

Equity Research Project – Global

[Samsung SDI] Case



Project Background

As world paying more attention to global environmental concerns, environmental sustainability has emerged as a key element of business strategies. When it comes to reducing CO₂ Emission for environmental sustainability, many companies shift their main business toward renewable energy-related business. This also fuels the growth of many eco-friendly supply chains like Samsung SDI Co, LTD. Not only minimizing environment pollution, but it's main li-ion battery business enables us to experience new technologies, such as smartphones and e-bike. Many new products and applications based on the li-ion battery have created a huge innovative value-added to us. As the demand for this market expanding, we expect this fast growing battery market to promise a next revenue growth opportunity to investors.

- Part 1. Target Company Overview : Business Information
- Part 2. Energy Solution Industry Overview
- Part 3. Target Company Financial Analysis Review/Pre-view
- Part 4. Investment Highlight
- Part 5. Valuation Overview
- Part 6. Appendix A,B



Project Leaders

Suyeon Song MyungSang Lee HanSung Cho



Finance Project Portfolio

Part1. Target Company Overview : Business Information

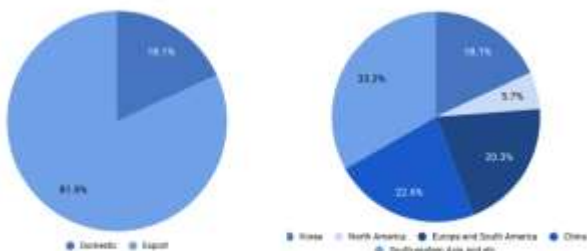
Samsung SDI is a global company which mainly produces batteries, semiconductors and display materials. The company made revenue around 6 trillion KRW in FY17. This great amount of sales record is a result of its efforts to further develop the businesses that they are operating in the world stage. In 2000, the firm entered the Energy solution industry, a main income source of Samsung SDI and took N.1 market share in the small-sized battery market in 2010. In 2017, it built an additional factory in Wuxi, China to expand their CAPA to generate PV, a part of electric material industry that accounts for 24% of its revenue. Besides, currently Samsung SDI focus on broadening its main sectors into diverse fields such as ESS and EV battery markets.

Target Business Overview: Samsung SDI

Company Overview

- Samsung SDI, which is a subsidiary company of Samsung group, was established in 1970 as a manufacturer of plasma display materials.
- Since 2000, the company expanded its businesses to secondary cells industry and recorded No.1 M/S in the small-sized battery market in 2010. The company now operates two main business segments;
 - **Energy-solution business:** Sales & Production of small-sized li-ion battery (IT; Laptop, Tablet, Mobile-phone, Non-IT; Power-tool, E-bike), automotive battery (EV; PHEV, HEV), and ESS.
 - **Electronic materials business:** Sales & Production of semi-conductors, display materials, and photovoltaic.
- The Energy-solution business takes 76% of its total revenue and electronic materials account for 24% based on 3Q18.
- The company generates 18% of its total revenue in the domestic market, while 22.6% of the rest income source is from China and 20.3% is from Europe and south America.

Sales Breakdown By Region

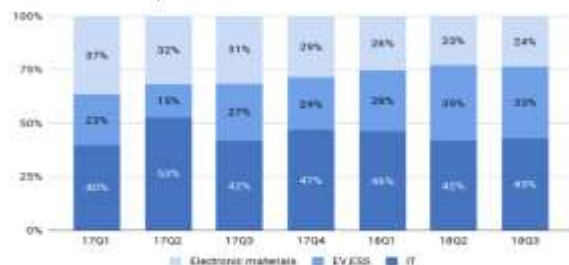


Source: Samsung SDI
Note:

Financial Statement

Unit: KRW, Bn	2017	2018	2019	2020	2021	2022
Income Statement						
Total Revenue	6,332	9,613	10,713	13,619	14,887	16,310
Growth (%)	22%	52%	11%	27%	9%	10%
Operating Income	117	716	889	2,541	1,798	2,040
Margin (%)	2%	8%	8%	19%	12%	12%
EBITDA	577	1,333	1,418	3,642	3,051	3,393
Margin (%)	9%	14%	13%	27%	21%	21%
Net Income	843	852	1,003	2,421	2,029	2,114
Margin (%)	10%	9%	9%	18%	14%	13%
Balance Statement						
Total Asset	15,751	16,077	16,484	17,779	20,694	22,238
Cash & Equivalents	1,323	210	453	1,105	1,981	3,723
Total Liabilities	4,209	6,168	7,231	8,188	9,136	10,039
Net Debt	354	2,606	3,758	4,064	4,164	7,215
Total Equity	11,452	12,224	13,158	15,507	17,405	19,508
Net Debt/Equity	1%	16%	29%	26%	24%	37%

Sales Breakdown By Product



EV (Electric Vehicles) : includes HEV (Hybrid Electric Vehicles), PHEV (Plug-in Hybrid Electric Vehicles), and E-bike. Like PHEV, HEV uses both fossil fuel engine and electric motor, but the major difference is that HEV's battery does not need to be charged from external power.
 ESS (Energy Storage System) : ESS is a storage system which controls the use of energy in residential, utility, commercial, and UPS efficiently. It enables to store surplus electricity and use it whenever it is in need.

Part2. Energy Solution Industry Overview

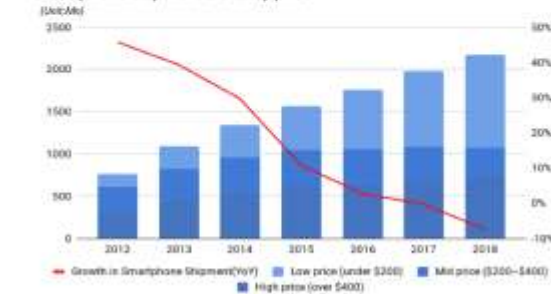
Samsung SDI recorded 83.4% increase in net sales of EV&ESS battery sector; it grew from 458 billion KRW 3Q17 to 840 billion KRW 3Q18. The size of electric vehicle battery industry is dramatically growing. Global EV battery business currently occupies 50% of the total battery market. Furthermore, renewable energy takes up almost 15% of the entire global energy consumption trend. With this trend, high efficiency of ESS has contributed doubling its market size. On the other hand, average selling price for new smartphone shipments has dropped from 400 USD in 2007 to 320 USD in 2017. Developed countries already have about 70% to 80% of smartphone penetration rates. As a demand for low-price smartphones in developing countries is dramatically escalating, a demand for high-price smartphones by Samsung and Apple is static.

Energy Solution Industry Overview

- Small-sized Li-ion Battery

- The overall smartphone market is down by 6% compared to the last year.
- The amount of shipments for smartphones under \$200 has more than quadrupled in 5 years.
 - Overall market shares of Xiaomi and Huawei, which are the major players in the Low-price smartphone market, have increased 50% and 100% YoY respectively in the last two years.
 - Market shares of Samsung and Apple Samsung are stagnant as 19% in recent years.
- Since 2019, smartphone demand will transition from low-priced phone to premium smartphone as 5G and foldable smartphone release.
 - Global smartphone shipment demand will rebound by 2.7% growth in 2019 with 2.7%; 3.8% in 2020, 8.7% in 2022.

Smartphone shipment trend by price

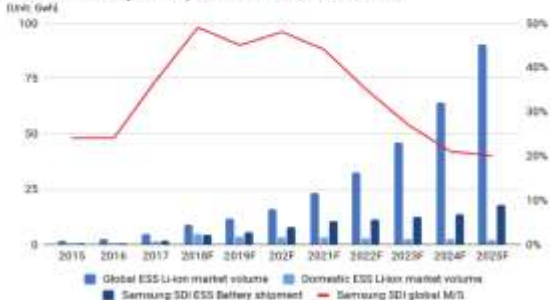


Source: SNE research, Hana Financial Investment

- ESS

- ESS Li-ion demand is expected to increase significantly to 90.4Gwh in 2025.
 - Energy related policy such as ESS-only plan led domestic growth of ESS market.
 - Under \$B100, ESS Li-ion battery market is projected to grow 39% CAGR until 2025.
 - With strong ESS demand, Samsung SDI made historical sales record in mid/large battery business (YoY +185%, 841 KRW Bn in 3Q18)
 - In ESS industry, LG Chem and Samsung SDI is expected to account for almost 70% of the global market shares and it will continue over the next few years.
- Rapidly growing Global ESS market with renewable energy consumption trend.
 - Renewable energy can be achieved better energy efficiency with use of ESS.
 - The market size is expected to be 138.5 Gwh in 2025, while it is currently 23.8 in 2018

ESS Li-ion battery Global/ Domestic demand Outlook



Part3. Target Company Overview : Financial Analysis

The 3Q18 of Samsung SDI shows revenue growth to 2,520 billion KRW with a plus of 12% in QoQ and operating income growth to 242 billion with a plus of 16% compared from the previous quarter, which, in fact, resulted from the increase in shipment of polymer battery for the release of the flagships model and for EV to Europe, whereas a decrease in the cost of raw materials, such as cobalt and Li-ion. In the outlook for the 4Q18, it is noticeable that revenue is expected to grow by 33% in electronic materials as the shipment of P/N dopants and Green dopants used for OLED increases. Also, since 2019, the operating income in EV/ESS will turn into a positive value, leading a rise in the overall operating income of Samsung SDI exponentially. We expect the annual EBITDA to grow significantly to more than 4.0 billion KRW since 2020 when the company decided to expand production facilities by investing more capex to almost 2.0 billion KRW.

Samsung SDI Financial Analysis

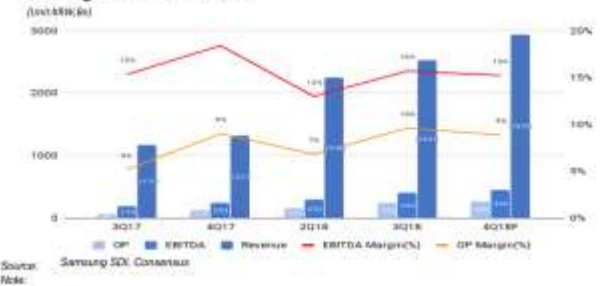
3 Quarter Review

- Samsung SDI recorded 2,520 billion KRW (+12% q-q) in revenue, 242 billion KRW billion in operating income for the following reasons:
 - For IT, an increase in the shipment of polymer battery from galaxy S line release - could contribute its revenue growth by 7% in the IT sector.
 - For EV/ESS, an increase in shipment of EVs to Europe/ For ESS, a sale growth in domestic commercial and US could be a major factor to increase EV/ESS revenue by 16%.

4 Quarter Forecast

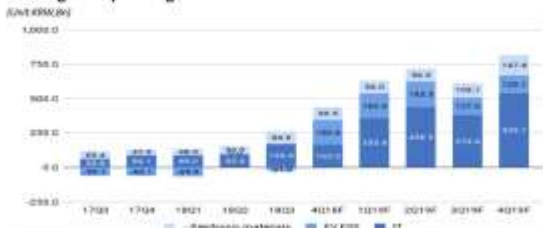
- Samsung SDI is expected to stay in a strong growth position with 2,933 billion KRW (+16% q-q) in revenue, 259 billion KRW (+7% q-q) in operation income for the following reasons:
 - For IT, expect an increase in demand for cylindrical used in solid Non-IT cordless product (power tool), and Polymer sales growth in China
 - For EV, expect new model shipments to increase to Europe/ For ESS, an increase in global UPS demand
 - For Electronic materials, expect a revenue growth by 33% in sales of P/N dopants used in OLED

Samsung SDI Financial Results



Source: Note

Samsung SDI Operating Profit Forecast



(Unit: KRW/Bn)	4Q18P			2019F			2020F		
	Estimated	Consensus	Deviation	Estimated	Consensus	Deviation	Estimated	Consensus	Deviation
Revenue	2,933	2,724	7.3%	9,613	9,402	2.2%	32,715	33,441	-6.8%
OP	268.4	256	4.7%	725.8	721	0.7%	889	1,093	-16.3%
Net Income	363.8	299	21.4%	852	754	11.8%	1,332	1,100	21.1%

Samsung SDI Annual EBITDA Outlook & CapEx



Capex : A capital expenditure (CAPEX) is regarded an investment in a business, such as buildings and equipment. The money spent is not immediately reported on the income statement. Instead, it is recognized as an asset on the balance sheet. Capex is deducted over the course of several years as a depreciation expense.

Part4. Investment Highlight

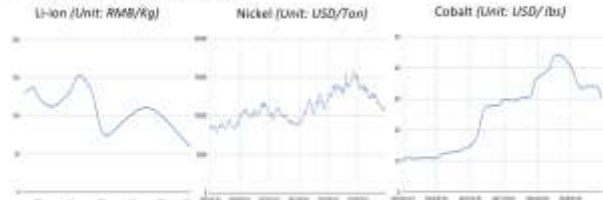
We focus on the following three signals that Samsung SDI stock will be on a rise; 1) the exponentially expanding EV/ESS market size, 2) the stable price trends of main battery components (Li-ion/ Nickel/ Cobalt), and 3) a strong presence of Samsung SDI in the overall battery sectors. The prospect of EV/ESS market's size growing is supported by three reasons; 1) increasing investment of Samsung SDI in Chinese battery industry where a massive demand in li-ion battery is expected due to a NEW credit policy and free purchase for license plates of EV by Chinese government 2) positive effects on Korean battery-supply chains after the abolition of Chinese subsidy benefit in 2020 3) an increase in demand of li-ion batteries from global car OEM corporations in Europe as CO2 emission strictly being regulated by EU. Currently, the subsidy policy that only Chinese battery companies benefit from has been reduced by almost 40% compared to the last year, then Samsung SDI can restore its presence and competitiveness in China. With this, Samsung SDI also announced its CAPA up to 20% of M/S in the global EV battery until 2025 when its global demand is expected to grow about 17 times than in 2018. Therefore, we conclude Samsung SDI has a high investment attraction.

Samsung SDI Investment Highlight

A signal for "BUY" to watch out is a fast growing EV/ESS Li-ion industry and Samsung SDI's solid position in the global industry; No.1 M/S in small-battery industry, No.4 M/S in EV, and No.1 M/S in ESS. Samsung SDI's stock price is currently undervalued compared to peers, but we expect it will be an attractive investment opportunity for the following reasons;

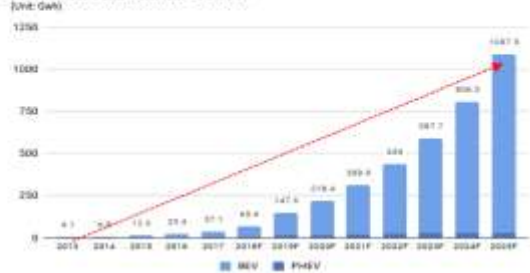
- Li-ion/ Nickel/ Cobalt is forecasted to maintain a stable price in the coming years.
- Samsung SDI will expand its production capability for Li-ion battery as obtaining huge contracts from BMW and Volkswagen, which is planning to secure a sufficient quantity of battery in producing EV.
 - Samsung SDI set its production CAPA target for EV Li-ion to 20% of M/S in the global EV battery market until 2025 from 4% in its current position; it is projected to make more investment to its capex.
 - Even though Chinese subsidy benefit currently keeps Samsung SDI from gaining more revenue from China, we expect this will be resolved in 2020 when the subsidy benefit is withdrawn. We expect Samsung SDI to set for a rebound in the Chinese battery market in the coming years.
- As the demand for ESS grows fast with a CAGR of 15% until 2025, Samsung SDI will reap its operating income leverage in ESS. We expect a significant growth of Samsung SDI in EV/ESS to achieve 51% of its total revenue in 2025.

Li-ion/ Nickel/ Cobalt Price Trend

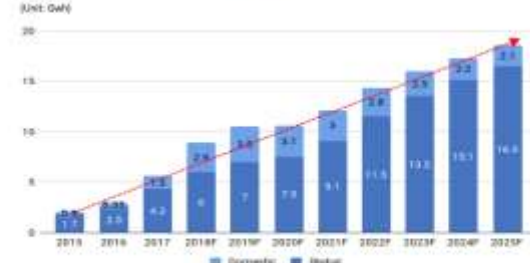


Source: Samsung SDI, RIMS, NH Investment research report, Hana Investment research report, SNE research, Press Note

EV Li-ion Global demand Outlook



ESS new installation Global/ Domestic demand Outlook



Part5. Valuation Overview

We speculate that the current stock price performance of Samsung SDI is undervalued compared to peers. The company have lower multiples across P/B, P/E and EV/EBITDA relative to each average in the same industry. We estimated a fair stock price of 290,000 KRW of Samsung SDI from averaging out the values from DCF, RIM, PER, and PBR. In detail, the RIM valuation model that we created results in positive residual incomes continually since 2019 when the operating incomes in EV/ESS sector starts to have a positive. Setting its perpetual growth of 0.1% as same as in DCF, we conclude the target value of Samsung SDI's stock is 319,024 KRW won from the RIM valuation. The reason why we approach in a pessimistic view to setting a low perpetual growth rate of 0.1% in DCF and RIM modeling is supported by the escalating US-China trade war effect on the overall Korean economy and a gradual rise in US interest rates in next years. In addition, we set the target financial ratios of Ke and Kd for Wacc in DCF by deriving from the average of the first three quarters of 2018. After all, since we reflected in DCF the huge capex of almost 2 billion KRW won since 2020 as Samsung SDI announced, we ultimately obtain a stock price of 262,125 KRW won, which is a bit lower than that from the RIM valuation.

Samsung SDI Valuation Overview

- We suggest a "Buy" for Samsung SDI stock, with a target price of KRW 290,000.
 - The expected PER value as of 2018 is estimated as 16.5x, which is around the median of 15.5x and below the mean of 26.1x for PER in the industry. The P/E ratio is undervalued compared to its profit growth rate.
 - The expected PBR value as of 2018 is estimated as 1.3x, which is below the median of 1.5x and the mean of 2.28x for PBR in the industry. The P/B ratio is also undervalued compared to its peer company (CATL 4.5x, LG Chem 1.4x, Panasonic 1.4x, BYD 2.0x).
- Target price is based on the average of values from Discounted Cash Flow (KRW 262,125), RIM (KRW 319,024), PER (KRW 327,018), and PBR (KRW 239,163).
- The following sensitivity analysis table for DCF assumes WACC to be 5.5% and perpetual growth rate to be 0.1%.

RIM (Residual Income)		Yearly									
Unit: KRW/Share		2016A	2017A	2018A	2019F	2020F	2021F	2022F	2023F	2024F	2025F
Shareholder's Equity		11,807	13,251	14,904	16,452	18,234	19,158	19,587	17,405	18,909	21,713
Net Income		80	36	211	684	863	3,080	2,821	2,820	2,115	2,277
ROE (%)		0.7%	0.3%	1.4%	4.1%	4.7%	16.1%	14.6%	16.1%	11.2%	10.5%
COE (Cost of Equity)		7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%
Difference		-6.5%	-6.9%	-5.8%	-3.1%	-2.5%	-0.9%	-2.4%	-0.9%	-3.9%	-3.3%
Residual Income		-601	-664	-474	-88	57	1,230	732	678	683	765
Perpetual Growth Rate (%)		0.10%									
Discount Factor		0.81 0.81 0.81 0.78 0.75 0.72 0.68 0.62 0.57									
Sum of Discounted Residual Income		5,863									
Sum of Terminal Residual Income		5,032									
Beginning Shareholder's Equity		11,807									
Equity Value		17,909									
Number of Outstanding Shares		68,764,536									
Target Price		262,125									
Current Price		208,000									
Potential Upside (Downside)		25.08%									
Investment Opinion		Buy									

Source: Samsung SDI, Bloomberg

Note:

DCF		16	17	18E	19E	20E	21E	22E	23E	24E	25E
(Unit: KRW/Bn)											
Revenue		5,193	6,522	8,628	10,715	13,819	14,887	16,133	17,875	18,896	23,086
Costs		4,452	5,152	7,453	8,209	8,529	10,782	12,721	12,889	14,317	16,639
Gross Profit		753	1,369	2,140	2,506	4,891	4,335	4,599	4,984	5,579	6,459
SG&A		1,677	1,022	1,434	1,624	2,150	2,387	2,559	2,798	3,398	3,615
EBIT		-606	137	726	889	2,541	1,798	2,040	2,186	2,873	2,844
TAK		58	181	272	320	773	640	675	727	811	908
NOPLAT		-684	-64	854	549	1,348	1,150	1,845	1,459	1,867	1,836
(+) D&A		405	480	609	770	1,331	1,243	1,351	1,490	1,658	1,931
(-) Capex		762	907	815	1,881	1,848	2,311	2,312	2,318	2,320	2,226
(-) MMAC		-204	-706	-450	-255	454	-189	-85	-338	-274	-413
Free Cash Flow to Firm		-793	-1,188	-540	-244	771	32	419	549	826	3,277
NOPLAT since 2020		1,595									
Perpetual growth rate		0.10%									
TOTAL FCF since 2020		1,227									
Risk free rate		3.94%									
Market Expected Return		5.58%									
Beta		1.35%									
Ke		5.28%									
Kd		2.79%									
WACC		5.50%									
FCF Valuation (Unit: KRW, Bn)											
NPV over the estimated period		2,132									
NPV of perpetual cashflow		15,623									
Enterprise Value		17,863									
(-) Net Debt		1,424									
(+/-) Non-operating Assets		1,884									
(-) Preferred stock		288.3									
Equity Value		18,053									
(/) Number of stocks		68,764,536									
Target price (KRW)		262,125									
Current stock price		208,000									
Upside momentum (%)		25.08%									
Investment opinion		BUY									
Sensitivity Analysis											
Terminal Growth		0.00%	4.50%	5.00%	5.50%	6.00%	6.50%				
			307,517	260,240	257,080	229,175	223,026				
		0.50%	343,121	308,880	281,528	255,074	240,359				
		0.10%	311,890	285,537	262,125	243,048	226,769				
		0.15%	311,339	285,226	264,282	244,912	228,598				
		0.20%	310,788	284,912	266,874	246,447	230,018				
PER Valuation (Unit: KRW, Bn)											
Net Income		852									
EPS (KRW, Won)		124									
Target P/E (x)		26.1									
Risk Value		3,222.2									
(/) Number of shares Outstanding (Bn)		68									
Target price (KRW, Won)		227,818									
Current stock price		208,000									
Upside momentum (%)		10.0%									
Investment Opinion		BUY									
P/B Valuation (Unit: KRW, Bn)											
Net Income		852									
EPS (KRW, Won)		124									
Target P/B (x)		2.3									
Mkt cap of common stock		14,002									
Target price (KRW, Won)		289,168									
Current stock price		208,000									
Upside momentum (%)		39.0%									
Investment Opinion		BUY									

* Wacc (Weighted average cost of equity) : $Ke * Equity / (Total Liabilities) + Kd * (1-tax) * Liabilities / (Total Liabilities)$
Ke (Risk free rates) : Risk free rate (average of 3-5year treasury bills) + Beta (slope of stock price relative to Risk-free rate) * Risk Premium (Market expected return - Risk free rate) / Kd (Recent Bond Interest rates)

Appendix is an additional data about valuation. Appendix A explains three expected financial statements for Samsung SDI; Balance Sheet, Income Statement, Cash Flows Statement. Appendix B includes a table to show the forecasted revenue, operating income, and operating margins by products and the right table explaining relative valuations with peer groups in the energy solution industry.

Appendix - A

Balance Statement

Expected Balance Statement	(Unit: KRW/bn)	2024	2025	2026	2027	2028
Current Asset		3,968	3,405	4,069	3,535	3,740
Cash & Cash Equivalent		1,012	1,209	120	452	1,155
Account Receivable & Others		1,047	1,218	1,372	1,209	1,535
Inventories		729	967	1,174	1,427	1,474
Other Current Assets		1,171	213	947	731	935
Noncurrent Asset		10,942	12,146	12,674	12,968	14,032
Property Plant & Equipment		2,594	2,910	4,087	5,426	7,096
Intangible fixed assets		942	897	918	916	940
Other Non-Current Assets		7,043	7,604	8,729	8,712	11,148
Investment in Property		144	156	150	130	150
Total assets		14,910	15,551	16,743	16,503	17,772
Current Liabilities		2,213	2,479	3,044	4,551	5,422
Accounts Payable & Others		1,658	1,488	2,463	2,540	2,957
Short-term Debt		384	1,073	1,590	2,089	2,334
Other Current Liabilities		171	105	180	227	231
Noncurrent Liabilities		1,723	1,619	2,224	2,176	2,768
Long-term Debt		567	945	1,199	1,058	1,374
Accounts Payable & Others		1,659	1,498	2,463	2,540	2,957
Other noncurrent Liabilities		585	100	1,185	1,188	1,464
Total Liabilities		3,936	4,098	5,268	6,727	8,190
Shareholder's Equity		10,972	11,453	11,475	9,776	9,582
Paid in Capital		357	357	357	357	357
Capital Surplus		5,040	5,040	5,040	5,040	5,040
Retained Earnings		6,383	7,313	6,683	11,620	13,663
Non-controlling Shareholder's Equity		242	101	185	181	155
Total Owner's Equity		10,964	11,452	11,224	11,135	10,507
Total Liabilities & Owner's Equity		14,909	15,550	16,742	16,501	17,771

Income Statement

Expected Income Statement	(Unit: KRW/bn)	2024	2025	2026	2027	2028
Revenue		5,200	6,332	9,813	10,713	13,819
Cost of Sales		(119)	(229)	(579)	(119)	(279)
Gross Profit		4,080	5,102	9,234	10,594	13,540
Selling, General & Administrative Expenses		(752)	(1,185)	(2,140)	(2,300)	(4,091)
Operating Profit		1,428	1,917	7,094	8,294	9,449
Non-Operating Profit		(93)	(39)	(40)	(83)	(87)
Interest Income		33	18	10	21	16
Interest Expense		(15)	(23)	(44)	(55)	(64)
Other Non-Operating Income		(81)	(58)	(60)	(53)	(78)
Pre-tax Income		1,353	1,863	6,990	8,157	9,314
Tax		(58)	(18)	(27)	(32)	(77)
Continued Business Profit		1,295	1,845	6,963	8,125	9,237
Discontinued Business Profit		1,090	-	-	-	-
Net Income		2,385	1,845	6,963	8,125	9,237
Other Income		(49)	(10)	(9)	(9)	(10)
EBITDA		(471)	(577)	(86)	(1,969)	(2,186)
Other Income		(178.2)	(222.4)	(50.7)	(57.5)	(57.7)
ROF		(7.3)	(1.2)	(0.8)	(1.3)	(1.0)
EBITDA Margin (%)		(9.1)	(9.1)	(0.8)	(18.3)	(15.6)
Operating Profit Margin (%)		(28.1)	(30.3)	(72.3)	(77.2)	(68.6)

Cash Flow Statement

Expected Cash Flow Statement	(Unit: KRW/bn)	2024	2025	2026	2027	2028
Cash from Operating Activities		1,310	(250)	137	472	1,457
Net Income		231	643	852	1,063	2,421
Depreciation/Amortization		455	480	699	793	1,181
Others		(137)	(551)	(584)	(690)	(833)
Change in Operating Assets/Liability		(204)	(390)	(459)	(491)	(454)
Change in Accounts Receivable		(81)	(213)	(534)	(248)	(533)
Change in Inventories		(176)	(116)	(308)	(241)	(57)
Change in Accounts Payables		(68)	(452)	(877)	77	107
Tax		(254)	(46)	(272)	(130)	(773)
Cash from Investing Activities		1,854	(89)	(907)	(1,135)	(1,441)
Net Investment in PPE		(755)	(857)	(1,137)	(1,340)	(1,649)
Net Investment in Intangibles		8.8	(15.1)	(16.2)	(21.1)	(24.9)
Others		2,597	(1,091)	(246)	(161)	(153)
Cash from Financing Activities		(819)	(353)	(234)	(221)	(542)
Net(Debt) in Paid in Capital		-	(49)	-	-	-
Net(Debt) in Debt		(541)	(134)	(732)	(890)	(682)
Dividend Paid		(71)	(70)	(72)	(71)	(71)
Others		(5,287)	9	(864)	(1,088)	(1,089)
Beginning Cash Balance		1,208	1,652	1,209	233	(452)
Change in Cash		(274)	(183)	(1,004)	(809)	(546)
Exchange rate		(2.5)	(4.7)	(4.8)	(5.5)	(5.4)
Ending Cash Balance		1,812	1,209	210	(452)	(1,195)

Source:

Note:

FCB Finance Institute

10

Appendix - B

Samsung SDI Consolidated Operating Prospect

(Unit: KRW/bn)	2024	2025	2026	2027	2028	2029	2030	2031	2032
Revenue	1,069	1,248	1,525	1,703	1,945	2,147	2,369	2,591	2,813
Battery	1,028	1,228	1,525	1,703	1,945	2,147	2,369	2,591	2,813
IT	879	937	1,084	1,158	1,158	1,200	1,210	1,250	1,317
EV/ESS	540	793	841	975	1,157	1,413	1,370	1,348	1,584
Electronic materials	480	519	600	698	725	809	1,106	1,407	2,618
Operating Income	72	153	247	289	452	533	600	521	726
Battery	34	(8)	147	143	254	437	580	538	431
IT	83	92	309	182	183	185	127	129	531
EV/ESS	(65)	5	(21)	(20)	(8)	309	253	(410)	(301)
Electronic materials	44	56	94	96	96	109	148	294	842
Operating Income Margin(%)	3.8%	6.8%	9.0%	8.8%	14.8%	15.9%	16.9%	13.7%	8%
Battery	1.7%	5.6%	7.6%	7.8%	13.0%	15.0%	15.5%	15.5%	15.5%
IT	10.2%	9.8%	25.0%	15.8%	15.6%	15.6%	10.5%	10.5%	23.1%
EV/ESS	(12.8%)	0.6%	(2.5%)	(2.8%)	(0.9%)	6.1%	7.9%	(10.8%)	(9%)
Electronic materials	8.8%	10.8%	15.7%	12.2%	12.7%	12.2%	13.4%	12%	11.9%

Peer Comparison

Peer Valuation	Country	Sub Cap	Net Income	EBITDA	EV/Revenue	EV/EBITDA	EV/EBIT	PER	PSR						
(Unit: KRW/bn)		2024	2025	2026	2027	2028	2029	2030	2031						
US Chem	US Korea	24,813	1,685	1,867	3,351	4,427	1.0x	8.8x	6.1x	11.3x	33.2x	10.5x	14.0x	1.3x	1.4x
GATL	China	28,840	563	721	1,032	1,388	5.7x	4.1x	24.3x	18.5x	16.4x	27.8x	48.5x	18.3x	5.4x
Panasonic	Japan	27,079	7,521	2,525	6,815	7,459	0.5x	0.5x	5.7x	5.3x	9.8x	9.1x	10.2x	10.3x	1.5x
BYD	China	24,057	2,522	719	2,294	2,750	1.6x	1.3x	88.7x	72.9x	34.9x	28.1x	47.4x	33.6x	2.1x
SA Innovation	US Korea	17,337	1,892	2,099	3,350	4,048	0.4x	0.4x	5.7x	5.5x	1.4x	7.4x	9.3x	8.3x	0.9x
Mean							1.8x	1.4x	26.4x	21.7x	13.9x	16.5x	26.1x	18.9x	2.0x
Median							1.0x	0.8x	6.8x	6.1x	11.3x	10.2x	13.5x	14.0x	0.9x
Samsung SDI	US Korea						1.7x	1.7x	12.0x	11.0x	22x	30x	18.0x	14.0x	1.5x

Source:

Note:

FCB Finance Institute

10