **Accurately** understand user's inputs in various modes.
- **Latency**
- **Context-awareness**

Extra Points

- **Accessibility** for specially abled**.**
- **Ethical considerations** of Data protection and privacy

User

Find Robin in this group photo. [image added]

Assistant

There's Robin looking handsome in the top-left corner in Blue Jacket. [Image with a marker]

THEME #3 “Voice Assistant for Conversations”

#TheAttendee

THEME #3

Objectives

- ***Summarization***: Summarizing the virtual calls, webinars, phone calls & texts to create MoM, notes, action items.
- ***Interactive QnA*** : Answer user's questions from meetings.
- ***Scheduler/Reminder*** : Schedule meetings for set of users for given agenda and set reminders for users as per the call.
- ***Task Tracker***: Allow user to add , update and track action items and their status.
- ***Translation***: Making meetings more holistic and bridging the language barrier.

Judging Criteria

- Effective transcription and summarization (MoM, action items)
- Accuracy for Scheduler/Reminder
- Effective Task Tracker and its operations
- Support for Multi-party conversations

Extra Points

- Seamless integration with popular meeting platforms.
- Adapting to different languages and disciplines.

User

What task were assigned to me today?

Assistant

Venky has asked you to raise the PR on the test branch by 5pm today in Sync-up meet today.

THEME #4 “Voice Assistant for VIBING”

#ThePollyanna

THEME #4

Objectives

- ***Ambience Creation***: Creatively controlling different smart devices to craft personalized ambience.
- ***Adaptive*:** Scenes to take maximum advantage of different user's devices and their capabilities.
- ***Personalization***: Tailor ambiences as per individual preferences and moods
- ***Natural Language Interaction***: Easy & engaging interaction and modification of crafted scenes
- ***Integration***: Seamless integration with provided SmartThings data.

Judging Criteria

- **Accurately** understand user's commands & craft innovative ambiences.
- **Real Time Responsiveness** towards user inputs or other triggers.

Extra Points

- **Energy efficiency** and optimized usage.
- **Harmonious** device control.

User

I will watch Star Wars: The Last Jedi

Assistant

Streaming on Bedroom TV, Dimming lights and closing window shades, I am. To the dark side you must go. (Impersonating Master Yoda)

THEME #5 “Voice Assistant for Day Planner”

#ThePlanner

THEME #5

Objectives

- ***Structured***: Utilize user's to do list, calendar, meeting info's, notes, bills etc. and provide proactive prompts for suggestions.
- ***Intelligent***: Tailor plans to consider different parameters like user preference, weather etc.
- ***Proactive***: Help user optimize the processes though proactive prompts, suggestions and reminders.
- ***Natural Language Interaction***: Easy interaction and modification of schedules through natural language.

Judging Criteria

- **Accurately** understand user's commands & efficiently schedule events.
- Compatibility with calendar, Payment applications.

User

Schedule a 30 minute call with Joe.

Assistant

8:30 pm will suit both of your schedules. I have sent him an invite.

Round 1 Evaluation Strategy

Motivation: Originality & Creativity	• 20 Points
Implementation: Coding & Optimization	• 35 Points
Presentation (Demo)	• 35 Points
Speculation: Usability	• 10 Points

Round 1 Judging Criteria

TeamName_Theme_HackName.ipynb

Demo-lishers_1_Long_Story_Short.ipynb

- ***Technical Accomplishment:***
    - Complexity of problem,
    - Number of Components involved
    - Efficiency and Feasibility
- ***Documentation:***
    - Unique and aesthetic use cases, tapping new customer segments
- ***Commercial Viability :***
    - Can it be monetized, business potential
- ***Working Demo (Brownie Points)***

✨ Welcome to Generative AI Hackathon ✨

We are thrilled to have you onboard for this hackathon. Here's a quick guide on what we expect in your submission document. Get ready to showcase your brilliance!! We can't wait to see your magic unleash.

Let the best hack prevail 🚨

Team Name : Demo-lishers
Team ID : 1234
Hack Name : Long_Story_Short
Theme : 1
Members :

Name	Email	Branch & Year	Phone

Motivation ⭐

[20 Points]

A compelling motivation sets the stage for an unforgettable hack. What inspired you to take this up? What real-world problem does it solves? Tell us your story!

#Motivation

Implementation 🛠️

[70 Points]

Breakdown your nitty-gritty project's architechture,features, technologies down here. Provide us with enough details to grasp your technical prowess, but make sure it is snappy and engaging. Flowcharts, Snippets, diagram are your allies here

[1]:
```
#Implementation
```

Speculation 🚀

[10 Points]

This is your chance to dream big! Let your imagination run wild. Paint a vivid picture of how this could be the next big tech trend.

#Speculations

Notebook Template

Motivation ⭐

[20 Points]

A compelling motivation sets the stage for an unforgettable hack. What inspired you to take this up? What real-world problem does it solves? Tell us your story!

As per a study, everyday 2.5 Quintillion bytes of data is produced daily. This creates concern for it storage, maintainence and processing. Our goal is to allevate this burden with a tool that distills voluminous content into concide summaries, enabling efficient and fast consumption of data.

Implementation 🛠️

[70 Points]

Breakdown your nitty-gritty project's architechture,features, technologies down here. Provide us with enough details to grasp your technical prowess, but make sure it is snappy and engaging. Flowcharts, Snippets, diagram are your allies here

```python
from langchain_community.llms.huggingface_pipeline import HuggingFacePipeline
from transformers import AutoModelForCausalLM, AutoTokenizer, pipeline
from langchain.prompts import PromptTemplate
from langchain_community.document_loaders import WebBaseLoader


model_id = "gpt2"
model = AutoModelForCausalLM.from_pretrained(model_id)
tokenizer = AutoTokenizer.from_pretrained(model_id)
pipe = pipeline("text-generation", model=model, tokenizer=tokenizer, max_new_tokens=100)
hf = HuggingFacePipeline(pipeline=pipe)

template = """Summarize this {text}"""
loader = WebBaseLoader("http://0.0.0.0:8000/Sample.html")
docs = loader.load()
prompt = PromptTemplate.from_template(input_variable=['text'],template=template)

chain = prompt | hf

print(chain.invoke({"text": docs[0].page_content}))
```

```
Setting `pad_token_id` to `eos_token_id`:50256 for open-end generation.

Tesla also reported second-quarter net income and realized revenue of $1.37 billion, which stands nearly $2 billion above the prior year estimate. The co
mpany had reported second-quarter income of $10.31 billion, or $3.48 per share. Earnings increased, as has other Tesla analyst markets. The company repor
ted second-quarter revenue of 93 cents per share. That's about a 25 cents increase on past quarters. Earnings rose $3.04 billion to $24
```

SAMPLE NOTEBOOK

Submissions

- All participants will be submitting a Jupyter-notebook (.ipynb) and exported as HTML(.html) file along with requirements.txt.

- Along with the implementation of hack, add description for the following
  - *Motivation* behind choosing this idea, defining its capabilities and shortcomings
  - *Implementation* details about tech, approaches and theories used.
  - *Speculations* of what next can be done further with this.

- Links if the solution is hosted somewhere.

Do’s

- ✓ Submissions should be made in the given prescribed format only.
- ✓ Attach both (.html) and (.ipynb) variants of the notebook.
- ✓ Add the requirements.txt file to list all the dependent libraries and packages.
- ✓ Follow the proper naming conventions for files. It should be <TeamName>_<Theme>_<HackName>_<File>
- ✓ Innovate fearlessly, push the boundaries, craft a narrative that captivates.
- ✓ Keep your submission clean and well-commented.
- ✓ Use Visuals, diagrams, charts to enhance understanding.
- ✓ Adhere to submission deadlines

Don’t’s

- ✓ Avoid putting unnecessary stuff (Installation logs, warnings, debug print statements) in the notebook. will not only make it bulky, but also reduces visibility of relevant data.
- ✓ Avoid submissions of encrypted or password protected files.
- ✓ Ambition is commendable, but avoid overcomplicating. Focus on delivering polished, functional solution.
- ✓ Avoid too much of technical jargon. Strike balance, be succinct.
- ✓ Presenting someone else’s work. Ensure your submission adheres to ethical standards.

Pre-requisites

Gen AI Courses

- ChatGPT Prompt Engineering for Developers - DeepLearning.AI
- Building Systems with the ChatGPT API - DeepLearning.AI
- LangChain: Chat with Your Data - DeepLearning.AI
- How Diffusion Models Work - DeepLearning.AI
- Generative AI with LLMs - DeepLearning.AI

Program Schedule

Registrations

https://forms.gle/akQum3Wd6mrbQLrf8

Note : 1) Last day to register-5th Feb.
2) Each Team - 2/4 members.
3) Only primary member from each team will register for the entire team.
4) **Students can participate in multiple themes**

THANKYOU

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SAMSUNG INNOVATION AND TECHNOLOGY

Article · August 2020

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SAMSUNG INNOVATION AND TECHNOLOGY

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ABSTRACT

Samsung is described as a world leader in consumer electronics and it specialises the manufacturing and sales of a variety of consumer electronic products. The Samsung brand has become very popular throughout the world and has a very high brand recognition. The company boasts a very sophisticated research and development function and it has made this company to become a very innovative businesses in the world. Samsung continuously strives to achieve product diversification and over the years, it has come up with many winning products such as its smartphone and also smartwatches. It is a very innovative company that comes up with new products to satisfy new consumer requirements. It is also a very technology-oriented company and it continuously improves its technology infrastructure and acquisition. It uses very advanced technologies to help it come up with new and innovative offerings for its customers and to attract them away rivals such as Apple and Lenovo. Despite its success, Samsung continues to face a number of challenges such as increasing threats of competition, a drop in sales of its smartphone within its main market which is the United States, and also the threat of the coronavirus pandemic. Recommendations are made in this paper about out how Samsung can improve its position in the market and to become more competitive and achieve higher profits.

Keywords: [Internet banking, cyber security, ecommerce, social media, agile scrum, managing shared services project, cultural usability]

INTRODUCTION

This report will be about the Samsung company. Samsung is a South Korean multinational consumer electronics manufacturer. In 2009, it had become the world's biggest consumer electronics device maker with emphasis on its smart devices like smartphones and tablets. The company has a very high sales revenue and is one of the world's leading smartphone manufacturers. It has become somewhat of a legendary company in the sphere of information technology. The company's roots can be traced as far as 1969 when it was first established. Since its establishment, the company has expanded internationally at a very high pace. This innovation can be traced as far as back as 1993 when it developed one of the lightest mobile phones. The company has managed to achieve steady growth in the mobile device industry and it continues designing and producing very innovative products to keep up with consumer trends and demand.

The main vision of Samsung is to inspire the world with their innovative technologies, the wide range of innovative products and the state-of-the-art designs that are meant to make the lives of their consumers much more comfortable, richer and to make a significant contribution to social prosperity. Concerning the mission, Samsung have the mission of devoting the human resources and technological abilities towards creating superior products and services and thereby making a contribution to creating a better and more globalised world.

METHODOLOGY

This paper will feature a case study analysis on the Samsung company from a number of perspectives. The report will provide particular emphasis on the company's social media strategy, and then its IT project management consisting of its cyber security, data analytics, revenue streams. Other relevant matters will also be discussed in this analysis.

FINDINGS & DISCUSSION

Samsung Swot Analysis

Figure 1: Samsung SWOT

Strengths

One of the main strengths of Samsung's its very vast product portfolio. The company does have a wide range of very innovative products to cater to various mobile technology needs of its customers. This is perhaps due to its very sophisticated research and development function. The main foundation of Samsung is its very stringent focus on achieving innovation, especially in its research and development. The company spends a lot of money on investing in research and development and as a result, they have a wide range of products in their product portfolio. These comprise of mobile phones, tablets, cameras, camcorders, memory cards, PCs and various other consumer electronics such as televisions and audio and video devices. Its research and development function strives to ensure that it is capable of bringing to the market the most innovative products through the use of advanced technologiess and state-of-the-art design consumer electronic products.

Besides that, the company has also a very strong brand and it is widely recognized across the world. In addition to that, Samsung also has the strength of being a very innovative company. Samsung is also an award-winning brand and it is regarded as a pioneer for innovation. Its brand is recognised as being very credible and has won many awards for its various products. The company has also very ecologically friendly innovations and this has managed to enhance its brand reputation. As such, it is known as in an environmentally friendly brand.

Weaknesses

One of the main weaknesses of Samsung is its declining sales of its smartphone. This is perhaps due to the competition that is brought about by various other smartphone manufacturers like Apple, Lenovo, Huawei and OPPO. Samsung has experienced a decline in sales of smartphones since 2017 and the same is apparent in China because of the price sensitivity of the Chinese market. Thus, they are forced to sell many of these products in the Indian market at lower costs.

Another weakness of the company is that is heavily dependent on the US market. The company sells most of its smartphones in the United States and although it has diversified its operations in Asia, nevertheless, it is still dependent greatly on US markets. This can be bad because the American economy is very unpredictable at the moment and a recession due to the coronavirus can result in the revenues of this company being jeopardised.

Besides that, one of its main rivals, which is the Apple company, has a very effective branding strategy which Samsung is unable to match and thus its branding is another one of its main weaknesses. Samsung has not managed to enhance its brand recognition in the past two years in a way that is capable of competing with the Apple brand.

Opportunities

Samsung has the opportunity to engage in product development at a greater pace. The company is already making preparations to launch a new air conditioning product that incorporates state-of-the-art technology and an impeccable design. Besides, Samsung has the opportunity to create more sophisticated and efficient human resource management. This will provide it with a competitive leverage over its competitors and they can utilise its brand image to attract more qualified and skilled employees that can help it improve its performance and productivity.

Also, the company can also engage in greater diversification and acquisitions. The company must not limit itself to being in just one marketplace. This can result in economic risks and also

political polarisation. It has to take advantage of its opportunities and expand its customer base to new markets through diversification and acquisition of other businesses. The company has significant opportunities in targeting members of the middle-class market. Besides that, it also has the opportunity of developing its markets by targeting new markets which it presently does not have a presence. It is in these market that Samsung will be able to try and market its products.

Threats

There is always a threat very stiff competition in the consumer electronics market, and this is with particular emphasis on the smart phone segment of the industry. The competition is very stiff and Samsung might find it difficult to fend of this competition in the event that it does not innovate and grow its markets at a faster pace. A great amount of competition comes from those companies that are competing within the consumer electronics, the smart phone products and also the computing industries. These include companies like Huawei, Apple and Xioami. Many of these competitors are able to outmanoeuvre and outperform Samsung in certain ways and strive to become the best consumer technology company. This would place a significant amount of pressure on Samsung in terms creating higher competition and also straining its financial capabilities.

Besides that, Samsung also comes in a variety of legal and regularly threats. The world is essentially becoming more globalised and to a great extent, it is becoming digitally oriented. Thus, many governments have started to put out guidelines that strive to increase legal and regulatory compliance among companies such as Samsung. These laws and regulations are quite different from one market to another and it can result in the operations being hindered to a certain extent. If they are unable to comply with these laws and regulations, it can result in them being prevented from doing business a certain country. In addition to that, Covid 19 can also have a very detrimental impact on the business of the company in terms of its production and marketing of its products. Such a factor can negatively affect Samsung to such an extent that it can suffer significant losses.

Samsung and 5G Technology

Figure 2: Samsung 5G Technology

Samsung have embarked on integrating 5G technology within its products, especially its tablet's and smart phones. The company believes that this move is a step in the right direction as it will result in much greater speed of transmission of data. 5G transmit data through millimeter waves and 5G can deliver download speeds up to 20 Gbps which is 10 time faster than 4G LTE network. It will bring about very fast streaming speeds, streaming games from the cloud, bringing favorite TV series without buffering or broadcasting daily vlog live in UHD. 5G put power, speed and connectivity right in hands. Speed up to 20 time faster than 4G network, can enjoy streaming, broadcasting and enhanced AR and VR experience with virtually no lag. 5G give a steady connection every time.

It will produce ultra-quality video and graphics, and will essentially result in their consumers living life in the fast lane. 5G network allow users to stream ultra-high-quality video, which they can view video in crystal clear 8K. In gaming it will take to next level, where users will be able to access and play high performance game straight from the cloud. Samsung is not a newcomer when it comes to 5G technology. For more than 35 years, the company has strived to make investments in creating some of the most advanced smartphones in the world and the researching and developing of mobile technologies has made them evolve. For more than 10 years, the company has been focused on testing and perfecting its 5G technology.

Moreover, it aims to help customers to live smarter lives, to experience seamless within their lives and to be able to access the world from a device within the pocket that is 5G enabled and infused into the houses, and to entire smart cities that are around them. 5G will reshape the role of mobile devices in lives and it give users more freedom to get on. Samsung position to lead the market and bring consumer an entirely new mobile experience with most advance network and technology.

Samsung Pay

Figure 3: Samsung Pay

Another important innovation of Samsung is its Samsung Pay feature, which is a mobile payment and digital wallet service provided by Samsung. Samsung Pay helps to simplify the

consumer's transactions and it is accepted almost anywhere a consumer can swipe the card as well as certain chosen mobile and Bixby merchants. Samsung pay safeguard user privacy. It uses several special security methods like tokenization to secure personal and financial information of the users. Samsung Knox monitor and protect phone from malware and other threats.

When it comes to in-store purchases, a consumer can swipe from the home screen to launch their favorite card and they can verify the fingerprint and then have a device over the card reader to make payments. This feature is only compatible and selected Samsung devices and cards. In essence, there are many important attributes of Samsung Pay and this includes it being a very secure method of payment whereby information is encrypted. When users add payment card to Samsung Pay, the information is encrypted and sent to Samsung servers and the card issuers payment network for approval.

Other than that, has many important security features such as the one-time password, near – field – communication and magnetic secure transmission technologies incorporated within it. One-time-password may be requested by the card issuer to verify the cardholder. If the card is lost or stolen, this will prevent the card from being added to Samsung Pay. Samsung Pay uses two technologies that allow it to work almost anywhere. First, Near-Field-Communication (NFC) for tap-to-pay transaction at contactless terminals. Second is Magnetic Secure Transmission for older terminals where normally swipe a card. The phone emits a magnetic signal to stimulate the magnetic strip found on the back of credit card or debit card when the phone hold against one of these readers. It also has the "Find My Mobile" feature within the device which will ensure better safety and security. If the mobile lose or stolen, Samsung Pay offers a free service to remote lock or erase Samsung Pay. It called Find My Mobile, and it also help to locate device and erase all stored personal information.

Figure 4: Samsung Pay

The steps that need to be adhered to by consumer when using Samsung Pay are very simple. In order to launch Samsung, Pay, all the user has to do is to swipe up to launch Samsung Pay

and the identification process is done with the consumer's iris, fingerprint or PIN. All the user has to do is to tap the phone of the terminal to make a payment.

Samsung's Market Share

Global market share of Samsung is discussed here. The market share of the company seems to be growing very positively when it comes to the smart phone market, as apparent from the figure below. Besides that, it has achieved significant growth in its television market as well. The global market share of Samsung Smart TVs hit an all-time high in 2020 amid the overall fall in market share due to the coronavirus pandemic. The company accounted for more than 30% of the world's TV market in terms of value between January and March 2020.

Global Smartphone Quarterly Market Data (2018Q1 – 2020Q1)

Global Smartphone Shipments Market Share (%)

Brands	2018 Q1	2018 Q2	2018 Q3	2018 Q4	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1
Samsung	22%	19%	19%	18%	21%	21%	21%	18%	20%
Huawei	11%	15%	14%	15%	17%	16%	18%	14%	17%
Apple	14%	11%	12%	17%	12%	10%	12%	18%	14%
Xiaomi	8%	9%	9%	6%	8%	9%	8%	8%	10%
Oppo	7%	8%	9%	8%	8%	9%	9%	8%	8%
vivo	5%	7%	8%	7%	7%	8%	8%	8%	7%
Realme	0%	0%	0%	0%	1%	1%	3%	2%	2%
Others	33%	31%	29%	29%	26%	26%	21%	24%	22%

Figure 5: Samsung Market Share

Figure 6: Samsung Vendor Market Share

Samsung Blockchain

Figure 7: Samsung Blockchain

Samsung's block chain wallet is a gateway to the block chain ecosystem. It is very convenient and secure crypto wallet that helps in the handling of critical transactions of the consumer on the go. There are many important features of Samsung's Blockchain and these include that it is very simple and trustworthy, it is very convenient and offers very secure crypto management and it also paves way for smooth integration. Besides that, it has a very secure and trusted User Interface and has crypto – friendly payment. The added security in the form of Knox and also Trusted Execution Environment ensures that authentication data is locked away very safely and can only be accessed by the personal who owns the account.

Challenges

There are numerous challenges that are facing Samsung and these include the fact that it is facing very strict competition from its main rivals. This is a very significant challenge that is faced by Samsung when it comes to most of its main products such as its smart phones, and various other consumer electronics. The main threat of competition comes from its smart phone segment and this is because of the rise of many other smartphone manufacturers that threaten the company for market share. This is a challenge that can result in the company suffering from a significant detriment in the event that it is not addressed properly.

Besides that, its competitors like Apple, Lenovo and OPPO are engaged in a great degree of diversification, and this poses a challenge to Samsung. Many of these companies are diversifying into new products that promise greater innovation to the consumers. In contrast to the pace of innovation of Apple, Samsung is still slightly left behind as its diversification pace is much lower and thus it usually finds itself struggling to compete with Apple in certain areas.

In addition to that, Covid 19 is also a significant challenge which has resulted in the company experiencing numerous setbacks and loss of growth as well. The rise of this pandemic has resulted in significant problems being encountered by the company in a variety of areas such as its manufacturing processes, its supply chain activities as well as the marketing of its

products. In addition to that, this pandemic has resulted in consumers being unwilling to spend unnecessarily on consumer electronics in such troubling times. Many countries are in recession across the world and this means that consumers have a lower purchasing power and thus will not be very willing to spend money on purchasing expensive items such as smart phones and other consumer electronics like those affected by Samsung. Therefore, it is likely that Samsung will experience the challenge of loss of sales volume and also decreasing profitability.

RECOMMENDATION

Certain recommendations can be made here concerning Samsung and the steps they can take in order to improve its competitiveness, its performance and its profitability. These include targeting the middle to upper class market, embracing a new and improved pricing structure, as well as increasing online sales. These are now discussed in more detail.

Firstly, Samsung is recommended to target the middle- and upper-class market for its products. Presently, the target market of Samsung is not very defined and most of its consumers come from the lower to middle class market. It is time that the company enhances product lines catered to the middle to upper-class segment. This will ensure that it is capable of targeting a wider range of consumers from two different classes. It can create products that are more premium in nature in order to cater for the upper-class segment of society. Therefore, the company should have a diversified product line consisting of consumer electronics designed for the middle and upper-class markets.

Besides that, Samsung is recommended to embrace a new improved pricing structure. It must price its products more competitively and in line with the prices within the industry. It is very important that Samsung does not price its products much higher than the industry average and this is because consumers would find it difficult to pay high prices for products and will resort to cheap alternatives. This is especially important in these times which affected by the coronavirus pandemic which have substantially resulted in economic degradation in many countries across the world. Therefore, Samsung must take this into account and ensure that its products are priced reasonably and in accordance with the quality of the product.

Thirdly, Samsung is suggested to focuses attention on enhancing the potential of its online sales and marketing platforms. The company must utilise existing platforms and create new ones to make its products more easily accessible to the target markets on the Internet. The company would benefit from the various features and attributes of the Internet to enhance the reach of its marketing campaigns and thus improve the sales volumes. This requires Samsung to draft out a new and improved Internet strategy to improve its online sales. It must create sophisticated and advanced platforms and integrate the use of social media and elements of the integrated marketing communications strategy as part of its Internet marketing strategy to target consumers more effectively. By having such an effective Internet marketing strategy, Samsung will be able to tap into the online consumer base and it would have a potentially large consumer base from which it is able to market its products.

CONCLUSION

Samsung has come a long way since its inception to become one of the world's leading consumer electronics company that specialises in a variety of consumer electronic products. The company has indeed become a household name and has a very strong brand recognition across the world. Besides that, its research and development function is very sophisticated and advanced and it has made the company become one of the most innovative businesses in the world. The company has strived to diversified its product line over the years and has come up with many winning products such as its smartphone and also smartwatches. The company continuously innovates and comes up with new products to satisfy new consumer trends and requirements.

Samsung is a company that is very technology oriented and it continuously improves its technology infrastructure and acquisition. The company uses the most advanced technologies available to come up with new and innovative offerings for customers to attract them away from its competitors such as Apple and Lenovo. Nevertheless, Samsung continues to face a number of challenges in light of its threats of competition, the threats of dwindling sale of its smartphone within its main market which is the United States, and also the threat of the coronavirus pandemic. Certain recommendations were given out in this analysis and the embracing of such suggestions will likely to help the company improve its position in the market and become more competitive and achieve sustainable profits.

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PRISM-Metaverse Program

Nurturing Ideas to Build Future Ready Metaverse Apps

About

- The Samsung PRISM Metaverse Program has been developed to give opportunities to students to come up with ideas on metaverse apps,get trained by Samsung experts in Unity and develop their ideas into apps.

- Final Goal- High quality applications submitted to marketplace store for public usage

- Interested students will be required to form teams of 3-4 students

- Top 3 apps will be rewarded with an amount of INR 40,000

Program Overview

Prepare

- Train students on Metaverse app development.
- Focus on practical use-cases.

Ideate

- Ideate on possible implementation ideas.
- Select relevant use cases

Implement

- Students work together to develop immersive applications.
- Samsung provides guidance and evaluation.

Marketplace

- High quality applications submitted to marketplace store for public usage.

Pre-requisites

- Applications to be demonstrated on any HMD
- Basic to novice programming knowledge of Unity

Topics/ areas for Ideathon

- Enhanced user experience
- Immersive experience
- workforce mobilization
- Industrial use – manufacturing, maintenance, healthcare

  (Focus on combination of different industries)

Process Flow

Launch in college

Team registration and idea upload (**Jan 12th –Feb 5th**)

Ideas evaluation & results(**Feb 5th –Feb 11th**)

Training selected Teams (**Feb 12th-Feb 16th**)

Teams develop App(**Before Mar 29th**)

Top 3 Apps to be rewarded(**Apr 15th**)

What not to do

- Plagiarism
- 3D model reuse can be considered after prior approval/intimation
- Do not use exiting 3D projects

Note: The projects will be checked internally and any plagiarised work will result in disqualification**.**

Evaluation Criteria

Innovation	• What is new in the idea?
Business Value	• What business value does it bring w.r.t. Samsung.
Impact	• How the idea will be perceived by others. • What impact it will bring in 3D eco system.
Viability	• The idea should be implemented using Unity 3D/ Blender.

Learning Resources

Unity

- Learn game development w/ Unity | Courses & tutorials in game design, VR, AR, & Real-time 3D | Unity Learn
- Build Your First 3D Game in Unity | Unity Beginner Tutorial – YouTube
- How to make a VR game - Unity XR Toolkit 2022 – YouTube
- Make a FIRST PERSON SHOOTER in 10 MINUTES - Unity Tutorial – YouTube

Blender

- Tutorials — blender.org
- Complete Blender Megacourse: Beginner to Expert | Udemy
- Blender Beginner Donut Tutorial - YouTube

3D Asset Library Online Stores

- Unity Asset Store - The Best Assets for Game Making
- Sketchfab - The best 3D viewer on the web
- 3D Models for Free - Free3D.com
- 3D Models for Professionals :: TurboSquid
- Royalty-free 3D assets to enhance your projects | Adobe Stock

Registration

Link to register- https://forms.gle/JpGb24DYHsV8SRPw5

Note:

- Only one member(primary member) from each team will register
- Each Team will consist of 3-4 members.
- File to be uploaded can be in PPT,PDF or JPG format
- Last date to upload- 5th Feb,2024 EOD

Sample Video

i. AR in Ads : https://youtu.be/GB_qT6rAPyY (Pepsi Ads)
ii. AR for Civil Construction - to measure distance: https://www.youtube.com/watch?v=8TER9NOIbDY
iii. Health Care : https://www.youtube.com/watch?v=KU5JM__6Jzk
iv. VR in games: https://www.youtube.com/watch?v=zYo1FYPU5iY

Metaverse Idea template

Summary	Concept Diagram
Problem statement: **Expected result:**	
Impact **Innovation:** **Business Value:** **Target Audience**	**Viability** **Development plan/ Timeline:**

THANKYOU

Contact Us :

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