

Connecting
China
—
Connecting
the World



**Our vision is to be
the Global Markets Leader
in the Asian Time Zone**

**Connecting China,
Connecting the World.**

Building upon the role we already play as the leading venue for investing into and out of Mainland China, we aim to further increase our international relevance to China and Asia, and our Asia relevance to the global markets, serving as the venue of choice for investors and issuers in the Asian time zone.

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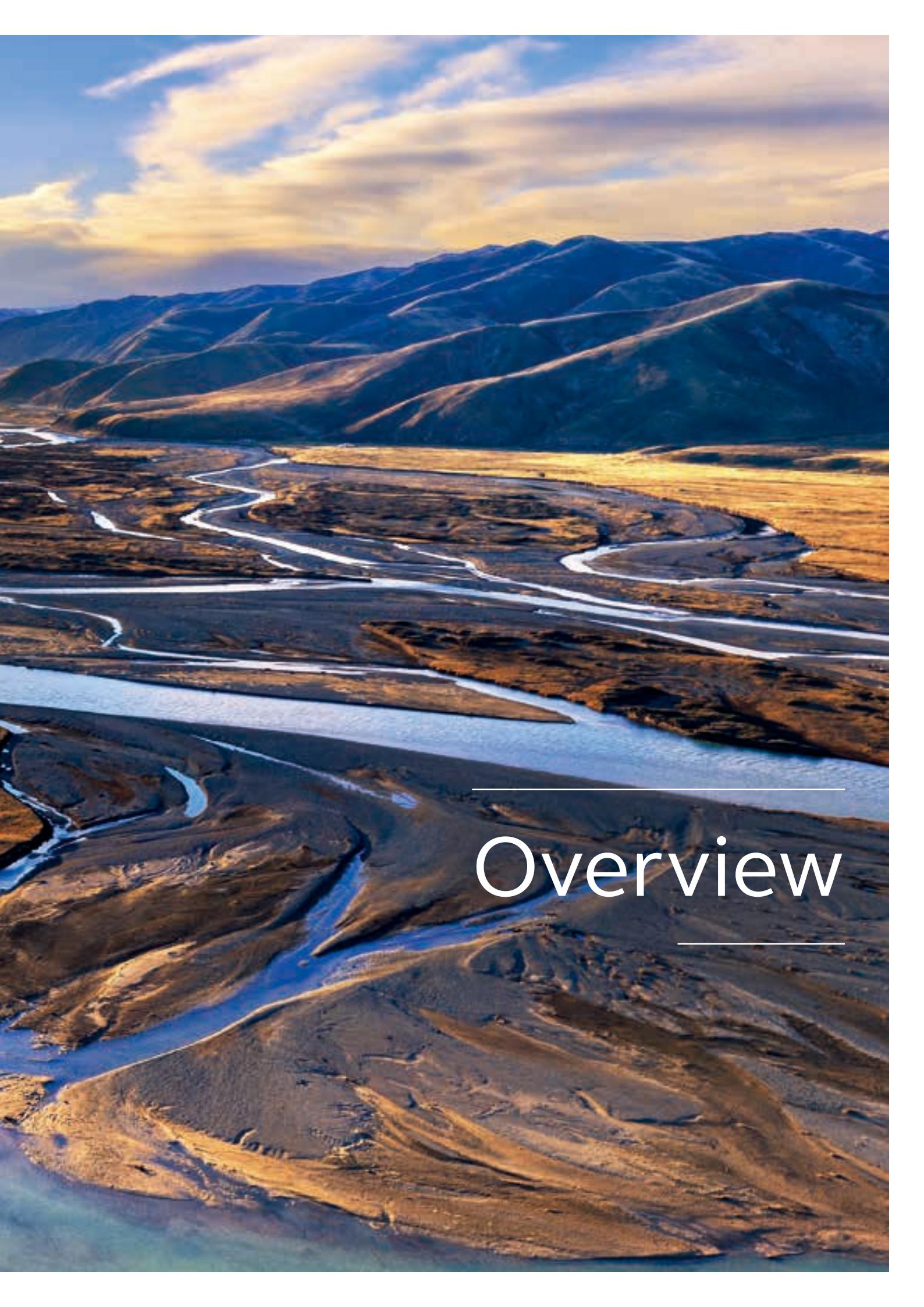
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(Financial figures in this Annual Report are expressed in HKD unless otherwise stated)



The background image is a wide-angle aerial photograph of a vast landscape. In the foreground, a large river flows from the bottom left towards the center, its path marked by a light blue color against a dark, textured terrain. The river's course is highly meandering, creating many small loops and tributaries. In the middle ground, the terrain becomes flatter and more yellowish-brown, suggesting a dry or semi-arid environment. The background features a range of mountains under a sky filled with wispy, orange and yellow clouds, indicating either sunrise or sunset.

Overview

Highlights of the Year



**China
Anchored.**

**Globally
Connected.**

**Technology
Empowered.**



Corporate News

20 FEB

Established International Advisory Council

28 FEB

Launched HKEX Strategic Plan 2019-2021

28 JUN

Completed acquisition of a majority stake in Mainland technology firm, BayConnect, formerly known as Ronghui Tongjin

12 NOV

20th Anniversary of the launch of ETFs on HKEX

17 NOV

5th Anniversary of Stock Connect

31 DEC

HKEX named as world's number 1 IPO market based on funds raised, the seventh time in the last 11 years

Regulation

6 JUL

Established new review structure for Listing Committee decisions, and announced appointment of inaugural Listing Review Committee

26 JUL

Published consultation conclusions on proposed rule changes regarding backdoor listing and shell activities

25 OCT

LME set out Responsible Sourcing requirements to all its listed brands

18 DEC

Published ESG Reporting Guide consultation conclusions and ESG disclosure review findings

Products and Services

11 MAR

LME launched seven cash-settled metal futures

28 MAY

HKEX welcomed the first listing of two-time inverse products

18 JUN

HKEX welcomed the first listing of Active ETFs

11 JUL

Introduced first-in-Asia Inline Warrants

5 AUG

Launched USD London Metal Mini Futures

16 SEP

Introduced Weekly Index Options

4 NOV

Launched Indian Rupee Currency Futures

31 DEC

Record year for Bond Connect trading volumes and number of approved investors

Market Operations

2 JAN

Enhanced Designated Specialist Programme for Exchange Traded Products

14 MAY

Launched Client Connect, a key component of the Next Generation Post Trade Programme

17 JUN

Extended Hong Kong after-hours trading session to 3 am

8 OCT

Expanded Closing Auction Session for all equities and funds

28 OCT

Hong Kong listed companies with weighted voting rights included in Southbound Stock Connect

1 NOV

LME proceeded with warehouse reform proposals

13 DEC

Published consultation conclusions to enhance the Pre-Opening Session and Volatility Control Mechanism in the securities market

Financial and Strategic Highlights

“2019 was a good year for HKEX. Despite a challenging political and economic backdrop, we are reporting record revenue and other income, and profit, for the second consecutive financial year. Very strong Stock Connect revenue, a buoyant IPO market and good returns from investments offset macro-driven softness in trading volumes in the Cash and Derivatives Markets.

As we reach the mid-point of our three-year Strategic Plan 2019-2021, we remain confident that HKEX is very well-placed as both destination market and financial gateway to and from China, that our business is strongly positioned to capitalise on growth opportunities and that we are competitively positioned internationally.”

Charles Li

Chief Executive

Financial Highlights

Revenue and Other Income

Revenue and other income for 2019 was up 3 per cent against 2018, driven by record revenue and other income from Stock Connect, and an increase in net investment income, including fair value gains on collective investment schemes and higher interest income; but partly offset by a reduction in trading and clearing fees from lower trading volumes in Cash and Derivatives Markets.

EBITDA²

EBITDA was up 4 per cent against 2018, with EBITDA margin at 75 per cent, 1 per cent higher than 2018.

Profit Attributable to Shareholders

Profit attributable to shareholders rose by 1 per cent, to a record high of \$9,391 million.

Operating Expenses

Operating expenses fell 2 per cent against the prior year, attributable to a decrease in premises expenses as a result of adopting the new accounting standard for leases¹. Excluding such impact, operating expenses increased by 6 per cent, due to higher staff and IT costs.

¹ As a result of the adoption of HKFRS 16: Leases, operating lease rentals are no longer recognised under operating expenses. Please refer to note 2 to the Consolidated Financial Statements for further details.

² For the purposes of this Annual Report, EBITDA is defined as earnings before interest expenses and other finance costs, taxation, depreciation and amortisation. It excludes the Group's share of results of the joint ventures and other non-recurring costs arising from the proposed combination with London Stock Exchange Group plc (LSEG).

Strategic Highlights

Hong Kong's IPO market again ranked first globally in terms of IPO funds raised in 2019, with several of the world's biggest 2019 listings, including Alibaba and Budweiser APAC.

Stock Connect Northbound ADT saw a record high in 2019, more than double the previous record achieved in 2018, partly attributable to the successful inclusion of China A shares in MSCI, FTSE Russell and S&P Dow Jones indices.

Bond Connect ADT reached RMB10.7 billion, nearly triple that of 2018.

The Closing Auction Session was expanded in October 2019 to cover all equities and funds.

Derivatives Markets trading hours were extended from 1 a.m. to 3 a.m. since June 2019.

Weekly Index Options, Indian Rupee Currency Futures, and USD-denominated London Metal Mini Futures for six base metals were newly launched in 2019.

Inline Warrants were introduced in July 2019, with a total of 922 listed as at 31 December 2019.

Inclusion of eligible companies with weighted voting rights in Southbound Trading of Stock Connect from October 2019.

Upgrade of derivatives platforms and new Orion Trading Platform – China Stock Connect successfully rolled out in May and August respectively.

The LME released a set of Responsible Sourcing requirements for all traded metals and decided to proceed with the warehouse reform proposals in 2019.

Financial and Strategic Highlights

Key financials	2019 \$m	2018 \$m	Change
Revenue and other income	16,311	15,867	3%
Operating expenses	4,048	4,110	(2%)
EBITDA	12,263	11,757	4%
Profit attributable to shareholders	9,391	9,312	1%
Basic earnings per share	\$7.49	\$7.50	(0%)
First interim dividend per share	\$3.72	\$3.64	2%
Second interim dividend per share	\$2.99	\$3.07	(3%)
	\$6.71	\$6.71	0%
Dividend payout ratio	90%	90%	-

Key market statistics	2019	2018	Change
ADT of equity products traded on the Stock Exchange (\$bn)	69.2	84.2	(18%)
ADT of DWs, CBBCs and warrants traded on the Stock Exchange (\$bn)	18.0	23.2	(22%)
ADT traded on the Stock Exchange (Headline ADT) (\$bn)	87.2	107.4	(19%)
ADV of derivatives contracts traded on the Futures Exchange ('000 contracts)	626	687	(9%)
ADV of stock options contracts traded on the Stock Exchange ('000 contracts)	442	517	(15%)
Chargeable ADV ³ of metals contracts traded on the LME ('000 lots)	617	627	(2%)
ADT of Bond Connect (RMBbn)	10.7*	3.6	197%

* New record high in 2019

3 Chargeable ADV excludes administrative trades (Admin Trades) and other non-chargeable trades. Admin Trades were introduced in 2017 to meet requirements resulting from MiFID II.

Revenue and Other Income

\$16,311 million

↑3%

**EBITDA**

\$12,263 million

↑4%*

**Profit Attributable to Shareholders**

\$9,391 million

↑1%

**Basic Earnings Per Share**

\$7.49

↓0%



* Excluding the impact of adoption of HKFRS 16, EBITDA increased by 2 per cent compared to 2018. There was no material impact on the percentage change in revenue and other income, profit attributable to shareholders and basic earnings per share.



Our focus on our Strategic Plan 2019-2021 and our vision to be the global markets leader in the Asian time zone has sustained and enhanced our competitiveness throughout 2019. This has been achieved despite broad global political and economic uncertainties and market instability, aggravated further by local social unrest. Against this challenging macroeconomic backdrop, our solid performance reflects the resilience and strength of our business. Our expectation is that the year ahead will prove no less demanding, but we are confident that we have the right governance, structure and strategy, coupled with the requisite experience and skills, to underpin our future success.

Our Performance

Total revenue and other income for the year ended 31 December 2019 was \$16.3 billion, up 3 per cent from 2018, resulting in record-high profit attributable to shareholders of \$9,391 million, up 1 per cent.

The macro environment dampeden investor confidence, impacting volumes and trading which fell from their record highs of 2018. New trading records, however, were set across various individual derivatives market products. Northbound Trading through Stock Connect, continued setting new highs, following successful inclusion of A shares into various major international stock indices. Bond Connect also celebrated record levels in trading volume and number of investors. Hong Kong's IPO market was again the world's largest in 2019, the seventh time in 11 years.

In the UK, the LME had a solid year with chargeable average daily volume of metals contracts traded on the LME broadly in line with 2018.

**\$9,391
million**

**Record-high profit
attributable to
shareholders**

Dividend

The Board declared payment of a second interim dividend of \$2.99 per share which, together with the first interim dividend of \$3.72 per share paid in September 2019, results in our full-year dividend remaining at last year's record high of \$6.71 per share.

Strategic Update

We made strong progress on our strategic priorities in 2019. Our commitment to strengthen our global competitiveness will remain a core focus for us in the years ahead. Further enhancements were made to Stock Connect to include Hong Kong-listed eligible companies with weighted voting rights (WVR) in Southbound Trading for the first time in October. We also continued our effort to drive product innovation across assets classes in Hong Kong and London.

Throughout the year, technological transformation remained core to our strategy, helping to drive business growth and capture new opportunities. In support of our strategy to elevate our technological capabilities and develop strong alliances with technology partners, we acquired a majority stake in BayConnect Technology Company Limited (formerly known as Shenzhen Ronghui Tongjin Technology Co., Ltd.), a Shenzhen-based financial markets technology firm; and invested in a minority interest in Fusion Bank Limited, a licensed virtual bank in Hong Kong.

Market Quality

As Asia's premier exchange group, we are responsible for ensuring market efficiency and promoting the quality of our markets for the long-term sustainable benefit of all.

During 2019, we undertook a series of market microstructure enhancements to boost overall market liquidity and competitiveness, by extending the After-Hours Trading Session by two hours to 3 a.m., and expanding the Closing Auction Session to cover all equities and funds in the securities market.

On the regulatory front, the Exchange implemented various Listing Rule amendments to address backdoor listings and shell activities and to safeguard market quality. As part of our focus on sustainability, we announced in December 2019 consultation conclusions and amendments to the ESG Reporting Guide to further improve issuers' governance and disclosure of ESG activities.

In the UK, in October 2019 the LME announced its "Responsible Sourcing" requirements for all its listed brands, following extensive market engagement and a formal market-wide consultation with the aim of building stronger, sustainable global metal supply chains. As part of its ongoing effort to optimise its warehouse network, the LME announced in November 2019 its decision to proceed with the warehouse reform proposals following the July 2019 market consultation. These efforts help reinforce the LME's leadership role in the metals industry.

Specific details of the Group's performance, achievements, and market initiatives in 2019 are set out in the Chief Executive's Review and Business Review sections of this Annual Report.

Corporate Responsibility

At HKEX, we believe strong corporate governance is key to good corporate citizenship and business success. As both a regulator and market operator, it is both our responsibility and privilege to promote sustainability, leading by example in embracing best-in-class governance standards and CSR practices.

With this in mind, we established an International Advisory Council in February 2019 to provide the HKEX Board with insight and expertise from around the world, on business, economics, finance and technology.

To provide opportunities for further improvement of our boards' effective functioning, we engaged an independent external consultant to evaluate the performance of the boards of HKEX and of its two UK subsidiaries in 2019. The evaluation concluded that all three boards are effective, highlighting in particular that the HKEX Board operates effectively and has made material progress since the prior independent evaluation in 2017.

Following the rollout of our CSR Strategy and Plan for 2019-2021 in February 2019, we continued to expand our CSR efforts and commitment, underpinned by our purpose, “to promote and progress our financial markets and the communities they support for the prosperity of all”. During the year, we launched and consolidated a large number of CSR initiatives and programmes focusing on strong governance, diversity and financial literacy. We were in particular proud to be recognised for the \$1 billion we have raised for The Community Chest of Hong Kong in the last 20 years. We launched the HKEX Foundation, contributed over 3,000 hours of volunteering services to our communities, and hosted a wealth of internal and external events to drive our sustainability agenda. Details can be found in our 2019 CSR Report, which is available on the HKEX Group website together with this Annual Report.

Outlook

Global stock markets in early 2020 have been adversely affected by concerns over the COVID-19 outbreak and this, together with the ongoing Sino-US trade tensions, the upcoming US presidential election and the impact of Brexit, will undoubtedly shape the performance of capital markets in 2020.

Our focus as a business, will remain on the successful execution of our strategic plan and working together with our regulators and other stakeholders to support the prosperity and sustainability of our markets and communities. We are confident that the efforts we are making will position us strongly for the next phase of our journey. Our relevance and unique role in many ways is perhaps more important than it has ever been, and we remain optimistic about the opportunities that this will present.

During the year we were deeply saddened to lose a member on the HKEX Board, the late Mary Ma, and our sincere condolences go to her family.

On behalf of the Board, I would like to express our gratitude to members of the International Advisory Council for their invaluable advice and guidance. I would also thank my fellow Board members for their support and contributions throughout 2019. Importantly, this year the staff of HKEX have gone “above and beyond” on many occasions and on behalf of the Board I would like to thank them for their dedication and commitment, during what has been, at times, an incredibly challenging period.

Finally, I would like to extend my utmost appreciation to our Shareholders and other valued stakeholders for their continued confidence and support. We will continue to work hard to deliver the ongoing and future success of HKEX.

Laura M CHA

Chairman

Hong Kong, 26 February 2020



2019 was a very busy year for the Group. The macroeconomic environment was characterised by notable volatility; internationally, Sino-US trade disputes and the ongoing uncertainty of Brexit added to global economic and market unpredictability. Despite the heightened geopolitical uncertainties, trade tensions and local social unrest, Hong Kong's financial markets have been resilient, fulfilling their pivotal role as East-West Connector and celebrating their leadership once again as the world's largest IPO capital market for the seventh time in 11 years. 2019 also marked the first year in the delivery of our latest three-year Strategic Plan and we are pleased to report good progress in implementing our strategic initiatives against the plan's three pillars: China Anchored; Globally Connected; and Technology Empowered. With strong foundations built up over previous years and our increasing relevance as an international financial centre, I am confident that HKEX and Hong Kong will prosper as we step into a new decade.

Outstanding Market Performance

Market highlights in 2019

- Our IPO market in Hong Kong again ranked first globally, with total IPO funds reaching \$314.2 billion.
 - Stock Connect Northbound ADT reached a new record of RMB41.7 billion, increasing 104 per cent from 2018.
 - Bond Connect trading volumes also saw record-high with ADT reaching RMB10.7 billion, increasing 197 per cent from 2018.
 - Turnover of securitised derivatives (DWs, CBBCs and Inline Warrants) remained the world's highest for the 13th consecutive year.
 - Turnover of RMB Currency Futures – USD/CNH Futures reached another milestone at 1,938,891 contracts.
-

Despite volatile sentiment, our primary market had another excellent year. Hong Kong topped the world's IPO fundraising league table in 2019: a total of 183 company listings raised \$314.2 billion in total, a 9 per cent increase over 2018 and the highest amount raised in a single year since 2010. Hong Kong has also become the second largest biotech fundraising centre in the world, less than two years after we launched the most significant listing reforms in a quarter century. We were pleased to welcome 10 Weighted Voting Rights (WVR) and/or biotech companies last year under the New Chapters¹, with IPO funds raised of \$117.3 billion – compared with seven listings raising \$94.2 billion in 2018. The Group also welcomed some of the world's biggest IPOs of the year, including Alibaba's \$101 billion secondary listing in November; and Budweiser APAC's \$45 billion IPO in September. The Alibaba offering marked the first wholly electronic public offering in Hong Kong, signalling further progress on IPO settlement cycle-shortening, with trading commencing in T+4 business days compared with the traditional minimum of T+5. Our existing listed companies raised \$140.0 billion, a decrease of 45 per cent over 2018. Total funds raised in the year reached \$454.2 billion, a decrease of 17 per cent over 2018.

¹ Refers to the Main Board Listing Rules Chapters 8A, 18A and 19C

Chief Executive's Review

On the regulatory front, HKEX implemented a number of Listing Rule amendments to enhance the quality and reputation of the Hong Kong markets, including, but not limited to, changes related to improving the quality and reliability of financial information, backdoor listing, continuing listing criteria and other rule amendments. Early in 2020, we have also launched a market consultation on proposals to allow corporate entities as WVR beneficiaries. Our belief that ESG considerations are fundamental to any business' success has been further anchored through significant enhancements to the ESG governance and disclosure framework for listed companies, which we were pleased to publish in our consultation conclusions in December 2019.

Our secondary markets continued to demonstrate resilience and strength in 2019, performing well against a challenging macroeconomic backdrop. The full-year 2019 ADT for the Cash Market reached \$87.2 billion, a decrease of 19 per cent compared with 2018, while total equity turnover reached \$15,597.9 billion, a 20 per cent decrease from 2018. The market capitalisation of the securities market reached \$38,165.0 billion at the end of December 2019, setting a new daily record on 30 December and marking an increase of 28 per cent compared with end of December 2018. Hong Kong has again taken the crown as the world's largest structured products market, for the 13th consecutive year, with total securitised derivatives (DWs, CBBCs and Inline Warrants) turnover of \$4,413.7 billion, though down 23 per cent on 2018. Derivatives turnover in the year was 262,885,798 contracts, with 115,759,091 and 147,126,707 contracts for futures and options respectively. Our mini HSI and mini HSCEI Options have again set new open interest records during the year, surpassing records set in 2018. Open interest of total futures and options at 2019 year-end was 9,698,551 contracts, down from 10,594,737 at the previous year-end.

**Average Daily Turnover
on Cash Market**



**Average Daily Number of Contracts
Traded on Derivatives Market**



Strategic Development Review

China Anchored

As China's capital markets continue to internationalise, our role in driving flows of global liquidity into China-underlying, both onshore and offshore, has become increasingly significant.

We celebrated the 5th anniversary of Shanghai-Hong Kong Stock Connect and the 3rd anniversary of Shenzhen-Hong Kong Stock Connect last year, both of which have fundamentally changed and enhanced regional capital markets in the relatively short time that they have been established. With the successful inclusion of A shares into international benchmark indices such as MSCI, FTSE Russell and S&P Dow Jones indices, Stock Connect volumes saw several record-breaking days throughout the year. Total Northbound turnover reached RMB9,757 billion, an increase of 109 per cent, breaking the previous record set in 2018, while Southbound turnover reached \$2,481 billion. Having reached consensus with the two Mainland exchanges on the arrangements for the inclusion of eligible companies with WVR, we added two eligible WVR companies to Southbound Trading in October. This reflects the commitment by the three exchanges to refine and enhance our mutual market access programme between Mainland China and Hong Kong, promoting the long-term sustainable development of Asia's capital markets. As of the end of 2019, net capital inflows since launch into the Mainland and into Hong Kong reached RMB993.5 billion and \$1,058.3 billion respectively.

Bond Connect gained significant momentum during 2019, with daily and monthly trading volumes setting multiple new records throughout the year. Total full year trading volume and ADT rose to RMB2,633.3 billion and RMB10.7 billion respectively, representing a 198 per cent and 197 per cent increase compared with 2018. With Bloomberg added as a second trading platform in January 2019, Bloomberg Barclays Index inclusion of onshore China bonds in April 2019 and in anticipation of other inclusions, market participation in Bond Connect has expanded significantly: as at the end of 2019, 1,601 global investors across 31 jurisdictions had been on-boarded, more than tripling that in 2018.

On the product front, RMB Currency Futures volumes continued to grow significantly, setting new record USD/CNH futures volume of 1,938,891 contracts, a 10 per cent growth compared with 2018.

Globally Connected

In September, we made a proposal to the Board of London Stock Exchange Group plc to combine our two companies to create a global market infrastructure leader. After detailed analysis and extensive discussions with shareholders, advisors and other stakeholders, we decided in October not to proceed further with the proposed offer. The decision was made with the best interest of our shareholders and stakeholders in mind: we remain firmly focused on delivering the key initiatives in our Strategic Plan, including our commitment to the Globally Connected pillar.

We have been actively expanding our product ecosystem across different asset classes to further enhance the attractiveness of Hong Kong's market as the venue of choice for global investors. In terms of structured products, the first Two-Time Inverse Product, the first actively-managed ETF and the first Inline Warrant were listed in May, June and July respectively. Weekly Index Options (including Weekly Hang Seng Index Options and Weekly Hang Seng China Enterprises Index Options) and Indian Rupee Currency Futures were also launched in September and November respectively. In the commodities space, we launched six HKEX Gold Futures Indices and six USD-denominated London Metal Mini Futures in June and August respectively.

Separately, we introduced a number of market microstructure enhancements in the year, focusing on meeting the diverse trading needs of global investors. We further extended the After-Hours Trading Session in our derivatives market to 3 a.m. (June) and further expanded the Closing Auction Session (CAS) to cover all equities and funds (October). Enhancement plans to the Pre-opening Session (POS) and Volatility Control Mechanism (VCM) were released in December with the goal of boosting market liquidity. As we celebrated 20 years of ETF trading in Hong Kong, a number of market structure reforms were introduced to help enhance market liquidity. Through these initiatives, we aim to enhance liquidity, cost effectiveness of and accessibility to our cash and derivatives markets and remain competitive amidst a growing trend of global investors adopting algorithmic- and quantitative-driven trading strategies. We will continue to streamline the client on-boarding process and provide new product support.

In London, the LME launched seven new cash-settled metal futures in March, including two hot-rolled coil, two aluminium premiums, alumina, cobalt and molybdenum, to reflect global metals markets' needs to reduce losses and protect against price volatility. In October, a set of "Responsible Sourcing" requirements for all traded metals was published, following a market-wide consultation. The LME further released measures aimed at optimising its warehousing network, providing greater transparency to global inventory levels. In the Mainland, the QME launched four products in 2019 – copper rod, copper cathode, aluminium ingot and billet – and continued to steadily expand its warehouse network in China.

Volume cleared by OTC Clear reached a record high with a total of US\$198.3 billion of notional amount cleared, 65 per cent higher than 2018.

Technology Empowered

Over the course of last year, we rolled out a number of key initiatives and programmes on the technology front to upgrade our core infrastructure, enhance our competitiveness, and embrace emerging technologies. Client Connect, a key component of the Next Generation Post Trade Programme, was launched to promote more secured and efficient client access. We further upgraded our Derivatives Market platform and rolled out Orion Trading Platform – China Stock Connect (OTP-CSC), a new Stock Connect trading system, to provide greater flexibility to support new functionalities and increased trading capacity requirements. We also continued to make progress on the delivery of Robotic Process Automation across the business to increase operational efficiency. The HKEX Innovation Lab, set up in August 2018, continued to explore, accelerate and deploy new technologies to promote the Group's core operations.

Aside from modernising our internal capabilities, we have sought to capture the benefits of the accelerating technology evolution in our industry by investing in a number of projects and organisations. In June we completed our acquisition of a majority equity interest in BayConnect (formerly known as Ronghui Tongjin), a specialist financial markets technology firm. BayConnect will reduce HKEX's reliance on third-party vendors, help manage development costs and reduce implementation risks. In January this year, we became a minority shareholder in Huakong TsingJiao Information Science (Beijing) Limited, a Beijing-based data technology company, to create a partnership that seeks to help the Group realise our vision of building a data marketplace. HKEX also became a shareholder of Fusion Bank Limited, one of the eight virtual banks that obtained licenses from the Hong Kong Monetary Authority.

Strategic Outlook

As we enter 2020 and a new decade, both our regional and global markets will unquestionably remain sensitive to geopolitical and macroeconomic uncertainties, as well as the epidemic situation of COVID-19. Our focus will be on maintaining operational resilience in times of unpredictability and challenges: I am confident that the success of the Group will continue to be underpinned by long-term growth in China, the continuous strength of Hong Kong as a vibrant international financial centre and our focus on embracing technology. It is also our top priority to further build, strengthen and diversify our capabilities in market connectivity, to develop our talent pipeline and to reinforce Hong Kong's relevance to both the East and West as the decade unfolds. In doing so we will realise our vision of being the "Global Markets Leader in the Asian Time Zone."

Remaining competitive and forward-thinking, skilfully executing on our strategy, we must have the courage to explore new opportunities, to experiment, and to move steadily and boldly towards greater success. Our relevance and our prosperity will be pinned to it.

Appreciation

2019 was a year when the Group demonstrated extraordinary resilience. This would not have been possible without the hard work, diligence and professionalism of our HKEX Group staff. I would also like to take this opportunity to express my most sincere gratitude to the senior executives who have recently left the Company, including David Graham (Former Head of Listing) and Roland Chai (Former Head of Post Trade), as well as Joseph Mau (Group Company Secretary) who will retire on 31 March 2020, for their contribution and service throughout the years. The new members to our management, together with the existing team, will continue to add to the Group's strength and diversity with their collective institutional experience and market insight.

I would also like to thank the SFC, the Hong Kong Monetary Authority, market participants, our partners and stakeholders for their ongoing support of our initiatives. I look forward to working with you closely in the future, particularly in the continued successful implementation of the HKEX Strategic Plan 2019-2021.

Finally, I am grateful to my fellow members of the Board for their unconditional trust and support. I am confident that with our conviction, our commercial focus and our resilience, we are well-placed to meet future challenges head on, and that we are strongly positioned to take advantages of the opportunities presented to us.

LI Xiaoja, Charles

Director and Chief Executive

Hong Kong, 26 February 2020

Organisation





Board and Committees



Laura M Cha



Charles Li



Apurv Bagri



Chan Tze Ching



Cheah Cheng Hye



Anita Fung



Rafael Gil-Tienda



Fred Hu



Benjamin Hung



Hugo Leung



John Williamson



Stephen Yiu

Board and Committees

Board

INEDs

Laura May-Lung CHA * GBM, GBS, JP (Chairman)
 Apurv BAGRI ¹
 CHAN Tze Ching, Ignatius BBS, JP
 CHEAH Cheng Hye
 FUNG Yuen Mei, Anita ^{* 2} BBS, JP
 Rafael GIL-TIENDA ^{* 2}
 HU Ziliu, Fred
 HUNG Pi Cheng, Benjamin * BBS, JP
 LEUNG KO May Yee, Margaret ^{* 3} SBS, JP
 LEUNG Pak Hon, Hugo
 MA Xuezheng, Mary ^{* 4}
 John Mackay McCulloch WILLIAMSON
 YIU Kin Wah, Stephen ^{* 2}

Executive Director

LI Xiaojaia, Charles (Chief Executive)

Group Company Secretary

MAU Kam Shing, Joseph

Committees

Audit Committee

YIU Kin Wah, Stephen ⁵ (Chairman)
 CHAN Tze Ching, Ignatius
 FUNG Yuen Mei, Anita ⁵
 LEUNG Pak Hon, Hugo
 MA Xuezheng, Mary ⁶
 John Mackay McCulloch WILLIAMSON

Board Executive Committee ⁷

(formerly known as Executive Committee)
 Laura May-Lung CHA (Chairman)
 CHEAH Cheng Hye
 LEUNG KO May Yee, Margaret ³
 LEUNG Pak Hon, Hugo
 LI Xiaojaia, Charles
 John Mackay McCulloch WILLIAMSON ⁸

Corporate Social Responsibility Committee

Laura May-Lung CHA (Chairman)
 LEUNG Pak Hon, Hugo
 LI Xiaojaia, Charles
 John Mackay McCulloch WILLIAMSON
 YIU Kin Wah, Stephen ⁵

Committees (continued)

Investment Committee ⁹

(formerly known as Investment Advisory Committee)
 CHEAH Cheng Hye (Chairman)
 FUNG Yuen Mei, Anita ⁵
 HU Ziliu, Fred
 HUNG Pi Cheng, Benjamin
 LEUNG Pak Hon, Hugo ¹⁰

Nomination and Governance Committee

Laura May-Lung CHA (Chairman)
 Apurv BAGRI ⁵
 CHAN Tze Ching, Ignatius
 CHEAH Cheng Hye
 Rafael GIL-TIENDA ⁸
 LEUNG KO May Yee, Margaret ³

Panel Member Selection Committee ¹¹

(formerly known as Panel Member Nomination Committee)
 CHAN Tze Ching, Ignatius (Chairman)
 CHEAH Cheng Hye
 FUNG Yuen Mei, Anita ⁵
 Rafael GIL-TIENDA ⁵
 LEUNG Pak Hon, Hugo

Remuneration Committee

Rafael GIL-TIENDA ⁵ (Chairman)
 Laura May-Lung CHA
 CHEAH Cheng Hye
 HU Ziliu, Fred
 John Mackay McCulloch WILLIAMSON

Risk Committee

John Mackay McCulloch WILLIAMSON ¹² (Chairman)
 Laura May-Lung CHA ¹³ (ex-Chairman)
 CHAN Tze Ching, Ignatius
 Rafael GIL-TIENDA ¹⁴
 LEUNG KO May Yee, Margaret ³
 LEUNG Pak Hon, Hugo ⁸
 MA Xuezheng, Mary ⁶
 YIU Kin Wah, Stephen ⁵

Risk Management Committee (statutory) [△]

Laura May-Lung CHA ¹⁵ (Chairman)
 CHAN Tze Ching, Ignatius
 CHEUNG Wai Hing, Daisy ** ¹⁶
 GAO Yingxin ** ¹⁷
 LAM Yuk Kun, Lawrence ** ¹⁸
 LAU Chung Kin, Clement ** ¹⁹
 LEUNG Chung Yin, Rico ** ²⁰
 LEUNG KO May Yee, Margaret ³
 LUI Kei Kwong, Keith ** ²¹
 MA Xuezheng, Mary ⁶
 Barbara SHIU ** ¹⁸
 John Mackay McCulloch WILLIAMSON ¹²

* Government Appointed Director

** Appointed by the Financial Secretary

△ Established under Section 65 of the SFO

1 Re-elected as Director from 24 April 2019 until the conclusion of the AGM to be held in 2022

2 Re-appointed as Director from 24 April 2019 until the conclusion of the AGM to be held in 2021

3 Retired on 24 April 2019

4 Appointed as Director on 24 April 2019 and passed away on 31 August 2019

5 Re-appointment effective 24 April 2019

6 Appointed on 24 April 2019 and passed away on 31 August 2019

7 Change of name effective 3 February 2020

8 Appointment effective 24 April 2019

9 Change of name effective 14 August 2019

10 Appointment effective 24 May 2019

11 Change of name effective 27 February 2019

12 Appointment effective 2 January 2020

13 Redesignation from Chairman to member effective 2 January 2020

14 Appointment ceased on 24 April 2019

15 Member by virtue of being HKEX's Chairman

16 Appointment by virtue of being the Chairman of Hong Kong Interbank Clearing Limited effective 1 January 2020

17 Appointment by virtue of being the Chairman of Hong Kong Interbank Clearing Limited ceased on 1 January 2020

18 Re-appointment effective 1 July 2019

19 Member by virtue of being Executive Director (Monetary Management) of the Hong Kong Monetary Authority

20 Appointment by virtue of being Executive Director (Supervision of Markets) of the SFC effective 28 August 2019

21 Appointment by virtue of being Executive Director (Supervision of Markets) of the SFC ceased on 28 August 2019

Board of Directors and Senior Management

Board of Directors



Laura May-Lung CHA

GBM, GBS, JP

Chairman, INED

Aged 70

Director since 25 April 2018

Chairman since 4 May 2018

Term of office: 25 April 2018
(appointed) to 2020 AGM

Other positions held with the Group

HKEX – chairman of Board Executive Committee, Corporate Social Responsibility Committee, Nomination and Governance Committee, Risk Management Committee (statutory) and International Advisory Council, and member of Remuneration Committee and Risk Committee

SEHK – chairman of Listing Appeals Committee and member of Listing Nominating Committee

LME – independent non-executive director and member of Nomination Committee

LMEH – independent non-executive director

HKEX Foundation Limited – chairman¹ and director

Other major offices

The Hongkong and Shanghai Banking Corporation Limited

– chairman (2019~)² and independent non-executive director (2004~)

World Federation of Exchanges – director (2018~)

Unilever NV (listed on the Euronext Amsterdam) – non-executive director (2013~)

Unilever PLC (listed on the London Stock Exchange) – non-executive director (2013~)

HSBC Holdings plc * – independent non-executive director (2011~)

Past offices

The Hongkong and Shanghai Banking Corporation Limited

– deputy chairman (2007-2019)²

China Telecom Corporation Limited * – independent non-executive director (2008-2018)

HKEX – independent non-executive director (2006-2012)

China Securities Regulatory Commission – vice-chairman (2001-2004)

SFC – deputy chairman (1998-2001), executive director (1994-2001), senior director (1993-1994) and assistant director (1991-1993)

Coudert Brothers – lawyer (1985-1990)

Pillsbury, Madison & Sutro – lawyer (1982-1985)

Public service

Listing Policy Panel – member (2018~)

Financial Leaders Forum – member (2017~)

Executive Council of the HKSAR – non-official member (2004~)

China Securities Regulatory Commission – vice-chairman of International Advisory Council (2004~)

Qualifications

Bachelor of Arts (University of Wisconsin, US)

Juris Doctor (Santa Clara University, US)

State Bar of California (US)

Honorary Fellow (Hong Kong Securities and Investment Institute)

* Listed on the Stock Exchange

1 Appointment effective 8 November 2019

2 Appointment as the chairman effective 6 December 2019



LI Xiaojia, Charles

Executive Director, Chief Executive

Aged 58

Joined on 16 October 2009

Chief Executive since 16 January 2010

Ex-officio member of the Board

Term of office: renewed up to
15 October 2021

Other positions held with the Group

HKEX – member of Board Executive Committee and Corporate Social Responsibility Committee

HKFE, SEHK, HKCC, HKSCC and SEOCH – chairman

SEHK – member of Listing Committee of the Main Board and GEM

LME – member of Nomination Committee

HKEX's certain subsidiaries – director

Other major offices

China Entrepreneurs Forum – director (2005~)

Past offices

JP Morgan China – chairman (2003-2009)

Merrill Lynch China (1994-2003): president (1999-2003)

Brown & Wood, New York – associate (1993-1994)

Davis Polk & Wardwell, New York – associate (1991-1993)

Public service¹

Financial Advisory Committee for Xiamen – member (2019~)²

Listing Policy Panel – member (2018~)

The National Committee of the Chinese People's Political Consultative Conference – member (2018~)

Financial Experts Advisory Committee for Guangdong – advisory member (2017~)

Consulting Committee of Qianhai Shenzhen-Hong Kong Modern Service Industry Cooperation Zone of Shenzhen – member (2012~)

Qualifications

Bachelor of Arts (English Literature) (Xiamen University, China)

Master of Arts (Journalism) (University of Alabama, US)

Juris Doctor (Columbia University, US)

¹ Ceased to be a member of the Hong Kong Trade Development Council's Belt and Road Committee effective 5 July 2019

² Appointment effective 26 September 2019



Apurv BAGRI

INED

Aged 60

Director since 28 April 2016

Term of office: 24 April 2019
(re-elected) to 2022 AGM

Other positions held with the Group

HKEX – member of Nomination and Governance Committee

Other major offices

International Wrought Copper Council – director (2013~)

Metdist Group of Companies, London – president and chief executive officer (1980~)

Public service

Higher Education Funding Council for England – board member (2014~)

London Business School – chairman of governing body (2014~)

Royal Parks Board, England – chairman (2008~)

Dubai Financial Services Authority – director (2004~)

Crown Estate Paving Commission, England – commissioner (1996~)

Qualifications

Bachelor of Science in Business Administration

(Cass Business School, City University London, UK)

Doctor of Science (Honoris Cause) (City University London, UK)



CHAN Tze Ching, Ignatius

BBS, JP

INED

Aged 63

Director since 23 April 2009

Term of office: 25 April 2018
(re-elected) to 2021 AGM

Other positions held with the Group

HKEX – chairman of Panel Member Selection Committee, member of Audit Committee, Nomination and Governance Committee, Risk Committee and Risk Management Committee (statutory), and chairman of Clearing Consultative Panel

HKCC and **SEOCH** – chairman of Participant Admission Appeals Committee

HKSCC – chairman of Disciplinary Appeals Committee and Participant Admission Appeals Committee

Other major offices

AFFIN Bank Berhad (listed on Bursa Malaysia) – non-executive director (2017~)

CVC Capital Partners Limited – senior adviser (2010~)

Mongolian Mining Corporation * – independent non-executive director (2010~)

The Bank of East Asia Limited * – senior adviser (2009~)

Past offices

Rizal Commercial Banking Corporation (listed on the Philippine Stock Exchange) – non-executive director (2011-2019)

AFFIN Holdings Berhad (formerly listed on Bursa Malaysia) – non-executive director (2013-2018)

Bank of China (Hong Kong) Limited – deputy chief executive (2008)

Citigroup (1980-2007):

Citigroup country officer for Hong Kong and head of corporate and investment banking business for Greater China (2005-2007), chief operating officer for Greater China (2004-2005), and Citigroup country officer for Taiwan (2003-2005)

Public service¹

Standing Committee on Judicial Salaries and Conditions of Service – member (2017~)

Financial Reporting Council – member (2014~)

Qualifications

Bachelor of Business Administration and **Master of Business Administration** (University of Hawaii, US)

Certified Public Accountant (American Institute of Certified Public Accountants)

* Listed on the Stock Exchange

1 Ceased to be a member of the Standing Commission on Civil Service Salaries and Conditions of Service effective 1 January 2020



CHEAH Cheng Hye

Darjah Gemilang Pangkuan Negeri

INED

Aged 65

Director since 26 April 2017

Term of office: 26 April 2017
(elected) to 2020 AGM

Other positions held with the Group

HKEX – chairman of Investment Committee, member of Board Executive Committee, Nomination and Governance Committee, Panel Member Selection Committee and Remuneration Committee, and chairman of Cash Market Consultative Panel

SEHK – chairman of Disciplinary Appeals Committee and Exchange Participant Admission Appeals Committee

Other major offices

Value Partners Group * – co-chairman and co-chief investment officer (2019~)¹, and executive director (1993~)

Past offices

Value Partners Group * – co-chief investment officer (2010-2019)¹, chairman (2000-2019)¹ and chief investment officer (1993-2010)

Morgan Grenfell Group, Hong Kong – executive director, head of research and proprietary trader (1989-1993)

The Asian Wall Street Journal, Far Eastern Economic Review, Asiaweek, Hong Kong Standard and The Star (Malaysia) – editor and financial journalist (1971-1989)

Public service²

HKTDC Belt and Road & Greater Bay Area Committee

– member (2019~)³

Listing Policy Panel – member (2018~)

Qualifications

Honorary Fellow (The Hong Kong University of Science and Technology)

* The holding company of the group, namely Value Partners Group Limited, has been listed on the Stock Exchange since 2007.

1 Redesignation effective 26 April 2019

2 Ceased to be a member of the Financial Services Development Council and of its New Business Committee effective 17 January 2019

3 Appointment effective 1 October 2019



FUNG Yuen Mei, Anita

BBS, JP

INED

Aged 59

Director since 29 April 2015

Term of office: 24 April 2019
(re-appointed) to 2021 AGM

Other positions held with the Group

HKEX – member of Audit Committee, Investment Committee and Panel Member Selection Committee, and chairman of Derivatives Market Consultative Panel

SEHK – member of Listing Nominating Committee

HKFE – chairman of Disciplinary Appeals Committee and Exchange Participant Admission Appeals Committee

Other major offices

Westpac Banking Corporation (listed on the Australian Securities Exchange) – independent non-executive director (2018~)

China Construction Bank Corporation * – independent non-executive director (2016~)

Hang Lung Properties Limited * – independent non-executive director (2015~)

Past offices

HSBC Holdings plc * – group general manager (2008-2015)

The Hongkong and Shanghai Banking Corporation Limited (1996-2015): chief executive officer Hong Kong (2011-2015), head of global banking and markets, Asia Pacific (2010-2011), and treasurer and head of global markets, Asia Pacific (2005-2010)

Public service¹

Judicial Officers Recommendation Commission – member (2017~)

Museum Advisory Committee – member (2016~)

The Hong Kong Mortgage Corporation Limited – director (2016~)

Qualifications

Bachelor of Social Science (The University of Hong Kong)

Master of Applied Finance (Macquarie University, Australia)

* Listed on the Stock Exchange

1 Ceased to be an independent non-executive member of the board of the Airport Authority Hong Kong effective 1 June 2019



Rafael GIL-TIENDA

INED

Aged 67

Director since 29 April 2015

Term of office: 24 April 2019
(re-appointed) to 2021 AGM

Other positions held with the Group

HKEX – chairman of Remuneration Committee, member of Nomination and Governance Committee and Panel Member Selection Committee, and deputy chairman of Cash Market Consultative Panel and Clearing Consultative Panel

SEHK and HKSCC – member of Disciplinary Appeals Committee

OTC Clear – chairman, independent non-executive director and chairman of Risk Management Committee

Other major offices

JPMorgan Chase Bank (China) Company Limited – independent non-executive director (2018~)

JP Morgan Securities (Asia Pacific) Limited – independent non-executive director (2017~)

Past offices

Oliver Wyman – chairman of Asia Pacific region (2012-2017)

Marsh & McLennan Companies – chairman of Asia Pacific region (2003-2011)

Standard Chartered Bank – head of Asian wholesale banking business (2001-2003), and head of corporate and institutional banking business, Greater China (1998-2001)

Citibank (1977-1998):

country manager of Citibank for Spain (1992-1998), for Malaysia (1988-1992) and for China (1984-1988)

Qualifications

Bachelor of Arts (Philosophy, Politics and Economics) (University of Oxford, UK)

Master of Business Administration (University of California, Berkeley, US)



HU Zuliu, Fred

INED

Aged 56

Director since 10 November 2014

Term of office: 25 April 2018
(re-elected) to 2021 AGM

Other positions held with the Group

HKEX – member of Investment Committee and Remuneration Committee

Other major offices

Industrial and Commercial Bank of China Limited * – independent non-executive director (2019~)

UBS Group AG (listed on the SIX Swiss Exchange and the New York Stock Exchange) – director (2018~)

Yum China Holdings, Inc (listed on the New York Stock Exchange) – non-executive chairman (2016~)

Primavera Capital Limited – founder and chairman (2011~)

Tsinghua University – professor and co-director of National Center for Economic Research (1996~)

Past offices

Hang Seng Bank Limited * – independent non-executive director (2011-2018)

Goldman Sachs Group Inc (1997-2010): chairman of Greater China (2008-2010) and managing director (2000-2010)

International Monetary Fund, Washington DC – economist (1991-1996)

Qualifications

Master and Doctor of Philosophy (Economics) (Harvard University, US)

Master of Science (Engineering Science) (Tsinghua University, China)

* Listed on the Stock Exchange



HUNG Pi Cheng, Benjamin

BBS, JP

INED

Aged 55

Director since 25 April 2018

Term of office: 25 April 2018
(appointed) to 2020 AGM

Other positions held with the Group

HKEX – member of Investment Committee

SEHK – member of Listing Nominating Committee

Other major offices

Standard Chartered Bank (Hong Kong) Limited – executive director (2019~)

Standard Chartered Bank – chief executive officer of wealth management (2018~) and retail banking (2017~), and regional chief executive officer, Greater China & North Asia (2015~)

Standard Chartered Bank (China) Limited – chairman (2015~)

Past offices

Standard Chartered Bank (Hong Kong) Limited (1992-2019): chairman (2014-2019), chief executive officer, Greater China (2014-2015) and chief executive officer and executive director, Hong Kong (2008-2014)

HKEX – member of Risk Management Committee (statutory) (2008-2010 and 2014)

Public service¹

Chief Executive's Council of Advisers on Innovation and Strategic Development – non-official member (2018~)

Hong Kong-United States Business Council – member (2016~)

Hong Kong Institute for Monetary Research – director (2011~)

Exchange Fund Advisory Committee – member (2009~)

Qualifications

Bachelor of Arts (Business Administration)
(University of Washington, US)

Master of Business Administration (University of Toronto, Canada)

¹ Ceased to be a member of the Hong Kong Trade Development Council's Belt and Road Committee effective 5 July 2019



LEUNG Pak Hon, Hugo

INED

Aged 51

Director since 26 April 2017
Term of office: 26 April 2017
(elected) to 2020 AGM

Other positions held with the Group

HKEX – member of Audit Committee, Board Executive Committee, Corporate Social Responsibility Committee, Investment Committee, Panel Member Selection Committee and Risk Committee, and deputy chairman of Derivatives Market Consultative Panel

HKFE – member of Disciplinary Appeals Committee

HKEX Foundation Limited – director

Other major offices

BNP Paribas – chief executive officer, Hong Kong (2019~)¹
BNP Paribas Securities (Asia) Limited – chief executive officer (2015~)

Past offices

BNP Paribas – head of global markets, Hong Kong (2015-2019)², head of global equities and commodity derivatives, Greater China (2013-2015)

BNP Paribas Securities (Asia) Limited – deputy chief executive officer (2012-2015), head of equity syndicate and corporate equity (2010-2012), head of equity brokerage (2007-2010), head of Asia (ex-Greater China) product (2004-2007), product sales head for Taiwan (2003-2004) and deputy managing director (2000-2003)

Qualifications

Bachelor of Arts (Economics) (Simon Fraser University, Canada)

1 Appointment effective 28 October 2019

2 Appointment ceased effective 28 October 2019



John Mackay McCulloch Williamson

INED

Aged 61

Director since 18 June 2008
Term of office: 25 April 2018
(re-elected) to 2021 AGM

Other positions held with the Group

HKEX – chairman of Risk Committee, and member of Audit Committee, Board Executive Committee, Corporate Social Responsibility Committee, Remuneration Committee and Risk Management Committee (statutory)

SEHK – deputy chairman of Listing Appeals Committee

HKEX Foundation Limited – director

Past offices

Search Investment Group Limited – senior managing director (2012-2018), chief financial officer (2007-2018), and managing director (2007-2011)

SAIL Advisors Limited – chief executive officer (2011-2018)

HKEX – member of Clearing Consultative Panel (2000-2007)

Morgan Stanley Dean Witter Asia Limited – managing director, and head of infrastructure and operational risk (1998-2007)

NatWest Securities Asia Holdings Limited – chief operating officer (1994-1998)

NatWest Investment Services, London – managing director (1992-1994)

Qualifications

Bachelor of Arts (Accountancy & Computer Science) (Heriot-Watt University, UK)

Chartered Accountant (The Institute of Chartered Accountants of Scotland)

Fellow (Chartered Institute for Securities and Investment, UK)

Senior Fellow (Hong Kong Securities and Investment Institute)



YIU Kin Wah, Stephen

INED

Aged 59

Director since 26 April 2017

Term of office: 24 April 2019
(re-appointed) to 2021 AGM

Other positions held with the Group

HKEX – chairman of Audit Committee, and member of Corporate Social Responsibility Committee and Risk Committee

LME – independent non-executive director, and chairman of Audit and Risk Committee

LME Clear – independent non-executive director, chairman of Audit Committee, and member of Nomination Committee and Remuneration Committee

Other major offices

ANTA Sports Products Limited * – independent non-executive director (2018~)

China Mobile Limited * – independent non-executive director (2017~)

Past offices

KPMG International – member of executive committee and board (2011– 2015)

KPMG Asia Pacific – member of board (2011-2015) and executive committee (2009-2015)

KPMG China (including Hong Kong) (1983-2015): chairman and chief executive officer (2011-2015), deputy chairman (2010-2011), audit partner in-charge (2007-2010), and partner (1994-2015)

Public service

Independent Commission Against Corruption Complaints Committee – member (2019~)

Exchange Fund Advisory Committee – member (2018~)

Insurance Authority – non-executive director (2015~)

Qualifications

Professional Diploma in Accountancy (The Hong Kong Polytechnic University)

Master in Business Administration (Warwick University, UK)

Fellow (Association of Chartered Certified Accountants, Hong Kong Institute of Certified Public Accountants, and The Institute of Chartered Accountants in England & Wales)

* Listed on the Stock Exchange

Group Company Secretary



MAU Kam Shing, Joseph

Group Company Secretary and Head of Secretarial Services

Aged 61

Joined in June 2000

Past office

Hysan Development Company Limited – company secretary (1988-2000)

Qualifications

Master of Science (Business Administration) (The University of Bath, UK)

Master of Laws in Corporate and Financial Laws
(The University of Hong Kong)

Associate (HKICPA)

Fellow (The Hong Kong Institute of Chartered Secretaries, The Institute of Chartered Secretaries and Administrators, Association of Chartered Certified Accountants, and The Institute of Chartered Accountants in England & Wales)

Senior Management



Matthew James CHAMBERLAIN

LME Chief Executive

Aged 38

Joined in November 2012

Other positions held with the Group

LME – chairman of Executive Committee, vice chairman of Aluminium Committee, and member of Charity Committee, Enforcement Committee and User Committee

LME Clear – member of Executive Committee

Past offices

LME – chief operating officer (2016-2017), head of business development (2013-2016), and head of strategy and implementation (2012-2013)

UBS – head of European financial technology coverage (2010-2012)

Perella Weinberg Partners – founding member of the financial institutions coverage team (2006-2010)

Citibank – analyst of financial institutions group (2004-2006)

Qualifications

Master of Arts (Computer Sciences) (Trinity College, University of Cambridge, UK)



CHAN Yiting, Bonnie

Head of Listing

Aged 50

Joined in January 2020

Past offices

Davis Polk & Wardwell LLP – partner (2010-2019)

HKEX – Head of IPO Transactions (2007-2010)

Public service

Standing Committee on Company Law Reform – ex-officio member (2020~)

Board of Inland Revenue of the Government of the HKSAR – member (2017~)

Qualifications

Bachelor of Laws (The University of Hong Kong)

Master of Laws (Harvard University, US)



Romnesh LAMBA

**Co-President
(effective 1 March 2019)**

Aged 56

Joined in February 2010

Other positions held with the Group

LME – member of Audit and Risk Committee

LME Clear – member of Audit Committee and Nomination Committee

Past offices

HKEX – Co-head of Market Development (2016-2019), Co-head of Global Markets (2013-2015) and Head of Market Development (2010-2013)

HKFE and SEHK – chief executive (2013-2016)

JP Morgan (Hong Kong) – senior adviser, Asia ex-Japan corporate finance and capital markets business (2008-2010)

Merrill Lynch (Asia Pacific) (2000-2008): managing director, investment banking, and chief operating officer of China origination business (2006-2008), and head of Asia energy and power team (2003-2006)

Indosuez WI Carr Securities (Hong Kong) – head of equity capital markets and director, investment banking (1997-2000)

Qualifications

Bachelor of Science in Economics (Magna Cum Laude) and

Master of Business Administration (Distinction)

(The Wharton School, University of Pennsylvania, US)



LAU Bik Yun, Vanessa

**Group Chief Financial Officer
(effective 5 February 2020)**

Aged 47

Joined in October 2015

Past offices

HKEX – Chief Financial Officer, Hong Kong (2017-2020) and Deputy Chief Financial Officer (2015-2017)

Sanford C Bernstein (Hong Kong) Limited – vice president and senior research analyst (2011-2015)

Alcoa Inc – group chief financial officer, global rolled products group (2007-2011)

McKinsey & Company Inc (2001-2007): various professional positions including associate principal, Hong Kong (2005-2007)

PricewaterhouseCoopers (UK) (1994-2000): various professional positions including senior tax manager, mergers and acquisitions tax group (1999-2000)

Qualifications

Bachelor of Arts (Mathematics and Computation) and Master of Arts (University of Oxford, UK)

Associate (The Institute of Chartered Accountants in England & Wales)



SO Ying Ying, Glenda

Head of Post Trade

Aged 50

Joined in February 2020

Past offices

Allianz Global Investors – managing director and Asia Pacific head of operations (December 2019 – February 2020)

Sun Hung Kai & Co Limited – chief operating officer, principal investment division (2018-2019)

Graticule Asset Management Asia (Singapore) – managing director and regional chief operating officer (2014-2018)

Goldman Sachs (Asia) LLC (Hong Kong) and Goldman Sachs & Co LLC (New York) (1991-2014): managing director (2004-2014)

Qualifications

Bachelor of Business Administration (Finance) (Baruch College, The City University of New York, US)



TAI Chi Kin, Calvin

**Co-President and
Chief Operating Officer
(effective 1 March 2019 and
1 January 2019 respectively)**

Aged 57

Joined in July 1998

Other positions held with the Group

HKFE and SEHK – chief executive

HKSCC – chief executive and member of Risk Management Committee

OTC Clear – chief executive

Other major offices

China Exchanges Services Company Limited – director (2012~)

Past offices

HKEX – Head of Clearing (2016-2019), Joint Chief Operating Officer (2017-2018), Head of Global Clearing (Asia) (2014-2015), Co-head of Equities and FIC Business (2013-2014), Head of Trading Division (2010-2013), and Head of Derivatives Market Development and Operations (2003-2010)

HKFE – head of products (1998-2000)

ABN-Amro Bank NV – senior vice president of treasury division (1995-1998)

Royal Bank of Canada – head of treasury department (1994-1995)

The Hongkong and Shanghai Banking Corporation Limited – various positions in general banking and treasury (1984-1994)

Public service

SFC – member of Securities Compensation Fund Committee and Investor Compensation Fund Committee (2019~)

Qualifications

Bachelor of Social Sciences (The University of Hong Kong)



YIU Ka Yan, Wilfred

Head of Markets

Aged 50

Joined in April 2019

Other positions held with the Group

SEHK – chairman of Compensation Committee and Disciplinary Committee

Past offices

Qian Kun Futures Co Ltd – chairman (2012-2019)

Beijing Gao Hua Securities Company Limited – deputy chief executive officer and chief operating officer (2010-2019)

Goldman Sachs (Hong Kong) (2000-2010):

managing director, fixed income, currency and commodities (2007-2010)

Credit Suisse First Boston (New York) – assistant vice president (1994-1999)

Qualifications

Bachelor of Science (Computer Science) and **Bachelor of Business Administration** (University of Washington, US)

Master of Business Administration (Stern School of Business, New York University, US)

Master of Science (Computer Science) (Stanford University, US)

Matthew Chamberlain, Romnesh Lamba, Vanessa Lau, Glenda So, Calvin Tai and Wilfred Yiu also act as directors in certain HKEX's subsidiaries.

Management Committee

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Organisation



Charles Li *
HKEX Chief Executive



Matthew Chamberlain *
LME Chief Executive



Bonnie Y Chan *
Head of Listing



Eva Chau
Group Head of
Human Resources



Tori Cowley
Group Chief
Communications Officer



Adrian Farnham
LME Clear
Chief Executive



John Killian
Group Risk Officer



Romnesh Lamba *
Co-President



Vanessa Lau *
Group Chief
Financial Officer



Richard Leung
Group Chief
Technology Officer



Li Gang
Head of Market
Development



Ferheen Mahomed
Group General Counsel



Mao Zhirong
Head of Mainland
Development



Glenda So *
Head of
Post Trade



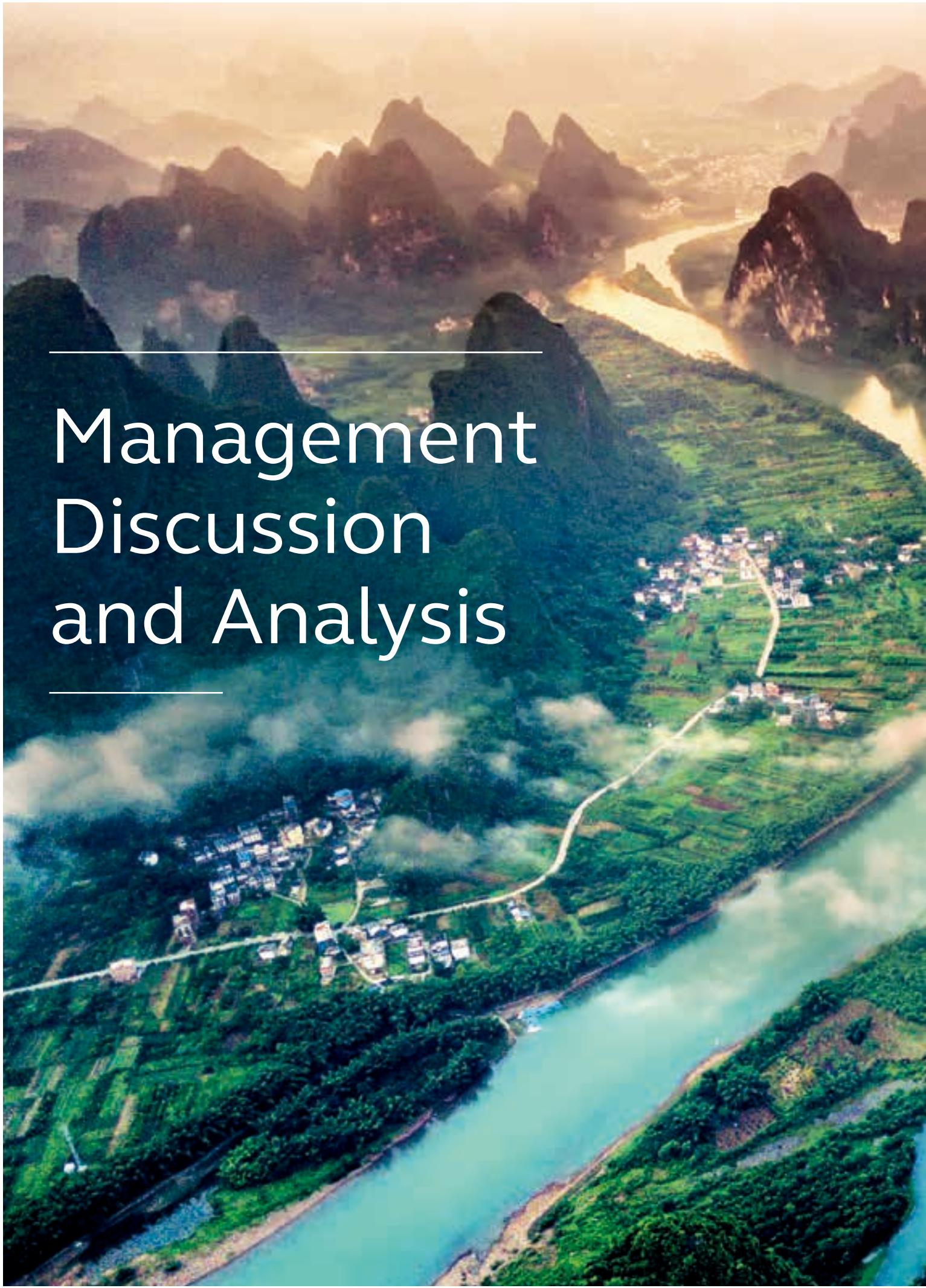
Calvin Tai *
Co-President and
Chief Operating Officer



Wilfred Yiu *
Head of Markets

* Members of the Executive Committee established in February 2020

Management Discussion and Analysis





Business Review

Overview

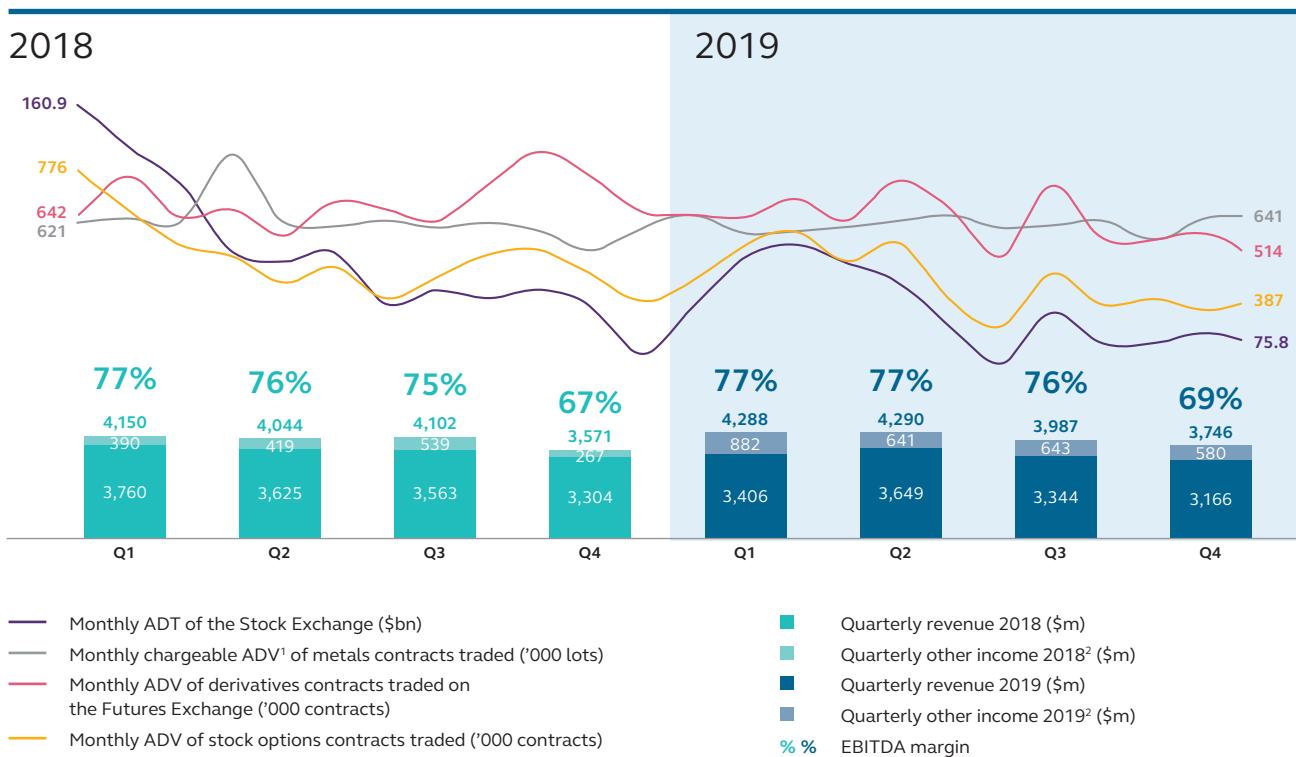


Fig. 1 – Market activity and Group's revenue and other income

HKEX's business performed well in 2019, reporting the highest ever revenue and other income and profit, despite subdued market sentiment driven by trade tensions between China and the US, social unrest in Hong Kong, a weakening economic outlook and uncertainties over Brexit. Stock Connect saw record revenue and other income, at a level of \$1 billion. Furthermore, HKEX topped the global exchanges for IPO funds raised, for the seventh time in 11 years, welcoming a number of the world's biggest 2019 listings including Alibaba.

Revenue and other income in 2019 reached a record of \$16.3 billion, 3 per cent higher than 2018, driven by higher net interest income from Corporate Funds and Margin Funds, an increase in net investment income from fair value gains on collective investment schemes, and record income generated from Stock Connect. This was partly offset by the reduction in trading and clearing fees from a

19 per cent drop in Cash Market headline ADT³ and moderate declines in trading volumes in the Derivatives and Commodities Markets.

Operating expenses in 2019 decreased by 2 per cent compared with 2018, due to lower premises expenses as a result of adopting the new accounting standard for leases⁴. Excluding the impact of this accounting change, operating expenses increased by 6 per cent against 2018, attributable to increased headcount and annual payroll adjustments, and higher maintenance expenses for new IT systems and upgraded networks.

With a phase one trade deal between China and the US, there are signs of recovery in investor confidence, although the current COVID-19 outbreak brings renewed uncertainty. The Group will continue to manage costs prudently whilst pursuing key strategic initiatives for future growth.

1 Chargeable ADV excludes administrative trades (Admin Trades) and other non-chargeable trades. Admin Trades were introduced in 2017 to meet requirements resulting from MiFID II.

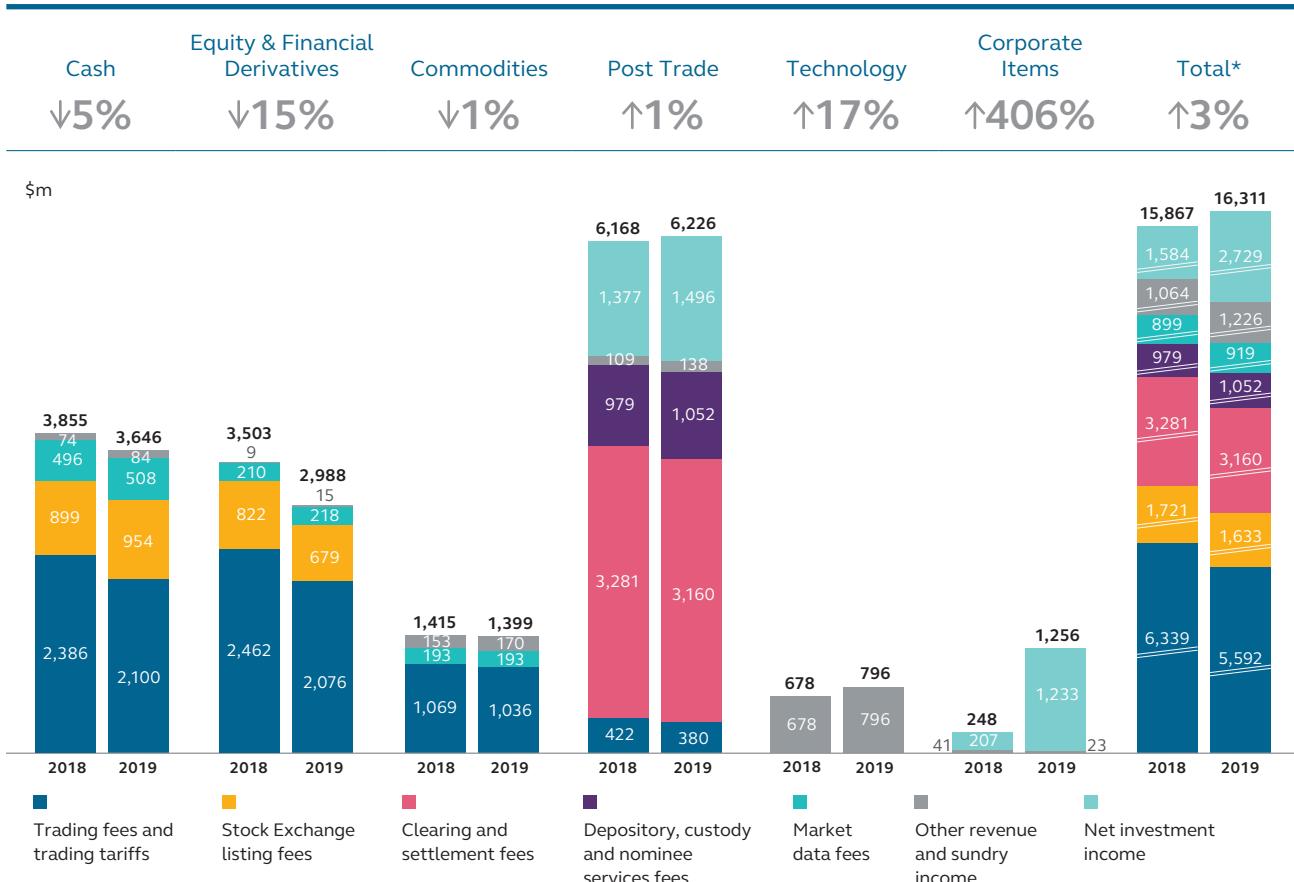
2 Includes net investment income and sundry income

3 ADT of equity products, DWS, CBBCs and warrants traded on the Stock Exchange

4 As a result of the adoption of HKFRS 16: Leases, operating lease rentals are no longer recognised under operating expenses. Please refer to note 2 to the Consolidated Financial Statements for further details.

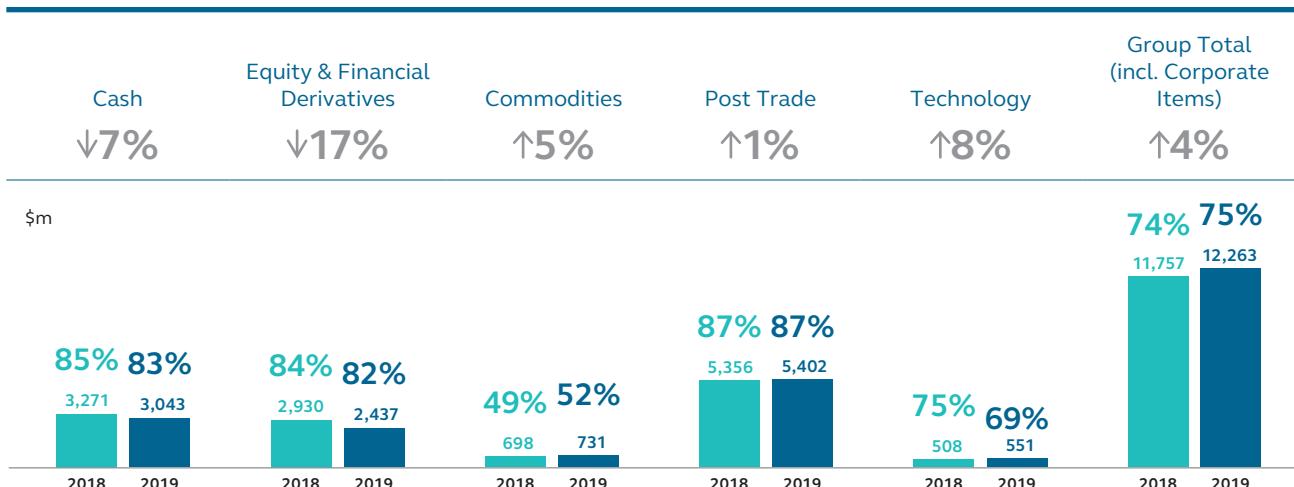
Business Update and Analysis of Results by Operating Segment⁵

Analysis of Revenue and Other Income by Segment



* Total revenue and other income is not presented in the same scale as segmental results, but is proportionately resized.

Analysis of EBITDA and EBITDA Margin by Segment*



% EBITDA margin = EBITDA divided by Revenue and Other Income

* Further details of the results by segment are set out in note 4 to the Consolidated Financial Statements of this Annual Report.

⁵ To optimise resources to successfully deliver the initiatives set out in the Group's Strategic Plan 2019-2021, the Group's operating segments have been fine-tuned. As a result, since April 2019, the "Clearing segment" has been renamed the "Post Trade segment", and the "Platform and Infrastructure segment" has been renamed the "Technology segment".

As set out in the Group's Strategic Plan 2019-2021, our vision is to be ***the Global Markets Leader in the Asian Time Zone – Connecting China, Connecting the World.*** To support this vision, HKEX has focused on the 3 pillars of China Anchored, Globally Connected, and Technology Empowered.

Progress made up to the date of this Annual Report is set out in the table below and further elaborated upon in the Business Update sections in each of the operating segments:

China Anchored

- **Enhance Stock Connect:** Inclusion of eligible companies with weighted voting rights (WVR) in Southbound Trading; launch of the investor identification regime for Southbound Trading
- **Enhance Bond Connect:** Enhancements to connectivity, market infrastructure and investor admission processes, including addition of Bloomberg as a second trading platform, introduction of Primary Market Information Platform as the first English language portal, launch of Negotiable Certificate of Deposit primary subscription service, offering of T+3 settlement cycle and launch of E-Filing System for investor admission

Globally Connected

- **Improve our market microstructure:** Further expansion of Closing Auction Session; extension of After-Hours Trading in Derivatives Market to 3 a.m.; the introduction of buy-in exemption for Exchange Traded Products (ETPs); enhancement of the Third Party Clearing arrangement allowing a Non-Clearing Participant to appoint different General Clearing Participants for clearing and settling trades; extension of trading hours and contract offerings for RMB currency derivatives products and kerb trading extension for the LME's six main contracts; introduction of new membership category for Registered Intermediating Brokers and Membership Incentive Programme at the LME

Technology Empowered

- **Modernise our core systems:** Upgrade of Derivatives Market platform; launch of Client Connect; and launch of Orion Trading Platform – China Stock Connect (OTP-CSC)
- **Leverage new technology:** Continued development of HKEX Innovation Lab
- **Expand our technology resources:** Completed acquisition of a 51 per cent equity interest in BayConnect; invested in a minority interest in Huakong TsingJiao Information Science (Beijing) Limited (TsingJiao) with the vision of developing a scalable data marketplace platform
- **Unlock new growth opportunities:** Signed a MOU with Ping An Insurance (Group) Company of China Limited (Ping An) to explore cooperation and collaboration in Fintech and data analytics

- **Enhance our product ecosystem across asset classes:** Launch of the International Central Securities Depository settlement model for ETPs; launch of Inline Warrants, Weekly Index Options, Indian Rupee Currency Futures, six gold futures indices and USD-denominated London Metal Mini Futures for six base metals in Hong Kong; seven new cash-settled metals futures contracts on the LME; and four new base metals products on the QME

- **Develop a listing and capital raising hub for major global and regional companies:** Listing of several of the world's biggest listings in 2019, including Alibaba and Budweiser APAC; introduction of the respective derivatives products; launch of a market consultation on a proposal to allow corporate entities as WVR beneficiaries

Cash Segment

Key Market Indicators

	2019	2018	Change
ADT of equity products traded on the Stock Exchange ^{1,2} (\$bn)	69.2	84.2	(18%)
ADT of Northbound Trading – Shanghai-Hong Kong Stock Connect ² (RMBbn)	21.3 ⁵	11.6	84%
ADT of Northbound Trading – Shenzhen-Hong Kong Stock Connect ² (RMBbn)	20.4 ⁵	8.8	132%
ADT of Bond Connect (RMBbn)	10.7 ^{4,5}	3.6	197%
Average daily number of trades of equity products traded on the Stock Exchange ^{1,2} ('000)	1,157	1,225	(6%)
Number of newly listed companies on Main Board ³	168 ⁵	143	17%
Number of newly listed companies on GEM	15	75	(80%)
Number of companies listed on Main Board at 31 Dec	2,071	1,926	8%
Number of companies listed on GEM at 31 Dec	378	389	(3%)
Total	2,449	2,315	6%
Market capitalisation of companies listed on Main Board at 31 Dec (\$bn)	38,058	29,723	28%
Market capitalisation of companies listed on GEM at 31 Dec (\$bn)	107	186	(42%)

1 Excludes DWs, CBBCs and warrants (which are included under the Equity and Financial Derivatives segment) and includes \$6.8 billion (2018: \$8.2 billion) of ADT of Southbound Trading under Shanghai-Hong Kong Stock Connect and \$4.0 billion (2018: \$4.5 billion) under Shenzhen-Hong Kong Stock Connect

2 Includes buy and sell trades under Stock Connect

3 Includes 20 transfers from GEM (2018: 10)

4 Excludes the special trading days of 29 September 2019 (Sunday) and 12 October 2019 (Saturday), which are trading days for China but holidays for global investors

5 New record highs in 2019

	2019 \$bn	2018 \$bn	Change
Total equity funds raised on Main Board			
– IPOs	313.2	282.9	11%
– Post-IPO	136.7	250.3	(45%)
Total equity funds raised on GEM			
– IPOs	1.0	5.1	(80%)
– Post-IPO	3.3	5.8	(43%)
Total	454.2	544.1	(17%)

Stock Connect – New Record Highs in 2019

	2019	2018	Change
Northbound Trading value (RMBbn)	9,757	4,674	109%
Total revenue and other income ¹ (\$m)	1,009	678	49%

1 \$699 million of which arose from trading and clearing activities (2018: \$418 million)

Analysis of Results

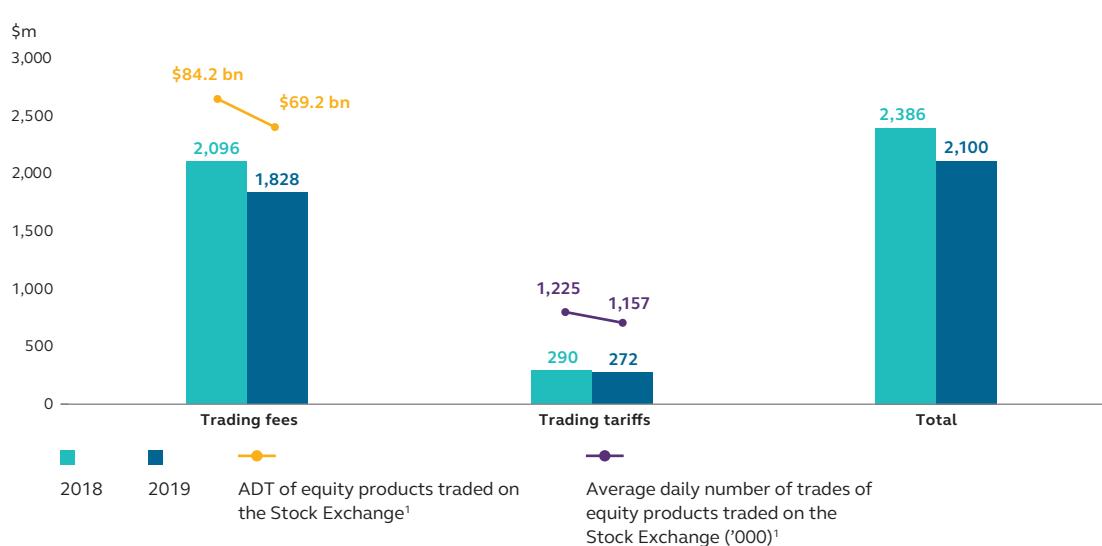
Summary

	2019 \$m	2018 \$m	Change
Trading fees and trading tariffs ¹	2,100	2,386	(12%)
Stock Exchange listing fees ¹	954	899	6%
Market data fees ¹	508	496	2%
Other revenue	84	74	14%
Total revenue	3,646	3,855	(5%)
Operating expenses ²	(603)	(584)	3%
EBITDA	3,043	3,271	(7%)
EBITDA margin	83%	85%	(2%)

1 Excludes DWs, CBBCs and warrants (which are included under the Equity and Financial Derivatives segment)

2 Includes Listing Division costs relating to equity products traded on the Stock Exchange

Trading Fees and Trading Tariffs



1 Excludes DWs, CBBCs and warrants (which are included under the Equity and Financial Derivatives segment)

Trading fees dropped by \$268 million (13 per cent), less than the 18 per cent decrease in equity products ADT. This was primarily due to record high fees from Northbound Trading of Stock Connect. Trading tariffs dropped by 6 per cent, in line with the decrease in number of trades of equity products.

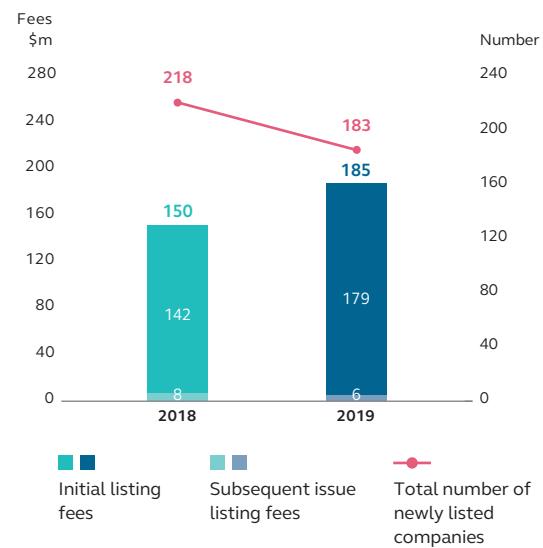
Stock Exchange Listing Fees

	2019 \$m	2018 \$m	Change
Annual listing fees	760	740	3%
Initial and subsequent issue listing fees	185	150	23%
Others	9	9	0%
Total	954	899	6%

Annual Listing Fees



Initial and Subsequent Issue Listing Fees



Annual listing fees increased by 3 per cent, less than the increase in total number of listed companies, as there were more newly listed companies in 2H 2019.

Initial and subsequent issue listing fees increased by 23 per cent mainly due to an increase in forfeitures.

EBITDA

Operating expenses increased by \$19 million, or 3 per cent, due to additional headcount for strategic projects and annual payroll adjustments, increased IT maintenance expenses for Stock Connect, partly offset by lower premises expenses (\$47 million) as a result of adopting the new accounting standard for leases⁴. EBITDA margin dropped from 85 per cent to 83 per cent due to the decrease in revenue and the increase in operating expenses.

Business Update

The Hong Kong Cash Market showed resilient performance in 2019. The benchmark HSI closed at 28,189.75 on 31 December 2019, up 9 per cent from 31 December 2018. On 30 December 2019, market capitalisation reached a record high of \$38,362 billion. Market sentiment and trading activities were relatively strong in Q1 2019 with headline ADT at \$101.1 billion, which moderated to \$77.1 billion in Q4. Annual headline ADT was at \$87.2 billion, 19 per cent down from 2018 which saw a record high headline ADT of \$107.4 billion.

Stock Connect

Stock Connect celebrated its fifth anniversary in 2019, with Northbound Trading achieving record turnover for the third consecutive year. Headline ADT (buy+sell) was RMB41.7 billion, a 104 per cent increase from 2018. Southbound Trading was also active with ADT (buy+sell) of \$10.8 billion in 2019. As a result, Stock Connect generated record high revenue and other income for the third consecutive year, at a level of \$1 billion in 2019.

Northbound Trading operated smoothly during the three inclusion processes of China A shares in MSCI Indexes, the two inclusion processes in FTSE Russell Indexes and the inclusion process in S&P Dow Jones Indices. On 26 November 2019, during the last tranche of the three inclusion processes of the MSCI Indexes, Northbound Trading turnover (buy+sell) reached a daily record high of RMB124.3 billion.

In March 2019, the SFC clarified that the Institutional Professional Investor requirement for trading ChiNext shares under Northbound Trading of Stock Connect would apply only to a corporation licensed for Type 9 regulated activity, not to its underlying funds, accounts or customers. The clarification further covered asset management companies regulated overseas in November 2019. The clarification improved ChiNext accessibility and was widely welcomed by market participants.

On 28 October 2019, the market welcomed the inclusion of eligible companies with WVR in Southbound Trading of Stock Connect. Two WVR stocks, namely Meituan Dianping and Xiaomi Corporation, have been actively traded by Southbound investors since the inclusion.

In December 2019, the China Securities Regulatory Commission (CSRC) and the SFC jointly announced the launch of the investor identification regime for Southbound Trading, which came into effect on 13 January 2020. This is expected to further facilitate Stock Connect's orderly operations.

Market Structure Development

HKEX continues its focus on improving market microstructure. Effective 8 October 2019, Closing Auction Session (CAS) was expanded to cover all equities and funds. Market participants welcomed this mechanism, and benefited from its utilisation in particular on index rebalancing days.

A consultation on Volatility Control Mechanism (VCM) and Pre-opening Session (POS) enhancements, and the possibility of a market-wide circuit breaker (CB), was released on 16 August 2019, with consultation conclusion issued on 13 December 2019. In view of majority support for the proposed enhancements to VCM and POS, HKEX plans to implement both enhancements in 2020. The market views for a CB, however, were divided, hence HKEX will not proceed with its implementation at this current time.

Issuer Business

Hong Kong topped the world's IPO fundraising tables in 2019 – the seventh time in the last 11 years⁶, welcoming 183⁷ listed companies and raising a total of \$314.2 billion. HKEX also welcomed several of the world's biggest listings in 2019⁶, including the secondary listing of Alibaba. Alibaba also became the first IPO in Hong Kong that was successfully launched without any physical forms or printed prospectus, with all the subscription payments

⁶ Source: Dealogic

⁷ Includes transfers of listing from GEM to the Main Board

to Share Registrar being made electronically. The issuer also has an arrangement in place to shorten the conversion of American Depository Receipt (ADR) to Ordinary Share (and vice versa) from up to 14 business days to as short as two business days.

The momentum for biotech listing continued to be strong in 2019 following the introduction of the Biotech Companies chapter (Chapter 18A of the Main Board Listing Rules) in April 2018. The Stock Exchange welcomed 16 biotech and healthcare companies (including 9 biotech companies listed under Chapter 18A) in 2019, raising a total of \$39.1 billion. In May 2019, HKEX organised “HKEX Biotech Week 2019”, which attracted over 1,000 scientists, biotech entrepreneurs, investors, technology experts and policymakers, to share industry insights and trends on the biotech industry and capital markets.

With a view to further strengthening Hong Kong's status as a leading IPO and fund raising centre, HKEX focused on expanding its reach and engagement overseas, particularly in Southeast Asia during the year. Looking forward, HKEX will continue to focus on promoting Hong Kong as a premier listing platform for high growth and innovative companies across the globe.

ETF Market Development

During 2019, HKEX introduced a series of market structure enhancements for Exchange Traded Products (ETPs) (which comprise ETFs and Leveraged and Inverse Products (L&I Products)), including the Designated Specialist programme, the International Central Securities Depository (ICSD) settlement model and a new buy-in exemption for ETP market makers. In addition, the first two-time Inverse Product and the first actively-managed ETF were listed on the Stock Exchange on 28 May 2019 and 18 June 2019, respectively.

On 12 November 2019, HKEX celebrated the 20th anniversary of the launch of ETFs on HKEX. The market capitalisation of Hong Kong's ETP market was \$679 billion as of

31 December 2019 and the ADT of ETPs was \$5.0 billion in 2019.

Bond Connect

Trading through Bond Connect gained significant momentum during 2019, with monthly trading volumes reaching new records seven times during the year, the latest being RMB376 billion in November 2019. Single-day trading volume also recorded an all-time high of RMB30.3 billion on 21 October 2019. Overall, ADT of Bond Connect rose to RMB10.7 billion in 2019, nearly triple that of 2018.

Market participation in Bond Connect expanded significantly in 2019, amid the inclusion of Chinese RMB-denominated bonds in the Bloomberg Barclays Global Aggregate Indices from April 2019. As of 31 December 2019, a total of 1,601 institutional investors from 31 jurisdictions globally were admitted to Bond Connect, up 218 per cent from 503 institutional investors as of 31 December 2018.

In 2019, the following enhancements to Bond Connect's connectivity, market infrastructure as well as investor admission processes were achieved:

- (i) Bloomberg was welcomed as a second trading platform on 17 January 2019;
- (ii) Primary Market Information Platform (PMIP), the first English language portal for the dissemination of Chinese primary bond market information, was launched in February 2019. As of 31 December 2019, PMIP had disclosed pre- and post-issuance information of over 1,200 new issues;
- (iii) Negotiable Certificate of Deposit (NCD) primary subscription service was launched in April 2019;
- (iv) T+3 settlement cycle was made available starting from August 2019, enabling global investors to choose from T+0, T+1, T+2, or T+3 settlement for Bond Connect trades. The offering of longer settlement cycle provides greater flexibility for investors' settlement needs; and

- (v) E-Filing System was launched in December 2019 to enhance transparency and efficiency in the investor onboarding process.

Chinese bonds gained sizable representation in global benchmark bond indices in 2019, and such representation is expected to further expand in 2020. Chinese RMB-denominated bonds were added to the Bloomberg Barclays Global Aggregate Indices from 1 April 2019, phased over a 20-month period. In September 2019, JPMorgan Chase & Co. announced that Chinese government bonds will be included in its Government Bond Index-Emerging Markets global diversified and narrow diversified indices starting from 28 February 2020.

Listed Bond Market Development

In 2019, there were 420 new listings of debt securities on the Stock Exchange, with total funds raised of \$1,402 billion, surpassing the previous record set in 2017. As part of HKEX's continuing efforts to develop its fixed-income markets, a concurrent bond offering issued by Agricultural Development Bank of China to both retail and institutional investors was successfully completed in May 2019. HKEX continues its efforts in 2019 in promoting green

investments and actively participated in a number of green finance initiatives, including signing up to the "Green Investment Principles for the Belt and Road" to promote green investment in the Belt & Road region in April 2019, and participating as the supporting organisation of Task Force on Climate-related Financial Disclosures in June 2019. In September 2019, HKEX supported the Hong Kong Green Finance Association in publishing the Green Bonds Guide, which laid out the core principles and provides guidance on the listing of green bonds in Hong Kong. Later in October 2019, HKEX supported the United Nations World Green Organisation Climate Finance & Sustainable Investing Conference to help promote Hong Kong as an international hub for green finance.

Listing Regulation

In 2019, the Stock Exchange issued various proposals and conclusions on Listing Rules amendments as set out in the following table. Details of the consultations and other main policy issues arising in 2019 as well as the proposals under review in 2020 are set out in the 2019 Listing Committee Report.

Key Proposals and Conclusions in 2019

	Consultation paper ^{1,2}	Consultation conclusions ¹	Effective date of changes (if any)
• Proposed Changes to Documentary Requirements relating to Listed Issuers and Other Minor Rule Amendments	Nov 2017	Feb 2019	1 Mar 2019
• Backdoor Listing, Continuing Listing Criteria and Other Rule Amendments	Jun 2018	Jul 2019	1 Oct 2019
• Review Structure in relation to Listing Committee Decisions	Aug 2018	Jan 2019	6 Jul 2019
• Proposal relating to Listed Issuers with Disclaimer or Adverse Audit Opinion on Financial Statements	Sep 2018	May 2019	1 Sep 2019
• Review of the Environmental, Social and Governance Reporting Guide and related Listing Rules	May 2019	Dec 2019	1 Jul 2020
• Codification of General Waivers and Principles relating to IPOs and Listed Issuers and Minor Rule Amendments	Aug 2019	1H 2020 (tentative)	-
• Review of Chapter 37 – Debt Issues to Professional Investors only	Dec 2019	1H 2020 (tentative)	-

1 All the consultation papers and conclusions are available under the News (Market Consultations) section of the HKEX Market website.

2 In January 2020, the Stock Exchange published a consultation paper on Corporate WVR Beneficiaries to seek public feedback on a proposal to allow corporate entities to benefit from WVR, subject to additional conditions and investor safeguards.

Key Initiatives by the Stock Exchange to Promote Issuers' Self-compliance with the Listing Rules

- Issued series of listing decisions on interpretation of the Listing Rules, including reverse takeover transactions and reasons for rejection of listing applications in 2018
- Published reports on review of listed issuers' annual report disclosure and Environmental, Social and Governance disclosures
- Published the inaugural issue of the semi-annual Listed Issuer Regulation Newsletter which provides insights and observations on listed companies' compliance, as well as highlights matters that may assist listed companies in compliance
- Published new guidance materials on (i) sanctions risks; (ii) competition between the businesses of a new applicant and its controlling shareholder; (iii) accounting policies and stock-taking procedures performed by the reporting accountants; (iv) presentation of the non-GAAP financial measures in a listing document; (v) application of the reverse takeover Rules; (vi) large scale issues of securities; and (vii) sufficiency of operations
- Updated various guides on the Stock Exchange's practices and procedures for handling listing-related matters to assist listed issuers in meeting their listing obligation

IPO Processing, Compliance and Monitoring

The following tables illustrate the work of the Stock Exchange in processing new listings and monitoring issuers' compliance for the purposes of maintaining an orderly, informed, and fair market under Section 21 of the SFO.

Stock Exchange's IPO Work

	2019	2018
• Number of listing applications vetted ¹	467	511
• Number of applications brought to the Listing Committees (or their delegates) for decisions ²	221	250
– within 120 calendar days	117	85
– between 121 to 180 calendar days	67	71
– after more than 180 calendar days	37	94
• Number of applications for which approval was granted in principle ³	209	245
• Number of requests for guidance from listing applicants or their advisers seeking clarifications of listing matters	127	238
– Average response time (in business days)	10	10
• Number of listing applications for transfer of listing from GEM to Main Board accepted	27	21
• Applications listed ⁴	197	234
• New listing applications rejected ⁵	26	25
• New listing applications withdrawn	21	14
• New listing applications returned	4	–
• Application in process at year-end	126	167

1 Comprises 300 (2018: 372) new applications and 167 (2018: 139) existing applications brought forward from previous year

2 Refers to listing applications heard by the Listing Committees (or their delegates) for the first time and excludes Chapter 20 listing applications

3 At the end of 2019, 33 (2018: 35) approved applications had not yet been listed, and 5 (2018: 7) approved applications had lapsed during the year.

4 Includes 14 investment vehicles listed on Main Board and deemed new listings (2018: 16)

5 Includes seven rejection decisions (2018: nil) in 2019 which were subsequently reversed upon review. One rejection decision is currently under review.

Number of Compliance and Monitoring Actions

	2019	2018
• Announcements of issuers vetted	62,977	59,861
• Circulars of issuers vetted	2,350	2,083
• Share price and trading volume monitoring actions undertaken ¹	7,939	7,945
• Complaints handled	438	404
• Cases (including complaints) referred to Listing Enforcement Team for investigation	74	81

1 In 2019, monitoring actions undertaken included 677 enquiries (2018: 794) on unusual share price and trading volume movements, and the actions undertaken led to 29 resumption announcements (2018: 24) on trading suspensions.

Long Suspension

Status of Long Suspended Companies	Main Board		GEM		
	2019	2018	2019	2018	
Resumption of trading of securities during the year	22	10	4	2	
Cancellation of listing after expiry of prescribed remedial periods during the year	7	–	2	–	
Cancellation of listing under grandfathered provisions during the year (Main Board Rule 6.01A(2)(a) or (c) or GEM Rule 9.14A(2)(b))	6	4	4	–	
Voluntary withdrawal of listing during the year	1	–	–	–	
Companies suspended for 3 months or more at year-end	68	71	15	11	

Updates of the work on listed companies' compliance and insights and observations that may assist listed companies in compliance can be found at the semi-annual "Listed Issuer Regulation Newsletter".

Listing Enforcement

The enforcement statistics set out below represent a high-level overview of the enforcement work undertaken in 2019 by the Stock Exchange.

Further details and information relating to enforcement work (including the Stock Exchange's general approach, disciplinary procedures and recent cases) can be found at the HKEX Market website and the bi-annual "Enforcement Newsletter", and are set out in the 2019 Listing Committee Report.

Enforcement Statistics

	2019	2018
Investigations ^{1, 2, 3}	112	111
Public sanctions ⁴	13	21
Warning/caution letters ⁵	15	14

1 Figures cover all cases which were investigated in 2019 (both concluded cases and ongoing investigations at year-end).

2 At the end of 2019, there were 28 ongoing investigations (2018: 35).

3 In 2019, 4 enforcement cases (2018: 3) originating from complaints were subject to enforcement investigation.

4 The number of investigation cases that resulted in a public sanction. Actions taken at a lower level in the same case, eg, private reprimand, are not included. Included in the 2018 figure was a number of public sanctions against directors for their failure to co-operate with the Stock Exchange's investigation.

5 The warning and caution letters were issued in circumstances where disciplinary proceedings before the Listing Committee were not considered appropriate. These are recorded as part of the compliance history for the relevant party.

Costs of Listing Function

The costs of the front line regulation of listed issuers, performed by the Listing Committee and the Listing Division, are absorbed by the Cash and Equity and Financial Derivatives segments in proportion to the listing fee income of the two segments.

Equity and Financial Derivatives Segment

Key Market Indicators

	2019	2018	Change
ADT of DWs, CBBCs and warrants traded on the Stock Exchange (\$bn)	18.0	23.2	(22%)
Average daily number of trades of DWs, CBBCs and warrants traded on the Stock Exchange ('000)	296	372	(20%)
ADV of derivatives contracts traded on the Futures Exchange ¹ ('000 contracts)	624	685	(9%)
ADV of stock options contracts traded on the Stock Exchange ('000 contracts)	442	517	(15%)
Number of newly listed DWs	8,939	11,794	(24%)
Number of newly listed CBBCs	24,732	26,678	(7%)
ADV of contracts traded during After-Hours Trading ¹ ('000 contracts)	82	89	(8%)

	At 31 Dec 2019	At 31 Dec 2018	Change
Open interest of futures and options ¹ ('000 contracts)	9,695	10,593	(8%)

1 Excludes London Metal Mini Futures, Gold Futures and Iron Ore Futures contracts (which are included under the Commodities segment)

Analysis of Results

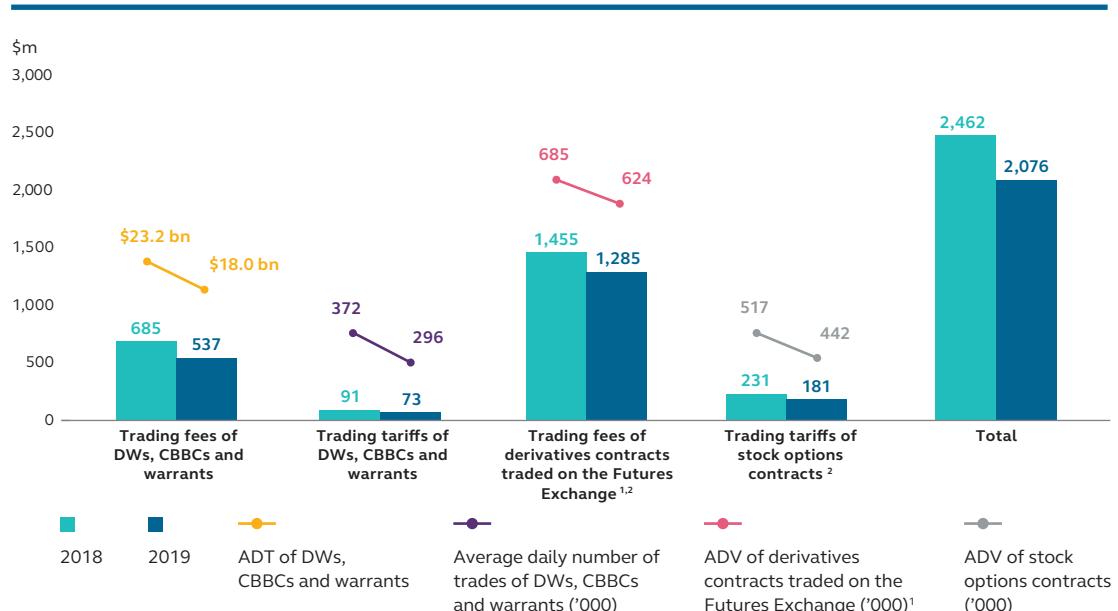
Summary

	2019 \$m	2018 \$m	Change
Trading fees and trading tariffs ¹	2,076	2,462	(16%)
Stock Exchange listing fees	679	822	(17%)
Market data fees ¹	218	210	4%
Other revenue	15	9	67%
Total revenue	2,988	3,503	(15%)
Operating expenses ²	(551)	(573)	(4%)
EBITDA	2,437	2,930	(17%)
EBITDA margin	82%	84%	(2%)

1 Excludes cash equities (which are included under the Cash segment)

2 Includes Listing Division costs apportioned to DWs, CBBCs and warrants traded on the Stock Exchange

Trading Fees and Trading Tariffs



1 Excludes London Metal Mini Futures, Gold Futures and Iron Ore Futures contracts (which are included under the Commodities segment)

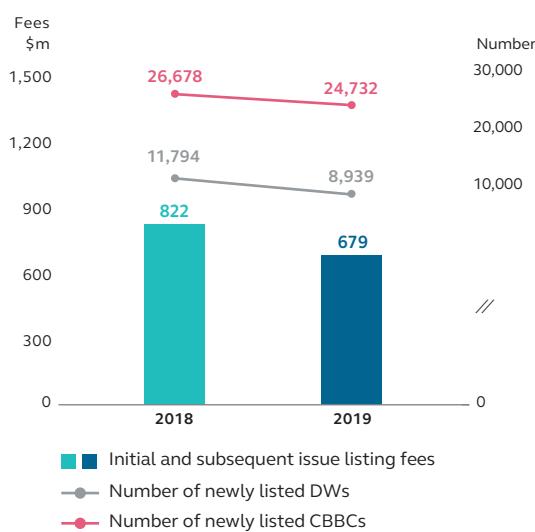
2 Excludes trading fees and trading tariffs allocated to the Post Trade segment (Derivatives contracts traded on the Futures Exchange – 2019: \$308 million; 2018: \$338 million; stock options contracts – 2019: \$72 million; 2018: \$84 million)

Trading fees and trading tariffs for the segment are generated from the trading of derivatives on the Stock Exchange (ie, DWs, CBBCs, warrants, and stock options) and trading of futures and options on the Futures Exchange. A portion of the trading fees and trading tariffs for futures and options contracts is allocated to the Post Trade segment as the trading and clearing fees of these products are bundled together in the form of trading fees and tariffs.

Trading fees and trading tariffs from DWs, CBBCs and warrants dropped by \$166 million or 21 per cent, reflecting the 22 per cent decrease in ADT.

Driven by decreased volatility in 2019, ADV of derivatives contracts traded on the Futures Exchange and stock options contracts both dropped from the record highs in 2018. As a result, derivatives trading fees of the Futures Exchange and trading tariffs for stock options contracts dropped by 12 per cent and 22 per cent respectively compared with 2018.

Stock Exchange Listing Fees



Stock Exchange listing fees are mainly derived from initial and subsequent issue listing fees for DWs and CBBCs. The fees decreased by \$143 million or 17 per cent, reflecting the decrease of newly listed DWs and CBBCs compared with the record highs in 2018.

EBITDA

Operating expenses decreased by 4 per cent due to lower premises expenses (\$41 million) as a result of adopting the new accounting standard for leases⁴ partly offset by an increase in IT costs and staff costs due to annual payroll adjustments. EBITDA margin dropped from 84 per cent to 82 per cent due to the decrease in revenue but partly offset by the decrease in operating expenses.

Business Update

Despite a challenging environment, the Hong Kong Derivatives Market showed resilient performance in 2019. The total number of futures and options contracts traded in 2019 was 262,227,110⁸, 11 per cent down from the previous record of 2018. A number of futures and options contracts reached new record highs (see below).

New Record Highs – Full Year Trading Volume

	2019 Number of contracts	Pre-2019 record Number of contracts
Mini HSI Options	3,343,429	2,461,296 (2018)
Stock Futures	917,358	863,027 (2018)
RMB Currency Futures – USD/CNH Futures	1,938,891	1,755,130 (2018)
MSCI AC Asia ex Japan NTR ⁹ Index Futures	237,533	5,545 (2018)

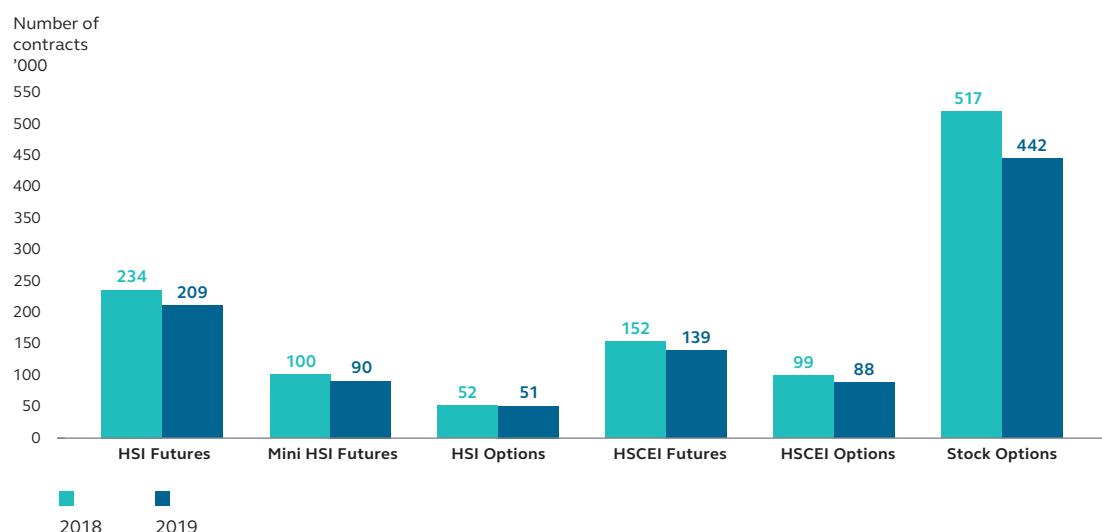
⁸ Excludes London Metal Mini Futures, Gold Futures and Iron Ore Futures contracts which are included under the Commodities segment

⁹ MSCI All Country Asia ex Japan Net Total Return

New Record Highs – Single-day Trading Volume and Open Interest

	Single-day Trading Volume		Open interest	
	Date (2019)	Number of contracts	Date (2019)	Number of contracts
HSCEI Futures	25 Feb	477,061	N/A	N/A
HSI Options	26 Aug	133,419	N/A	N/A
Mini HSI Options	26 Aug	36,928	28 Aug	66,588
Mini HSCEI Options	N/A	N/A	26 Sep	34,635
MSCI AC Asia ex Japan NTR ⁹ Index Futures	16 Dec	56,378	17 Sep	46,698
RMB Currency Futures – USD/CNH Futures	5 Aug	24,345	N/A	N/A

Average Daily Volume of Major Futures and Options Contracts



After-Hours Trading Extension

On 17 June 2019, HKEX extended trading hours to 3 a.m. for 27 products including equity index futures and options, currency futures, and commodity futures. Trading volume in the After-Hours Trading (T+1) Session reached daily record high of 248,853⁸ contracts on 13 August 2019, and the percentage of volume traded in the T+1 Session over the T Session also reached a daily record high on 23 August 2019 at 49.4 per cent. Furthermore, ADV for equity index options traded in the T+1 Session grew 59 per cent year-on-year with ADV of over 10,000 contracts in 2019.

Equity Futures and Options Market Development

HKEX introduced Weekly HSI Options and Weekly HSCEI Options (Weekly Index Options) on 16 September 2019. As of 31 December 2019, ADV of Weekly Index Options since launch was 4,670 contracts.

In 2019, HKEX introduced futures and options of Alibaba and Budweiser APAC, allowed issuers to list DWs of the two companies, and designated the shares of the two companies as securities eligible for short selling, all of which provided more investment options and risk management tools for investors.

Fixed Income and Currency (FIC) Development

RMB currency derivatives market attained record trading volume in 2019, with 1.9 million contracts of USD/CNH Futures contracts traded, a 10 per cent increase compared with the previous record set in 2018. The contract also attained a new record daily turnover of 24,345 contracts on 5 August 2019.

HKEX further expanded its fixed income and currency product coverage to address evolving risk management needs of market participants. The Indian Rupee (INR) Currency Futures, which include INR/USD Futures and INR/CNH Futures contracts, were launched on 4 November 2019, with the latter being the first listed futures of the INR/CNH pair globally.

Enhancements on trading hours and contract offerings were made to the RMB currency derivatives products. The opening time for trading USD/CNH Options contracts was changed from 9:00 a.m. to 8:30 a.m. starting from 18 November 2019, allowing market participants to benefit from efficient cross-product trading. Two additional calendar quarter months (ie, the 5th and 6th calendar quarter months) were introduced to USD/CNH Options and cash-settled CNH/USD Futures contracts since 19 November 2019 to facilitate market participants in managing their long-term RMB exposure.

The sixth annual HKEX RMB FIC Pan-Asian Conference was hosted in Hong Kong and Singapore in April 2019, attracting over 1,200 industry experts and professionals across Asia. Key regulatory and business issues were discussed, including the development of the bond market in China and the bond issuance business in Hong Kong.

Structured Products

Hong Kong is the world's most actively-traded market for structured products¹⁰. ADT of CBBCs, DWs and warrants was \$18.0 billion, accounting for 21 per cent of total market turnover. In particular, ADT of CBBCs reached a record high of \$8.1 billion in 2019, up 9 per cent from 2018. A new product type being the first in Asia, Inline Warrants, was launched in July 2019. Inline Warrants complement HKEX's Strategic Plan in developing Hong Kong into a trading hub for structured products in the Asia Pacific time zone and offer an alternative investment product to serve different trading strategies. As at 31 December 2019, 922 Inline Warrants were listed.

Commodities Segment

Key Market Indicators

	2019	2018	Change
ADV of metals contracts traded on the LME ('000 lots)			
Aluminium	236	234	1%
Copper	131	137	(4%)
Zinc	109	117	(7%)
Nickel	89	83	7%
Lead	42	45	(7%)
Ferrous	2	2	0%
Precious	1	3	(67%)
Others	7	6	17%
Total chargeable ADV excluding Admin Trades ¹	617	627	(2%)
Chargeable Admin Trades ¹	46	-	N/A
Non-chargeable Admin Trades ¹ and other non-chargeable trades	34	103	(67%)
Total ADV	697	730	(5%)

¹ Admin Trades were introduced in 2017 to meet requirements resulting from MiFID II. These trades were not chargeable prior to 1 May 2019, but became chargeable at US\$0.04 per contract thereafter.

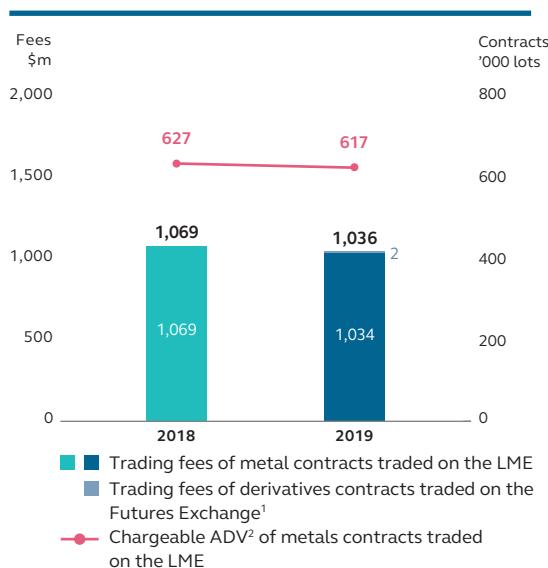
	At 31 Dec 2019	At 31 Dec 2018	Change
Total futures market open interest ('000 lots)	2,170	1,998	9%

Analysis of Results

Summary

	2019 \$m	2018 \$m	Change
Trading fees and trading tariffs	1,036	1,069	(3%)
Market data fees	193	193	0%
Other revenue:			
Commodities stock levies and warehouse listing fees	63	66	(5%)
Financial OTC booking fees	45	27	67%
Others	62	60	3%
Total revenue and other income	1,399	1,415	(1%)
Operating expenses	(668)	(717)	(7%)
EBITDA	731	698	5%
EBITDA margin	52%	49%	3%

Trading Fees and Trading Tariffs



- 1 Includes London Metal Mini Futures, Gold Futures and Iron Ore Futures contracts
- 2 Chargeable ADV excludes Admin Trades (which became chargeable from May 2019 at a lower trading fee rate of US\$0.04 per contract) and other non-chargeable trades.

Chargeable ADV of metal contracts traded on the LME dropped only by 2 per cent despite slowing global economic growth momentum and geopolitical tensions. As a result, LME trading fees dropped by \$35 million (3 per cent).

EBITDA

Operating expenses dropped by \$49 million or 7 per cent, mainly attributable to lower premises expenses (\$32 million) as a result of adopting the new accounting standard for leases⁴, and lower professional fees incurred for strategic initiatives. As the percentage decrease in operating expenses more than offset the percentage decrease in revenue, EBITDA margin rose from 49 per cent in 2018 to 52 per cent in 2019.

Business Update

LME

Since the launch of seven new cash-settled products in Q1 2019, LME Steel Hot-Rolled Coil (HRC) Free On Board (FOB) China contracts in particular have seen strong growth in trading activity, with ADV of over 600 lots in December 2019. Further product launches are planned in 2020 across the aluminium and ferrous product suites. In addition, the LME's intended introduction of a lithium contract has been advanced with the formation of the LME Lithium Committee (first meeting in October 2019), which includes representation from leading participants across the value chain.

To support the liquidity of new products, the LME introduced (i) a new membership category for Registered Intermediating Brokers (RIB) in Q1 2019 (8 members approved as of 31 December 2019); and (ii) a Member Incentive Programme (MIP) on 1 November 2019.

In 1H 2019, the LME successfully trialed deriving the 3-month Nickel Closing Price electronically via its trading platform, LMEselect, complemented by the introduction of trade-at-settlement functionality for the same contract. Following a successful trial on zinc, the LME extended the kerb trading period on the Ring from 5 minutes to 10 minutes and rolled it out across all the LME's six main contracts in September. The LME has also continued to support liquidity with the roll-out of implied pricing which was well received by the market.

Following two years of market engagement, including a formal market-wide consultation, the LME announced in October 2019 its Responsible Sourcing requirements underpinned by OECD Due Diligence Guidance for responsible supply chains, which will apply to all its listed brands. This marks the first time that the LME has applied ethical standards to its listed brands and represents a significant step forward for the efforts of the LME and the metals market to promote inclusive, sustainable and responsible global metal supply chains.

The LME continued to work closely with its Warehousing Committee to put together a warehouse reform proposal designed to ensure that the LME's physical network continues to remain relevant and attractive to users and represents best practice, and to this end, published both a discussion paper and consultation during 2019. The results of the consultation were published in November 2019, and the LME will proceed with its proposed package of measures aimed at optimising its warehousing network for the benefit of the global metals industry.

HKFE Commodities Product Development

In Hong Kong, research and market consultations are in progress for the enhancement of the Gold Futures and Iron Ore Futures contracts and for the potential launch of other metals derivatives products and metals indices. Six gold futures indices (Gold Futures Excess Return Index, Total Return Index and

Spot Price Index in both USD and CNH) were launched on 24 June 2019, offering independent, transparent and timely benchmarks for gold price changes in the Hong Kong market. USD-denominated London Aluminium/Copper/Zinc/Lead/Tin/Nickel Mini Futures contracts were also launched on 5 August 2019 to complement the existing CNH-denominated London Metal Mini Futures.

In 2019, a total of 81,768 contracts of CNH Gold Futures and 491,405 contracts of USD Gold Futures were traded, with 299 kilograms of gold bars physically delivered against the contracts. In addition, 29,334 contracts of USD-denominated London Metal Mini Futures and 55,944 contracts of Iron Ore Futures were traded.

QME

QME launched four new products in base metals (aluminium ingot, aluminium billet, copper rod and copper cathode) in 2019. The overall trading volume increased in 2019, primarily due to growth of client base, expansion of spot trading models, along with smooth physical delivery and financing. QME's warehouse warrants have proved to be a valid means for financial institutions to provide affordable financing to the industry. QME also started building its price benchmarking capabilities through indexation and initiated the application of new technology to upgrade the warehouse ecosystem.

Post Trade Segment

Key Market Indicators

	2019	2018	Change
ADT on the Stock Exchange (\$bn)	87.2	107.4	(19%)
Average daily number of Stock Exchange trades ('000)	1,453	1,597	(9%)
Average value per trade (\$)	59,988	67,266	(11%)
Average daily value of Settlement Instructions (SIs) settled by CCASS (\$bn)	238.4	266.2	(10%)
Average daily number of SIs	94,951	103,033	(8%)
Average value per SI (\$)	2,510,576	2,584,067	(3%)
Chargeable ADV ¹ of metals contracts traded on the LME ('000 lots)	617	627	(2%)

1 Chargeable ADV excludes Admin Trades (which became chargeable from May 2019 at a lower clearing fee rate of US\$0.02 per contract) and other non-chargeable trades.

Analysis of Results

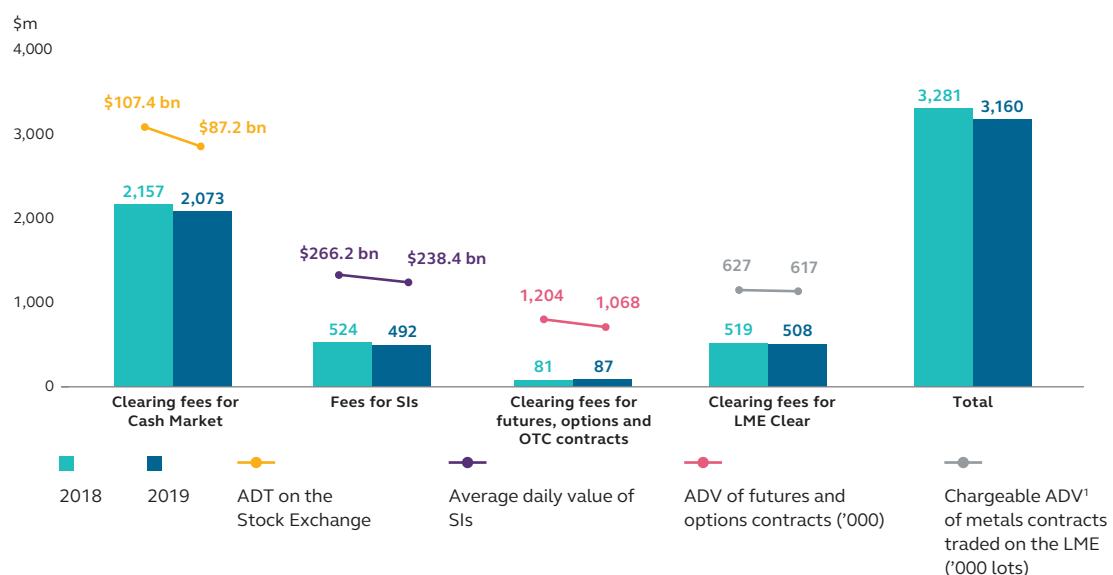
Summary

	2019 \$m	2018 \$m	Change
Trading fees and trading tariffs – allocated from Equity and Financial Derivatives segment	380	422	(10%)
Clearing and settlement fees	3,160	3,281	(4%)
Depository, custody and nominee services fees	1,052	979	7%
Other revenue and sundry income	138	109	27%
	4,730	4,791	(1%)
Net investment income	1,496	1,377	9%
Total revenue and other income	6,226	6,168	1%
Operating expenses	(824)	(812)	1%
EBITDA	5,402	5,356	1%
EBITDA margin	87%	87%	–

Trading Fees and Trading Tariffs

Trading fees and trading tariffs allocated from Equity and Financial Derivatives segment for clearing derivatives products dropped by 10 per cent, due to a 9 per cent decrease in ADV of derivatives contracts traded on the Futures Exchange and a 15 per cent decrease in ADV of stock options traded (see commentary in the Equity and Financial Derivatives segment).

Clearing and Settlement Fees



¹ Chargeable ADV excludes Admin Trades (which became chargeable from May 2019 at a lower clearing fee rate of US\$0.02 per contract) and other non-chargeable trades.

Clearing and settlement fees for Cash Market and SIs decreased by 4 per cent and 6 per cent respectively compared with 2018. The decreases were primarily driven by a lower number of transactions, but was partly offset by a 6 per cent and a 2 per cent higher average fee per Cash Market trade, and per SI transaction respectively.

Clearing fees for LME Clear dropped by \$11 million or 2 per cent, in line with the decrease in chargeable ADV¹ of metals contracts traded.

Depository, Custody and Nominee Services Fees

Depository, custody and nominee services fees are not directly impacted by changes in market activity. They rose by \$73 million or 7 per cent due to higher Stock Connect portfolio fees, scrip fees and stock withdrawal fees.

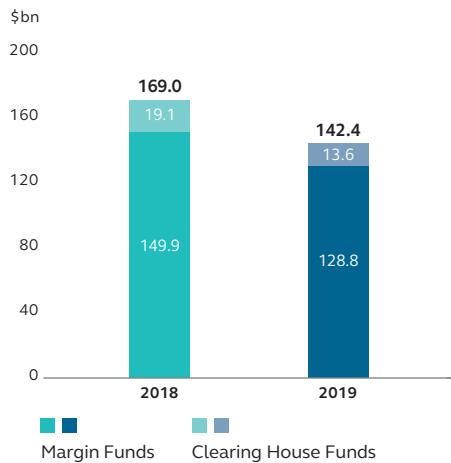
Other Revenue and Sundry Income

Other revenue increased by \$29 million mainly due to an increase in accommodation income¹¹ arising from CPs placing more negative interest currencies as collateral.

¹¹ Accommodation income mainly comprises income from CPs on depositing securities as alternatives to cash deposits of Margin Funds, or depositing currencies whose relevant bank deposit rates are negative, and interest shortfall collected from LME Clear CPs on cash collateral where the investment return on the collateral is below the benchmarked interest rates stipulated in the clearing rules of LME Clear.

Net Investment Income

Average fund size



The decrease in the average size of Margin Funds during the year was attributable to lower average Margin Fund sizes of LME Clear, HKCC and SEOCH due to lower margin requirements per contract, reflecting reduced volatility.

The decrease in the average size of Clearing House Funds during the year was attributable to lower average fund size of LME Clear due to changes in risk exposures.

The analysis of net investment income is as follows:

	2019			2018		
	Margin Funds \$m	Clearing House Funds \$m	Total \$m	Margin Funds \$m	Clearing House Funds \$m	Total \$m
Net investment income from:						
- Cash and bank deposits	1,296	109	1,405	1,257	58	1,315
- Debt securities	97	-	97	60	-	60
- Exchange (losses)/gains	(6)	-	(6)	2	-	2
Total net investment income	1,387	109	1,496	1,319	58	1,377
Net investment return	1.08%	0.80%	1.05%	0.88%	0.31%	0.81%

The higher net investment income on Margin Funds in 2019 arose from higher interest income on cash and bank deposits, due to rising interest rates in Hong Kong, partly offset by lower average fund size.

To lower the funding costs of CPs and to facilitate a more efficient market in Hong Kong, effective from 2 September 2019, HKCC and SEOCH have increased the interest rebate for HKD margins collateral from prevailing bank savings rate to a rate calculated with reference to 1 month Hong Kong Interbank Offered Rate (HIBOR).

EBITDA

Operating expenses rose by \$12 million or 1 per cent over 2018, as a result of higher staff costs for strategic projects, annual payroll adjustments, and higher IT support and maintenance costs, partly offset by lower premises expenses (\$58 million) as a result of adopting the new accounting standard for leases⁴. EBITDA margin remained stable at 87 per cent in both 2019 and 2018.

Business Update

Cash and Derivatives Clearing

Driven by the further weighting increase of China A Shares in MSCI Indexes and the inclusion of China A shares in FTSE Russell Indexes this year, there was a strong increase in demand for Stock Connect clearing facilities:

- (i) a 4.2 times increase in the average daily value of Northbound SIs settled through the Real-time Delivery versus Payment arrangement in 2019 as compared with 2018;
- (ii) the number of Special Segregated Accounts increased by 35 per cent (9,564 accounts as of 31 December 2019 compared with 7,062 as of 31 December 2018); and
- (iii) both Northbound and Southbound portfolio values of Stock Connect reached record highs in December 2019, with Northbound portfolio value increased by 114 per cent to RMB1,429 billion as of 31 December 2019 (31 December 2018: RMB668 billion) and Southbound portfolio value increased by 44 per cent to \$1,138 billion as of 31 December 2019 (31 December 2018: \$789 billion).

On 11 November 2019, HKSCC enhanced the Third Party Clearing (TPC) arrangement to allow a Non-Clearing Participant (NCP) to appoint different General Clearing Participants (GCPs) for clearing and settling Exchange Trades and China Connect Securities Trades. HKSCC will further enhance the TPC arrangement in Q1 2020 to allow a CCASS Clearing Participant (either a Direct Clearing Participant or GCP) to continue to self-clear its Exchange Trades, while appointing a GCP for clearing its China Connect Securities Trades.

Registered Institutions (RI) are allowed to be admitted directly as HKCC and SEOCH CPs starting from October 2019. This enables RIs to utilise their capital more efficiently by not requiring capital to be allocated to their local affiliates who shall at all times set aside capital to meet the Financial Resources Rules requirements.

HKEX completed the 2019 Annual Attestation and Inspection Programme, with focus on three areas: (i) position limits and large open position reporting; (ii) risk management; and (iii) China Connect rules. The results and findings were announced to the market in February 2020.

OTC Clear

Total notional amount cleared by OTC Clear in 2019 reached a record high of US\$198.3 billion, up 65 per cent compared with 2018. Clearing volume of HKD Interest Rate Swaps (IRS) more than doubled compared with 2018 and Cross Currency Swaps (CCS) clearing volume rose by 45 per cent.

In December 2019, OTC Clear received a license from the Financial Services Agency of Japan to become a Foreign Financial Instruments Clearing Organisation, allowing it to offer clearing services to Japanese banks.

LME Clear

Throughout the year, LME Clear has worked with its members to develop a more effective LME-specific margin methodology and has received regulatory approval for plans to introduce Value-at-Risk (VaR) margining. VaR margining is expected to launch in Q3 2021, and LME Clear has proceeded with educating the market on this change and the system work required for its implementation.

Technology Segment

Analysis of Results

Summary

	2019 \$m	2018 \$m	Change
Network, terminal user, data line and software sub-license fees	575	515	12%
Hosting services fees	188	162	16%
BayConnect sales and service revenue and other income	33	–	N/A
Others	–	1	(100%)
Total revenue and other income	796	678	17%
Operating expenses	(245)	(170)	44%
EBITDA	551	508	8%
EBITDA margin	69%	75%	(6%)

Network, Terminal User, Data Line and Software Sub-license Fees

Network fees rose by \$60 million (12 per cent) due to increased usage of the Orion Central Gateway by new and existing EPs, and additional fees arising from throttle usage fees, and increased China Connect Central Gateway (CCCG) fees.

Hosting Services Fees

Hosting services fees increased due to organic growth from both new customer subscriptions and increased usage by existing customers. At the end of December 2019, 119 EPs were using HKEX's Hosting Services. These EPs generated, in aggregate, approximately 52 per cent of the Cash Market turnover and 59 per cent of the trading volume of the Derivatives Market in 2019.

EBITDA

Operating expenses increased due to inclusion of costs of Innovation Lab (which were included in Corporate Items in 2018) and operating expenses of BayConnect, a 51 per cent subsidiary acquired in June 2019. EBITDA margin dropped from 75 per cent in 2018 to 69 per cent in 2019 as a result of the higher operating expenses; however overall EBITDA increased by 8 per cent year-on-year.

Business Update

During 2019, all major trading, clearing, settlement, and market data dissemination systems performed robustly, excepting the two minor incidents that occurred on the LME's platform on 15 May and 19 July 2019, and a temporary suspension of Derivatives Market in Hong Kong on 5 September 2019. An external consultant has been engaged for conducting comprehensive review of the Derivatives Market system to further strengthen the entire system's stability and robustness.

The upgrade of the derivatives platforms, the Hong Kong Futures Automated Trading System (HKATS) and the Derivatives Clearing and Settlement System (DCASS), was successfully rolled out in May 2019 to enhance the stability and reliability of infrastructure, enable swift adaptation to future market developments, and reduce hardware footprint required at participants' premises. HKEX rolled out, along with the upgrade, a new web-based front-end (HKATS Online) which included a block trade reporting function and a new optional self-match prevention tool.

The pilot run for Client Connect, the first phase of the Next Generation Post Trade programme, was launched in May 2019. Client Connect aims to provide a single platform to unify all client access to HKEX services. Starting from January 2020, Client Connect has become the mandatory channel for participants to submit digitalised requests. Response from participants has been positive, and both user-error and in-house complications have been reduced substantially while also reducing paper usage.

Following the launch of the Orion Trading Platform – Securities Market (OTP-C) in February 2018, the Orion Trading Platform – China Stock Connect (OTP-CSC) was successfully rolled out on 5 August 2019 to replace the legacy proprietary platform supporting the Northbound Trading of Stock Connect. OTP-CSC offers a scalable, flexible and high performance order routing platform based on open system technology to meet the evolving business needs and future growth of Northbound Trading volume.

In 2019, the LME began a programme to replace its core trading infrastructure using HKEX's Orion Trading Platform architecture, which will underpin the LME's new trading platform in the coming years.

In June 2019, HKEX completed the acquisition of a 51 per cent equity interest in BayConnect, a Shenzhen-based financial markets technology firm that specialises in financial exchanges, regulation technologies and data applications. The acquisition is expected to support HKEX's strategy to further build its financial markets technological capabilities and spearhead its future IT projects and initiatives.

In December 2019, HKEX entered into a subscription agreement to become a minority shareholder in Huakong TsingJiao Information Science (Beijing) Limited (TsingJiao). TsingJiao specialises in the research and development of Multi-party Computation (MPC) technologies, a subfield of cryptography that seeks to allow collaborative data analysis without revealing private data during the computation and analysis process. HKEX believes that partnering with TsingJiao is one of the building blocks to realise the Company's vision of building a data marketplace. In January 2020, HKEX closed the first stage investment in TsingJiao.

Under the "Technology Empowered" pillar of the Group's Strategic Plan 2019-2021, the HKEX Innovation Lab has been dedicated to exploring, accelerating and applying new technologies that support the growth of HKEX's business and maintain its position as the global market leader in the Asian time zone. In 2019, using both in-house development capabilities and external partnerships, a number of new technology projects were incubated in the HKEX Innovation Lab and deployed in the Group's business. These include an Artificial intelligence (AI) powered corporate actions management platform, the scale-up of HKEX's robotic process automation programme, a behavioural analysis of algorithmic trading in collaboration with The University of Hong Kong, and new knowledge graph systems for risk management and regulatory surveillance. These initiatives have been delivering steady efficiencies to the Group's operations.

Corporate Items

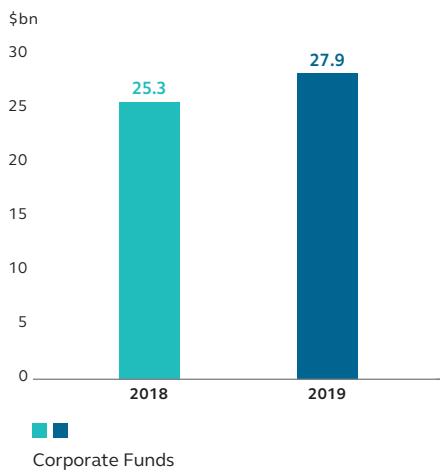
“Corporate Items” is not a business segment but comprises central income (including net investment income of the Corporate Funds), the costs of central support functions that provide services to all operating segments and other costs not directly related to any operating segments.

Summary

	2019 \$m	2018 \$m	Change
Net investment income	1,233	207	496%
Others	23	41	(44%)
Total revenue and other income	1,256	248	406%
Operating expenses	1,157	1,254	(8%)

Net Investment Income

Average fund size



Average fund size increased principally due to cash generated and retained by the business after payment of cash dividends and the increase in fair values of collective investment scheme investments.

The analysis of net investment income is as follows:

	2019 \$m	2018 \$m
Net investment income/(loss) from:		
Cash and bank deposits	437	328
Collective investment schemes	789	(106)
Debt securities	6	1
Exchange gains/(losses)	1	(16)
Total net investment income	1,233	207
Net investment return	4.42%	0.82%

Net investment income of Corporate Funds increased by \$1,026 million compared with 2018 principally due to fair value gains on collective investment schemes held under the external portfolio, as opposed to the fair value losses in 2018, and higher interest income earned on cash and bank deposits from increased fund size and higher deposit rates.

The increase in fair value gains on collective investment schemes principally came from funds invested in the public equities asset class (\$532 million) and multi-sector fixed income asset class (\$145 million). As the valuation of external portfolio reflects movements in market prices, fair value gains or losses may fluctuate or reverse until the investments are sold.

Business Update

In 2019, HKEX became a minority shareholder in Fusion Bank Limited (formerly known as Infinium Limited), which was granted a virtual banking license by the Hong Kong Monetary Authority in May 2019. Fusion Bank Limited aims to leverage its advanced technology and new applications of Fintech to promote financial inclusion in Hong Kong and to bring

customers a brand-new, efficient and secure virtual banking experience, enabling them to enjoy better and more convenient financial services.

In September 2019, HKEX entered into a MOU with Ping An Insurance (Group) Company of China Limited (Ping An) to explore possible areas of cooperation and collaboration in Fintech and data analytics to enhance the region's financial market ecosystem. HKEX and Ping An are working together to identify areas of collaboration, including Fintech solutions across different asset classes, as well as the application of data and AI technology to support the mutual connectivity of the Mainland Chinese, Hong Kong and international markets.

In 2019, HKEX carried out a detailed analysis on the proposed combination with LSEG, but decided not to proceed with making a firm offer, as HKEX was unable to engage with the management of LSEG in realising its vision, and continuation would not be in the best interests of shareholders.

Expenses, Other Costs and Taxation

Operating Expenses



Staff costs and related expenses increased by \$163 million or 6 per cent mainly due to annual payroll adjustments, and increased headcount for strategic initiatives.

IT and computer maintenance expenses consumed by the Group, excluding costs of services and goods directly consumed by participants of \$93 million (2018: \$88 million), were \$487 million (2018: \$420 million). The increase was mainly attributable to higher maintenance expenses for new IT systems and upgraded networks.

Premises expenses dropped by \$310 million or 71 per cent as office rental of around \$300 million was no longer recognised as premises expenses under the new accounting standard for leases⁴.

Depreciation and Amortisation

	2019 \$m	2018 \$m	Change
Depreciation and amortisation	1,044	762	37%

The “right-of-use assets” recognised under the new accounting standard for leases⁴ adopted in 2019 gave rise to depreciation and amortisation of \$271 million. Excluding such impact, depreciation and amortisation increased by \$11 million or 1 per cent, due to depreciation of new IT systems.

Finance Costs

	2019 \$m	2018 \$m	Change
Finance costs	177	114	55%

Finance costs increased due to the recognition of interest expense on lease liabilities of \$89 million under the new accounting standard for leases⁴, partly offset by lower interest charge due to the maturity of fixed rate notes in December 2018 and January 2019.

Costs relating to proposed combination with LSEG

In 2019, HKEX carried out a detailed analysis on the proposed combination with LSEG, but decided not to proceed with making a firm offer. Costs incurred for the proposed combination with LSEG amounted to \$123 million.

Taxation

	2019 \$m	2018 \$m	Change
Taxation	1,561	1,592	(2%)

Taxation dropped by 2 per cent as compared with 2018. Excluding the one-off \$52 million tax refund from the UK tax authority in 2018, taxation decreased by 5 per cent due to higher non-taxable income.

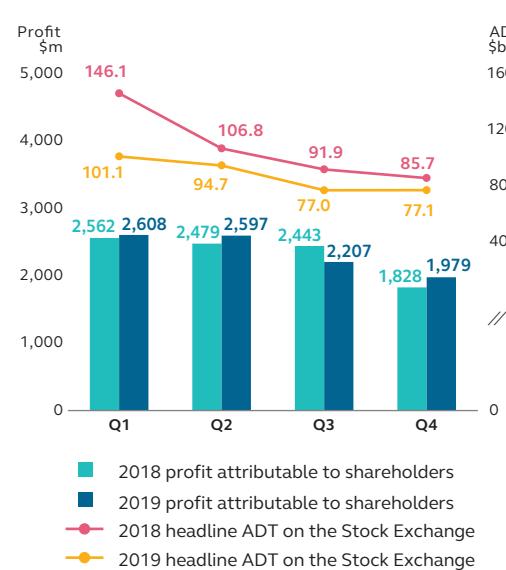
Financial Review

Analysis of Results by Quarter

Quarterly Results

	Q1 2019 \$m	Q2 2019 \$m	Q3 2019 \$m	Q4 2019 \$m	Total 2019 \$m
Revenue and other income	4,288	4,290	3,987	3,746	16,311
Operating expenses	(970)	(983)	(949)	(1,146)	(4,048)
EBITDA	3,318	3,307	3,038	2,600	12,263
Depreciation and amortisation	(248)	(247)	(271)	(278)	(1,044)
Operating profit	3,070	3,060	2,767	2,322	11,219
Costs relating to proposed combination with LSEG	-	-	(130)	7	(123)
Finance costs	(44)	(42)	(43)	(48)	(177)
Share of profits less losses of joint ventures	3	3	11	15	32
Profit before taxation	3,029	3,021	2,605	2,296	10,951
Taxation	(422)	(425)	(400)	(314)	(1,561)
Profit for period/year	2,607	2,596	2,205	1,982	9,390
Loss/(profit) attributable to non-controlling interests	1	1	2	(3)	1
Profit attributable to shareholders	2,608	2,597	2,207	1,979	9,391
	Q1 2018 \$m	Q2 2018 \$m	Q3 2018 \$m	Q4 2018 \$m	Total 2018 \$m
Profit attributable to shareholders	2,562	2,479	2,443	1,828	9,312

Analysis of Quarterly Results



2019 headline ADT was lower than 2018 headline ADT for all four quarters due to subdued market sentiment driven by trade tensions between China and the US, social unrest in Hong Kong, weakening economic outlook and uncertainties over Brexit. Despite this, HKEX still reported record high profit due to record income generated from Stock Connect and higher net interest income from Corporate Funds and Margin Funds, and an increase in net investment income from fair value gains on collective investment schemes.

As profit generally follows the level of ADT, Q1 was the most profitable quarter during the year. Q4 was the least profitable quarter in 2019 due to the low ADT and seasonal increase in operating costs towards the end of the year.

Changes to Key Items in Consolidated Statement of Financial Position

(A) Financial Assets and Financial Liabilities

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m	Change
Financial assets			
Cash and cash equivalents	128,152	121,196	6%
Financial assets measured at fair value through profit or loss	57,401	61,004	(6%)
Financial assets measured at fair value through other comprehensive income	4,569	3,755	22%
Financial assets measured at amortised cost	40,672	31,885	28%
Total	230,794	217,840	6%

The Group's financial assets comprised financial assets of Corporate Funds, Margin Funds, Clearing House Funds, base, ferrous, and precious metals derivatives contracts, and cash prepayments and collateral for A shares traded under Stock Connect, as follows:

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m	Change
Financial assets			
Corporate Funds ¹	29,138	24,833	17%
Margin Funds ²	137,012	120,573	14%
Clearing House Funds	15,176	15,505	(2%)
Base, ferrous, and precious metals derivatives contracts cleared through LME Clear	48,008	53,915	(11%)
Cash prepayments and collateral for A shares	1,460	3,014	(52%)
Total	230,794	217,840	6%

- 1 Includes \$818 million (31 December 2018: \$724 million) solely used for supporting contributions to default funds and default fund credits for HKSCC Guarantee Fund, SEOCH Reserve Fund and HKCC Reserve Fund
- 2 Excludes Settlement Reserve Fund and Settlement Guarantee Fund paid to ChinaClear and margin receivable from CPs of \$5,524 million (31 December 2018: \$3,155 million), which are included in accounts receivable, prepayments and other deposits

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m	Change
Financial liabilities			
Base, ferrous, and precious metals derivatives contracts cleared through LME Clear	48,008	53,915	(11%)
Margin deposits, Mainland security and settlement deposits, and cash collateral from CPs	142,536	123,728	15%
CPs' contributions to Clearing House Funds	14,394	14,787	(3%)
Total	204,938	192,430	7%

The increase in financial assets and financial liabilities of Margin Funds at 31 December 2019 against those at 31 December 2018 was mainly attributable to increased contributions from members of LME Clear due to an increase in open positions, and increased contributions from HKCC CPs due to higher surplus collateral posted by CPs.

Financial assets of Corporate Funds at 31 December 2019 increased by \$4,305 million as compared to those at 31 December 2018 due to the retention of cash generated by the business over the past year partly offset by the cash paid for the 2018 second interim dividend and 2019 first interim dividend, and the increase in fair values of collective investment scheme investments.

A portion of the Corporate Funds is invested in collective investment schemes which are designed to enhance returns and mitigate portfolio volatility and asset class concentration risk. Further details of investments in collective investment schemes are included in note 53(a)(iv) to the Consolidated Financial Statements of this Annual Report.

(B) Fixed Assets, Intangible Assets, Right-of-use Assets and Capital Commitments

The total net book value of the Group's fixed assets and intangible assets rose by \$323 million from \$19,644 million at 31 December 2018 to \$19,967 million at 31 December 2019. The increase was mainly due to additions of fixed and intangible assets of \$1,068 million, and goodwill and intangible assets arising from the acquisition of BayConnect of \$149 million, but was partly offset by depreciation and amortisation of \$773 million, and exchange differences arising from depreciation of USD and RMB of \$84 million. Additions during the year were mainly related to the development and upgrade of various trading and clearing systems.

As a result of the adoption of HKFRS 16, the Group's operating leases are recognised as right-of-use assets and lease liabilities in the consolidated statement of financial position. At 31 December 2019, right-of-use assets amounted to \$2,366 million and were mainly related to leases of office premises.

The Group's capital expenditure¹ commitments at 31 December 2019, including those authorised by the Board but not yet contracted for, amounted to \$1,217 million (31 December 2018: \$935 million). These related mainly to the development and upgrade of IT systems including the cash, derivatives and commodities trading and clearing systems, and the set up of the new secondary data centre.

(C) Significant Investments Held, Material Acquisitions and Disposals of Subsidiaries, and Future Plans for Material Investments or Capital Assets

On 28 June 2019, the Group completed the acquisition of a 51 per cent equity interest of BayConnect for a total cash consideration of RMB233 million (HK\$262 million) through capital injection into BayConnect. In addition, the Group subscribed for a minority equity interest in Fusion Bank Limited (formerly known as Infinium Limited) for a cash consideration of \$50 million in 2019, and will further provide additional capital of \$50 million to Fusion Bank Limited in 1H 2020.

In December 2019, the Group entered into a subscription agreement to become a minority shareholder in Huakong TsingJiao Information Science (Beijing) Limited (TsingJiao) for a total consideration of up to RMB100 million. In January 2020, the Group closed the first stage investment in TsingJiao.

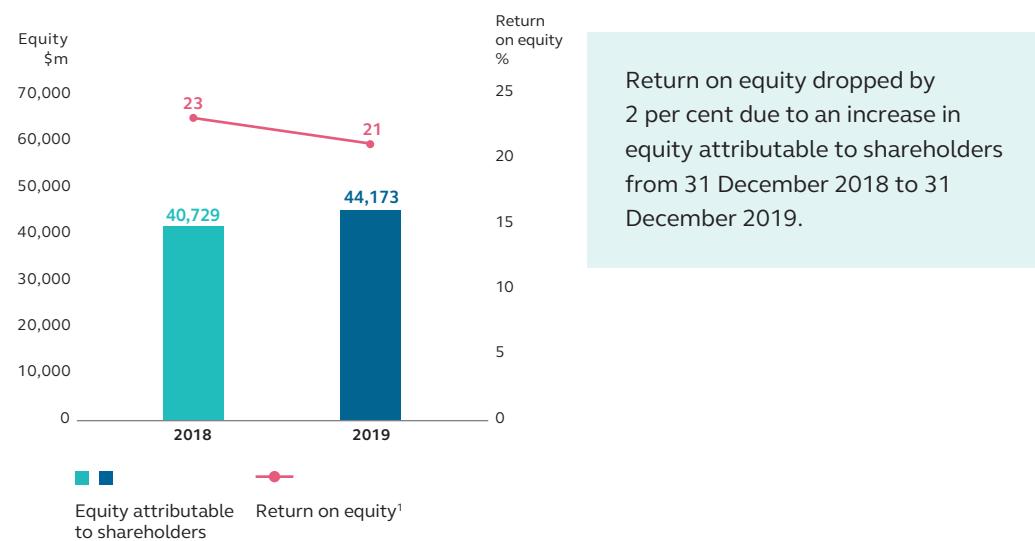
Save for those disclosed in this Annual Report, there were no other significant investments held, nor were there material acquisitions or disposals of subsidiaries during the year under review. Apart from those disclosed in this Annual Report, there were no material investments or additions of capital assets authorised by the Board at the date of this Annual Report.

1 Excludes right-of-use assets recognised due to the adoption of HKFRS 16: Leases

(D) Equity attributable to Shareholders and Return on Equity

Equity attributable to shareholders increased by \$3,444 million to \$44,173 million at 31 December 2019 (31 December 2018: \$40,729 million). This arose principally from the \$2,673 million of shares issued in lieu of cash dividends and an increase in retained earnings (excluding transfers to designated reserves) of \$889 million mainly attributable to profit for the year less dividends declared or paid.

Equity attributable to Shareholders and Return on Equity



¹ Based on equity attributable to shareholders at year-end

Liquidity, Financial Resources and Gearing

Working capital rose by \$2,056 million to \$24,258 million at 31 December 2019 (31 December 2018: \$22,202 million). The increase was mainly due to profit attributable to shareholders of \$9,391 million, partly offset by the payment of 2018 second interim dividend and 2019 first interim dividend (net of scrip dividends) of \$5,825 million, net increase in fixed assets, intangible assets, and non-current financial assets of \$1,315 million, and recognition of lease liabilities of \$272 million under current liabilities following the adoption of HKFRS 16.

At 31 December 2019, the Group had the following outstanding borrowings:

	At 31 Dec 2019		At 31 Dec 2018	
	Carrying value \$m	Maturity	Carrying value \$m	Maturity
USD fixed rate notes with coupon of 2.85 per cent	-	N/A	753	Jan 2019
Written put options to non-controlling interests	418	N/A	413	N/A
	418		1,166	

At 31 December 2019, the Group had a gross gearing ratio (ie, gross debt divided by adjusted capital) of 1 per cent (31 December 2018: 3 per cent), and a net gearing ratio (ie, net debt divided by adjusted capital) of zero per cent (31 December 2018: zero per cent). For this purpose, gross debt is defined as total borrowings (excluding lease liabilities) and net debt² is defined as total borrowings less cash and cash equivalents of Corporate Funds (excluding those reserved for supporting contributions to default funds and default fund credits for Clearing House Funds), and adjusted capital as all components of equity attributable to shareholders of HKEX other than designated reserves.

At 31 December 2019, the Group's total available banking facilities for its daily operations amounted to \$21,246 million (31 December 2018: \$20,024 million), which included \$14,745 million (31 December 2018: \$13,523 million) of committed banking facilities and \$6,500 million (31 December 2018: \$6,500 million) of repurchase facilities.

The Group has also put in place foreign exchange facilities for its daily clearing operations and for the RMB Trading Support Facility to support the trading of RMB stocks listed on the Stock Exchange. At 31 December 2019, the total amount of the facilities was RMB21,500 million (31 December 2018: RMB21,500 million).

In addition, the Group has arranged contingency banking facilities amounting to RMB13,000 million (31 December 2018: RMB13,000 million) for settling payment obligations to ChinaClear should there be events that disrupt normal settlement arrangements for Stock Connect.

At 31 December 2019, 74 per cent (31 December 2018: 83 per cent) of the Group's cash and cash equivalents were denominated in HKD or USD.

Pledges of Assets

Details of pledges of assets are included in note 51 to the Consolidated Financial Statements of this Annual Report.

Exposure to Fluctuations in Exchange Rates and Related Hedges

Details of the Group's exposure to fluctuations in exchange rates and related hedges are included in note 53(a)(i) – Foreign exchange risk to the Consolidated Financial Statements of this Annual Report.

Contingent Liabilities

Details of contingent liabilities are included in note 49 to the Consolidated Financial Statements of this Annual Report.

² Net debt is zero when the amount of cash and cash equivalents of Corporate Funds (excluding those reserved for supporting contributions to default funds and default fund credits for Clearing House Funds) is higher than gross debt.

10-Year Financial Statistics

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	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Key Market Statistics										
Headline ADT traded on the Stock Exchange (\$bn)	87.2	107.4	88.2	66.9	105.6	69.5	62.6	53.9	69.7	69.1
ADV of derivatives contracts traded on the Futures Exchange ('000 contracts)	626	687	441	464	394	275	284	260	269	222
ADV of stock options contracts traded on the Stock Exchange ('000 contracts)	442	517	428	298	374	302	249	228	303	246
Chargeable ADV of metals contracts traded on LME* ('000 lots)	617	627	599	618	670	700	676	634	N/A	N/A

* HKEX completed the acquisition of the LME Group on 6 December 2012.

Consolidated Income Statement

(\$m)

Revenue and other income	16,311	15,867	13,180	11,116	13,375	9,849	8,723	7,211	7,855	7,566
Operating expenses	(4,048)	(4,110)	(3,566)	(3,455)	(3,290)	(2,958)	(2,777)	(1,957)	(1,733)	(1,505)
EBITDA	12,263	11,757	9,614	7,661	10,085	6,891	5,946	5,254	6,122	6,061
Depreciation and amortisation	(1,044)	(762)	(858)	(771)	(684)	(647)	(507)	(158)	(90)	(107)
Costs relating to acquisition of LME Group	-	-	-	-	-	-	-	(138)	-	-
Costs relating to proposed combination with LSEG	(123)	-	-	-	-	-	-	-	-	-
Finance costs	(177)	(114)	(134)	(82)	(114)	(196)	(183)	(55)	-	-
Fair value loss on derivative component of convertible bonds	-	-	-	-	-	-	-	(55)	-	-
Share of profits/(losses) of joint ventures	32	2	(12)	(9)	(9)	(10)	(10)	(3)	-	-
Profit before taxation	10,951	10,883	8,610	6,799	9,278	6,038	5,246	4,845	6,032	5,954
Taxation	(1,561)	(1,592)	(1,255)	(1,058)	(1,347)	(900)	(700)	(761)	(939)	(917)
Profit for the year	9,390	9,291	7,355	5,741	7,931	5,138	4,546	4,084	5,093	5,037
Loss attributable to non-controlling interests	1	21	49	28	25	27	6	-	-	-
Profit attributable to shareholders	9,391	9,312	7,404	5,769	7,956	5,165	4,552	4,084	5,093	5,037
Dividend per share (\$)	6.71	6.71	5.40	4.25	5.95	3.98	3.54	3.31	4.25	4.20
Basic earnings per share (\$)	7.49	7.50	6.03	4.76	6.70	4.44	3.95	3.75	4.71	4.66

Consolidated Statement of Financial Position

(\$m)

Non-current assets	23,856	20,165	19,586	19,508	19,622	19,672	20,797	20,260	1,580	2,350
Current assets	255,195	235,783	298,018	227,810	218,571	232,188	65,146	60,577	52,448	45,534
Current liabilities	(230,937)	(213,581)	(278,566)	(210,688)	(203,976)	(222,564)	(57,538)	(55,337)	(44,809)	(39,160)
Net current assets	24,258	22,202	19,452	17,122	14,595	9,624	7,608	5,240	7,639	6,374
Total assets less current liabilities	48,114	42,367	39,038	36,630	34,217	29,296	28,405	25,500	9,219	8,724
Non-current liabilities	(3,613)	(1,464)	(1,663)	(4,246)	(4,255)	(7,937)	(7,887)	(7,736)	(60)	(47)
Total equity	44,501	40,903	37,375	32,384	29,962	21,359	20,518	17,764	9,159	8,677
Non-controlling interests	(328)	(174)	(102)	(118)	(146)	(86)	(113)	-	-	-
Equity attributable to HKEX's shareholders	44,173	40,729	37,273	32,266	29,816	21,273	20,405	17,764	9,159	8,677
Equity per share ¹ (\$)	35.12	32.65	30.14	26.42	24.74	18.26	17.59	15.48	8.50	8.06

Financial Ratios

Dividend payout ratio	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
Cost to income ratio ²	25%	26%	27%	31%	25%	30%	32%	27%	22%	20%
Pre-tax profit margin ²	67%	69%	65%	61%	69%	61%	60%	67%	77%	79%
Return on equity ³	21%	23%	20%	18%	27%	24%	22%	23%	56%	58%
Current ratio	1.1	1.1	1.1	1.1	1.1	1.0	1.1	1.1	1.2	1.2

Notes:

1 Based on number of shares issued and fully paid less number of shares held for the Share Award Scheme at 31 December

2 For the purpose of computing cost (ie, operating expenses) to income ratio and pre-tax profit margin, income includes share of profits/losses of joint ventures.

3 Based on equity attributable to HKEX's shareholders at year end



An aerial photograph of a landscape featuring a large, dark blue river or lake curving through the bottom left. The land is a mix of vibrant green fields, clusters of trees, and patches of yellowish-green vegetation. The sky above is a clear, pale blue with a few wispy white clouds.

Governance

Corporate Governance Report

The Board is committed to high standards of corporate governance and recognises that good governance is vital for the long-term success and sustainability of HKEX businesses.

HKEX's key corporate governance practices and activities during the year ended 31 December 2019 are highlighted in this report and the Committee Reports, as well as in the 2019 CSR Report which will be published on the HKEX Group website together with this Annual Report. All the Committee Reports form part of this report.

More details about HKEX's corporate governance structure, principles and practices are available on the HKEX Group website [CG](#).

Committee Reports

Nomination and Governance Committee Report: pages 94 to 96

Audit Committee Report: pages 97 to 100

Risk Committee Report: pages 101 to 104

Remuneration Committee Report: pages 105 to 111

CSR Committee Report: pages 112 and 113

HKEX Group website (www.hkexgroup.com)

About HKEX (Organisation) section [ORG](#)

Investor Relations section [IR](#)

Corporate Governance section [CG](#)

Corporate Social Responsibility section [CSR](#)

Governance Highlights

Board structure

- 11 of the 12 Directors¹ are independent
- Members of all governance related committees² are INEDs
- 2 of the 12 Directors¹ are female
- Set a goal to achieve gender parity on the Board
- Diverse range of expertise and experience
- Periodic Board refreshment

Board and governance process

- Establishment of International Advisory Council to provide the Board with expert insight and perspective
- 49 Board and committee meetings in total in 2019
- Completion of an independent Board evaluation
- Introduction of Directors' Training Guidelines
- Launch of a mentoring programme for senior executives
- Annual review of succession plans
- Annual review of compensation policies
- Robust risk management and internal controls framework
- Embedded compliance culture
- Proactive and ongoing stakeholder engagement

¹ As at 31 December 2019

² Refer to the Audit Committee, the Nomination and Governance Committee, the Remuneration Committee, and the Risk Committee

Compliance with Corporate Governance Code

Throughout the year 2019, HKEX complied with all code provisions and, where appropriate, adopted the recommended best practices set out in the Corporate Governance Code, with the following exceptions:

Code Provision A.4.1 (Re-election of non-executive directors)

The Government Appointed Directors, all being Non-executive Directors, are not subject to election or re-election by Shareholders as their appointments are governed by the SFO.

Code Provision A.4.2 (Retirement by rotation of directors)

The Chief Executive in his capacity as a Director is not subject to retirement by rotation, as his term on the Board is coterminous with his employment with HKEX under HKEX's Articles.

HKEX has applied the principles of the Corporate Governance Code to its corporate governance structure and practices as described in this report and on the HKEX Group website [CG / IR / ORG](#). A checklist detailing HKEX's compliance with the Corporate Governance Code is available on the HKEX Group website [CG](#). The Board has delegated its corporate governance functions to the Nomination and Governance Committee. A summary of the work of the Committee in 2019/2020 is set out in the Nomination and Governance Committee Report.

Strategic Planning

HKEX has a rigorous and continuing strategic planning process to identify and assess the opportunities and challenges that the Group might face and to develop a planned course of action for the Group to generate sustainable long-term value for Shareholders.

In February 2019, HKEX published its three-year Strategic Plan 2019-2021, which is available on the HKEX Group website (About HKEX section). Two offsite strategic meetings were held in 2019 to review the achievements under the plan, and discuss and explore potential strategic moves. The accomplishments achieved during the year are reported in the Chief Executive's Review and Business Review sections of this Annual Report.

The Board

Board Composition

The Board's structure is governed by HKEX's Articles and the SFO. The Board has an appropriate mix of skills, experience and diversity that are relevant to HKEX's strategy, governance and business and underpin its effectiveness and efficiency. Its approach to achieving diversity is set out in the Board Diversity Policy, which is available on the HKEX Group website [CG](#).



¹ As at 31 December 2019

² Directorships held at companies within the same group are considered to be one single directorship.

Directors' skills and experience

	Executive leadership & strategy/Directorship or senior executive experience with other listed company(ies)	Capital market expertise	International business	Mainland China exposure	Accounting professionals/financial management expertise	Legal professionals/regulatory & compliance/risk management	IT
INEDs							
Laura M Cha (Chairman)	●	●	●	●		●	
Apurv Bagri	●	●	●		●	●	
T C Chan	●	●	●	●	●	●	
C H Cheah	●	●	●	●			
Anita Fung	●	●	●	●		●	
Rafael Gil-Tienda	●	●	●	●		●	
Fred Hu	●	●		●	●		●
Benjamin Hung	●	●	●	●			
Hugo Leung	●	●	●	●		●	
John Williamson	●	●	●	●	●	●	●
Stephen Yiu	●		●	●	●	●	●
Executive Director							
Charles Li	●	●	●	●	●	●	●
Coverage (% of entire Board)	100%	92%	92%	92%	50%	75%	33%

The names of the Directors in office during 2019 and brief biographies of the current Directors are included, respectively, in the Board and Committees section and the Board of Directors and Senior Management section of this Annual Report.

Under HKEX's Articles, the term of office of Non-executive Directors is not more than three years (subject to re-appointment or re-election), although each Government Appointed Director is normally appointed for a term of approximately two years. Staggered terms of service enable the Board to have a good balance of experienced and new Directors. The average tenure of the current Directors as of the date of this report is 5.3 years. A casual vacancy for a Government Appointed Director arose on the Board due to the passing of Mary Ma in August 2019. The service term of Laura M Cha and Benjamin Hung (Government Appointed

Directors), and C H Cheah and Hugo Leung (Elected Director) will expire at the conclusion of the 2020 AGM. On 21 February 2020, the Government appointed Susan Chow and re-appointed Laura M Cha and Benjamin Hung as members of the Board, each for a term of approximately two years from the conclusion of the 2020 AGM until the end of the AGM to be held in 2022. On 26 February 2020, the Board accepted the nomination by the Nomination and Governance Committee and recommended C H Cheah and Hugo Leung to stand for re-election at the 2020 AGM.

Information about the Board Diversity Policy and the Nomination Policy along with the results of the review of the Board's composition, the nomination of Board candidates and the assessment of INEDs' independence during 2019/2020 are set out in the Nomination and Governance Committee Report.

Roles and Responsibilities

Good governance emanates from an effective and accountable board. At HKEX, the Board directly, and indirectly through its committees, leads and provides direction to management by laying down strategies and overseeing their implementation by management. The Board monitors the Group's operating and financial performance, reviews the Group's compensation policies and succession planning, and ensures that effective governance and CSR policies and sound internal control and risk management systems are in place. The Board operates under defined terms of reference which set out matters specifically reserved for its decision. The terms of reference are available on the HKEX Group website [ORG](#).

For effective oversight and leadership, the Board regularly reviews reports from the Chief Executive and senior executives on the progress of the approved strategies, plans and budgets, and receives updates/advice from the Board committees, external market/industry experts and management on the Group's governance, business performance and development. In light of the increasingly competitive and complex global environment, the International Advisory Council was established in February 2019 to provide the Board with expert insight and perspective. Further details relating to the Board committees, the International Advisory Council, the Consultative Panels and HKEX's management functions are set out in the Board Delegation section below.

Board Effectiveness

The Board recognises that conducting regular evaluation of its performance is essential to good corporate governance and Board effectiveness. In 2019, the Board engaged an independent external consultant to evaluate the performance of the boards and key governance committees of HKEX and its two subsidiaries, the LME and LME Clear.

The evaluation drew from four sources of information: (1) questionnaire responses from directors and executives who work closely with the boards and their governance committees; (2) review of key governance documents and selected board papers and minutes; (3) interviews with the directors and selected executives; and (4) observations of board and committee meetings. The scope of the evaluation focused on four aspects of the boards' operations: operating framework, membership, group performance, and interactions with the institution.

The evaluation concluded that all three boards, the Board, the LME Board and the LME Clear Board, are effective. In particular, the Board's practices are compliant with the Corporate Governance Code, and the Board operates effectively in its governance of HKEX. The evaluation also noted that the Board has made material progress with respect to all of the aspects highlighted in the prior independent evaluation in 2017. On a forward-looking basis, three areas were identified to be deserving of the Board's continued attention as HKEX's strategic needs evolve:

- Continuing to evolve the skillsets of the Board members to reflect the continual evolution in the HKEX Group's business
- Ongoing focus on effective risk management, with a careful consideration of the balance between risk types
- Balancing the roles of the parent and subsidiary boards to ensure limited duplication

Finally, the evaluation also concluded that the performance of the LME Board and the LME Clear Board was in compliance with the applicable laws and governance codes; and acknowledged the steps taken by both boards to continue enhancing their effectiveness in line with international best practices. The findings and recommendations from the evaluation were presented to the Board in December 2019.

Chairman and Chief Executive

The roles of the Chairman and the Chief Executive at HKEX are complementary, but importantly, they are distinct and separate with a clear and well established division of responsibilities. Details of their respective roles and responsibilities are available on the HKEX Group website [CG](#).

Key Responsibilities of the Chairman and the Chief Executive

Laura M Cha Chairman (INED)	<ul style="list-style-type: none"> • Provides leadership to the Board • Monitors Board effectiveness • Fosters constructive relationships among Directors 	<ul style="list-style-type: none"> • Promote integrity and probity • Ensure effective stakeholder communication 	Charles Li Chief Executive (ex-officio Director)	<ul style="list-style-type: none"> • Develops strategies for the Board's approval • Executes strategies agreed by the Board • Leads day-to-day management of the Group
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The Chairman, the Chief Executive and other Directors do not have any financial, business, family or other material/relevant relationships with each other.

Induction and Development

Upon appointment to the Board, Directors are provided with comprehensive induction training to ensure that they have a thorough understanding of the Group's operations and governance policies as well as their role and responsibilities. Every new Board member also receives a Director's Handbook which contains the Board's terms of reference, an overview of Directors' responsibilities, the Guidelines on Conduct and information on other key governance issues. The Director's Handbook and more information about induction training for new Directors are available on the HKEX Group website [CG](#).

Ongoing training helps Directors keep abreast of current trends and issues facing the Group, while enabling them to update and refresh their skills and knowledge necessary for the performance of their duties. Directors are invited to attend the Board knowledge sessions, the Board offsite meeting(s) and the International Advisory Council meetings held during the year, at which external industry experts, Council members or senior executives of HKEX are engaged to provide information on various topics of interest, in particular on global strategies, market best practices and the latest market trends and developments. The Directors' Training Guidelines were introduced in 2019 to assist Directors in complying with the training requirement under the Corporate Governance Code and to ensure that Directors give adequate importance to training and development.

All Directors are required to provide HKEX with their training records, and to confirm their respective records on a semi-annual basis. The records are maintained by the Group Company Secretary for annual review by the Nomination and Governance Committee. During 2019, the Directors received an aggregate of about 502 hours of training by attending or participating in Board knowledge sessions, management briefings and events such as conferences, seminars and workshops on directors' duties and other topics relevant to HKEX's strategy and business.

2019 Directors' Training by Topic

	Average hours of training: 42 ¹					
	HKEX's strategy/ business	Economy/ financial markets and products	Director's duties/ ESG practices	Financial reporting/risk management	Legislative/ regulatory compliance	IT
INEDs²						
Laura M Cha (Chairman)	●	●	●	●	●	●
Apurv Bagri	●	●		●	●	●
T C Chan	●	●	●	●	●	●
C H Cheah	●	●		●	●	●
Anita Fung	●	●	●	●	●	●
Rafael Gil-Tienda	●	●	●	●	●	●
Fred Hu	●	●		●	●	●
Benjamin Hung	●	●		●	●	●
Margaret Leung	●	●				●
Hugo Leung	●	●	●	●	●	●
John Williamson	●	●		●	●	●
Stephen Yiu	●	●	●	●	●	●
Executive Director						
Charles Li	●	●	●	●	●	●

1 Excludes the training hours received by Margaret Leung who retired from the Board at the end of the 2019 AGM and the late Mary Ma who passed away on 31 August 2019

2 Excludes Ms Ma who passed away on 31 August 2019

Board Process

In addition to the two offsite strategic meetings in September and December, the Board held 10 meetings in 2019 to discuss matters relating to the Group's strategies, business operations, performance, governance, risk management, regulatory compliance, corporate social responsibility and human capital. The Chairman also had regular gatherings with other Directors, occasionally without the presence of the Chief Executive, to consider issues in an informal setting.

Attendance Record of Directors and Committee Members in 2019¹

	2019 AGM	Board	Audit Committee	Board Executive Committee	CSR Committee	Investment Committee	Nomination and Governance Committee	Panel Member Selection Committee	Remuneration Committee	Risk Committee	Risk Management Committee (statutory)
Number of Meetings	1	10	4	9	3	4	5	1	4	4	5
Total Duration (Approximate number of hours)	1	33	12	5	2	5	4	1	6	6	5
Average preparation time per director (Approximate number of hours) ²	2	53	21	11	4	14	9	2	18	11	11
INEDs											
Laura M Cha (Chairman)	1/1	10/10		9/9	3/3		5/5		4/4	4/4	5/5
Apurv Bagri	1/1	10/10					5/5				
T C Chan	1/1	10/10	4/4				5/5	1/1		4/4	5/5
C H Cheah	1/1	9/10		8/9		4/4	5/5	1/1	4/4		
Anita Fung	1/1	8/10	3/4			4/4		1/1			
Rafael Gil-Tienda ³	1/1	10/10					2/3	0/1	4/4	1/1	
Fred Hu	1/1	10/10				3/4			3/4		
Benjamin Hung	0/1	10/10				4/4					
Margaret Leung ⁴	1/1	1/1		3/3			2/2			1/1	1/1
Hugo Leung ⁵	1/1	9/10	4/4	8/9	3/3	3/3		1/1		3/3	
Mary Ma ⁶		4/4	2/2							2/2	1/1
John Williamson ⁷	1/1	10/10	4/4	6/6	3/3				4/4		
Stephen Yiu	1/1	10/10	4/4		2/3					4/4	
Executive Director											
Charles Li	1/1	10/10		9/9	2/3						
Market Professionals											
Gao Yingxin										5/5	
Lawrence Lam										4/5	
Clement Lau										5/5	
Rico Leung ⁸										3/3	
Keith Lui ⁸										2/2	
Barbara Shiu										5/5	
Attendance Rate	92%	97%	95%	96%	87%	95%	96%	80%	95%	100%	97% ⁹

¹ During 2019, certain Directors also performed a regulatory role by serving as members of the Listing Nominating Committee and the Listing Policy Panel, and attending as the chairman, the deputy chairman or a member of 11 hearings held by the Listing Appeals Committee of the Exchange.

² This represents the average number of hours spent by each incumbent Director on preparing the 2019 AGM and the meetings of the Board and of the Committees on which they served during 2019.

³ Mr Gil-Tienda was appointed to the Nomination and Governance Committee on 24 April 2019 and ceased to be a member of the Risk Committee on the same date.

⁴ Mrs Leung retired from the Board and the committees on 24 April 2019.

⁵ Mr Leung was appointed to the Investment Committee and the Risk Committee on 24 May and 24 April 2019 respectively.

⁶ Ms Ma, who was appointed as a Director and a member of each of the Audit Committee, the Risk Committee and the Risk Management Committee (statutory) on 24 April 2019, passed away on 31 August 2019.

⁷ Mr Williamson was appointed to the Board Executive Committee on 24 April 2019.

⁸ Mr Leung was appointed to the Risk Management Committee (statutory) on 28 August 2019 to replace Mr Lui.

⁹ The attendance rate calculation took into account the attendance by the alternate member of the committee.

To facilitate effective oversight and decision making by the Board, HKEX has established the Group Escalation and Incident Reporting Policy to set out guidelines on handling critical concerns relating to the Group's operations and performance. The Continuous Disclosure and Communication Policy is in place to ensure timely reporting of inside information to the Board and communication with the Group's stakeholders, which together with other key features of the Board process are available on the HKEX Group website [CG](#).

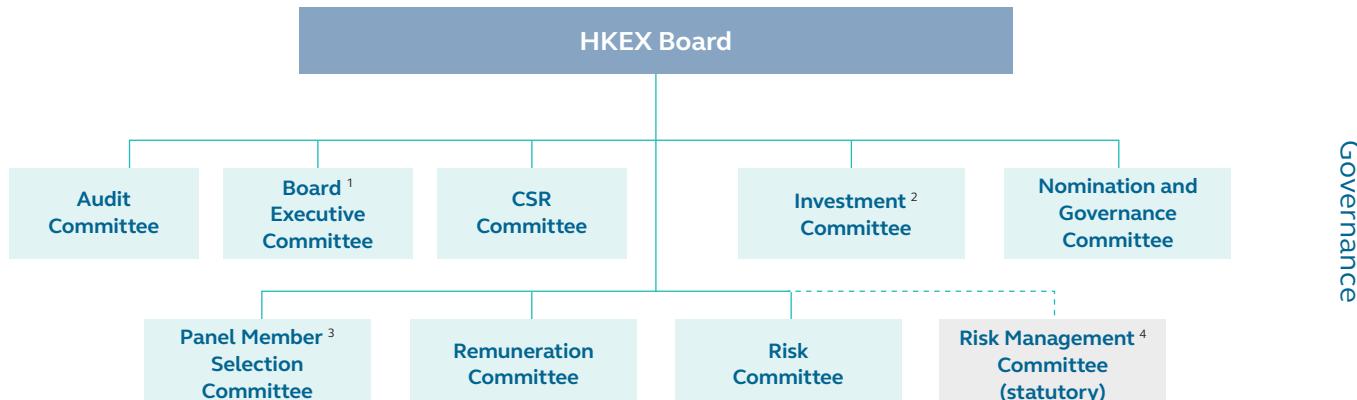
Group Company Secretary

All Directors have access to the advice and services of the Group Company Secretary. The Group Company Secretary reports to the Chairman on Board governance matters, and is

responsible for ensuring that Board procedures are followed and for facilitating information flows and communications among Directors as well as with Shareholders and management.

Joseph Mau is the Group Company Secretary of HKEX. His biography is set out in the Board of Directors and Senior Management section of this Annual Report. During 2019, Mr Mau had over 15 hours of professional training. David Fu has been appointed to succeed Mr Mau as the Group Company Secretary following Mr Mau's retirement from HKEX effective 31 March 2020.

Board Delegation Committees



¹ Formerly known as the Executive Committee

² Formerly known as the Investment Advisory Committee

³ Formerly known as the Panel Member Nomination Committee

⁴ A statutory committee established under Section 65 of the SFO

The Board has delegated authority to various committees to deal with specific matters under defined terms of reference. The composition and terms of reference of the Board committees are reviewed and updated annually to ensure that they remain appropriate and in line with the Group's business and changes in governance practices. The list of members of the Board committees is set out in the Board and Committees section of this Annual Report, and their attendance record is set out in "Board Process" above. More information about the Board committees is available on the HKEX Group website [CG / ORG](#).

International Advisory Council

HKEX established the International Advisory Council in February 2019 to provide the Board with insight and expertise from around the world, on business, economics, technology and finance, drawing on the extensive skills and experience of its members. The Council now comprises five members, and is chaired by HKEX Chairman. Three Council meetings were held in 2019.

Members of International Advisory Council

- Laura M CHA (Chairman)
- Stuart GULLIVER
- Mary SCHAPIRO
- Joseph TSAI
- Marcus WALLENBERG

Consultative Panels

HKEX has three Consultative Panels which provide market expertise and advice to the Board in relation to the trading and clearing in Hong Kong's securities and derivatives markets. The composition and terms of reference of the Consultative Panels are available on the HKEX Group website [ORG](#).

Number of Panel Meeting(s) Held in 2019

- | | |
|---|---|
| • Cash Market Consultative Panel | 1 |
| • Derivatives Market Consultative Panel | 3 |
| • Clearing Consultative Panel | 3 |

Management

Senior executives, under the leadership of the Chief Executive, are responsible for the day-to-day management of the Group's businesses and implementation of the strategies approved by the Board. The Management Committee, a management decision-making body chaired by the Chief Executive with defined authority delegated by the Board, aims to meet at least twice a month. Its membership as at the date of this report is set out in the Management Committee section of this Annual Report, and its duties are available on the HKEX Group website [ORG](#). A new Executive Committee,

which comprises the Chief Executive and selected members of the Management Committee, was established in February 2020 to supervise and coordinate all key business and operational activities in relation to the implementation of HKEX's Strategic Plan. Members of the Executive Committee as at the date of this report and their biographies are set out in the Board of Directors and Senior Management section of this Annual Report.

During 2019, several senior executives changes were made to support the Group's latest strategic focus. Details are set out in the Media Centre (News Release) section of the HKEX Group website. HKEX's updated organisation structure is available on the HKEX Group website [ORG](#).

The Board recognises the importance of continuity in senior executives and identifying leaders with appropriate skills and experience to support delivery of the Group's strategic initiatives. Succession planning for senior executives is considered by the Nomination and Governance Committee and the Board annually. A mentoring programme pairing selected senior executives with experienced Directors was launched in 2019 to enhance succession planning and strengthen link between senior executives and the Board.

Given the competitive business environment in which the Group operates, HKEX arranges professional development programmes for its senior executives from time to time to support its long-term growth and success. During 2019, the Senior Management received an aggregate of about 332 hours of training by attending or participating in conferences, seminars and workshops on various topics, including HKEX's strategy and business, development of the financial markets, regulatory compliance, ESG practices, risk management, information technology, leadership and management. Other employees of the Group also attended training throughout the year. Details are set out in the 2019 CSR Report.

Subsidiary Governance

HKEX is committed to fostering good governance and a strong compliance culture at all levels of the organisation. To ensure an integrated, Group-wide approach towards upholding high governance standards, efforts have been made to strengthen the governance structures and processes of HKEX's subsidiaries.

For effective oversight of its subsidiaries, HKEX promotes governance linkages within the Group through common memberships between the Board and the subsidiaries' boards/committees and appointment of HKEX's senior executives to the subsidiaries' boards. A list of HKEX subsidiaries' directors is set out in the Directors' Report contained in this Annual Report. Details about the governance structures of the Group's major subsidiaries (including composition and terms of reference of their boards and committees) are available on the HKEX Group website [ORG](#). Induction training and materials have been provided to subsidiaries' non-executive directors to facilitate their understanding of the Group's business and their duties and obligations as a director.

HKEX has implemented a number of Group-wide governance policies, which are subject to review from time to time, to support its commitment to high standards of business, professional and ethical conduct, and to ensure best practices across the organisation. During 2019, all the Group employees were required to complete training on risk awareness and compliance matters.

Key governance policies for employees

- Code of Conduct
- Continuous Disclosure and Communication Policy
- Group Anti-Bribery and Anti-Corruption Policy
- Group Personal Account Dealing Policy
- Group Prevention of Financial Crime Policy
- Group Whistleblowing Policy
- Group Compliance Policy

Information about the Group's governance policies and practices is available on the HKEX Group website [CG / CSR](#).

Conflict Management

As a recognised exchange controller, HKEX shall act in the interest of the public with particular regard to the interest of the investing public, and ensure that the interest of the public prevails where it conflicts with HKEX's interest. Given its role of being the exchange controller and a listed company, HKEX has implemented a number of measures to ensure a level playing field with other listed issuers. These include, among others, the entering into an MOU with the SFC and the Stock Exchange, the separation of the regulatory function, and the establishment of a Conflict Committee. More information about HKEX's public and corporate responsibilities and its conflict management measures is available on the HKEX Group website [CG](#).

The HKEX's Guidelines on Conduct as set out in the Director's Handbook also serve to provide guidance for Directors and committee members of the Group on the requirements to avoid conflict of interest and the circumstances under which appropriate action shall be taken by the director in conflict.

Remuneration of Directors and Senior Management

HKEX has formal and transparent procedures for fixing the remuneration packages of individual Directors and senior executives. Information about HKEX's remuneration policies and the Remuneration Committee, including its work in 2019/2020, is set out in the Remuneration Committee Report.

Directors' Securities Transactions and Interests in HKEX

Compliance with Model Code

HKEX has adopted the Model Code as its own code of conduct regarding Directors' securities transactions. In response to a specific enquiry by the Company, all Directors confirmed that they complied with the Model Code at all applicable times during 2019.

Directors' Interests and Short Positions in Shares and Underlying Shares of HKEX

The interests and short positions of Directors, including the Chief Executive, in the shares and underlying shares of HKEX (within the meaning of Part XV of the SFO) as at 31 December 2019 as recorded in the register required to be kept under Section 352 of the SFO, or as otherwise notified to HKEX and the SFC under the Model Code, are set out below.

Long Positions in Shares and Underlying Shares of HKEX

Name of Director	Number of shares/underlying shares held					% of HKEX ¹ shares in issue
	Personal interests	Family interests	Corporate interests	Other interests	Total	
Charles Li	515,112 ²	–	–	–	515,112	0.04
Stephen Yiu	–	2,000 ³	–	–	2,000	0.00

1 Based on 1,261,201,319 HKEX shares in issue as at 31 December 2019

2 Includes Mr Li's interests in Awarded Shares and shares acquired out of the dividends from the Awarded Shares in an aggregate of 407,375 shares which remained unvested under the Share Award Scheme. Details of Mr Li's Awarded Shares are set out in the Remuneration Committee Report.

3 Mr Yiu's spouse was the beneficial owner of those shares.

Save as disclosed above, none of the Directors had any interests or short positions in the shares, underlying shares or debentures of HKEX or any of its associated corporations (within the meaning of Part XV of the SFO) as at 31 December 2019 as recorded in the register required to be kept under Section 352 of the SFO, or as otherwise notified to HKEX and the SFC under the Model Code.

Apart from the Awarded Shares as disclosed in the Remuneration Committee Report, during 2019, none of the Directors (including their spouses and children under the age of 18) had any interests in or was granted any right to subscribe for the securities of HKEX or its associated corporations (within the meaning of Part XV of the SFO), or had exercised any such rights.

Other Persons' Interests and Short Positions in Shares and Underlying Shares of HKEX

Minority Controllers

As at the date of this report, other than the Government which has been a Minority Controller since 7 September 2007, nine entities had been approved as Minority Controllers on the basis that they hold HKEX shares in custody for their clients. According to the Participant Shareholding Report as at 31 December 2019, these Minority Controllers in aggregate held approximately 69 per cent of HKEX shares in issue. More information about Minority Controllers is set out on the HKEX Group website [CG](#).

Other persons' interests and short positions in the shares and underlying shares of HKEX (within the meaning of Part XV of the SFO) as at 31 December 2019 as recorded in the register required to be kept under Section 336 of the SFO are set out below.

Long Positions in Shares and Underlying Shares of HKEX

Name	Capacity	Number of shares/ underlying shares held	Total	% of HKEX ¹ shares in issue
The Government of the Hong Kong Special Administrative Region (for the account of the Exchange Fund)	Beneficial owner	74,840,961 ²	74,840,961	5.93

1 Based on 1,261,201,319 HKEX shares in issue as at 31 December 2019

2 Based on Hong Kong Monetary Authority's notification to HKEX on 4 June 2018

Save as disclosed above, no other persons had any interests or short positions in the shares or underlying shares of HKEX as at 31 December 2019 as recorded in the register required to be kept under Section 336 of the SFO, or as otherwise notified to HKEX and the Stock Exchange.

Senior Management

All employees of the Group are obliged to follow the Company's restrictions on dealing in securities, futures contracts and other derivatives, which are on terms no less stringent than the Model Code, as set out in the Group Personal Account Dealing Policy. Senior Managements' interests in the shares and underlying shares of HKEX as at 31 December 2019 are set out below.

Senior Management	Number of shares held	Number of shares that remained unvested under the Share Award Scheme	Derivatives (number of underlying shares)
Matthew Chamberlain	-	72,066	-
Romnesh Lamba	127	49,445	-
Vanessa Lau	23,879	22,624	-
Calvin Tai	139,424	60,326	-
Wilfred Yiu	-	27,889	-

Continuing Connected Transactions

In June 2000, the SFC granted a waiver to HKEX from strict compliance with the Main Board Listing Rules with respect to certain continuing connected transactions as referred to in (A), (B) and (C) below. The waiver has remained valid since then. The following table sets out the types of the continuing connected transactions subject to the waiver, and details of any of these continuing connected transactions entered into by the Group during 2019.

A. Transactions between HKEX or its subsidiaries and HKEX's connected person(s) arising from or in connection with the use of the facilities provided by the Group for the trading, clearing and/or settlement of securities and futures products and transactions, and all services offered by the Group which are ancillary, incidental or otherwise related to the foregoing:

- The Group did not enter into any of the above transactions with HKEX's connected persons during 2019.

B. Transactions between HKEX or its subsidiaries and HKEX's connected person(s) arising from or in connection with the listing of securities on the Stock Exchange, and all services offered by the Group which are ancillary, incidental or otherwise related to the foregoing:

- Laura M Cha, the Chairman, was interested in the transactions entered into by HKR International Limited and Hanison Construction Holdings Limited, which are listed on the Stock Exchange and are Mrs Cha's associates by virtue of the Main Board Listing Rules.

C. Transactions between HKEX or its subsidiaries and HKEX's connected person(s) arising from or in connection with the HKSCC arrangement on behalf of CCASS Participants for: (i) carrying out "buy-in" when a CCASS Participant has failed to deliver securities on time for settlement under the CNS System or the Isolated Trades System operated by CCASS; (ii) the purchase or sale of securities in connection with the liquidation of the positions of a CCASS Participant that has been declared by HKSCC to be in default; and (iii) the sale of entitlements of securities held through CCASS (collectively referred as Buy-in Transactions):

- The Group did not enter into any Buy-in Transactions with HKEX's connected persons during 2019.

The Board has delegated authority to the Audit Committee to review the above continuing connected transactions pursuant to Rule 14A.55 of the Main Board Listing Rules. The results of the Audit Committee's review are set out in the Audit Committee Report.

The Company's external auditor was engaged to report on the above continuing connected transactions of the Group in accordance with Hong Kong Standard on Assurance Engagements 3000 (Revised) "Assurance Engagements Other Than Audits or Reviews of Historical Financial Information", and with reference to Practice Note 740 "Auditor's Letter on Continuing Connected Transactions under the Hong Kong Listing Rules" issued by the HKICPA. The external auditor has issued an unqualified report containing its findings and conclusions in respect of the transactions disclosed above in accordance with Rule 14A.56 of the Main Board Listing Rules. The Company provided a copy of the report to the SFC and the Stock Exchange.

Related Party Transactions

During 2019, the Group entered into certain transactions with “related parties” as defined under the applicable accounting standards. Related party transactions are disclosed in note 50 to the Consolidated Financial Statements. They include the following connected transactions under the Main Board Listing Rules.

Related party transactions which constitute connected transactions	Compliance with Main Board Listing Rules
Payment of membership fee by an associate of a Director to the LME as covered in note 50(a) to the Consolidated Financial Statements	This was a connected transaction exempt from the connected transaction requirements under Rule 14A.76(1) of the Main Board Listing Rules.
Compensation to the Chief Executive and the directors of HKEX’s subsidiaries and remuneration to HKEX’s Non-executive Directors, which form part of the “Key management personnel compensation” described in note 50(b) to the Consolidated Financial Statements	These were continuing connected transactions exempt from the connected transaction requirements under Rule 14A.76(1) or 14A.95 of the Main Board Listing Rules.

Accountability and Audit

Financial Reporting

The Board, which is responsible for overseeing the preparation of annual financial statements, receives monthly management accounts and updates on the Group’s performance, financial position and prospects. In 2019, HKEX published its annual, interim and quarterly results within three months, two months and 45 days respectively after the relevant period end. In preparing the financial statements for the year ended 31 December 2019, the Board adopted appropriate accounting policies consistently, made prudent and reasonable judgements and estimates, and ensured that the financial statements were prepared on a going concern basis and show a true and fair view of the consolidated financial position of the Group as at 31 December 2019 and of the Group’s consolidated financial performance and cash flows for the year then ended.

Risk Management and Internal Control

The Board has the overall responsibility for evaluating and determining the nature and extent of the risks (including ESG-related risks) it is willing to take in achieving the Group’s strategic objectives, maintaining sound and effective risk management and internal control

systems (including those for ESG-related risks) and reviewing their effectiveness to safeguard Shareholders’ investment and the Group’s assets. To this end, management continues to allocate resources for internal control and risk management systems based on the Committee of Sponsoring Organizations of the Treadway Commission (COSO) Internal Control – Integrated Framework 2013 and the ISO 31000 Risk Management principles and guidelines to provide reasonable, though not absolute, assurance against material misstatement or loss and to manage rather than eliminate the risk of failure to achieve business objectives. Details of the Group’s risk governance structure and the Group Risk Management Framework are set out in the Risk Committee Report. Details of the Group’s key control procedures and internal audit functions are available on the HKEX Group website [CG](#).

The Board reviews the adequacy and effectiveness of the Group’s risk management and internal control systems at least quarterly, through the Risk Committee and the Audit Committee. Information about the Risk Committee and the Audit Committee, including their work in 2019/2020, is set out in their respective reports contained in this Annual Report.

Independence of External Auditor

HKEX has engaged PricewaterhouseCoopers as its external auditor. An analysis of remuneration for audit and non-audit services provided by PricewaterhouseCoopers and details of the Audit Committee's work in assessing the independence of PricewaterhouseCoopers and ensuring audit effectiveness are set out in the Audit Committee Report.

Information about HKEX's policies and procedures in safeguarding and supporting the independence and objectivity of the external auditor is available on the HKEX Group website [CG](#).

Shareholder Relations

The Board gives high priority to maintaining balanced, clear and transparent communications with Shareholders and other investors to facilitate their understanding of the Group's performance and prospects as well as the market environment in which it operates. HKEX has an ongoing dialogue with Shareholders and other investors through various communication channels and takes any areas of concern into consideration when formulating its business strategies.

Investor Engagement and Communications

HKEX's investor relations team focuses on effective communication with and provision of relevant public information to investors and analysts to support the appropriate valuation of HKEX equity. Through an extensive engagement programme, institutional investors and analysts can interact with the Chairman and the Chief Executive and other senior executives for updates on the development of the Group's strategic initiatives and operations, as well as HKEX's corporate governance policies. During 2019, around 380 meetings were held with institutional investors and analysts in

Hong Kong, Mainland China and overseas.

To facilitate effective investor relations, regular shareholding analyses were conducted under Section 329 of the SFO to gain a better view of changes in HKEX's shareholding structure.

Investor Relations Activities in 2019

- Corporate Day
- Small group/one-to-one meetings
- Non-deal roadshows
- Analyst briefings
- Investor conferences

Investor Relations Contact Details

Email: investorrelations@hkex.com.hk

Tel: (852) 2840 3330

Investment community views are communicated regularly to the Board, including sell-side consensus rating and target price for HKEX shares and summaries of questions and feedback from investors and analysts. During 2019, investors' major areas of interest included:

- (i) HKEX Strategic Plan 2019-2021;
- (ii) Updates on financial performance of the Group;
- (iii) Proposed combination with LSEG; and
- (iv) Latest developments regarding the Group's initiatives, including Stock Connect, Bond Connect, ETF Connect, Primary Connect, FIC strategy, LME's initiatives, development of QME, the listing regime reform and data strategy.

To foster investors' understanding of the Group's governance performance, HKEX continues to provide related information to international and local ESG rating agencies upon request.

Shareholder Engagement and Communications

Corporate communications	<ul style="list-style-type: none"> HKEX ensures prompt dissemination of corporate communications to enable Shareholders and other stakeholders to keep abreast of the Group's business and developments so that they can make informed decisions. The HKEX Group website has been adopted as the designated company website for publication of HKEX's announcements, notices and other corporate communications. As at 31 December 2019, about 70 per cent of Shareholders had opted to receive corporate communications via electronic means.
Financial key dates	<ul style="list-style-type: none"> The financial calendar highlighting important dates for Shareholders in 2020 is set out in the Shareholder Information section of this Annual Report and is also available on the HKEX Group website IR.
Scrip dividend scheme	<ul style="list-style-type: none"> HKEX offers Shareholders the option of receiving their dividends in the form of scrip. Since 2015, the Board has offered a discount (currently at 3 per cent) on the subscription price to Shareholders who elect the scrip alternative to facilitate their reinvestment of their dividends in HKEX shares. Further details of the HKEX's dividend policy and scrip dividend scheme are set out in the Shareholder Information section of this Annual Report and are also available on the HKEX Group website IR.
General meetings	<ul style="list-style-type: none"> One or more Shareholders representing at least 5 per cent of the total voting rights of all Shareholders having a right to vote at general meetings may request the Board to call a general meeting. The request must state the general nature of the business to be dealt with, and it may include the text of a resolution that may properly be moved and is intended to be moved at the meeting. Such requests must be sent to the Group Company Secretary at HKEX's registered office, or by email to ssd@hkex.com.hk. Under HKEX's Articles, if a Shareholder wishes to propose a person for election as a Director at a general meeting, he or she should give written notice of the nomination to the Group Company Secretary at HKEX's registered office. Details of the procedures for nominating candidates to stand for election as a Director at the 2020 AGM is set out in the circular to Shareholders to be sent together with this Annual Report. Shareholders may put forward proposals at general meetings by sending written notice of their proposals to the Group Company Secretary at HKEX's registered office, or by email to ssd@hkex.com.hk. Details of the procedures for putting forward proposals by Shareholders are set out on the HKEX Group website CG.
Policies and guidelines	<ul style="list-style-type: none"> The Shareholders Communication Policy ensures that Shareholders are provided with ready, equal and timely access to information about HKEX. The policy is regularly reviewed to ensure its effectiveness and is posted on the HKEX Group website CG. The Shareholders' Guide with answers to the frequently asked questions of Shareholders with regard to their interests in HKEX shares is also available on the HKEX Group website CG.
Shareholding analysis	<ul style="list-style-type: none"> Based on publicly available information and within the Directors' knowledge as at the date of this report, approximately 100 per cent of the HKEX shares were held by the public. HKEX's market capitalisation and shareholding distribution as at 31 December 2019 are set out in the Shareholder Information section of this Annual Report.

Further information about the Group's stakeholder engagement activities in 2019 is set out in the 2019 CSR Report.

The Board is grateful to Shareholders and other stakeholders for their continued support and welcomes their views as well as any questions they may have about the management and governance of the Group. Shareholders and

other stakeholders may at any time send their enquiries and concerns to the Board by addressing them to the Group Company Secretary and sending them by post to the Secretarial Services Department, HKEX, 8/F, Two Exchange Square, 8 Connaught Place, Central, Hong Kong, or by email to ssd@hkex.com.hk.

2019 Annual General Meeting

HKEX uses the AGM as a forum to establish constructive dialogue with Shareholders. Separate resolutions are proposed on each substantially separate issue, with all resolutions considered in a poll conducted by HKEX's registrar and verified by an independent scrutineer. Electronic voting is used at the AGMs to enhance efficiency and transparency of the vote counting process.

Most of the Directors in office on the meeting date, including the Chairman and the chairmen of the Audit Committee and other Board committees, attended the 2019 AGM along with key senior executives and the external auditor.

The voting results and the minutes of the 2019 AGM are available on the HKEX Group website [IR](#).

Key Matters Resolved at the 2019 AGM¹

- Receipt of the 2018 audited financial statements
- Re-election of Apurv Bagri as Director
- Re-appointment of PricewaterhouseCoopers as the Company's auditor
- Granting a general mandate to buy back HKEX shares (not exceeding 10 per cent of the number of shares in issue)
- Granting a general mandate to issue HKEX shares (not exceeding 10 per cent of the number of shares in issue and at a price not exceeding a discount of 10 per cent)
- Adjustment of Non-executive Directors' remuneration

¹ The full text of the resolutions is set out in the Notice of the 2019 AGM.

2020 Annual General Meeting

The 2020 AGM will be held on Thursday, 7 May 2020 at 4:30 pm at the HKEX Connect Hall on the 1st Floor, One and Two Exchange Square, Central, Hong Kong. The Notice of the 2020 AGM, which constitutes part of a circular to Shareholders, will be sent together with this Annual Report.

The Notice, the circular which sets out details of the business to be conducted at the 2020 AGM, and the proxy form will be available on the HKEX Group website [IR](#). The results of the voting on the proposed resolutions will be published on the HKEX Group website [IR](#) shortly after the 2020 AGM is held.

All Shareholders are encouraged to attend the 2020 AGM and exercise their right to vote. Shareholders are invited to ask questions related to the business of the meeting, and will be able to meet with Directors and the senior executives.

Changes after Closure of Financial Year

This report takes into account the changes that occurred between the end of 2019 and the date of the approval of this report.

On behalf of the Board

MAU Kam Shing, Joseph

Group Company Secretary

Hong Kong, 26 February 2020

2019 AGM

Total number of participants: 320

Shares voted: 42.2 per cent of total issued shares

Individual Shareholders	98
Authorised representatives of HKSCC Nominees Limited	139
Shareholders appointing representatives/proxies to attend the 2019 AGM	83

Nomination and Governance Committee Report

The Nomination and Governance Committee

The Nomination and Governance Committee (NGC) is delegated with the authority from the Board to review the Board's composition and diversity, formulate and implement the policy for nominating Board candidates for election by Shareholders, make recommendations to the Board on the appointment of Directors and members to the Board committees, and assess INED's independence and commitment. The NGC is also responsible for succession planning for Directors and senior executives,

leadership training and development, and oversight of matters relating to corporate governance. Its terms of reference are available on the HKEX Group website [ORG](#).

The NGC comprises five INEDs whose names and biographies are set out in the Board and Committees section of this Annual Report. The NGC held five meetings in 2019. Members' attendance records are in the Corporate Governance Report contained in this Annual Report.

Summary of Work in 2019/2020

- Approved engagement of an external consultant to conduct an independent evaluation of the performance of the Board and the boards of LME and LME Clear and their governance committees in 2019, and reviewed the evaluation results
- Reviewed the composition of the Board and its committees
- Nominated Board candidates for election by Shareholders at AGMs
- Recommended the appointment of Directors to the Board committees and the Consultative Panels
- Reviewed the independence of the INEDs
- Considered the policy for directors of HKEX and its subsidiaries to accept directorship in an unlisted company with significant business dealings with the Group
- Reviewed the time commitment of Directors for performance of their responsibilities
- Reviewed succession planning of the Board and the senior executives
- Approved launch of a new mentoring program for senior executives
- Approved the Directors' Training Guidelines
- Reviewed and endorsed revisions to the NGC's terms of reference
- Reviewed the training and continued professional development of the Directors and Senior Management
- Endorsed the annual Corporate Governance Report

Changes in Directors during 2019

In March 2019, the Government appointed the late Mary Ma and re-appointed Anita Fung, Rafael Gil-Tienda and Stephen Yiu to the Board, each for a term of approximately two years from the close of the 2019 AGM until the conclusion of the AGM in 2021. A casual vacancy for a Government Appointed Director arose on the Board due to the passing of Ms Ma in August 2019.

At the 2019 AGM, Apurv Bagri was re-elected by Shareholders for a term of approximately three years from 24 April 2019 until the conclusion of the AGM in 2022. Margaret Leung retired from the Board after the conclusion of the 2019 AGM.

Board Composition and Diversity

HKEX sees increasing diversity at the Board level as an essential element in attaining its strategic objectives and achieving sustainable and balanced development for the Group. Since 2013, HKEX has followed the Board Diversity Policy, which is available on the HKEX Group website [CG](#). The Policy highlights the benefits of diversity with respect to the Board's effectiveness and decision-making process, its succession planning and development, and attainment of HKEX's strategic objectives. It also sets out the Board's commitment to gender diversity and other diversity aspects, with the ultimate goal of achieving gender parity on the Board. HKEX currently has two female Directors, and the Board will take opportunities to increase the proportion of female members over time as and when suitable candidates are identified.

To further enhance Board diversity while maintaining an appropriate balance between continuity of experience and Board refreshment, HKEX sets out in the Nomination Policy a non-exhaustive list of criteria for the NGC to assess suitability of a proposed Non-executive Director candidate and a maximum tenure of nine consecutive years for Non-executive Directors to be eligible for nomination by the Board to be elected by Shareholders. The Nomination Policy is available on the HKEX Group website [CG](#).

During 2019, the NGC reviewed the structure, size and diversity of the Board to ensure that its composition complies with the Main Board Listing Rules and reflects an appropriate mix of skills, experience and diversity that are relevant to HKEX's strategy, governance and business and contribute to the Board's effectiveness and efficiency. Information about the Board's current composition, including a Directors' skill matrix, is set out in the Corporate Governance Report contained in this Annual Report.

Nomination of Candidates

During 2019, the NGC endorsed, and the Board approved, the selection criteria for Non-executive Director candidates, after taking into account the Nomination Policy, the Board Diversity Policy and the independent external consultant's recommendations from the evaluation of the Board's performance in 2019.

The service term of Laura M Cha and Benjamin Hung (Government Appointed Directors), and C H Cheah and Hugo Leung (Elected Directors) will expire at the conclusion of the 2020 AGM. On 21 February 2020, the Government appointed Susan Chow and re-appointed Laura M Cha and Benjamin Hung as members of the Board, each for a term of approximately two years from the conclusion of the 2020 AGM to be held on 7 May 2020 until the end of the AGM to be held in 2022.

On 25 February 2020, the NGC nominated C H Cheah and Hugo Leung to the Board for it to recommend to Shareholders for re-election at the 2020 AGM. Mr Cheah, who is a member of the NGC, abstained from voting at the Committee meeting when his own nomination was being considered.

The nominations were made in accordance with the Nomination Policy and took into account the approved selection criteria for Non-executive Director candidates. These include, among others, the candidates' market knowledge and experience, reputation for integrity, and the diversity aspects (including without limitation, gender, age, cultural and educational background, ethnicity, professional experience, skills, knowledge and length of service), with due regard for the benefits of diversity, as set out in the Board Diversity Policy. The NGC took into consideration Mr Cheah's in-depth knowledge of the fund management industry and Mr Leung's extensive experience in global markets business, as well as their respective contributions to the Board and firm commitments to their roles. The NGC was satisfied with the independence of Messrs Cheah and Leung with reference to the criteria laid down in the Main Board Listing Rules.

Each of Messrs Cheah and Leung does not hold any cross-directorships or have any significant links with other Directors through involvement in other companies or bodies. Messrs Cheah and Leung do not have any service contracts with any member of the Group that are not determinable by the Group within one year without compensation (other than statutory compensation). Their particulars are set out in the circular to Shareholders to be sent together with this Annual Report and posted on the HKEX Group website [IR](#).

Independence of Non-executive Directors

Independent Directors enhance the effectiveness and decision-making of the Board by providing objective judgement and constructive challenge to management. Non-executive Directors' independence is assessed upon appointment, annually and at any other time where the circumstances warrant reconsideration.

Assessment upon Director's Appointment

An independence confirmation by the late Mary Ma was submitted in writing to the SFC upon her appointment to the Board in April 2019.

Ongoing Assessment

- Each INED is required to inform HKEX as soon as practicable if there is any change in his or her personal particulars that may affect his or her independence. No such notification was received during 2019.
- Details of the Director's interests in the Group's business are set out on pages 89 and 90 of this Annual Report.

On 25 February 2020, the NGC assessed the annual independence confirmation received from each INED, having regard to the criteria under Rule 3.13 of the Main Board Listing Rules.

Annual Assessment

- As a good corporate governance practice, every NGC member abstained from assessing his/her own independence.
- Particular attention was given to assessing the independence of the Government Appointed Directors (including Laura M Cha, who is an Executive Councillor) given that the Government is a Minority Controller of HKEX.
- Consideration was given to the independence of T C Chan and John Williamson, who have been serving on the Board for more than nine years.
- The NGC affirmed that all INEDs continued to demonstrate strong independence in judgement and were free from any business or other relationship which could interfere with their ability to discharge their duties effectively, and they therefore all remained independent.

Laura M CHA

Chairman of the Nomination and Governance Committee

Hong Kong, 25 February 2020

The Audit Committee

The Audit Committee (AC) is delegated with the authority from the Board to provide independent oversight of the Group's financial reporting and internal control systems, and the adequacy of the external and internal audits. The AC is provided with sufficient resources to perform its duties including support, as necessary, from the Internal Audit Department (IAD), the external auditor, legal counsel and management in examining all matters relating to the Group's adopted accounting principles and practices, and in reviewing all material financial, operational and compliance controls.

The AC's terms of reference are available on the HKEX Group website [ORG](#).

The AC comprises five INEDs whose names and biographies are set out in the Board and Committees section of this Annual Report. None of the AC members are employed by or otherwise affiliated with the auditor of HKEX.

The AC held four meetings in 2019. Members' attendance records are disclosed in the Corporate Governance Report contained in this Annual Report.

Summary of Work in 2019/2020

- Approved revisions to the Group Internal Audit Charter
- Reviewed the AC's terms of reference
- Approved amendments to the Group Anti-Bribery and Anti-Corruption Policy and the Group Whistleblowing Policy
- Reviewed the Group's quarterly, half-yearly and annual financial results
- Reviewed, with both the external auditor and management, the audit approach and methodology applied, and in particular to those Key Audit Matters included in the year end auditor's report
- Approved the internal audit plan for 2020 to 2022
- Reviewed significant findings of the IAD, the external auditor and regulators, and management's response to their recommendations
- Reviewed quarterly reports and updates on legal and regulatory compliance matters, including anti-bribery and anti-corruption matters and whistleblowing disclosures
- Reviewed the adequacy and effectiveness of the Group's internal control systems and its accounting, financial reporting and internal audit functions
- Reviewed the continuing connected transactions
- Reviewed and monitored the external auditor's independence and engagement to perform non-audit services
- Approved the 2019 external audit engagement letters and fees
- Reviewed changes in accounting principles and practices proposed by management

Review of Financial Results

The AC reviewed the 2019 Consolidated Financial Statements in conjunction with the external auditor. Based on this review and discussions with management, the AC was satisfied that the Consolidated Financial Statements were prepared in accordance with

applicable accounting standards and fairly present the Group's financial position and results for the year ended 31 December 2019. The AC therefore recommended the Consolidated Financial Statements for the year ended 31 December 2019 be approved by the Board.

Review of Key Audit Matters

The AC reviewed and discussed with the external auditor and management the following key audit matters for the audit of the 2019 Consolidated Financial Statements.

Key Audit Matters	Assessment by the AC
Goodwill impairment assessment	The AC was satisfied that sufficient analysis (including the sensitivity analysis on key assumptions) had been performed in this area to conclude that there was no impairment allocated to the group of Cash Generating Units within the respective Commodities and Post Trade operating segments. The assessment was also an area of focus for the external auditor as detailed in the Auditor's Report on pages 122 and 123.
IT systems and controls over financial accounting and reporting	The external auditor's key audit matters included IT systems and controls since the Group's financial accounting and reporting processes are highly dependent on their design and operating effectiveness. The AC noted and agreed with the external auditor that the key IT systems could be relied on to ensure the accuracy and completeness of the revenue recognition during the financial accounting and reporting processes. The findings of the external auditor are set out in the Auditor's Report on page 124.

Review of Internal Control Systems

The AC reviewed the effectiveness of the Group's policies and procedures regarding internal control systems (including the financial, operational, IT, risk management, information security, outsourcing, legal, compliance and those controls designed to detect material fraud) by reviewing the work of the IAD and the Group's external auditor, and regular reports from management including those on risk management, regulatory compliance and legal matters.

In conjunction with the Risk Committee, the AC reviewed and concurred with the management confirmation that for the year ended 31 December 2019, the Group's risk management and internal control systems were effective with reference to the Committee of

Sponsoring Organizations of the Treadway Commission (COSO) Internal Control – Integrated Framework 2013 and the ISO 31000 Risk Management principles and guidelines. The AC is satisfied that the Group has complied satisfactorily with the requirements of the Corporate Governance Code in respect of risk management and internal control systems.

Review of Accounting, Financial Reporting and Internal Audit Functions

The AC reviewed and was satisfied with the adequacy of the resources, staff qualifications and experience, training programmes and budget of the Group's accounting, financial reporting and internal audit functions.

Review of Continuing Connected Transactions

During 2019, the Group entered into certain continuing connected transactions as disclosed in the Corporate Governance Report contained in this Annual Report. The AC, under the authority delegated by the Board, reviewed these continuing connected transactions pursuant to Rule 14A.55 of the Main Board Listing Rules. The AC confirmed that the transactions were entered into by the Group in accordance with the requirements of the Main Board Listing Rules and the conditions of the waiver granted by the SFC that:

- (i) continuing connected transactions are entered into in the Group's ordinary and usual course of business, and on normal commercial terms or on terms no more favourable than terms available to independent third parties;
- (ii) continuing connected transactions other than Buy-in Transactions are conducted in accordance with the rules and regulations of the relevant Group company governing such transactions, and where the rules and regulations do not govern those transactions in full, in accordance with the standard terms and conditions of the relevant Group company relating to such transactions;
- (iii) continuing connected transactions in respect of Buy-in Transactions are conducted in accordance with the standard terms and conditions of HKSCC applicable generally to all buy-in brokers and at the mutually agreed commission rates payable by HKSCC in respect of Buy-in Transactions generally; and

- (iv) continuing connected transactions are entered into according to the relevant agreements governing each of the continuing connected transactions on terms that are fair and reasonable and in the interests of Shareholders as a whole.

The Company's external auditor was engaged to report on the transactions in accordance with Rule 14A.56 of the Main Board Listing Rules. The AC reviewed the unqualified report issued by the external auditor dated 24 February 2020.

Independence of External Auditor

The AC is mandated to monitor the independence of the Group's external auditor, PricewaterhouseCoopers (PwC), to ensure its objectivity in auditing the financial statements. In general, the external auditor has to refrain from engaging in non-assurance services required by the Group except for limited tax-related services or specifically approved items. All services provided by PwC must be approved by the AC. To ensure that the policy of restricting the non-audit work done by the external auditor is followed strictly by all entities within the Group, appropriate policies and procedures have been established which set out: (i) the classification of services as pre-approved, not pre-approved and prohibited; and (ii) the approval process for services that have not been pre-approved.

With respect to the independence of the Group's external auditor, the AC received confirmation from and discussed with PwC on its independence and objectivity.

During the year, the AC reviewed PwC's statutory audit scope and non-audit services and approved its fees. Under the approval procedures for audit fees, all audit fees for entities within the Group were coordinated and presented by PwC Hong Kong and were approved by the AC.

Re-appointment of External Auditor

The AC was satisfied with PwC's work, its independence, and its objectivity, and therefore recommended the re-appointment of PwC (which has indicated its willingness to continue in office) as the Group's external auditor for 2020 for Shareholders' approval at the 2020 AGM.

External Auditor's Services and Fees

	2019 \$m	2018 \$m
Audit services	15	15
Non-audit services		
• Tax advisory and compliance	2	1
• Proposed combination with LSEG	10	–
• Other services	–	1
Total	27	17

YIU Kin Wah, Stephen

Chairman of the Audit Committee

Hong Kong, 24 February 2020

Risk Statement

Effective risk management is important to the Group's achievement of its strategic goals. The Group manages risk across multiple risk domains, including but not limited to financial, business and strategic, operational (including IT and cyber security) and legal and regulatory risks. Business operations are managed in line with risk appetite tolerances set by the Board.

The Group seeks to ensure it achieves its strategic goal of being the global markets leader in the Asian time-zone; building upon our role as the leading venue for investing into and out of Mainland China, while increasing our international relevance to China, and our Asia relevance to the global markets. This includes maintaining stakeholder trust and supporting the integrity of the financial system. The Group recognises its role as a market infrastructure provider and manager of systemic risk, and that its long-term sustainability is dependent on its pursuit of strategic goals while simultaneously managing risks, having sufficient capital and liquidity, ensuring continuity of operations, and protecting its reputation.

The Group aims to maintain sufficient capital and liquidity to meet its regulatory obligations, which require it to have financial resources to cover potential losses and liquidity needs for a range of stress scenarios taking into account extreme but plausible market conditions. As a business, the Group also aims to maintain sufficient capital over and above that required

to meet its regulatory obligations in order to fund its strategic development objectives while ensuring the appropriate balance between risk and shareholder returns. The Group applies risk management measures to strategic initiatives that are designed to limit the Group's exposure to potential losses. It also seeks to maintain liquid financial resources to meet unforeseen cash outflows. The Group strives to maintain stakeholder trust by avoiding business practices that could lead to reputational damage or harm to the Group. The Group, therefore, seeks to operate within all relevant rules and regulations and to avoid disruptions to its business operations that would have a negative impact on stakeholders.

The Risk Committee

The Risk Committee is delegated by the Board to oversee the Group's overall Risk Management Framework and to advise the Board on the Group's risk-related matters. The Committee is also responsible for reviewing the Group's risk policies and, in conjunction with the Audit Committee, assessing the effectiveness of the Group's risk management and internal control systems. The Committee's terms of reference are available on the HKEX Group website [ORG](#). The Committee comprises five INEDs whose names and biographies are set out in the Board and Committees section of this Annual Report. The Committee held four meetings in 2019. Members' attendance records are disclosed in the Corporate Governance Report contained in this Annual Report.

Summary of Work in 2019/2020

During the period, the Risk Committee oversaw key risk management activities including:

- Enhancements to the risk governance model including an update of terms of reference of both the Risk Committee and the Clearing Risk Committee (CRC) and also establishment of the key controls oversight framework;
 - Updates of the risk appetite statements and risk tolerances;
 - Implementation of risk and compliance culture initiatives;
 - Enhancements to clearing house default management, settlement risk and margining practices;
 - Implementation and enhancement of physical security, cyber security and business continuity arrangements in response to social unrest in Hong Kong;
 - Conduct of a cyber security and crisis management simulation exercise and multiple member default drills;
 - Reviews of the HKATS (Hong Kong Futures Automated Trading System) derivative markets suspension and HKEX website cyber attack incidents;
 - Review of the LME governance arrangements to ensure regulatory compliance;
 - Review of the HKEX Compliance Monitoring Programme and approval of the new Group Compliance Policy and updates to the Group Personal Account Dealing Policy and the Group Prevention of Crime Policy;
 - Review of the results of the Group's quarterly Enterprise Risk Management processes including risk heatmaps and dashboards, summaries of assurance activities, emerging risks and clearing house liquidity, capital adequacy and solvency levels; and
 - Review of the management confirmation on the effectiveness of the Group's risk management and internal control systems.
-

Operating an appropriate and effective risk management and internal control system is essential to achieving the Group's strategic objectives and maintaining service delivery targets. The Risk Committee is responsible for overseeing the Group's risk management approach, policy and framework. The Group operates a consistent methodology using the Group Risk Management Framework for the identification, assessment, reporting and management of risks. Risk identification and management is the responsibility of Group Management. The Group operates a risk

governance model to effectively identify and manage risks. Notwithstanding the HKATS derivatives market suspension and HKEX website cyber attack incidents noted above, there were no material internal control defects or significant areas of concerns identified during 2019. The risk management and internal control systems adopted by the Group remain appropriate and effective in evaluating, determining and managing significant risks that the Group may take in achieving its strategic objectives.

Risk Governance

The Group's risk governance structure is based on a "Three Lines of Defence" model, with oversight and directions from the Board, the Risk Committee, and Group Management through the Executive Risk Committee.



Group Risk Management

The Group Risk Management Framework, approved by the Risk Committee, mandates a consistent and effective approach applied across the Group to manage the risks associated with its business and operations. The framework is based on the international standard ISO (International Organisation for Standardisation) 31000 Risk Management – Principles and Guidelines. The following diagram illustrates the key processes adopted under the Group Risk Management Framework.



Principal Risks

The Group faces a number of principal risks and uncertainties that if not properly managed could create an exposure for the Group. Thorough risk assessment and mitigation help ensure these risks are well managed and governed effectively. The Group focuses on addressing the following principal risks.

Principal Risks	Description	Key Mitigations
Business and Strategic Risk	The risk of material adverse changes to the Group's business performance, development prospects and/or ability to deliver its strategy, caused by changes in the business, economic, competitive, regulatory or political environment in which the Group operates.	<ul style="list-style-type: none"> Proactive monitoring of global exchange industry trends, competitors and innovations; Proactive monitoring of and preparation for global and local changes in regulations affecting the Group; and Responsive project controls to allow strategic flexibility and timely resource allocation.
Credit Risk	The risk that a counterparty will not settle an obligation in full value, either when due or at any time thereafter.	<ul style="list-style-type: none"> Default management and recovery procedures in place; Established credit risk management function; Stress tested collateral and margin deposits; and Default contingent market risk managed through collateral management and margin collection.
Market Risk	The risk resulting from adverse movements in market rates or prices such as foreign exchange rates, interest rates or equity prices impacting the Group's investment portfolio (Investment Market Risk) or from a defaulted member's portfolio.	<ul style="list-style-type: none"> Investment capital at risk limited by investment policies, restrictions and guidelines; and Exposure to foreign exchange risk through subsidiaries limited due to HKD/USD peg.
Liquidity Risk	The risk of being unable to settle obligations as they fall due whether relating to HKEX's cash flow and/or regulatory requirements for clearing coverage confidence levels under extreme but plausible market conditions.	<ul style="list-style-type: none"> Investment policy, restrictions and guidelines in place covering Corporate Funds, Margin Funds and Clearing House Funds; and Clearing liquidity risk management requirements met through established stress testing practices.
Operational Risk	The risk of financial or reputational loss or inability to deliver services and products due to inadequate or failed internal processes, IT systems or external events.	<ul style="list-style-type: none"> ESG programmes; Service delivery controls covering people, process and technology; Low latency, highly resilient IT service design; and Site and data centre security and continuity arrangements.
Cyber Security Risk	The risk of financial or reputational loss or inability to deliver services and products due to unauthorised access, use, disclosure, disruption, modification, or destruction of organisational data and/or systems.	<ul style="list-style-type: none"> IT network perimeter controls and cyber attack drills; Enhanced cyber threat prevention and detection; Enhanced real time data loss monitoring; and Cyber incident forensics and breach response controls.
Legal and Compliance Risk	The risk of loss resulting from breach of or non-compliance with applicable laws, regulations or contractual obligations.	<ul style="list-style-type: none"> Internal and where appropriate external legal advice sought and compliance reviews conducted on business activities and new initiatives; Legal review of contracts; Compliance review monitoring programme; and Internal policies to ensure staff compliance with laws and regulations.
Listing Risk	The risk of reputational damage resulting from a failure on the part of SEHK to comply fully with its statutory obligations or the provisions of, or obligations under, the January 2003 MOU with the SFC.	<ul style="list-style-type: none"> Existing checks and balances under three-tiered regulatory structure (including the Listing Committee); Listing Division Market Contingency Plan to deal with potential business disruption events; Monitoring of unusual movements in price or trading volume of issuers' listed securities; and Segregation from other parts of HKEX using Chinese Wall arrangements to avoid leakage of inside information.

John Mackay McCulloch Williamson
Chairman of the Risk Committee

Hong Kong, 24 February 2020

The Remuneration Committee

The Remuneration Committee (RC) is delegated with the authority from the Board to establish, review, and make recommendations to the Board on the Group's remuneration policy and practices. The RC ensures that all employees and Executive and Non-executive Directors are appropriately remunerated in accordance with the Group's strategy as well as its long-term and short-term performance. Its terms of

reference are available on the HKEX Group website [ORG](#).

The RC comprises five INEDs whose names and biographies are set out in the Board and Committees section of this Annual Report. The RC held four meetings in 2019. Members' attendance records are disclosed in the Corporate Governance Report contained in this Annual Report.

Summary of Work in 2019/2020

- Reviewed the results of HKEX 2019 People Survey
- Recommended the 2019 performance bonus and share award pools as well as the 2020 salary adjustment budget for the Group's employees
- Recommended the 2019 performance bonus and share award for HKEX Chief Executive
- Reviewed the achievements of HKEX Chief Executive and recommended to the Board the appropriate vesting percentage of the Senior Executive Award for the relevant performance period
- Recommended the corporate performance scorecard for the Group
- Reviewed the results of compensation market benchmarking for senior executives conducted by McLagan, an external consulting firm specialising in performance and rewards for the financial services industry
- Reviewed the remuneration of non-executive directors of HKEX, the LME, LME Clear and OTC Clear
- Reviewed the RC's terms of reference

Non-executive Directors' Remuneration

Objective

To remunerate Non-executive Directors at an appropriate level for their commitment to HKEX and to attract and retain high calibre and experienced individuals to oversee HKEX's business and development

Policy

- To conduct an annual review with reference to companies with comparable business or scale and recommend remuneration adjustments, if appropriate
- To seek the Board's endorsement and Shareholders' approval of any recommended changes

Annual review for 2020/2021

- McLagan was appointed to conduct an independent review of the non-executive directors' remuneration for HKEX and certain subsidiaries. The consultant conducted a detailed study of market practices on chairman's and non-executive directors' fees and included an updated benchmarking exercise covering listed exchanges as well as banks and constituent companies of the FTSE 100 Index and the HSI.
- After reviewing the market information provided by the consultant, the RC (none of the RC members participated in the decision on his/her remuneration) recommended that the remuneration for Non-executive Directors should remain unchanged for 2020/2021.

Non-executive Directors' remuneration for 2020/2021

	\$
Board	
– Chairman	3,300,000
– Other Non-executive Director	850,000
Audit Committee, Board Executive Committee, Investment Committee, Remuneration Committee and Risk Committee	
– Chairman	250,000
– Other member	160,000
Corporate Social Responsibility Committee, and Nomination and Governance Committee	
– Chairman	200,000
– Other member	160,000

Non-executive Directors are not entitled to participate in the Share Award Scheme.

The emoluments of the Non-executive Directors in 2018 and 2019 for their service on the Board and, where applicable, on its committees and the board and committees of HKEX's subsidiaries are set out below.

	2019 \$	2018 \$
Apurv Bagri	940,000	816,306
Laura M Cha	4,609,318	2,441,993
T C Chan	1,286,000	986,500
C H Cheah	1,524,500	1,169,500
Anita Fung	1,134,000	1,124,210
Rafael Gil-Tienda	1,750,500	1,624,334
Fred Hu	1,123,000	1,071,306
Benjamin Hung	973,000	643,500
Margaret Leung ¹	274,500	986,500
Hugo Leung	1,508,774	986,500
Mary Ma ²	412,749	–
John Williamson	1,966,000	1,086,306
Stephen Yiu	2,768,604	2,528,966
Total	20,270,945	16,579,721 ³

1 Mrs Leung retired on 24 April 2019.

2 Ms Ma, who was appointed as Director on 24 April 2019, passed away on 31 August 2019.

3 Includes a total remuneration of \$1,113,800 paid to Chow Chung Kong and Timothy Freshwater, both retired on 25 April 2018

Further details of the Directors' emoluments are set out in note 14 to the Consolidated Financial Statements.

Employees' Remuneration

Objective

To ensure that employees are remunerated equitably and competitively with consideration of the achievement of their individual performance goals, the key business objectives at corporate level, and the market conditions.

Policy

- To recommend, based on up-to-date market information, the appropriate salary adjustments, if any, for the Board's approval
- To evaluate the corporate performance based on a set of pre-determined indicators and to recommend the appropriate level of performance bonus and share award pools, if any, for the year to the Board
- To consult with HKEX Chief Executive about the performance of the members of the Senior Management and to ensure that they are remunerated equitably and in accordance with the established guidelines
- To review and recommend the remuneration of HKEX Chief Executive to the Board. As a good corporate governance practice, HKEX Chief Executive is not involved in the Board's discussion and decision.

Review for 2019/2020

- Based on the RC's recommendation, the Board approved in November and December 2019:
 - (i) a base salary adjustment and promotion increase effective January 2020. The salary adjustment took into consideration the competitive positioning, the cost of living and the projected pay increase in the financial services industry;
 - (ii) a discretionary performance bonus for eligible employees in recognition of their contributions in 2019;
 - (iii) a discretionary award for the purchase of HKEX shares pursuant to the Share Award Scheme for 416 selected employees, including HKEX Chief Executive, and for selected employees to be recruited in 2020; and
 - (iv) a discretionary award for the purchase of HKEX shares for a performance-based Senior Executive Award pursuant to the Share Award Scheme for HKEX Chief Executive for the performance period between 2020 and 2022.
- The performance cash bonus and share award pools for the Group's employees were determined based on the overall achievements with respect to the following on the corporate performance scorecard:

Performance Measures

Financial	Strategic	Market & Regulatory Development	Organisational Development
<ul style="list-style-type: none"> • Relative to selected peers of other global exchanges: <ul style="list-style-type: none"> – Performance in principal market activities • Relative to budget and prior year: <ul style="list-style-type: none"> – Revenue and profit performance – Profit margin – Overall cost/income ratio • Relative to budget: <ul style="list-style-type: none"> – Absolute expenses excluding incentives 	<ul style="list-style-type: none"> • Key initiatives from HKEX Strategic Plan 2019-2021: <ul style="list-style-type: none"> – Listing – Cash & Derivatives Markets – China Connectivity – Technology 	<ul style="list-style-type: none"> • Regulatory compliance • Completion of regulatory action required to manage the impact of Brexit and relevant EU regulations • Listing regulation enhancement • System stability & reliability • Market structure reform • Stakeholder relationship management with a focus on enhancing awareness/recognition among the Mainland investment community • Default management enhancements for exchange traded products • Security control enhancements 	<ul style="list-style-type: none"> • Talent Retention and Development • Succession Planning and Organisational Development • Culture and Values • CSR

Weighting for performance bonus and share award in 2019

Performance Bonus	Share Award		
40%	25%	20%	15%

- Employees had to undergo a thorough annual performance appraisal process in which their performances were assessed according to the pre-determined and agreed work objectives before they were given their performance ratings (on a five-point scale) for the year. An additional multi-rater appraisal process was applied to employees at management level to ensure the assessment was multi-dimensional.
- Distribution matrices referencing to the employee's grade and year-on-year rating changes were set up to guide managers in the allocation of performance bonuses and share awards to individual employees. Managers were allowed to make adjustments to account for other factors, including overall total compensation position (ie, base salary plus the performance bonus and share award, if applicable), internal pay levels and external remuneration benchmarks.

Further details of HKEX's remuneration policy and structure are available on the HKEX Group website [CG](#).

As at 31 December 2019, the Group had 2,182 permanent employees and 190 temporary employees.

A performance development process is in place to ensure that employees' performance objectives are defined, their performance progress is tracked, and training and development opportunities are identified for them. Employee training details are set out in the 2019 CSR Report.

Emoluments for 2019

Executive Director

	2019						2018	2019		
			Retirement ²		Director's					
	Salary	Cash bonus	Other ¹ benefits	benefits cost	fee	Total ³				
HKEX Chief Executive										
Charles Li	9,315,000	16,000,000	364,058	1,164,375	-	26,843,433	28,968,787	24,262,482 ⁵		

Senior Management⁶

	2019						2018	2019		
			Retirement ²		Total ³					
	Salary	Cash bonuses	Other ¹ benefits	benefits cost	Total ³					
Matthew Chamberlain ⁸	4,045,369	5,130,293	525,739	107,877	9,809,278	8,675,129	5,585,840			
Romnesh Lamba	4,691,040	6,669,800	1,066,360	586,380	13,013,580	11,674,638	4,431,871			
Vanessa Lau ⁹	3,024,240	3,850,000	38,355	378,030	7,290,625	6,843,629	1,985,220			
Calvin Tai	4,000,008	5,610,904	81,520	500,001	10,192,433	9,690,014	4,948,249			
Wilfred Yiu ¹⁰	2,922,228	4,264,272	92,917	365,279	7,644,696	-	838,101			

- 1 Other benefits include leave pay, insurance premium, club membership, relocation allowance, settlement of the UK tax liability on behalf of the employee and payment in lieu of pension contributions, as applicable.
- 2 An employee who retires before normal retirement age is eligible for 18 per cent of the employer's contribution to the provident fund after completion of two years of service. The rate of vested benefit increases by 18 per cent annually thereafter and reaches 100 per cent after completion of seven years of service.
- 3 Excludes the amounts approved by the Board for the purchase of HKEX shares pursuant to the Share Award Scheme, details of which are set out in the Share Award Scheme section below
- 4 These represent the aggregate of the amortised fair value of the Awarded Shares of HKEX Chief Executive and the members of the Senior Management that was charged to the Consolidated Income Statement for the year ended 31 December 2019.
- 5 Includes the share award benefits relating to the Senior Executive Award granted to Mr Li in December 2019, the vesting of which is not affected if Mr Li ceases employment with the Group before the end of the performance assessment period.
In accordance with prevailing accounting standards, such awards are considered to be vested immediately upon grant.
The actual number of shares to be transferred to Mr Li under the Senior Executive Awards is conditional on the satisfaction of performance criteria approved by the Board as set out in note 4 under the Share Award Scheme section below.
- 6 Excludes Bonnie Y Chan and Glenda So, who joined HKEX on 2 January 2020 and 25 February 2020 respectively
- 7 Includes year-end cash bonus and sign-on bonus paid, as applicable
- 8 Mr Chamberlain was a member of the LME pension scheme operating in the UK during 2019. The vesting scale of HKEX's provident fund scheme as specified in note 2 above is not applicable to him.
- 9 Ms Lau joined HKEX in October 2015 and was appointed as Group Chief Financial Officer effective 5 February 2020.
- 10 Mr Yiu joined HKEX on 8 April 2019.

Further details of the five top-paid employees are set out in note 15 to the Consolidated Financial Statements.

Share Award Scheme

HKEX has adopted the Share Award Scheme to recognise the contributions of certain employees and help in retaining them for the Group's operations and further development. The Scheme was adopted by the Board on 14 September 2005 (Adoption Date) and shall be valid until 31 December 2025.

The maximum number of shares which can be awarded under the Scheme is 3 per cent (ie, 31,871,575 shares) of HKEX shares in issue as at the Adoption Date and the maximum number of shares which can be awarded to a selected employee in the Scheme is 1 per cent (ie, 10,623,858 shares). The rules and trust deed of the Scheme are available on the HKEX Group website [CG](#).

On 6 November and 12 December 2019, the Board approved a total sum of \$354.32 million for the purchase of HKEX shares pursuant to the Scheme, details of which are set out in the Employees' Remuneration section above. Based on the Board's recommendation, the Scheme's trustee applied 219,143 shares held under the Scheme which were unallocated or forfeited pursuant to the Scheme to partly satisfy such awards.

Further details of the Scheme are set out in note 42 to the Consolidated Financial Statements.

Since the Adoption Date and up to the date of this report, a total of 13,443,796 shares had been awarded under the Scheme, representing about 1.3 per cent of the number of HKEX shares in issue on the Adoption Date.

As at 31 December 2019, taking into account the shares acquired out of the dividends from the shares held under the trust, there were 3,274,364 shares held in trust under the Scheme (excluding shares vested but not yet transferred to awardees).

Details of the interests of HKEX Chief Executive and the Senior Management in the Awarded Shares are set out below.

	Date of ² award	Number of Awarded Shares	As at 1 Jan 2019	Number of shares ¹				Vesting period ³
				Shares acquired during the year out of the dividends	Vested during the year	Lapsed during the year	As at 31 Dec 2019	
HKEX Chief Executive								
Charles Li	31 Dec 2015	56,800 ⁴	61,486	390 ⁵	33,592 ⁵	28,284 ⁵	-	End of a performance period of 2016 – 2018
	30 Dec 2016	63,210	33,254	911	34,165	-	-	7 Dec 2018 – 7 Dec 2019
	30 Dec 2016	67,400 ⁴	70,915	1,943	-	-	72,858 ⁶	End of a performance period of 2017 – 2019
	29 Dec 2017	58,853	60,505	1,659	31,080	-	31,084	8 Dec 2019 – 8 Dec 2020
	29 Dec 2017	62,123 ⁴	63,866	1,750	-	-	65,616	End of a performance period of 2018 – 2020
	31 Dec 2018	61,560	61,560	1,687	-	-	63,247	7 Dec 2020 – 7 Dec 2021
	31 Dec 2018	61,560 ⁴	61,560	1,687	-	-	63,247	End of a performance period of 2019 – 2021
	31 Dec 2019	55,169	-	-	-	-	55,169	12 Dec 2021 – 12 Dec 2022
	31 Dec 2019	56,154 ⁴	-	-	-	-	56,154	End of a performance period of 2020 – 2022
Senior Management								
Matthew Chamberlain	30 Dec 2016	16,492	8,676	237	8,913	-	-	7 Dec 2018 – 7 Dec 2019
	29 Dec 2017	20,688	21,268	582	10,924	-	10,926	8 Dec 2019 – 8 Dec 2020
	31 Dec 2018	31,359	31,359	859	-	-	32,218	7 Dec 2020 – 7 Dec 2021
	31 Dec 2019	28,922	-	-	-	-	28,922	12 Dec 2021 – 12 Dec 2022
Romnesh Lamba	30 Dec 2016	22,123	11,639	319	11,958	-	-	7 Dec 2018 – 7 Dec 2019
	29 Dec 2017	19,005	19,538	535	10,035	-	10,038	8 Dec 2019 – 8 Dec 2020
	31 Dec 2018	19,872	19,872	544	-	-	20,416	7 Dec 2020 – 7 Dec 2021
	31 Dec 2019	18,991	-	-	-	-	18,991	12 Dec 2021 – 12 Dec 2022
Vanessa Lau	30 Dec 2016	9,191	4,835	131	4,966	-	-	7 Dec 2018 – 7 Dec 2019
	29 Dec 2017	8,021	8,245	226	4,234	-	4,237	8 Dec 2019 – 8 Dec 2020
	31 Dec 2018	9,590	9,590	262	-	-	9,852	7 Dec 2020 – 7 Dec 2021
	31 Dec 2019	8,535	-	-	-	-	8,535	12 Dec 2021 – 12 Dec 2022

	Date of ² award	Number of Awarded Shares	As at 1 Jan 2019	Number of shares ¹				As at 31 Dec 2019	Vesting period ³
				Shares acquired during the year out of the dividends	Vested during the year	Lapsed during the year			
Calvin Tai	30 Dec 2016	19,700	10,365	284	10,649	-	-	7 Dec 2018 – 7 Dec 2019	
	29 Dec 2017	18,205	18,716	513	9,613	-	9,616	8 Dec 2019 – 8 Dec 2020	
	31 Dec 2018	26,459	26,459	725	-	-	27,184	7 Dec 2020 – 7 Dec 2021	
	31 Dec 2019	23,526	-	-	-	-	23,526	12 Dec 2021 – 12 Dec 2022	
Wilfred Yiu	13 Jun 2019	9,603	-	148	-	-	9,751	8 Apr 2021 – 8 Apr 2022 ⁷	
	31 Dec 2019	18,138	-	-	-	-	18,138	12 Dec 2021 – 12 Dec 2022	

¹ Includes shares acquired out of the dividends from the Awarded Shares according to the Scheme

² This refers to the date on which the trustee allocated the Awarded Shares to the selected employees from the shares purchased with the awarded sum determined by the Board.

³ Save for those Senior Executive Awards referred to in note 4 below and the awards granted referred to in note 7 below, the Awarded Shares and the related income are vested in two equal tranches in the second and third year after the grant.

4 The awards were granted under the Scheme as long-term incentives for selected senior executives of the Group (Senior Executive Awards). The Board has full discretion to determine the actual amount of the Senior Executive Awards to be vested at the end of a performance period in accordance with the performance criteria recommended by the RC and approved by the Board. These performance criteria include total shareholder return, achievements made in business development and sustaining the organisation's effectiveness.

5 Following the Board's approval of the vesting of 33,202 shares to Mr Li on 27 February 2019, the remaining 28,284 Awarded Shares lapsed on the same day, and 390 shares were acquired out of the 2018 second interim dividend in respect of these vested shares.

6 The RC recommended a vesting of 51,729 shares to Mr Li based on the performance for the period 2017-2019.*

7 The awards were granted as part of the hiring agreement with a special vesting schedule.

Rafael GIL-TIENDA

Chairman of the Remuneration Committee

Hong Kong, 20 February 2020

* The recommendation was approved by the Board on 26 February 2020.

Corporate Social Responsibility Committee Report

The CSR Committee

The Corporate Social Responsibility (CSR) Committee is delegated with the authority from the Board to provide direction and oversee the development and implementation of the CSR initiatives of the Group in relation to corporate sustainability, environmental protection, philanthropy and community investment.

Its terms of reference are available on the HKEX Group website [ORG](#).

The CSR Committee comprises four INEDs and HKEX Chief Executive, whose names and biographies are set out in the Board and Committees section of this Annual Report. The CSR Committee held three meetings in 2019. Members' attendance records are in the Corporate Governance Report contained in this Annual Report.

Summary of Work in 2019/2020

- Reviewed and endorsed the following items:
 - the revisions of HKEX's CSR Policy and the Committee's Terms of Reference;
 - the Terms of Reference of the HKEX Foundation Limited;
 - the work plans of philanthropic and volunteering initiatives;
 - the Carbon Offset Policy for business air travel; and
 - the annual CSR Report
- Approved the following items or CSR initiatives:
 - HKEX being a signatory or supporting organisation of (i) the Green Investment Principles for the Belt and Road; (ii) the Task Force on Climate-Related Financial Disclosures; (iii) the Equal Opportunity Commission's Racial Diversity and Inclusion Charter for Employers; and (iv) the Investor and Financial Education Council's Financial Literacy Charter; and
 - the Group's paper reduction target
- Received quarterly reports on the Group's charitable donations
- Received and discussed HKEX's CSR activities, and global trends in CSR

CSR Policies and Performance

HKEX is committed to promoting and progressing its financial markets and the communities they support and is seeking to reinforce its commitment to be an active and responsible leader. Details of HKEX's key CSR practices and activities during 2019 are disclosed in the 2019 CSR Report. HKEX's CSR policies and management approaches are available on the HKEX Group website [CSR](#).

In view of the business nature of the Group, HKEX is not aware of any environmental laws or regulations that would have a material impact on the Group. The Group, however, continues to adopt enhanced measures to reduce energy and other resource utilisation, minimise waste and increase recycling, encourage its employees to adopt environmentally responsible behaviour and promote environmental protection in its supply chain and marketplace. During 2019,

HKEX enhanced its management regarding the recycling of waste lead acid batteries used in its data centres. To help mitigate its environmental footprint, the Group established a new Carbon Offset Policy for business air travel. In the UK, the LME launched a new Green Working Group, designed to investigate opportunities to progress the green agenda.

HKEX contributes to the community by making charitable donations and community investments in accordance with its policies. In 2019, the Group donated a total of \$4.2 million to various causes in communities where it operates; helped raise \$100 million for The Community Chest of Hong Kong via the Stock Code Balloting for Charity Scheme; and raised approximately £40,000 for the LME's charity partner, The Connection at St. Martin-in-the-Fields. Throughout the year, the Group continued to encourage its employees to participate in different events organised by

charities in their communities. During 2019, the Group's employees and their guests contributed over 3,000 hours of volunteer services in total.

Relationships with Major Stakeholders

HKEX actively engages with its employees, market participants, investors, suppliers and other stakeholders through different channels to develop mutually beneficial relationships and promote sustainability.

Employees are remunerated equitably and competitively. Training and development opportunities are provided to equip staff members so that they deliver their best performance and achieve corporate goals. During the year, the Group delivered over 30,000 hours of training to its employees across different divisions and departments. In June 2019, the Group undertook its Group-wide People Survey to gather employees' feedback on their views of the company, their working environment and their levels of engagement. The survey attracted a high response rate of 95 per cent and received a 10 per cent improvement in the engagement score compared with our 2018 Pulse Survey. In the UK, to facilitate the ongoing enhancement of conduct in the wider metals sector and help ensure all individuals in the industry can rightly expect a welcoming, respectful and inclusive environment, the LME launched its Code of Conduct in April 2019 to provide clear guidance for LME Group staff, LME member employees at the LME premises and attendees at LME events.

In its capacity as an exchange and a regulator, the Group consults the market on major initiatives and the views of respondents are carefully and thoroughly considered to ensure that decisions are made in an informed and balanced manner. In January 2019, HKEX, the SFC and the Federation of Share Registrars Limited published a joint consultation paper on a revised operational model for implementing an uncertificated securities market in Hong Kong. The Exchange launched a consultation in May 2019 to seek public feedback on the review of the ESG Reporting Guide and related Listing Rules, and the conclusions were issued in

December 2019. In addition, three other market consultations were conducted by HKEX in 2019 to seek market views on (i) review of Chapter 37 – debt issues to professional investors; (ii) codification of general waivers and principles relating to IPOs and listed issuers and minor Rule amendments; and (iii) market microstructure enhancements. In the UK, following two years of market engagement, including a formal market-wide consultation, in October 2019 the LME announced its responsible sourcing requirements underpinned by the OECD Due Diligence Guidance for Responsible Supply Chains, which will apply to all LME-listed brands. This marks a significant step forward for the efforts of the LME and the metals market to promote inclusive, sustainable and responsible global metal supply chains.

HKEX is committed to ensuring strong ethical supply chain management and seeks to use suppliers that reflect its values and commitment to being a good corporate citizen. During 2019, 12 key suppliers providing professional consultancy, employee benefits, information technology or property management services to the Group have completed a questionnaire regarding their CSR performance. The Group was not aware that any of its key suppliers had any significant actual or potential negative impact on business ethics, environmental protection, human rights or labour practices, nor any of them had any non-compliance incident in respect of these areas.

CSR Reporting

During 2019, HKEX Chief Executive provided to the Board quarterly CSR progress reports summarising the CSR initiatives undertaken by the Group. Details of the Group's CSR performance in 2019 are disclosed in the 2019 CSR Report.

Laura M CHA

Chairman of the CSR Committee

Hong Kong, 25 February 2020

Directors' Report

The Directors are pleased to present this Annual Report together with the audited consolidated financial statements for the year ended 31 December 2019.

Principal Activities

HKEX is a recognised exchange controller under the SFO. HKEX operates the only recognised stock and futures markets in Hong Kong through its wholly-owned subsidiaries, SEHK and HKFE, and is the frontline regulator of listed issuers in Hong Kong. In collaboration with the Shanghai and Shenzhen stock exchanges, HKEX operates Stock Connect, which gives investors in the Hong Kong and Mainland securities markets access to each other's markets. HKEX also operates HKSCC, HKCC, SEOCH and OTC Clear, which are the only recognised clearing houses in Hong Kong. HKSCC, HKCC and SEOCH provide integrated clearing and settlement services to their Participants, while OTC Clear provides clearing and settlement services for interest rate and foreign exchange derivatives traded over-the-counter. HKSCC also provides depository and nominee services to its Participants. HKEX provides market data through its data dissemination entity, HKEX Information Services Limited.

HKEX owns the LME and LME Clear in the UK. The LME is a recognised investment exchange under the Financial Services and Markets Act 2000 (FSMA), which trades futures and options

contracts on base and other metals. LME Clear is a European Market Infrastructure Regulation (EMIR) authorised CCP, which provides clearing services for the exchange contracts of the LME. HKEX also owns 90.01% of QME which operates a commodity trading platform in Mainland China.

A list of HKEX's principal subsidiaries as of 31 December 2019 and their particulars are set out in note 26 to the Consolidated Financial Statements. More information about the Group's activities is available in the About HKEX section of the HKEX Group website.

Business Review

The Group's revenue is derived primarily from business activities conducted in Hong Kong and the UK. An analysis of the Group's performance for 2019 by operating segment is set out in note 4 to the Consolidated Financial Statements.

A fair review of the Group's business, including the important events affecting the Group that have occurred since the end of 2019 and the likely future developments, is set out in the Chief Executive's Review, Business Review and Financial Review sections of this Annual Report. Principal risks and uncertainties facing the Group were reviewed by the Board as delineated in the Risk Committee Report. Details about the Group's financial risk management are set out in note 53 to the Consolidated Financial Statements.

The following table outlines the relevant laws and regulations that have a significant impact on the Group's business and the compliance measures adopted and implemented by the Group during 2019.

Primary legislation/ regulations ¹	Key scope	Compliance measures
Exchange and clearing business in Hong Kong		
SFO	<p>HKEX is a recognised exchange controller and has duties under section 63(1) to ensure that the statutory duties placed on the recognised exchange companies (under section 21) and recognised clearing houses (under section 38) under its control are complied with.</p> <p>SEHK and HKFE are recognised exchange companies; and HKSCC, HKCC, SEOCH and OTC Clear are recognised clearing houses (RCHs).</p>	<p>A corporate governance structure ² is in place to enable HKEX to balance its public functions and its commercial profit making objectives.</p> <p>The Regulatory Compliance Department is responsible for ensuring compliance with rules and regulations in line with the corporate governance structure.</p> <p>Rule amendments by SEHK, HKFE and each of the RCHs are approved by the SFC under section 24 (for recognised exchange companies) and section 41 (for RCHs).</p> <p>Fees imposed by SEHK, HKFE and each of the RCHs are approved by the SFC under section 76.</p>
PFMI	HKSCC, HKCC, SEOCH and OTC Clear as the RCHs are required to observe the applicable PFMI on an ongoing basis pursuant to the guidelines issued by the SFC.	The approach of each of the RCHs to observing each applicable PFMI is summarised in its disclosure document which is available on the HKEX Market website.
Exchange and clearing business in the UK		
Part XVIII of the FSMA and Part I and Part II of the FSMA (Recognition Requirements for Investment Exchanges and Clearing Houses) Regulations 2001	The LME is a recognised investment exchange under Part XVIII of the FSMA and is required to ensure that its rules, procedures and practices are adequate for the protection of investors and for the maintenance of an orderly market.	The LME follows the rules and guidance on recognition and notification requirements as set out in the FCA's Handbook, as well as having implemented the applicable MiFID II requirements.
Markets in Financial Instruments Directive 2014/65/EU, Markets in Financial Instruments Regulation 600/2014 and associated legislation (together, MiFID II)	As a regulated market, the LME is also required to comply with applicable MiFID II requirements.	<p>The Audit and Risk Committee of the LME, as required by the FCA and on behalf of the LME board, has to satisfy itself formally on an annual basis that the LME continues to meet these recognition requirements.</p> <p>The LME conducts a bottom-up in-depth analysis, listing all applicable requirements and associated arrangements and controls to demonstrate how each requirement has been met. This is supported by a detailed compliance monitoring programme.</p>
		As disclosed in the notices issued by the LME to its members and other interested parties in 2019, the LME's approach to the implementation of the MiFID II pre-trade transparency requirements to the inter-office market has been challenged by the European Securities and Markets Authority (ESMA). The LME has been exploring potential solutions to remedy this issue, and undertaking discussion and consultation with the market and relevant regulatory authorities. The LME expects to implement a solution during 2020.

Primary legislation/ regulations¹	Key scope	Compliance measures
Part 4A of FSMA European Benchmarks Regulation (known as BMR)	<p>Since 3 December 2019, the LME has been authorised by the FCA to administer a number of prices that are categorised as benchmarks under the BMR, and is required to comply with applicable requirements under the BMR and certain FCA rules.</p> <p>As “supervised entities” under the BMR, the LME and LME Clear, when using a “benchmark” (within the meaning of the BMR), are required to maintain fall-back plans that identify steps to be taken where the relevant benchmark ceases to be provided or is no longer reflective of the market which it is intended to measure.</p>	<p>To ensure compliance with the applicable BMR and FCA requirements, the LME has implemented a robust compliance framework around its benchmark determination processes, including a governance framework and a compliance monitoring programme.</p> <p>Mandatory BMR documentation is publicly available on the LME website.</p>
Regulation on OTC Derivatives, Central Counterparties and Trade Repositories (known as EMIR) and MiFID II	<p>LME Clear is an authorised CCP and is required to comply with the applicable EMIR requirements and the applicable MiFID II requirements.</p>	<p>To ensure compliance with EMIR, LME Clear has implemented robust governance arrangements and a comprehensive risk management framework.</p> <p>LME Clear’s Rules and Procedures have been developed to reflect the legal framework which applies to LME Clear, including primarily the requirements of EMIR and MiFID II.</p> <p>All documentation required in relation to LME Clear’s compliance with EMIR and MiFID II is publicly disclosed on the LME website.</p>
FSMA	<p>LME Clear is a recognised clearing house under Part XVIII of the FSMA and is required to ensure that its rules, procedures and practices are adequate for the protection of investors and for the maintenance of an orderly operation.</p>	<p>LME Clear provides a high degree of legal certainty for each material aspect of its activities by setting out the rights and obligations of LME Clear and those of its Members in its Rules and Procedures (the Rules). The Rules support and allow LME Clear to conduct such material aspects appropriately and effectively, ensure Members understand the full extent of their obligations when using LMEmercury and clarify the protection provided to investors. Any changes to the Rules are notified to the Bank of England which, when appropriate, will approve the change. The Rules are publicly disclosed on the LME website.</p>
Financial Markets and Insolvency (Settlement Finality) Regulations 1999 (SFR)	<p>LME Clear’s secure payment system is a designated system and is required to meet the SFR requirements.</p>	<p>LME Clear has adopted, as part of its Rules and Procedures, a Settlement Finality Rule (Rule 11) and related Settlement Finality Procedures which define the system and the point of irrevocability and finality of instructions as well as the participants in the system. The procedures explaining how the system meets the SFR requirements are available on the LME website.</p>
PFMI	<p>LME Clear, as financial market infrastructure, is required to observe the applicable PFMI on an ongoing basis.</p>	<p>LME Clear’s approach to observing each applicable PFMI is summarised in its disclosure document, which is available on the LME website.</p> <p>LME Clear performs a self-assessment on an annual basis against the PFMI. This assessment is shared with LME Clear’s primary regulator, the Bank of England.</p>

Primary legislation/ regulations ¹	Key scope	Compliance measures
Spot commodity trading platform in the PRC		
The Interim Measures of Shenzhen Municipality for the Supervision and Administration of Trading Venues (Shenzhen Interim Measures)	QME is a spot commodity trading platform in Shenzhen and is required to comply with the applicable rules under the Shenzhen Interim Measures on an ongoing basis.	QME has established its own compliance function to ensure that the operations and activities within its business scope comply with the relevant laws, rules and regulations.
Operations in Hong Kong, the UK and the PRC		
Prevention of Bribery Ordinance (Chapter 201 of the Laws of Hong Kong)	HKEX, SEHK, HKFE, HKSCC, HKCC and SEOCH are public bodies under the Prevention of Bribery Ordinance and are subject to prohibitions on bribery (under sections 4 to 8) and corrupt transactions with agents (under section 9).	HKEX has adopted the Group Anti-Bribery and Anti-Corruption Policy to ensure that employees within the Group comply with the Prevention of Bribery Ordinance, the Bribery Act 2010, the PRC Criminal Law and the PRC Anti-Unfair Competition Law, where applicable.
Bribery Act 2010	The Group's subsidiaries in the UK, persons who are British citizens or who are ordinarily resident in the UK, and any persons who by an act or omission in the UK formed part of the relevant bribery offence are subject to the Bribery Act provisions (under sections 1, 2 and 6). The LME, LME Clear, and any other Group companies carrying on business in the UK are "relevant commercial organisations" for the purposes of section 7 of the Bribery Act 2010.	
PRC Criminal Law and PRC Anti-Unfair Competition Law	QME and other PRC subsidiaries of HKEX are subject to prohibitions on bribery under the PRC Criminal Law and the PRC Anti-Unfair Competition Law.	

- 1 On the corporate level, all of the Group companies comply with the laws of the place in which the companies are incorporated, the Main Board Listing Rules and the SFO where they are applicable.
- 2 HKEX's corporate governance structure is available on the HKEX Group website, and its principal corporate governance practices are set out in the Corporate Governance Report, the Nomination and Governance Committee Report, the Audit Committee Report, the Risk Committee Report, the Remuneration Committee Report and the CSR Committee Report.

Disclosures related to the Group's environmental policies and performance, and relationships with major stakeholders are included in the CSR Committee Report.

Major Customers and Suppliers

During the year ended 31 December 2019, the combined value of the Group's contracts with its five largest suppliers, which were not of a capital nature, was less than 30 per cent of the total value of supplies purchased. The Group's five largest customers combined contributed less than 30 per cent of its total revenue and other income during the year ended 31 December 2019.

Results and Appropriations

The Group's results for the year ended 31 December 2019 are set out in the Consolidated Income Statement.

The Board has declared a second interim dividend of \$2.99 per share for 2019 (2018 second interim dividend: \$3.07 per share) to Shareholders whose names appear on HKEX's Register of Members on 16 March 2020. A scrip dividend alternative will continue to be offered to allow Shareholders to elect to receive the second interim dividend wholly or partly in the form of new fully paid shares in lieu of cash.

The first interim dividend of \$3.72 per share (2018: \$3.64 per share) was declared by the Board and paid to the Shareholders on 26 September 2019 in the total sum of \$4.7 billion (2018: \$4.5 billion). This included the dividends of \$11 million (2018: \$10 million) paid to shares held in trust under the Share Award Scheme.

Including the first interim dividend, the total dividends for 2019 amount to \$6.71 per share (2018: \$6.71 per share), which represents a payout ratio of 90 per cent (2018: 90 per cent) of the profit attributable to shareholders for the year ended 31 December 2019. Dividends for shares held in trust under the Share Award Scheme amount to \$22 million (2018: \$19 million). More information about HKEX's dividend policy and the second interim dividend for 2019 is set out in the Shareholder Information section of this Annual Report.

Donations

The Group's charitable donations during 2019 amounted to \$4.2 million (2018: \$3.3 million). There have never been any political donations.

HKEX continues to raise funds for The Community Chest of Hong Kong via the Stock Code Balloting for Charity Scheme. During 2019, a total sum of \$100 million (2018: \$93 million) was raised via the Stock Code Balloting for Charity Scheme for The Community Chest of Hong Kong.

Share Capital

Details of the movements in share capital of the Company during 2019 are set out in note 41 to the Consolidated Financial Statements. HKEX shares were issued during 2019 on election of scrip in lieu of cash dividends for the 2018 second interim dividend and the 2019 first interim dividend pursuant to HKEX's scrip dividend scheme. Details are set out in note 41(a) to the Consolidated Financial Statements.

Equity-linked Agreements

No equity-linked agreements were entered into by the Company during 2019 or subsisted at the end of 2019.

Reserves

As at 31 December 2019, HKEX's distributable reserves, calculated under Part 6 of the Companies Ordinance (Chapter 622 of the Laws of Hong Kong), amounted to \$7.0 billion (31 December 2018: \$7.6 billion).

Details of the movements in the reserves of the Group and HKEX during 2019 are set out in the Consolidated Statement of Changes in Equity and notes 42 to 45 and note 54(a) to the Consolidated Financial Statements.

Purchase, Sale or Redemption of HKEX's Listed Securities

During 2019, neither the Company nor any of its subsidiaries purchased, sold or redeemed any of HKEX shares, except that the trustee of the Share Award Scheme, pursuant to the terms of the rules and trust deed of the Share Award Scheme, purchased on the Stock Exchange a total of 1,115,300 HKEX shares at a total consideration of \$285 million.

Directors

The following is the list of Directors during 2019 and up to the date of this report (unless otherwise stated). Brief biographies of the current Directors are set out in the Board of Directors and Senior Management section of this Annual Report. Their interests in HKEX shares are set out in the Corporate Governance Report. Information about Directors' appointments, retirements and remuneration is set out in the Nomination and Governance Committee Report and the Remuneration Committee Report.

INEDs

Laura May-Lung CHA (Chairman)
 Apurv BAGRI (Re-elected on 24 April 2019)
 CHAN Tze Ching, Ignatius
 CHEAH Cheng Hye
 FUNG Yuen Mei, Anita (Re-appointed on 24 April 2019)
 Rafael GIL-TIENDA (Re-appointed on 24 April 2019)
 HU Ziliu, Fred
 HUNG Pi Cheng, Benjamin
 LEUNG KO May Yee, Margaret (Retired on 24 April 2019)
 LEUNG Pak Hon, Hugo
 MA Xuezheng, Mary (Appointed on 24 April 2019 and passed away on 31 August 2019)
 John Mackay McCulloch WILLIAMSON
 YIU Kin Wah, Stephen (Re-appointed on 24 April 2019)

Executive Director

LI Xiaojaia, Charles (Chief Executive)

The following is the list of directors of HKEX's subsidiaries during 2019 and up to the date of this report (unless otherwise stated).

BAO Haijie	Marye Louise HUMPHERY	POON Tim Fung
Brian Geoffrey BENDER ³	John Patrick KILLIAN ³	David Bolton RUSSELL ³
Laura May-Lung CHA ¹	LAM Kin ³	SHEK Yuen Leung
Roland Paul CHAI ³	LAM Suen	SO Ying Ying, Glenda ²
Matthew James CHAMBERLAIN ²	Romnesh LAMBA ²	Marco Andrea STRIMER
CHAN Chi Fai, Owens	LAU Bik Yun, Vanessa ²	Antony John STUART
CHAN Ka Yee	LEUNG Chung Kwong, Richard	TAI Chi Kin ²
CHAU Yee Wah, Eva ³	LEUNG Pak Hon, Hugo ¹	Richard John THORNHILL
CHENG Mo Chi, Moses ³	LEUNG Sing Man, Sandra	Herta VON STIEGEL
CHEUNG Kin Chung	LI Gang	WANG Dong
CHEUNG Man Leung, Billy ³	LI Jieyi	WANG Guiju
Adrian John Winston FARNHAM	LI Xiaojaia, Charles ^{1, 2}	WANG Xiaokun
FUNG Hau Chung, Andrew	LI Yutao ³	John Mackay McCulloch WILLIAMSON ¹
Rafael GIL-TIENDA ¹	LIANG Cheng ³	WONG Chak Wai
David GRAHAM ³	Ferheen MAHOMED	XU Minbo
Hugh Edward GRAHAM	MAO Zhirong	YIU Ka Yan, Wilfred ²
GUO Xiaoli ³	Keith Samuel NOYES	YIU Kin Wah, Stephen ¹
Gay HUEY EVANS	POON Hon Cheung ³	ZHU Xiaojun

¹ Member of the Board

² Member of Senior Management

³ No longer a director of any subsidiary of HKEX as at the date of this report

Directors' Interests in Transactions, Arrangements and Contracts

Details of the continuing connected transactions and related party transactions are set out in the Corporate Governance Report and note 50 to the Consolidated Financial Statements.

Notwithstanding the above, no transaction, arrangement or contract that is significant in relation to the Group's business to which the Company or any of its subsidiaries was a party and in which a person who at any time in 2019 was a Director or his or her connected entity had, directly or indirectly, a material interest was entered into in 2019 or subsisted at any time during 2019.

Directors' Rights to Acquire Shares or Debentures

Li Xiaojia, Charles, Executive Director, was awarded HKEX shares pursuant to the Share Award Scheme. Details are set out in the Remuneration Committee Report and note 42 to the Consolidated Financial Statements.

Save for the above, neither HKEX nor any of its subsidiary undertakings was a party to any arrangements to enable Directors to acquire benefits by means of the acquisition of shares in, or debentures of, HKEX or any other body corporate at any time during 2019 or at the end of 2019.

Management Contracts

No contract, other than employment contracts, concerning the management and administration of the whole or any substantial part of the Company's business was entered into or existed during 2019.

Permitted Indemnity Provision

Pursuant to the HKEX's Articles, subject to the provisions of the statutes, every Director shall be entitled to be indemnified by the Company against all costs, charges, losses, expenses and liabilities incurred by him or her in the execution and discharge of his or her duties or in relation thereto. The Directors and Officers Liability Insurance (D&O Insurance) undertaken by the Company provides such indemnities to all the directors of the Company and its subsidiaries. The relevant provisions in the HKEX's Articles and the D&O Insurance were in force during the financial year ended 31 December 2019 and as of the date of this report.

Auditor

The financial statements for the year ended 31 December 2019 have been audited by PricewaterhouseCoopers, which retires and, being eligible, offers itself for re-appointment at the 2020 AGM. A resolution to re-appoint PricewaterhouseCoopers and to authorise the Directors to fix its remuneration will be proposed at the 2020 AGM.

All references above to other sections, reports or notes in this Annual Report form part of this report.

Approved by the Board on 26 February 2020

Laura M CHA

Chairman

Independent Auditor's Report to the Members of Hong Kong Exchanges and Clearing Limited

(incorporated in Hong Kong with limited liability)

Opinion

What we have audited

The consolidated financial statements of Hong Kong Exchanges and Clearing Limited (the "Company") and its subsidiaries (together, "the Group") set out on pages 127 to 222, which comprise:

- the consolidated statement of financial position as at 31 December 2019;
- the consolidated income statement for the year then ended;
- the consolidated statement of comprehensive income for the year then ended;
- the consolidated statement of changes in equity for the year then ended;
- the consolidated statement of cash flows for the year then ended; and
- the notes to the consolidated financial statements, which include a summary of significant accounting policies.

Our opinion

In our opinion, the consolidated financial statements give a true and fair view of the consolidated financial position of the Group as at 31 December 2019, and of its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with Hong Kong Financial Reporting Standards ("HKFRSs") issued by the Hong Kong Institute of Certified Public Accountants ("HKICPA") and have been properly prepared in compliance with the Hong Kong Companies Ordinance.

Basis for Opinion

We conducted our audit in accordance with Hong Kong Standards on Auditing ("HKSAs") issued by the HKICPA. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Consolidated Financial Statements section of our report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence

We are independent of the Group in accordance with the HKICPA's Code of Ethics for Professional Accountants ("the Code"), and we have fulfilled our other ethical responsibilities in accordance with the Code.

Key Audit Matters

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Key audit matters identified in our audit are summarised as follows:

- Goodwill impairment assessment
- IT systems and controls over financial accounting and reporting

Key Audit Matters (continued)

Goodwill impairment assessment

Nature of the Key Audit Matter

As at 31 December 2019, the Group has goodwill of HK\$13,233 million arising from the acquisition of LME Holdings Limited and its subsidiaries (collectively “LME Group”) in 2012. Goodwill was allocated to groups of Cash Generating Units (“CGUs”) within the “Commodities” segment, HK\$10,361 million, and the “Post Trade” segment, HK\$2,872 million and is monitored by management at the operating segment level.

Management has performed an impairment assessment over the goodwill allocated to the Commodities and Post Trade segments at the operating segment level by:

1. calculating the “value-in-use” for groups of CGUs within each operating segment using discounted cash flow models. These models use future cash flow projections (revenue, expenses and capital expenditure) for each group of CGUs over a five-year period, with a terminal growth rate applied to the period beyond the fifth year. These cash flows are discounted to net present value using the weighted average cost of capital (“WACC”) of groups of CGUs; and
2. comparing the resulting value-in-use of each group of CGUs to their respective book values.

We focus on goodwill due to the size of the balance and significant judgement applied by management in the value-in-use assessments.

Significant judgement was involved on the key assumptions underlying the future cash flow projections for the LME Group, including expected trade volume and pricing within the CGUs in each of the operating segments. Other assumptions involved are the discount rates applied and growth rates applied to the period beyond the fifth year (“terminal growth rate”) to those future cash flow projections.

How our audit addressed the Key Audit Matter

Our work included testing management’s key controls over the goodwill impairment assessment including:

1. controls exercised by management over the development of future cash flow projections used in the budget;
2. approval by the board of directors over the budget developed by management; and
3. control processes performed by management to monitor the actual performance against the budget approved by the board of directors.

Our audit procedures also included the following:

1. We have assessed the discounted cash flow model used by management to estimate the value-in-use of the respective groups of CGUs within the Commodities and Post Trade segments.
2. We have assessed the reasonableness of the WACCs used and the terminal growth rates applied to the period beyond the fifth year by reviewing management’s assumptions underlying the cash flow projections from the commodities and post trade business and comparing them to independent market data, industry forecasts and historical average daily volume growth for trading and clearing;
3. We have evaluated the reasonableness of management’s key assumptions used in the underlying cash flow projections for the five-year period, by comparing historical budgets and achievements and the reasons for any deviations. We have also agreed the cash flow projections against the latest budgets approved by the board of directors;

Key Audit Matters (continued)

Goodwill impairment assessment (continued)

Nature of the Key Audit Matter

Management has also assessed and monitored the budgeted future cash flow projections used in calculating the value-in-use for each group of CGUs against the actual performance.

Management has concluded that there is no impairment in respect of the goodwill allocated to the groups of CGUs within the respective Commodities and Post Trade segments using the value-in-use model.

Refer to note 3 for critical accounting estimates and assumptions and note 28 for the goodwill disclosure relating to the impairment assessment.

How our audit addressed the Key Audit Matter

4. We have obtained and have evaluated management's sensitivity analyses to assess the impact of reasonably possible changes to the key assumptions (cash flow projections, WACCs and growth rates). We have also performed our own independent sensitivity analyses on these key assumptions, including those applied to the period beyond the fifth year, and evaluated the impact that such possible changes have on the recoverable amount of the goodwill allocated to each group of CGUs at the financial year end;
5. We have reviewed the appropriateness of the goodwill impairment assessment disclosure.

Based on the above audit procedures, no material exceptions to management's assessment were noted.

Key Audit Matters (continued)

IT systems and controls over financial accounting and reporting

Nature of the Key Audit Matter

The Group operates securities and derivatives trading, clearing and settlement systems, which process significant volumes of daily transactions and market data. The trading, clearing and settlement fees generated from the transactions processed are the key drivers of the Group's revenue. The revenue recognition of these fees rely heavily on the Information Technology ("IT") systems processing those transactions and data.

Our audit effort focused on the key IT systems and related controls we planned to rely on over the revenue recognition and financial reporting processes. This focus includes (1) the core trading, clearing and settlement systems that process transactions for revenue recognition of these fees, (2) the financial accounting and reporting system that generates financial information utilised in the preparation of the Group's financial statements and (3) the interfaces between the core systems and the financial accounting and reporting system ("key IT systems").

We focused on these areas as the Group's revenue recognition and financial reporting processes are highly dependent on automated controls, system generated information and system interfaces, which are underpinned by the design and operating effectiveness of the IT general controls over the key IT systems and the automated application controls over the processes. The Group relied on the key IT systems and controls to ensure the accuracy and completeness of the revenue recognition during the financial accounting and reporting processes.

How our audit addressed the Key Audit Matter

As part of our audit, we obtained a front-to-end understanding of the revenue recognition and financial reporting processes and identified the automated controls we planned to rely on and the corresponding key IT systems that support the processes.

Our audit procedures over the relevant IT systems and related controls included the following:

1. We have assessed the IT control environment, examined the IT governance framework and tested the IT general controls of the key IT systems that support the revenue recognition and financial reporting processes to evaluate whether the system functionality, data and controls could be relied on throughout the period. Our testing of IT general controls covered access to programs and data, program changes, computer operations and program development.
2. We have tested the identified automated application controls, which are critical to the revenue recognition and financial reporting processes. Our testing procedures included the testing of system logical access, system automated calculations and validations, testing of system generated information, system interfaces and reconciliations.
3. We have placed certain reliance on the work of HKEX's internal audit function over the testing of automated calculations and system interfaces. In order to rely on their work, we have evaluated the objectivity and competence of the internal audit function and determined the nature and extent of work that can be relied on by us. Additionally, we have independently performed audit procedures to evaluate the results of the work of the internal audit function.

Based on the above audit procedures, no material exceptions that would impact our level of reliance on the key IT systems and the related controls for the purpose of our audit were noted.

Other Information

The directors of the Company are responsible for the other information. The other information comprises the section Overview, Organisation, Management Discussion and Analysis, Governance, Shareholder Information and Glossary included in the Annual Report, but does not include the consolidated financial statements and our auditor's report thereon.

Our opinion on the consolidated financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the consolidated financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated.

If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of the Directors for the Consolidated Financial Statements

The directors of the Company are responsible for the preparation of the consolidated financial statements that give a true and fair view in accordance with HKFRSs issued by the HKICPA and the Hong Kong Companies Ordinance, and for such internal control as the directors determine is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the directors are responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the Group or to cease operations, or have no realistic alternative but to do so.

The Audit Committee of the Group assists the directors in discharging their responsibilities for overseeing the Group's financial reporting process.

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. We report our opinion solely to you, as a body, in accordance with Section 405 of the Hong Kong Companies Ordinance and for no other purpose. We do not assume responsibility towards or accept liability to any other person for the contents of this report. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with HKSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements (continued)

As part of an audit in accordance with HKSAs, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the directors.
- Conclude on the appropriateness of the directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with the Audit Committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide the Audit Committee with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with the Audit Committee, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The engagement partner on the audit resulting in this independent auditor's report is Colin Stuart Shaftesley.

PricewaterhouseCoopers

Certified Public Accountants

Hong Kong, 26 February 2020

Consolidated Income Statement

For the year ended 31 December 2019

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	Note	2019 \$m	2018 \$m
Trading fees and trading tariffs	5(a)	5,592	6,339
Stock Exchange listing fees	5(b)	1,633	1,721
Clearing and settlement fees		3,160	3,281
Depository, custody and nominee services fees		1,052	979
Market data fees		919	899
Other revenue	5(c)	1,209	1,033
Revenue	5	13,565	14,252
Investment income		3,977	2,655
Interest rebates to Participants		(1,248)	(1,071)
Net investment income	6	2,729	1,584
Sundry income	7	17	31
Revenue and other income		16,311	15,867
Operating expenses			
Staff costs and related expenses	8	(2,703)	(2,540)
Information technology and computer maintenance expenses	9	(580)	(508)
Premises expenses		(127)	(437)
Product marketing and promotion expenses		(68)	(52)
Professional fees		(119)	(132)
Other operating expenses	10	(451)	(441)
		(4,048)	(4,110)
EBITDA		12,263	11,757
Depreciation and amortisation		(1,044)	(762)
Operating profit	11	11,219	10,995
Costs relating to proposed combination with LSEG	12	(123)	-
Finance costs	13	(177)	(114)
Share of profits less losses of joint ventures		32	2
Profit before taxation		10,951	10,883
Taxation	16	(1,561)	(1,592)
Profit for the year		9,390	9,291
Profit/(loss) attributable to:			
Shareholders of HKEX	45	9,391	9,312
Non-controlling interests	26(a)(i)	(1)	(21)
Profit for the year		9,390	9,291
Basic earnings per share	17(a)	\$7.49	\$7.50
Diluted earnings per share	17(b)	\$7.47	\$7.48

The notes on pages 132 to 222 are an integral part of these consolidated financial statements.

Details of dividends are set out in note 18 to the consolidated financial statements.

Consolidated Statement of Comprehensive Income

For the year ended 31 December 2019

	Note	2019 \$m	2018 \$m
Profit for the year		9,390	9,291
Other comprehensive income			
Items that may be reclassified subsequently to profit or loss:			
Currency translation differences of foreign subsidiaries	2(f)(iii)	(96)	21
Cash flow hedges	43(a)	6	(1)
Changes in fair value of financial assets measured at fair value through other comprehensive income	43(b)	3	(2)
Other comprehensive income		(87)	18
Total comprehensive income		9,303	9,309
Total comprehensive income attributable to:			
Shareholders of HKEX		9,303	9,329
Non-controlling interests		–	(20)
Total comprehensive income		9,303	9,309

The notes on pages 132 to 222 are an integral part of these consolidated financial statements.

Consolidated Statement of Financial Position

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At 31 December 2019

		At 31 Dec 2019			At 31 Dec 2018		
	Note	Current \$m	Non- current \$m	Total \$m	Current \$m	Non- current \$m	Total \$m
Assets							
Cash and cash equivalents	19,20	128,152	-	128,152	121,196	-	121,196
Financial assets measured at fair value through profit or loss	19,21	56,729	672	57,401	61,004	-	61,004
Financial assets measured at fair value through other comprehensive income	19,22	4,569	-	4,569	3,755	-	3,755
Financial assets measured at amortised cost	19,23	39,954	718	40,672	31,487	398	31,885
Accounts receivable, prepayments and deposits	25	25,791	21	25,812	18,341	21	18,362
Interests in joint ventures	27	-	95	95	-	63	63
Goodwill and other intangible assets	28	-	18,378	18,378	-	18,019	18,019
Fixed assets	29	-	1,589	1,589	-	1,625	1,625
Right-of-use assets	30	-	2,366	2,366	-	-	-
Lease premium for land		-	-	-	-	20	20
Deferred tax assets	40(d)	-	17	17	-	19	19
Total assets		255,195	23,856	279,051	235,783	20,165	255,948
Liabilities and equity							
Liabilities							
Financial liabilities at fair value through profit or loss	31	48,008	-	48,008	53,915	-	53,915
Margin deposits, Mainland security and settlement deposits, and cash collateral from Clearing Participants	19,32	142,536	-	142,536	123,728	-	123,728
Accounts payable, accruals and other liabilities	33	22,447	-	22,447	18,316	53	18,369
Deferred revenue	34	1,033	403	1,436	1,000	418	1,418
Taxation payable		1,760	-	1,760	678	-	678
Other financial liabilities	35	59	-	59	59	-	59
Participants' contributions to Clearing House Funds	19,36	14,394	-	14,394	14,787	-	14,787
Lease liabilities	37	272	2,234	2,506	-	-	-
Borrowings	38	338	80	418	1,005	161	1,166
Provisions	39	90	104	194	93	89	182
Deferred tax liabilities	40(d)	-	792	792	-	743	743
Total liabilities		230,937	3,613	234,550	213,581	1,464	215,045
Equity							
Share capital	41			30,449			27,750
Shares held for Share Award Scheme	41			(770)			(682)
Employee share-based compensation reserve	42			250			218
Hedging and revaluation reserves	43			3			(6)
Exchange reserve	2(f)(iii)			(181)			(84)
Designated reserves	36,44			587			523
Reserve relating to written put options to non-controlling interests				(369)			(369)
Retained earnings	45			14,204			13,379
Equity attributable to shareholders of HKEX				44,173			40,729
Non-controlling interests	26(a)(i)			328			174
Total equity				44,501			40,903
Total liabilities and equity				279,051			255,948
Net current assets				24,258			22,202

The notes on pages 132 to 222 are an integral part of these consolidated financial statements.

Approved by the Board of Directors on 26 February 2020.

Laura M CHA
Director

LI Xiaojia, Charles
Director

Consolidated Statement of Changes in Equity

For the year ended 31 December 2019

	Attributable to shareholders of HKEX									
	Share capital less shares held for Share Award Scheme (note 41) \$m	Employee share-based compensation reserve (note 42) \$m	Hedging and revaluation reserves (note 43) \$m	Exchange reserve \$m	Designated reserves (note 44) \$m	Reserve relating to written put options to non-controlling interests \$m	Retained earnings (note 45) \$m	Total \$m	Non- controlling interests \$m	Total equity \$m
At 1 Jan 2018	24,535	222	(3)	(104)	822	(293)	11,813	36,992	102	37,094
Profit for the year	-	-	-	-	-	-	9,312	9,312	(21)	9,291
Other comprehensive income	-	-	(3)	20	-	-	-	17	1	18
Total comprehensive income	-	-	(3)	20	-	-	9,312	9,329	(20)	9,309
Total transactions with shareholders of HKEX, recognised directly in equity:										
- 2017 final dividend at \$2.85 per share	-	-	-	-	-	-	(3,525)	(3,525)	-	(3,525)
- 2018 first interim dividend at \$3.64 per share	-	-	-	-	-	-	(4,527)	(4,527)	-	(4,527)
- Unclaimed HKEX dividends forfeited (note 33(a))	-	-	-	-	-	-	23	23	-	23
- Shares issued in lieu of cash dividends	2,587	-	-	-	-	-	-	2,587	-	2,587
- Shares purchased for Share Award Scheme	(300)	-	-	-	-	-	-	(300)	-	(300)
- Vesting of shares of Share Award Scheme	246	(230)	-	-	-	-	(16)	-	-	-
- Employee share-based compensation benefits	-	226	-	-	-	-	-	226	-	226
- Transfer of reserves	-	-	-	-	(299)	-	299	-	-	-
- Tax relating to Share Award Scheme	-	-	-	-	-	-	(1)	(1)	-	(1)
- Put options written to non-controlling interests (note 38(b))	-	-	-	-	-	(76)	-	(76)	-	(76)
- Changes in ownership interest in a subsidiary	-	-	-	-	-	-	1	1	92	93
	2,533	(4)	-	-	(299)	(76)	(7,746)	(5,592)	92	(5,500)
At 31 Dec 2018	27,068	218	(6)	(84)	523	(369)	13,379	40,729	174	40,903
At 1 Jan 2019, as previously reported	27,068	218	(6)	(84)	523	(369)	13,379	40,729	174	40,903
Effect of adoption of HKFRS 16 (note 2(c)(i))	-	-	-	-	-	-	(8)	(8)	-	(8)
At 1 Jan 2019, as restated	27,068	218	(6)	(84)	523	(369)	13,371	40,721	174	40,895
Profit for the year	-	-	-	-	-	-	9,391	9,391	(1)	9,390
Other comprehensive income	-	-	9	(97)	-	-	-	(88)	1	(87)
Total comprehensive income	-	-	9	(97)	-	-	9,391	9,303	-	9,303
Total transactions with shareholders of HKEX, recognised directly in equity:										
- 2018 second interim dividend at \$3.07 per share	-	-	-	-	-	-	(3,830)	(3,830)	-	(3,830)
- 2019 first interim dividend at \$3.72 per share	-	-	-	-	-	-	(4,668)	(4,668)	-	(4,668)
- Unclaimed HKEX dividends forfeited (note 33(a))	-	-	-	-	-	-	19	19	-	19
- Shares issued in lieu of cash dividends	2,673	-	-	-	-	-	-	2,673	-	2,673
- Shares purchased for Share Award Scheme	(285)	-	-	-	-	-	-	(285)	-	(285)
- Vesting of shares of Share Award Scheme	223	(208)	-	-	-	-	(15)	-	-	-
- Employee share-based compensation benefits	-	240	-	-	-	-	-	240	-	240
- Transfer of reserves	-	-	-	-	64	-	(64)	-	-	-
- Non-controlling interests on acquisition of a subsidiary (note 47)	-	-	-	-	-	-	-	-	154	154
	2,611	32	-	-	64	-	(8,558)	(5,851)	154	(5,697)
At 31 Dec 2019	29,679	250	3	(181)	587	(369)	14,204	44,173	328	44,501

The notes on pages 132 to 222 are an integral part of these consolidated financial statements.

Consolidated Statement of Cash Flows

For the year ended 31 December 2019

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	Note	2019 \$m	2018 \$m
Cash flows from principal operating activities			
Net cash inflow from principal operating activities	46(a)	11,143	10,416
Cash flows from other operating activities			
Net payments to external fund managers for purchases of financial assets measured at fair value through profit or loss		(1,081)	(936)
Net cash inflow from operating activities		10,062	9,480
Cash flows from investing activities			
Payments for purchases of fixed assets and intangible assets		(1,091)	(860)
Net (increase)/decrease in financial assets of Corporate Funds:			
Increase in time deposits with original maturities more than three months		(2,384)	(4,620)
Proceeds received upon maturity of financial assets measured at amortised cost (excluding time deposits)		536	393
Payments for purchases of financial assets measured at amortised cost (excluding time deposits)		(634)	(300)
Payments for financial assets measured at fair value through profit or loss		(50)	–
Interest received from financial assets measured at fair value through other comprehensive income		97	60
Cash acquired upon acquisition of a subsidiary	47	41	–
Net cash outflow from investing activities		(3,485)	(5,327)
Cash flows from financing activities			
Purchases of shares for Share Award Scheme		(285)	(300)
Repayment of borrowings	46(b)	(744)	(781)
Payments of interest on borrowings	46(b)	(11)	(42)
Payments of other finance costs		(81)	(62)
Dividends paid to shareholders of HKEX		(5,785)	(5,427)
Proceeds from disposal of interest in a subsidiary without loss of control		–	93
Lease payments	46(b),46(c)		
– Capital elements		(159)	–
– Interest elements		(89)	–
Net cash outflow from financing activities		(7,154)	(6,519)
Net decrease in cash and cash equivalents		(577)	(2,366)
Cash and cash equivalents at 1 Jan		11,180	13,546
Cash and cash equivalents at 31 Dec		10,603	11,180
Analysis of cash and cash equivalents			
Cash on hand and balances and deposits with banks and short-term investments of Corporate Funds	20	11,421	11,904
Less: Cash reserved for supporting Skin-in-the-Game and default fund credits of clearing houses	20(b)	(818)	(724)
		10,603	11,180

The notes on pages 132 to 222 are an integral part of these consolidated financial statements.

- (a) “Cash flows from principal operating activities” is a non-Hong Kong Financial Reporting Standard (non-HKFRS) measure used by management for monitoring cash flows of the Group (defined in note 1) and represents the cash flows generated from the trading and clearing operations of the four exchanges and five clearing houses and ancillary services of the Group. This non-HKFRS measure may not be comparable to similar measures presented by other companies. Cash flows from principal operating activities and cash flows from other operating activities together represent cash flows from operating activities as defined by Hong Kong Accounting Standard (HKAS) 7: Statement of Cash Flows.

Notes to the Consolidated Financial Statements

1. General Information

Hong Kong Exchanges and Clearing Limited (HKEX or the Company) and its subsidiaries (collectively, the Group) own and operate the only stock exchange and futures exchange in Hong Kong and their related clearing houses, a clearing house for clearing over-the-counter derivatives contracts in Hong Kong, an exchange and a clearing house for the trading and clearing of base, ferrous and precious metals futures and options contracts operating in the United Kingdom (UK), and a commodity trading platform in the Mainland.

HKEX is a limited company incorporated and domiciled in Hong Kong. The address of its registered office is 8th Floor, Two Exchange Square, 8 Connaught Place, Central, Hong Kong.

These consolidated financial statements were approved for issue by the Board of Directors (Board) on 26 February 2020.

2. Principal Accounting Policies

Apart from the accounting policies presented within the corresponding notes to the consolidated financial statements, other principal accounting policies applied in the preparation of these consolidated financial statements are set out below. These policies have been consistently applied to all the years presented, unless otherwise stated.

(a) Statement of compliance

These consolidated financial statements have been prepared in accordance with Hong Kong Financial Reporting Standards (HKFRSs) issued by the Hong Kong Institute of Certified Public Accountants (HKICPA), and accounting principles generally accepted in Hong Kong. These consolidated financial statements also comply with the applicable disclosure requirements of the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited (Main Board Listing Rules) and the applicable requirements of the Hong Kong Companies Ordinance (Chapter 622).

(b) Basis of preparation

These consolidated financial statements have been prepared under the historical cost convention, as modified by the revaluation of certain financial assets and financial liabilities measured at fair value.

The preparation of consolidated financial statements requires the use of certain critical accounting estimates, and requires management to exercise its judgement when applying the Group's accounting policies. Areas involving significant estimates and judgement are disclosed in note 3.

Adoption of new/revised HKFRSs

In 2019, the Group has adopted the following new standard and interpretation to HKFRSs which are pertinent to the Group's operations and effective for accounting periods beginning on or after 1 January 2019:

HKFRS 16	Leases
HK(IFRIC) Interpretation 23	Uncertainty over Income Tax Treatments

The impact of adoption of these new/revised standards is set out in note 2(c).

2. Principal Accounting Policies (continued)

(b) Basis of preparation (continued)

New/revised HKFRSs issued before 31 December 2019 but not yet effective and not early adopted

The Group has not applied the following amendments to HKFRSs which were issued before 31 December 2019 and are pertinent to its operations but not yet effective:

Amendments to HKAS 1 and HKAS 8	Presentation of Financial Statements and Accounting Policies, Changes in Accounting Estimates and Errors: Definition of Material ¹
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Amendments to HKFRS 3	Business Combination: Definition of a Business ¹
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¹ Effective for accounting periods beginning on or after 1 January 2020

The adoption of the amendments would not have any financial impact on the Group.

There are no other new/revised HKFRSs not yet effective that are expected to have any impact on the Group.

(c) Impact of adoption of new/revised HKFRSs

(i) Adoption of HKFRS 16

HKFRS 16 affects the accounting for the Group's operating leases. The adoption of HKFRS 16 resulted in changes in accounting policies and adjustments to amounts recognised in the consolidated financial statements. The new accounting policies for right-of-use-assets and lease liabilities are set out in notes 30 and 37 respectively and the adjustments to the consolidated financial statements are set out below.

Prior to the adoption of HKFRS 16, leases where substantially all the rewards and risks of ownership of assets remained with the lessor were accounted for as operating leases. Operating lease rentals were recognised under operating expenses in the consolidated income statement on a straight-line basis over the lease term. Commitments under operating leases for future periods were not recognised as liabilities.

Upon adoption of HKFRS 16, the majority of operating leases (except for short-term leases with lease terms of less than 12 months) are recognised in the consolidated statement of financial position as lease liabilities and right-of-use assets.

The Group has applied HKFRS 16 from 1 January 2019. As permitted by the transitional provision of HKFRS 16, comparatives for 2018 were not restated. The Group has used the following practical expedients permitted by the standard:

- the use of a single discount rate to a portfolio of leases with reasonably similar characteristics;
- the accounting for operating leases with a remaining lease term of less than 12 months as at 1 January 2019 as short-term leases;
- the exclusion of initial direct costs for the measurement of the right-of-use asset at the date of initial application; and
- the use of hindsight in determining the lease term where the contract contains options to extend or terminate the lease.

At initial application, right-of-use assets were measured at their carrying amounts as if HKFRS 16 had always been applied since the commencement date of the leases, discounted at the lessee's incremental borrowing rate at the date of initial application.

2. Principal Accounting Policies (continued)

(c) Impact of adoption of new/revised HKFRSs (continued)

(i) Adoption of HKFRS 16 (continued)

The following table shows the adjustments recognised for each individual line item in the opening consolidated statement of financial position on 1 January 2019. Line items that were not affected by the changes have not been included; therefore, the line items disclosed do not add up to the sub-totals and totals below.

Consolidated statement of financial position (extracts)	31 Dec 2018 As originally presented \$m	Impact from adoption of HKFRS 16 \$m	1 Jan 2019 Restated \$m
Non-current assets			
Fixed assets	1,625	(36)	1,589
Right-of-use assets	–	2,475	2,475
Lease premium for land	20	(20)	–
Total assets	255,948	2,419	258,367
Current liabilities			
Lease liabilities	–	235	235
Accounts payable, accruals and other liabilities	18,316	(32)	18,284
Non-current liabilities			
Lease liabilities	–	2,277	2,277
Accounts payable, accruals and other liabilities	53	(53)	–
Total liabilities	215,045	2,427	217,472
Equity			
Retained earnings	13,379	(8)	13,371
Equity attributable to shareholders of HKEX	40,729	(8)	40,721
Total equity	40,903	(8)	40,895
Total liabilities and equity	255,948	2,419	258,367
Net current assets	22,202	(203)	21,999

Note: The Group recognised right-of-use assets of \$2,419 million and current and non-current lease liabilities amounting to \$235 million and \$2,277 million respectively, and de-recognised provision for lease incentives included under current and non-current liabilities of \$32 million and \$53 million respectively, with the net difference of \$8 million being recognised as a reduction in retained earnings. In addition, reinstatement costs of \$36 million, which were previously included under fixed assets, and lease premium for land of \$20 million, were reclassified to right-of-use assets.

The following table shows the reconciliation from operating lease commitments disclosed under HKAS 17: Leases as at 31 December 2018 to lease liabilities upon adoption of HKFRS 16 as at 1 January 2019.

	\$m
Operating lease commitments disclosed under HKAS 17 as at 31 Dec 2018	3,240
Discount arising from conversion into present value by discounting cash flows using the average incremental borrowing rate of 3.42% at 1 Jan 2019	(534)
Less: short-term leases recognised on a straight-line basis as expenses	(18)
Less: contracts not classified as leases under HKFRS 16	(176)
Lease liabilities recognised as at 1 Jan 2019	2,512
Current lease liabilities	235
Non-current lease liabilities	2,277
	2,512

2. Principal Accounting Policies (continued)

(c) Impact of adoption of new/revised HKFRSs (continued)

(i) Adoption of HKFRS 16 (continued)

The following tables show the impact on each individual line item of the consolidated income statement and the consolidated statement of cash flows for the year ended 31 December 2019, and the consolidated statement of financial position as at 31 December 2019 following the adoption of HKFRS 16. Line items that were not affected by the changes have not been included; therefore, the line items disclosed do not add up to the sub-totals and totals below.

Consolidated income statement (extracts)	Year ended 31 Dec 2019		
	Before adoption of HKFRS 16 \$m	Impact from adoption of HKFRS 16 \$m	As reported \$m
Revenue and other income			
Net investment income	2,737	(8)	2,729
Operating expenses			
Information technology and computer maintenance expenses	(588)	8	(580)
Premises expenses	(427)	300	(127)
Other operating expenses	(457)	6	(451)
EBITDA	11,957	306	12,263
Depreciation and amortisation	(773)	(271)	(1,044)
Operating profit	11,184	35	11,219
Finance costs	(88)	(89)	(177)
Profit before taxation	11,005	(54)	10,951
Taxation	(1,581)	20	(1,561)
Profit for the year	9,424	(34)	9,390
Profit attributable to shareholders of HKEX	9,425	(34)	9,391
Basic earnings per share (\$)	7.52	(0.03)	7.49

Consolidated statement of cash flows (extracts)	Year ended 31 Dec 2019		
	Before adoption of HKFRS 16 \$m	Impact from adoption of HKFRS 16 \$m	As reported \$m
Net cash inflow from operating activities	9,814	248	10,062
Net cash outflow from financing activities	(6,906)	(248)	(7,154)
Net decrease in cash and cash equivalents	(577)	-	(577)

2. Principal Accounting Policies (continued)

- (c) Impact of adoption of new/revised HKFRSs (continued)
- (i) Adoption of HKFRS 16 (continued)

Consolidated statement of financial position (extracts)	At 31 Dec 2019		
	Before adoption of HKFRS 16 \$m	Impact from adoption of HKFRS 16 \$m	As reported \$m
Non-current assets			
Fixed assets	1,643	(54)	1,589
Right-of-use assets	–	2,366	2,366
Lease premium for land	19	(19)	–
Total assets	276,758	2,293	279,051
Current liabilities			
Lease liabilities	–	272	272
Accounts payable, accruals and other liabilities	22,461	(14)	22,447
Non-current liabilities			
Lease liabilities	–	2,234	2,234
Accounts payable, accruals and other liabilities	137	(137)	–
Deferred tax liabilities	812	(20)	792
Total liabilities	232,215	2,335	234,550
Equity			
Retained earnings	14,246	(42)	14,204
Equity attributable to shareholders of HKEX	44,215	(42)	44,173
Total equity	44,543	(42)	44,501
Total liabilities and equity	276,758	2,293	279,051
Net current assets	24,516	(258)	24,258

- (ii) Adoption of HK(IFRIC) Interpretation 23

The Interpretation clarifies how to apply the recognition and measurement requirements in HKAS 12: Income Taxes when there is uncertainty over income tax treatments. The adoption did not have any financial impact on the Group.

- (d) Basis of consolidation

Subsidiaries are entities (including structured entities) over which the Group has control. Subsidiaries are fully consolidated from the date on which control is transferred to the Group. They are deconsolidated from the date that control ceases. All material intra-group transactions and balances have been eliminated on consolidation.

Accounting policies of subsidiaries have been aligned on consolidation to ensure consistency with the policies adopted by the Group.

2. Principal Accounting Policies (continued)

(e) Impairment of non-financial assets

Assets with an indefinite useful life, which include interests in joint ventures, goodwill and tradenames, are not subject to amortisation but are tested at least annually for impairment. Assets subject to amortisation are reviewed for impairment whenever there is any indication that the carrying amount may not be recoverable. An impairment loss is recognised for the amount by which the asset's carrying amount exceeds its recoverable amount (ie, the higher of an asset's fair value less costs to sell and value-in-use). Such impairment losses are recognised in the consolidated income statement. An impairment loss other than goodwill is reversed if the circumstances and events leading to the impairment cease to exist.

(f) Foreign currency translation

(i) Functional and presentation currency

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the entity operates (the functional currency). The consolidated financial statements are presented in Hong Kong Dollar (HKD), which is the Company's functional and presentation currency.

(ii) Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of transactions. 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 recognised in the consolidated income statement. They are deferred in hedging reserve under equity if they relate to qualifying cash flow hedges (note 43(a)).

Translation differences on non-monetary financial assets that are classified as financial assets measured at fair value through profit or loss are reported as part of the fair value gain or loss.

(iii) Group companies

The results and financial position of all the Group entities that have a non-HKD functional currency are translated into HKD as follows:

- assets and liabilities (including goodwill and fair value adjustments arising on the acquisition of foreign subsidiaries) for each statement of financial position presented are translated at the closing rate at the end of the reporting period;
- income and expenses for each income statement are translated at the exchange rates approximating the foreign exchange rates ruling at the dates of the transactions; and
- all resulting currency translation differences are recognised in other comprehensive income in the exchange reserve under equity.

3. Critical Accounting Estimates and Assumptions

The Group makes estimates and assumptions concerning the future when the consolidated financial statements are prepared. The resulting accounting estimates may differ from the related actual results. 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 discussed below:

(a) Goodwill and tradenames

The Group tests annually whether goodwill and tradenames have suffered any impairment in accordance with the accounting policy stated in note 28.

The recoverable amounts of relevant cash generating units (CGUs) and relevant group of CGUs have been determined based on value-in-use calculations, which are disclosed in note 28. These calculations require the use of estimates and significant judgement by management, including the future cash flows expected to arise from the CGUs, discount rates for calculating the present value and growth rates used to extrapolate cash flow projections beyond the financial forecasts approved by management.

Changes in facts and circumstances may result in revisions to estimates of recoverable amounts and to the conclusion as to whether an indication of impairment exists, which could affect the consolidated income statement in future years.

(b) Valuation of investments

The Group has a significant amount of investments that are not classified as Level 1 investments under HKFRS 13: Fair Value Measurement. Except for an insignificant investment in a minority equity interest in an unlisted company, the valuations have been determined based on quotes from market makers, alternative pricing sources supported by observable inputs, latest transaction prices or redemption prices provided by fund administrators of collective investment schemes.

At 31 December 2019, the financial assets that were not classified as Level 1 investments (excluding the base, ferrous and precious metals futures and options contracts cleared through LME Clear Limited (LME Clear) that did not qualify for netting under the current accounting standards) under HKFRS 13 amounted to \$8,256 million (31 December 2018: \$5,803 million) which mainly comprised \$6,696 million (31 December 2018: \$5,102 million) of investments under collective investment schemes.

As the valuation of investments reflects movements in their estimated fair values, fair value gains or losses may fluctuate or reverse until the investments are sold, mature or are realised upon redemption. The potential impact of the fair value change of such investments on the Group's consolidated income statement is disclosed in note 53(a)(iv).

4. Operating Segments

Accounting Policy

Operating segments are reported in a manner consistent with the internal management reports that are used to make strategic decisions provided to the chief operating decision-maker. The chief operating decision-maker, who is responsible for allocating resources and assessing performance of the operating segments, is the Chief Executive of HKEX. Information relating to segment assets and liabilities is not disclosed as such information is not regularly reported to the chief operating decision-maker.

The accounting policies of the reportable segments are the same as the Group's accounting policies. Taxation charge/credit is not allocated to reportable segments.

The Group has five reportable segments ("Corporate Items" is not a reportable segment). The segments are managed separately as each segment offers different products and services and requires different information technology systems and marketing strategies.

To optimise resources to successfully deliver the initiatives set out in the Group's Strategic Plan 2019-2021, the Group's operating segments have been fine-tuned. As a result, since April 2019, the "Clearing segment" has been renamed the "Post Trade segment", and the "Platform and Infrastructure segment" has been renamed the "Technology segment".

The operations in each of the Group's reportable segments are as follows:

The **Cash** segment covers all equity products traded on the Cash Market platforms, the Shanghai Stock Exchange and the Shenzhen Stock Exchange through Shanghai-Hong Kong Stock Connect and Shenzhen-Hong Kong Stock Connect (Stock Connect), sales of market data relating to these products and other related activities. The major sources of revenue of the segment are trading fees, trading tariffs, listing fees of equity products and market data fees.

The **Equity and Financial Derivatives** segment refers to derivatives products traded on The Stock Exchange of Hong Kong Limited (Stock Exchange) and Hong Kong Futures Exchange Limited (Futures Exchange) and other related activities. These include the provision and maintenance of trading platforms for a range of equity and financial derivatives products, such as stock and equity index futures and options, derivatives warrants (DWs), callable bull/bear contracts (CBBCs) and warrants, and sales of related market data. The major sources of revenue are trading fees, trading tariffs, listing fees of derivatives products and market data fees.

The **Commodities** segment refers to the operations of The London Metal Exchange (LME), which operates an exchange in the UK for the trading of base, ferrous and precious metals futures and options contracts, and the operations of Qianhai Mercantile Exchange Co., Ltd. (QME), the commodity trading platform in the Mainland. It also covers the London metal mini futures and gold and iron ore futures contracts traded on the Futures Exchange. The major sources of revenue of the segment are trading fees of commodity products, commodity market data fees and fees from ancillary operations.

The **Post Trade** segment refers to the operations of the five clearing houses, which are responsible for clearing, settlement and custodian activities of the exchanges of the Group and Northbound trades under Stock Connect, and clearing and settlement of over-the-counter derivatives contracts. Its principal sources of revenue are derived from providing clearing, settlement, depository, custody and nominee services and net investment income earned on the Margin Funds and Clearing House Funds.

4. Operating Segments (continued)

The **Technology** segment refers to all services in connection with providing users with access to the platform and infrastructure of the Group, and services provided by the Group's newly acquired subsidiary, BayConnect Technology Company Limited (BayConnect) (formerly known as Shenzhen Ronghui Tongjin Technology Co., Ltd.) (note 47). Its major sources of revenue are network, terminal user, data line and software sub-license fees and hosting services fees.

Central income (including net investment income of Corporate Funds) and central costs (costs of central support functions that provide services to all operating segments and other costs not directly related to any operating segment) are included as "Corporate Items".

The chief operating decision-maker assesses the performance of the operating segments principally based on their EBITDA (defined below).

EBITDA is defined as earnings before interest expenses and other finance costs, taxation, depreciation and amortisation. It excludes the Group's share of results of the joint ventures and other non-recurring costs arising from the proposed combination with London Stock Exchange Group (LSEG). EBITDA is a non-HKFRS measure used by management for monitoring business performance. It may not be comparable to similar measures presented by other companies.

An analysis by operating segment of the Group's EBITDA, profit before taxation and other selected financial information (including analysis of revenue by timing of revenue recognition) for the year, is set out as follows:

	2019						
	Cash \$m	Equity and Financial Derivatives \$m	Commodities \$m	Post Trade \$m	Technology \$m	Corporate Items \$m	Group \$m
Timing of revenue recognition:							
Point in time	2,151	2,092	1,126	4,318	66	11	9,764
Over time	1,495	896	270	403	727	10	3,801
Revenue from external customers	3,646	2,988	1,396	4,721	793	21	13,565
Net investment income	-	-	-	1,496	-	1,233	2,729
Sundry income	-	-	3	9	3	2	17
Revenue and other income	3,646	2,988	1,399	6,226	796	1,256	16,311
Operating expenses	(603)	(551)	(668)	(824)	(245)	(1,157)	(4,048)
Reportable segment EBITDA	3,043	2,437	731	5,402	551	99	12,263
Depreciation and amortisation	(128)	(94)	(327)	(237)	(39)	(219)	(1,044)
Costs relating to proposed combination with LSEG	-	-	-	-	-	(123)	(123)
Finance costs	(15)	(12)	(8)	(82)	(1)	(59)	(177)
Share of profits less losses of joint ventures	38	(6)	-	-	-	-	32
Reportable segment profit before taxation	2,938	2,325	396	5,083	511	(302)	10,951
Other segment information:							
Interest income	-	-	-	2,750	-	443	3,193
Interest rebates to Participants	-	-	-	(1,248)	-	-	(1,248)
Other material non-cash item:							
Employee share-based compensation expenses	(36)	(30)	(35)	(37)	(4)	(98)	(240)

4. Operating Segments (continued)

	2018						
	Cash \$m	Equity and Financial Derivatives \$m	Commodities \$m	Post Trade \$m	Technology \$m	Corporate Items \$m	Group \$m
Timing of revenue recognition:							
Point in time	2,423	2,470	1,144	4,446	62	11	10,556
Over time	1,432	1,033	271	335	616	9	3,696
Revenue from external customers	3,855	3,503	1,415	4,781	678	20	14,252
Net investment income	–	–	–	1,377	–	207	1,584
Sundry income	–	–	–	10	–	21	31
Revenue and other income	3,855	3,503	1,415	6,168	678	248	15,867
Operating expenses	(584)	(573)	(717)	(812)	(170)	(1,254)	(4,110)
Reportable segment EBITDA	3,271	2,930	698	5,356	508	(1,006)	11,757
Depreciation and amortisation	(82)	(71)	(298)	(193)	(37)	(81)	(762)
Finance costs	–	–	–	(38)	–	(76)	(114)
Share of profits less losses of joint ventures	10	(8)	–	–	–	–	2
Reportable segment profit before taxation	3,199	2,851	400	5,125	471	(1,163)	10,883
Other segment information:							
Interest income	–	–	–	2,446	–	329	2,775
Interest rebates to Participants	–	–	–	(1,071)	–	–	(1,071)
Other material non-cash item:							
Employee share-based compensation expenses	(36)	(31)	(35)	(29)	(2)	(93)	(226)

(a) Geographical information

The Group's revenue from external customers is derived from its operations in Hong Kong, the UK and Mainland China. Such information and the Group's non-current assets (excluding financial assets and deferred tax assets) by geographical location are detailed below:

	Revenue		Non-current assets	
	2019 \$m	2018 \$m	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Hong Kong (place of domicile)	11,543	12,241	5,037	2,438
United Kingdom	1,991	2,011	17,126	17,232
Mainland China	31	–	286	78
	13,565	14,252	22,449	19,748

(b) Information about major customers

In 2019 and 2018, the revenue from the Group's largest customer amounted to less than 10 per cent of the Group's total revenue.

5. Revenue

Accounting Policy

Revenue excludes value added tax or other sales tax, and is recognised in the consolidated income statement on the following basis:

Trading fees and trading tariffs are recognised on a trade date basis.

Stock Exchange listing fees mainly comprise annual listing fees and initial listing fees. Annual listing fees are recognised on a straight-line basis over the period covered. Initial listing fees are recognised over time when the services are transferred to the listed companies or issuers of warrants, CBBCs and other securities.

Clearing and settlement fees arising from trades between Participants transacted on the Stock Exchange are recognised on the day following the trade day, upon acceptance of the trades. Fees for clearing and settlement of trades transacted on the Shanghai Stock Exchange and Shenzhen Stock Exchange through Stock Connect (A shares) are recognised on the trade day upon acceptance of the trades. Fees for clearing and settlement of trades in respect of base, ferrous and precious metals futures and options contracts transacted on the LME are recognised on the trade match day. Fees for all other settlement transactions are recognised upon completion of the settlement.

Custody fees for securities held in the Central Clearing and Settlement System (CCASS) depository are calculated and accrued on a monthly basis. Portfolio fees for A shares held or recorded in the CCASS depository and for Hong Kong securities held by China Depository and Clearing Corporation Limited (ChinaClear) are calculated and accrued on a daily basis.

Income on registration and transfer fees for nominee services are calculated and accrued on the book close dates of the relevant stocks during the financial year.

Market data fees and other fees are recognised when the related services are rendered.

(a) Trading Fees and Trading Tariffs

	2019 \$m	2018 \$m
Equity securities traded on the Stock Exchange and through Stock Connect	2,100	2,386
DWs, CBBCs and warrants traded on the Stock Exchange	610	776
Futures and options contracts traded on the Stock Exchange and the Futures Exchange	1,848	2,108
Base, ferrous and precious metals futures and options contracts traded on the LME	1,034	1,069
	5,592	6,339

5. Revenue (continued)

(b) Stock Exchange Listing Fees

	2019				2018			
	Equity		CBBCs, DWs & others	Total \$m	Equity		CBBCs, DWs & others	Total \$m
	Main Board \$m	GEM \$m			Main Board \$m	GEM \$m		
Annual listing fees	704	54	2	760	684	53	3	740
Initial and subsequent issue listing fees	158	18	688	864	121	22	829	972
Other listing fees	8	1	–	9	7	2	–	9
	870	73	690	1,633	812	77	832	1,721

(c) Other Revenue

	2019 \$m	2018 \$m
Network, terminal user, data line and software sub-license fees	575	515
Hosting services fees	188	162
Commodities stock levies and warehouse listing fees	63	66
Participants' subscription and application fees	94	90
Accommodation income (note (i))	79	59
Sales of Trading Rights	22	20
LME financial over-the-counter booking fees	45	27
BayConnect sales and service revenue	30	–
Brokerage on IPO direct allotments	23	12
Miscellaneous revenue	90	82
	1,209	1,033

- (i) Accommodation income mainly comprises income from Participants on securities deposited as alternatives to cash deposits of Margin Funds, or depositing currencies whose relevant bank deposit rates are negative, and interest shortfall collected from LME Clear Participants on cash collateral where the investment return on the collateral is below the benchmarked interest rates stipulated in the clearing rules of LME Clear.
- (d) Revenue recognised in 2019 that was included in the deferred revenue balance at the beginning of the year amounted to \$1,000 million (2018: \$1,022 million).

6. Net Investment Income

Accounting Policy

Interest income on investments and interest rebates to Participants are recognised on a time apportionment basis using the effective interest method.

Gains and losses arising from changes in fair value of financial assets measured at fair value through profit or loss and financial liabilities at fair value through profit or loss are included under net investment income in the consolidated income statement.

	2019 \$m	2018 \$m
Gross interest income from financial assets measured at amortised cost	3,096	2,715
Gross interest income from financial assets measured at fair value through other comprehensive income	97	60
Interest rebates to Participants	(1,248)	(1,071)
Net interest income	1,945	1,704
Net gains/(losses) including interest income on financial assets mandatorily measured at fair value through profit or loss and financial liabilities at fair value through profit or loss	789	(106)
Others	(5)	(14)
Net investment income	2,729	1,584

7. Sundry Income

	2019 \$m	2018 \$m
Forfeiture of unclaimed dividends (note (a))	9	10
Others	8	21
17	31	

- (a) In accordance with CCASS Rule 1109, the Group exercised its forfeiture right to appropriate cash dividends of \$9 million (2018: \$10 million) held by HKSCC Nominees Limited, which had remained unclaimed for a period of more than seven years and recognised these as sundry income. The Group has, however, undertaken to honour all forfeited claims amounting to \$197 million at 31 December 2019 (31 December 2018: \$188 million) if adequate proof of entitlement is provided by the beneficial owner claiming any dividends forfeited.

8. Staff Costs and Related Expenses

	2019 \$m	2018 \$m
Salaries and other short-term employee benefits	2,280	2,130
Employee share-based compensation benefits of Share Award Scheme (note 42)	240	226
Termination benefits	11	26
Retirement benefit costs (note (a)):		
– ORSO Plan	138	124
– MPF Scheme	4	3
– LME Pension Scheme	24	24
– PRC Retirement Schemes	6	7
	2,703	2,540

(a) Retirement Benefit Costs

Accounting Policy

Contribution to the defined contribution plans are expensed as incurred.

The Group has sponsored a defined contribution provident fund scheme (ORSO Plan) which is registered under the Occupational Retirement Schemes Ordinance (ORSO) and a Mandatory Provident Fund scheme (MPF Scheme) for the benefits of its employees in Hong Kong. The Group contributes 12.5 per cent of the employee's basic salary to the ORSO Plan if an employee contributes 5 per cent. If the employee chooses not to contribute, the Group will contribute 10 per cent of the employee's salary to the ORSO Plan. Contributions to the MPF Scheme are in accordance with the statutory limits prescribed by the MPF Ordinance. Forfeited contributions of the ORSO Plan for employees who leave before the contributions are fully vested are not used to offset existing contributions but are credited to a reserve account of that Plan, and are available for distribution to the members of the Plan at the discretion of the trustees.

For all employees of HKEX Investment (UK) Limited, LME Holdings Limited (LMEH), LME and LME Clear (collectively, LME Group), the Group has also sponsored a defined contribution pension scheme (LME Pension Scheme). For employees who joined the LME Group before 1 May 2014, the Group contributes 15 per cent to 17 per cent of the employee's basic salary to the LME Pension Scheme. For employees who joined the LME Group on or after 1 May 2014, they are automatically enrolled into the LME Pension Scheme on a matched contribution basis and may choose a personal contribution level ranging from 3 per cent to 5 per cent of their basic salaries, which is matched by the Group's contribution ranging from 6 per cent to 10 per cent of their basic salaries. Staff may opt-out of the scheme if they wish. There are no forfeited contributions for the LME Pension Scheme as the contributions are fully vested to the employees upon payment to the scheme.

Pursuant to the relevant laws and regulations in the People's Republic of China (PRC), the Group has joined defined contribution retirement schemes for the employees arranged by local government labour and security authorities (PRC Retirement Schemes). The Group makes contributions to the retirement schemes at the applicable rates based on the amounts stipulated by the local government organisations. Upon retirement, the local government labour and security authorities are responsible for the payment of the retirement benefits to the retired employees.

Assets of the ORSO Plan, MPF Scheme, LME Pension Scheme and PRC Retirement Schemes are held separately from those of the Group and are independently administered and are not included in the consolidated statement of financial position.

9. Information Technology and Computer Maintenance Expenses

	2019 \$m	2018 \$m
Costs of services and goods:		
– consumed by the Group	487	420
– directly consumed by Participants	93	88
	580	508

10. Other Operating Expenses

	2019 \$m	2018 \$m
Bank charges	24	25
Communication expenses	15	16
Contribution to Financial Reporting Council	8	8
Custodian and fund management related fees	22	27
Financial data subscription fees	39	38
Insurance	14	12
License fees	41	44
Office demolition and relocation expenses	12	30
Repairs and maintenance expenses	67	62
Security expenses	23	19
Travel expenses	49	44
Other miscellaneous expenses	137	116
	451	441

11. Operating Profit

	2019 \$m	2018 \$m
Operating profit is stated after charging:		
Auditor's remuneration		
– audit fees	15	15
– other non-audit fees	2	2
Lease rentals (note (a))		
– land and buildings	15	330
– computer systems and equipment	2	43
Provision for impairment losses of receivables	9	1
Net foreign exchange losses on financial assets and liabilities (excluding financial assets and financial liabilities measured at fair value through profit or loss)	5	14

- (a) Amount in 2018 represents the lease rentals recognised over the lease terms for operating leases under HKAS 17. Upon adoption of HKFRS 16, the majority of operating leases (except for short-term leases) are no longer recognised under operating expenses (note 2(c)(i)), and certain contracts are not classified as leases under HKFRS 16. As a result, the amount in 2019 only represents lease payment relating to short-term leases under HKFRS 16.

12. Costs Relating to Proposed Combination with LSEG

	2019 \$m	2018 \$m
Professional fees (note (b))	120	–
Others	3	–
	123	–

- (a) In 2019, HKEX carried out a detailed analysis on the proposed combination with LSEG, but decided not to proceed with making a firm offer. The amounts represent costs incurred for the proposed combination with LSEG.
- (b) Includes \$10 million paid to the auditor for non-audit services.

13. Finance Costs

Accounting Policy

Interest expenses (other than interest on lease liabilities) are charged to the consolidated income statement and recognised on a time apportionment basis, taking into account the principal and the applicable interest rates using the effective interest method.

Interest on lease liabilities is charged to the consolidated income statement over the lease periods so as to produce a constant periodic rate of interest on the remaining balance of the lease liabilities (note 37) for each period.

Other finance costs, which represent banking facility commitment fees that relate to liquidity support provided to the Group's clearing houses, are recognised in the consolidated income statement in the period in which they are incurred.

	2019 \$m	2018 \$m
Interest on borrowings	7	52
Interest on lease liabilities (note 37)	89	–
Banking facility commitment fees	52	45
Negative interest on Euro and Japanese Yen deposits	29	17
	177	114

14. Directors' Emoluments and Interests of Directors

All Directors, including one Executive Director (HKEX's Chief Executive), received emoluments during the years ended 31 December 2019 and 31 December 2018. The aggregate emoluments paid and payable to the Directors during the year were as follows:

	2019 \$'000	2018 \$'000
Executive Director:		
Salaries and other short-term employee benefits	9,679	9,336
Performance bonus	16,000	18,500
Retirement benefit costs	1,164	1,133
	26,843	28,969
Employee share-based compensation benefits (note (a))	24,262	23,444
	51,105	52,413
Non-executive Directors:		
Fees	20,236	16,573
Other benefits	35	7
	20,271	16,580
	71,376	68,993

- (a) Employee share-based compensation benefits represent the fair value of share awards granted under the Share Award Scheme (Awarded Shares) on grant date (note 42) recognised in the consolidated income statement during the year.
- (b) The emoluments of all Directors, including HKEX's Chief Executive who is an ex-officio member, are set out below. The amounts represent emoluments paid or receivable in respect of their services as a director.

Name of Director	2019							
	Fees \$'000	Salary \$'000	Other benefits (note (i)) \$'000	Performance bonus \$'000	Retirement benefit costs (note (ii)) \$'000	Sub-total \$'000	Employee share-based compensation benefits \$'000	Total \$'000
Laura M Cha (note (iii))	4,574	-	35	-	-	4,609	-	4,609
Charles X Li	-	9,315	364	16,000	1,164	26,843	24,262	51,105
Apurv Bagri	940	-	-	-	-	940	-	940
T C Chan	1,286	-	-	-	-	1,286	-	1,286
C H Cheah	1,525	-	-	-	-	1,525	-	1,525
Anita Y M Fung	1,134	-	-	-	-	1,134	-	1,134
Rafael Gil-Tienda	1,750	-	-	-	-	1,750	-	1,750
Fred Z Hu	1,123	-	-	-	-	1,123	-	1,123
Benjamin P C Hung (note (iii))	973	-	-	-	-	973	-	973
Margaret M Y Leung Ko (note (v))	274	-	-	-	-	274	-	274
Hugo P H Leung	1,509	-	-	-	-	1,509	-	1,509
Mary X Ma (note (vi))	413	-	-	-	-	413	-	413
John M M Williamson	1,966	-	-	-	-	1,966	-	1,966
Stephen K W Yiu	2,769	-	-	-	-	2,769	-	2,769
Total	20,236	9,315	399	16,000	1,164	47,114	24,262	71,376

14. Directors' Emoluments and Interests of Directors (continued)

(b) (continued)

Name of Director	2018							
	Fees \$'000	Salary \$'000	Other benefits (note (i)) \$'000	Performance bonus \$'000	Retirement benefit costs (note (ii)) \$'000	Sub-total \$'000	Employee share-based compensation benefits \$'000	Total \$'000
Laura M Cha (note (iii))	2,435	–	7	–	–	2,442	–	2,442
C K Chow (note (iv))	858	–	–	–	–	858	–	858
Charles X Li	–	9,066	270	18,500	1,133	28,969	23,444	52,413
Apurv Bagri	816	–	–	–	–	816	–	816
T C Chan	987	–	–	–	–	987	–	987
C H Cheah	1,169	–	–	–	–	1,169	–	1,169
Timothy G Freshwater (note (iv))	256	–	–	–	–	256	–	256
Anita Y M Fung	1,124	–	–	–	–	1,124	–	1,124
Rafael Gil-Tienda	1,624	–	–	–	–	1,624	–	1,624
Fred Z Hu	1,071	–	–	–	–	1,071	–	1,071
Benjamin P C Hung (note (iii))	644	–	–	–	–	644	–	644
Margaret M Y Leung Ko (note (v))	987	–	–	–	–	987	–	987
Hugo P H Leung	987	–	–	–	–	987	–	987
John M M Williamson	1,086	–	–	–	–	1,086	–	1,086
Stephen K W Yiu	2,529	–	–	–	–	2,529	–	2,529
Total	16,573	9,066	277	18,500	1,133	45,549	23,444	68,993

Notes:

- (i) Other benefits represent estimated money value of leave pay, insurance premium, club membership and UK tax liability of Non-Resident Director.
- (ii) Employees who retire before normal retirement age are eligible for 18 per cent of the employer's contribution to the provident fund after completion of two years of service. The rate of vested benefit increases at an annual increment of 18 per cent thereafter reaching 100 per cent after completion of seven years of service.
- (iii) Appointment effective 25 April 2018
- (iv) Retired on 25 April 2018
- (v) Retired on 24 April 2019
- (vi) Ms. Ma, who was appointed as a director effective 24 April 2019, passed away on 31 August 2019.

(c) Directors' material interests in transactions, arrangement or contracts

No significant transactions, arrangements and contracts in relation to HKEX's business to which HKEX was a party and in which a director of HKEX had a material interest, whether directly or indirectly, subsisted at the end of the year or at any time during the year.

15. Five Top-paid Employees

One (2018: one) of the five top-paid employees was a Director whose emoluments are disclosed in note 14.

Details of the emoluments of the other four (2018: four) top-paid employees were as follows:

	2019 \$'000	2018 \$'000
Salaries and other short-term employee benefits	19,873	17,150
Performance bonus	18,173	23,477
Retirement benefit costs	1,884	2,306
	39,930	42,933
Employee share-based compensation benefits (note (a))	23,305	25,064
	63,235	67,997

- (a) Employee share-based compensation benefits represent the fair value of Awarded Shares on grant date (note 42) amortised to the consolidated income statement during the year.
- (b) The emoluments of these four (2018: four) employees, including share-based compensation benefits, were within the following bands:

	2019 Number of employees	2018 Number of employees
\$13,500,001 – \$14,000,000	–	1
\$15,000,001 – \$15,500,000	3	–
\$16,000,001 – \$16,500,000	–	1
\$17,000,001 – \$17,500,000	1	1
\$20,500,001 – \$21,000,000	–	1
	4	4

The above employees included senior executives who were also Directors of the subsidiaries during the years. No Directors of the subsidiaries waived any emoluments.

16. Taxation

Accounting Policy

Tax charge for the period comprises current and deferred tax. Tax is recognised in the consolidated income statement, except to the extent that it relates to items recognised directly in equity, in which case, the tax is also recognised directly in equity.

The current tax charge is calculated on the basis of the tax laws enacted or substantively enacted at the end of the reporting period in the countries where HKEX and its subsidiaries operate and generate taxable income. Provisions are established where appropriate on the basis of amounts expected to be paid to the tax authorities.

The Group's accounting policy for recognition of deferred tax is described in note 40.

- (a) Taxation charge/(credit) in the consolidated income statement represented:

	2019 \$m	2018 \$m
Current tax – Hong Kong Profits Tax		
– Provision for the year	1,314	1,421
Current tax – Overseas Tax		
– Provision for the year	200	182
– Over provision in respect of prior years	(1)	(52)
	199	130
Total current tax (note (i))	1,513	1,551
Deferred tax (note 40(a))		
– Provision for temporary differences	48	41
Taxation charge	1,561	1,592

- (i) Hong Kong Profits Tax has been provided at the rate of 16.5 per cent (2018: 16.5 per cent) on the estimated assessable profit for the year. Taxation on overseas profits has been calculated on the estimated assessable profit at the rates of taxation prevailing in the countries in which the Group operates, with the average corporation tax rates applicable to the subsidiaries in the UK being 19 per cent (2018: 19 per cent).
- (b) The taxation on the Group's profit before taxation differs from the theoretical amount that would arise using the weighted average tax rate applicable to profits of the consolidated entities as follows:

	2019 \$m	2018 \$m
Profit before taxation	10,951	10,883
Tax calculated at domestic tax rates applicable to profits in the respective countries (note (i))	1,835	1,843
Income not subject to taxation	(391)	(288)
Expenses not deductible for taxation purposes	61	34
Change in deferred tax arising from unrecognised tax losses and other deferred tax adjustments	57	55
Over provision in respect of prior years	(1)	(52)
Taxation charge	1,561	1,592

- (i) The weighted average applicable tax rate was 16.8 per cent (2018: 16.9 per cent).

17. Earnings Per Share

The calculation of the basic and diluted earnings per share is as follows:

(a) Basic earnings per share

	2019	2018
Profit attributable to shareholders (\$m)	9,391	9,312
Weighted average number of shares in issue less shares held for Share Award Scheme (in '000)	1,253,730	1,242,059
Basic earnings per share (\$)	7.49	7.50

(b) Diluted earnings per share

	2019	2018
Profit attributable to shareholders (\$m)	9,391	9,312
Weighted average number of shares in issue less shares held for Share Award Scheme (in '000)	1,253,730	1,242,059
Effect of Awarded Shares (in '000)	2,971	2,759
Weighted average number of shares for the purpose of calculating diluted earnings per share (in '000)	1,256,701	1,244,818
Diluted earnings per share (\$)	7.47	7.48

18. Dividends

Accounting Policy

Dividends declared are recognised as liabilities in the consolidated financial statements in the period in which the dividends are approved by shareholders or directors, where appropriate.

	2019 \$m	2018 \$m
First interim dividend paid: \$3.72 (2018: \$3.64) per share	4,680	4,537
Less: Dividend for shares held by Share Award Scheme (note (a))	(12)	(10)
	4,668	4,527
Second interim dividend declared (notes (b) and (c)): \$2.99 (2018: \$3.07) per share based on issued share capital at 31 Dec	3,771	3,839
Less: Dividend for shares held by Share Award Scheme at 31 Dec (note (a))	(10)	(9)
	3,761	3,830
	8,429	8,357

- (a) The results and net assets of The HKEx Employees' Share Award Scheme (Share Award Scheme) are included in HKEX's financial statements. Therefore, dividends for shares held by the Share Award Scheme were deducted from the total dividends.
- (b) The second interim dividend declared after 31 December was not recognised as a liability at 31 December as it had not been approved by the Board.
- (c) The 2019 second interim dividend will be payable in cash with a scrip dividend alternative subject to the permission of the Securities and Futures Commission (SFC) of the listing of and permission to deal in the new shares to be issued.

19. Financial Assets

Accounting Policy

The Group classifies its financial assets in the following measurement categories:

- those measured at fair value (either through profit or loss (note 21) or through other comprehensive income (note 22)); and
- those measured at amortised cost (note 23).

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

The Group reclassifies debt investments when and only when its business model for managing those assets changes.

Financial assets of Clearing House Funds and Margin Funds are classified as current assets as they will be liquidated whenever liquid funds are required.

Other financial assets are classified as current assets unless they are expected to mature or be disposed of after twelve months from the end of the reporting period, in which case, they are included in non-current assets. For collective investment schemes which have no maturity date, they are included in current assets unless they cannot be redeemed within twelve months from the end of the reporting period.

Financial assets are derecognised when the rights to receive cash flows from the assets have expired or have been transferred and the Group has transferred substantially all the risks and rewards of ownership of the assets.

20. Cash and Cash Equivalents

Accounting Policy

Cash and cash equivalents comprise cash on hand, bank balances and other short-term highly liquid investments that are readily convertible into known amounts of cash and are subject to an insignificant risk of changes in value (mainly reverse repurchase investments and time deposits), with original maturities of three months or less.

20. Cash and Cash Equivalents (continued)

	At 31 Dec 2019				
	Cash for A shares (notes (a) and (c)) \$m	Corporate Funds (notes (b) and 24) \$m	Margin Funds (notes (c) and 32) \$m	Clearing House Funds (notes (c) and 36) \$m	Total \$m
Cash on hand and balances and deposits with banks	1,460	10,359	42,399	7,643	61,861
Reverse repurchase investments	–	1,062	57,696	7,533	66,291
	1,460	11,421	100,095	15,176	128,152

	At 31 Dec 2018				
	Cash for A shares (notes (a) and (c)) \$m	Corporate Funds (notes (b) and 24) \$m	Margin Funds (notes (c) and 32) \$m	Clearing House Funds (notes (c) and 36) \$m	Total \$m
Cash on hand and balances and deposits with banks	3,014	10,681	43,165	6,963	63,823
Reverse repurchase investments	–	1,223	47,608	8,542	57,373
	3,014	11,904	90,773	15,505	121,196

(a) Cash for A shares includes:

- (i) Renminbi (RMB) cash prepayments received by Hong Kong Securities Clearing Company Limited (HKSCC) from its Clearing Participants for releasing their allocated A shares on the trade day. Such prepayments will be used to settle HKSCC's Continuous Net Settlement (CNS) obligations payable on the next business day; and
 - (ii) Hong Kong Dollar/United States Dollar cash collateral received by HKSCC from its Clearing Participants for releasing their allocated A shares on the trade day. Such collateral will be refunded to the Clearing Participants when they settle their RMB CNS obligations on the next business day.
- (b) At 31 December 2019, cash and cash equivalents of Corporate Funds of \$818 million (31 December 2018: \$724 million) were solely used to support Skin-in-the-Game and default fund credits for HKSCC Guarantee Fund, SEOCH Reserve Fund and HKCC Reserve Fund (note 36(a)).
- (c) The cash and cash equivalents of Margin Funds, Clearing House Funds, Corporate Funds reserved for supporting Skin-in-the-Game and default fund credits of Clearing House Funds (note (b)), and Cash for A shares are held for specific purposes and cannot be used by the Group to finance other activities. These balances are not included in cash and cash equivalents of the Group for cash flow purpose in the consolidated statement of cash flows.

21. Financial Assets Measured at Fair Value through Profit or Loss

Accounting Policy

Classification

Investments and other financial assets are classified under financial assets measured at fair value through profit or loss if they do not meet the conditions to be measured at fair value through other comprehensive income (note 22) or amortised cost (note 23). On initial recognition, the Group may irrevocably designate a financial asset as at fair value through profit or loss that otherwise meets the requirements to be measured at amortised cost or at fair value through other comprehensive income if doing so eliminates or significantly reduces an accounting mismatch that would otherwise arise. Derivative financial instruments (see below) are classified as financial assets measured at fair value through profit or loss when their fair values are positive.

Investments in equity instruments that are not held for trading are classified under financial assets measured at fair value through profit or loss unless the Group has made an irrevocable election at the time of initial recognition to account for the investment at fair value through other comprehensive income.

Recognition and measurement

Purchases and sales of financial assets measured at fair value through profit or loss are recognised on the trade date. They are initially recognised at fair value with transaction costs recognised as expenses in the consolidated income statement and subsequently carried at fair value. Gains and losses arising from changes in fair value are included in the consolidated income statement in the period in which they arise.

Interest income is included in net fair value gains/(losses) from these financial assets.

Fair values of quoted investments are based on the most representative prices within the bid-ask spreads which are currently considered as the bid-prices. The collective investment schemes are valued based on the latest available transaction price or redemption price for each fund, as determined by the fund administrator. For unlisted securities or financial assets without an active market, the Group establishes the fair value by using valuation techniques including the use of recent arm's length transactions, reference to other instruments that are substantially the same and discounted cash flow analysis.

Derivative financial instruments

Derivative financial instruments include outstanding derivatives contracts of LME Clear, which acts as a central counterparty to the base, ferrous and precious metals futures and options contracts traded on the LME, and forward foreign exchange contracts. Derivatives are initially recognised at fair value on trade date and subsequently remeasured at their fair values. Except where outstanding derivatives contracts are held in the capacity as a central counterparty, derivatives are categorised as held for trading with changes in fair value recognised in the consolidated income statement.

21. Financial Assets Measured at Fair Value through Profit or Loss (continued)

	At 31 Dec 2019		
	Corporate Funds (note 24) \$m	Metals derivatives contracts (note (a)) \$m	Total \$m
<u>Mandatorily measured at fair value</u>			
Collective investment schemes:			
– listed outside Hong Kong	2,647	–	2,647
– unlisted	6,696	–	6,696
	9,343	–	9,343
Unlisted equity securities	50	–	50
Derivative financial instruments:			
– base, ferrous and precious metals futures and options contracts cleared through LME Clear (note (a))	–	48,008	48,008
	9,393	48,008	57,401
The expected recovery dates of the financial assets are analysed as follows:			
Within twelve months	8,721	48,008	56,729
More than twelve months	672	–	672
	9,393	48,008	57,401
 <u>Mandatorily measured at fair value</u>			
Collective investment schemes:			
– listed outside Hong Kong	1,987	–	1,987
– unlisted	5,102	–	5,102
	7,089	–	7,089
Derivative financial instruments:			
– base, ferrous and precious metals futures and options contracts cleared through LME Clear (note (a))	–	53,915	53,915
	7,089	53,915	61,004
The expected recovery dates of the financial assets are analysed as follows:			
Within twelve months	7,089	53,915	61,004

- (a) Metals derivatives contracts represent the fair value of the outstanding base, ferrous and precious metals futures and options contracts cleared through LME Clear that do not qualify for netting under HKAS 32: Financial Instruments: Presentation, where LME Clear is acting in its capacity as a central counterparty to the contracts traded on the LME. A corresponding amount has been recognised under financial liabilities at fair value through profit or loss (note 31).

22. Financial Assets Measured at Fair Value through Other Comprehensive Income

Accounting Policy

Classification

A debt investment is measured at fair value through other comprehensive income if it meets both of the following conditions and is not designated as at fair value through profit or loss:

- it is held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets; and
- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

The nature of any derivatives embedded in the debt instruments is considered in determining whether the cash flows are solely payment of principal and interest on the principal outstanding and are not accounted for separately. If the combined cash flows of the debt instruments and embedded derivatives are considered not satisfying the “solely payments of principal and interest” condition, the financial assets are classified as financial assets measured at fair value through profit or loss (note 21).

Recognition and measurement

At initial recognition, the Group measures a financial asset at its fair value plus transaction costs that are directly attributable to the acquisition of the financial asset.

Financial assets measured at fair value through other comprehensive income are subsequently measured at fair value. Interest income calculated using the effective interest method, foreign exchange gains and losses and impairment are recognised in the consolidated income statement. Other changes in carrying amounts are recognised in other comprehensive income. On derecognition, gains and losses accumulated in other comprehensive income are reclassified to the consolidated income statement.

Fair values of quoted investments are based on the most representative prices within the bid-ask spreads which are currently considered as the bid-prices. For unlisted securities or financial assets without an active market, the Group establishes the fair value by using valuation techniques including the use of recent arm's length transactions and dealer quotes for similar investments.

Impairment

The Group assesses on a forward looking basis the expected credit losses associated with its debt instruments measured at fair value through other comprehensive income. Expected credit losses are a probability-weighted estimate of credit losses. Credit losses are measured as the present value of all expected cash shortfalls (ie, the difference between the cash flows due to the Group in accordance with the contract and the cash flows that the Group expects to receive).

In measuring expected credit losses, the Group takes into account reasonable and supportable information that is available without undue cost or effort. This includes information about past events, current conditions and forecasts of future economic conditions.

Expected credit losses are measured on either of the following bases:

- 12-month expected credit losses: these are losses that are expected to result from possible default events within the 12 months after the reporting date; and
- Lifetime expected credit losses: these are losses that are expected to result from all possible default events over the expected lives of the items to which the expected credit loss model applies.

22. Financial Assets Measured at Fair Value through Other Comprehensive Income (continued)

Accounting Policy (continued)

Impairment (continued)

For financial assets measured at fair value through other comprehensive income, the Group recognises a provision for impairment losses equal to 12-month expected credit losses unless there has been a significant increase in credit risk of the financial assets since initial recognition, in which case the provision for impairment losses is measured at an amount equal to lifetime expected credit losses.

Expected credit losses are measured at each reporting date to reflect changes in the financial asset's credit risk since initial recognition.

In assessing whether the credit risk of a financial asset has increased significantly since initial recognition, the Group compares the risk of default occurring on the financial asset assessed at the reporting date with that assessed at the date of initial recognition. In making this reassessment, the Group considers that a default event occurs when the financial asset is past due by 90 days or one or more credit impaired events that have a detrimental impact on the estimated future cash flows of that financial asset have occurred.

The following information is taken into account when assessing whether credit risk has increased significantly since initial recognition:

- failure to make payments of principal or interest on their contractually due dates;
- an actual or expected significant deterioration in a financial asset's external or internal credit rating (if available);
- an actual or expected significant deterioration in the operating results of the debtor; and
- existing or forecast changes in the technological, market, economic or legal environment that have a significant adverse effect on the debtor's ability to meet its obligation to the Group.

Depending on the nature of the financial instruments, the assessment of a significant increase in credit risk is performed on either an individual basis or a collective basis. When the assessment is performed on a collective basis, the financial assets are grouped based on shared credit risk characteristics, such as past due status and credit risk ratings.

Any change in the expected credit loss amount is recognised as an impairment loss or reversal of impairment loss in the consolidated income statement, with a corresponding adjustment to the other comprehensive income.

	Margin Funds (note 32)	
	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Unlisted debt securities (note (a))	4,569	3,755
The expected recovery dates of the financial assets are analysed as follows:		
Within twelve months (note (b))	4,569	3,755

22. Financial Assets Measured at Fair Value through Other Comprehensive Income (continued)

- (a) No provision for impairment loss was made at 31 December 2019 and 31 December 2018 as the financial assets were considered to be of low credit risk and the expected credit loss was minimal. The investments in debt securities held were of investment grade and had a weighted average credit rating of Aa1 (Moody) (31 December 2018: Aa1 (Moody)) with no history of default and there was no unfavourable current conditions and forecast of future economic conditions at the reporting dates.
- (b) Includes financial assets maturing after twelve months of \$2,684 million (31 December 2018: \$1,875 million) attributable to Margin Funds that could readily be liquidated to meet liquidity requirements of the Fund (note 53(b)).

23. Financial Assets Measured at Amortised Cost

Accounting Policy

Classification

Investments are classified under financial assets measured at amortised cost if they satisfy both of the following conditions:

- the assets are held within a business model whose objective is to hold assets in order to collect contractual cash flows; and
- the contractual terms of the financial assets give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

The nature of any derivatives embedded in the financial assets is considered in determining whether the cash flows are solely payment of principal and interest on the principal outstanding and are not accounted for separately. If the combined cash flows of the financial assets and embedded derivatives are considered not satisfying the “solely payments of principal and interest” condition, the financial assets are classified as financial assets measured at fair value through profit or loss (note 21).

Accounts receivable and other deposits are also classified under this category (note 25).

Recognition and measurement

Financial assets measured at amortised cost are initially recognised at fair value plus transaction costs and subsequently carried at amortised cost using the effective interest method. The amortised cost is reduced by loss allowance for expected credit losses. Interest income, foreign exchange gains and losses and impairment are recognised in the consolidated income statement. Any gains and losses on derecognition is recognised in the consolidated income statement.

23. Financial Assets Measured at Amortised Cost (continued)

Accounting Policy (continued)

Impairment

The Group assesses on a forward-looking basis the expected credit loss associated with its financial assets measured at amortised cost.

For accounts receivable due from customers, the Group applies the simplified approach permitted by HKFRS 9 (2014): Financial Instruments, which requires expected lifetime losses (note 22) to be recognised from initial recognition of the receivables. Expected credit losses of receivables are estimated using a provision matrix based on the Group's historical credit loss experience, adjusted for factors that are specific to the debtors and an assessment of both the current and forecast general economic conditions at the reporting date.

For all other financial assets measured at amortised cost (including time deposits, debt instruments and other deposits), the Group recognises a provision for impairment losses equal to 12-month expected credit losses (refer to note 22 for details of assessment of credit risk) unless there has been a significant increase in credit risk of the financial assets since initial recognition, in which case the provision for impairment losses is measured at an amount equal to lifetime expected credit losses.

Expected credit losses are remeasured at each reporting date to reflect changes in the financial asset's credit risk since initial recognition (note 22). Any change in the expected credit loss amount is recognised as an impairment loss or reversal of impairment loss in the consolidated income statement, with a corresponding adjustment to the carrying amount through a loss allowance account.

The gross carrying amount of a financial asset is written off (either partially or in full) to the extent that there is no realistic prospect of recovery. This is generally the case when the Group determines that the debtor does not have assets or sources of income that could generate sufficient cash flows to repay the amounts subject to the write-off.

Subsequent recoveries of an asset that has previously been written off are recognised as a reversal of impairment in the consolidated income statement in the period in which the recovery occurs.

23. Financial Assets Measured at Amortised Cost (continued)

	At 31 Dec 2019		
	Corporate Funds (note 24) \$m	Margin Funds (note 32) \$m	Total \$m
Debt securities	633	–	633
Time deposits with original maturities over three months	7,592	32,348	39,940
Other financial assets	99	–	99
	8,324	32,348	40,672
The expected recovery dates of the financial assets are analysed as follows:			
Within twelve months	7,606	32,348	39,954
More than twelve months	718	–	718
	8,324	32,348	40,672
	At 31 Dec 2018		
	Corporate Funds (note 24) \$m	Margin Funds (note 32) \$m	Total \$m
Debt securities	535	–	535
Time deposits with original maturities over three months	5,208	26,045	31,253
Other financial assets	97	–	97
	5,840	26,045	31,885
The expected recovery dates of the financial assets are analysed as follows:			
Within twelve months	5,442	26,045	31,487
More than twelve months	398	–	398
	5,840	26,045	31,885

- (a) No provision for impairment loss for these financial assets was made at 31 December 2019 and 31 December 2018 as the financial assets were considered to be of low credit risk and the expected credit loss of these financial assets was minimal. Debt securities held were of investment grade and had a weighted average credit rating of Aaa (Moody) (31 December 2018: Aa3 (Moody)). Deposits were placed with the investment grade banks, licensed banks and restricted licence banks regulated by the Hong Kong Monetary Authority, and banks regulated by local banking regulators in the countries where the Group's subsidiaries operate. All these financial assets had no history of default and there was no unfavourable current conditions and forecast of future economic conditions at the reporting dates.
- (b) The fair values of financial assets maturing after twelve months are disclosed in note 53(d)(ii).

24. Corporate Funds

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Corporate Funds comprised the following instruments:		
Cash and cash equivalents (notes (b) and 20)	11,421	11,904
Financial assets measured at fair value through profit or loss (note 21)	9,393	7,089
Financial assets measured at amortised cost (note 23)	8,324	5,840
	29,138	24,833

- (a) Financial assets held by the Group which are funded by share capital and funds generated from operations are classified as Corporate Funds (ie, other than financial assets of Margin Funds, Clearing House Funds, Cash for A shares and base, ferrous and precious metals derivatives contracts).
- (b) At 31 December 2019, cash and cash equivalents of Corporate Funds of \$818 million (31 December 2018: \$724 million) were solely used to support Skin-in-the-Game and default fund credits for HKSCC Guarantee Fund, SEOCH Reserve Fund and HKCC Reserve Fund (note 36(a)).

25. Accounts Receivable, Prepayments and Deposits

Accounting Policy

Accounts receivable and other deposits are financial assets measured at amortised cost less impairment. The accounting policy for financial assets measured at amortised cost is disclosed in note 23.

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Receivable from ChinaClear, and Exchange and Clearing Participants:		
– CNS money obligations receivable (note (a))	18,730	13,471
– transaction levy, stamp duty and fees receivable	670	537
– Settlement Reserve Fund and Settlement Guarantee Fund held by ChinaClear (note 32)	5,516	3,150
– others	7	6
Payment in advance for collective investment schemes traded on 1 Jan 2019	–	229
Receivables from collective investment schemes sold prior to 31 Dec 2018	–	155
Other receivables, prepayments and deposits	918	824
Less: Provision for impairment losses of receivables (notes (b) and (c))	(29)	(10)
	25,812	18,362

25. Accounts Receivable, Prepayments and Deposits (continued)

- (a) Upon acceptance of Stock Exchange trades for settlement in CCASS under the CNS basis, HKSCC interposes itself between the HKSCC Clearing Participants as the settlement counterparty to the trades through novation. The CNS money obligations due by/to HKSCC Clearing Participants on the Stock Exchange trades are recognised as receivables and payables (note 33) when they are confirmed and accepted on the day after the trade day.

For a trade in A shares transacted for Stock Exchange Participants, the rights and obligations of the parties to the trade will be transferred to ChinaClear, and a market contract between HKSCC and the relevant HKSCC Clearing Participant is created through novation. The CNS money obligations due by/to HKSCC Clearing Participant and ChinaClear are recognised as receivables and payables (note 33) when they are confirmed on the trade day.

- (b) Expected credit losses

For accounts receivable, the Group applies the simplified approach permitted by HKFRS 9 (2014), which requires expected lifetime losses to be recognised from initial recognition of the receivables.

The expected loss rates are based on the payment profiles of debtors and the corresponding historical credit losses experienced during the year. The historical loss rates are adjusted to reflect current and forward-looking information on macroeconomic factors affecting the ability of the customers to settle the receivables. On that basis, the loss allowance for accounts receivable as at 31 December 2019 and 31 December 2018 was determined as follows:

	At 31 Dec 2019			
	Current or within 30 days past due	31 to 180 days past due	More than 180 days past due	Total
Expected loss rate	<1%	9%	100%	
Gross carrying amount – accounts receivable subject to expected credit loss provision (\$m)	543	58	19	620
Loss allowance (\$m)	5	5	19	29

	At 31 Dec 2018			
	Current or within 30 days past due	31 to 180 days past due	More than 180 days past due	Total
Expected loss rate	<1%	2%	100%	
Gross carrying amount – accounts receivable subject to expected credit loss provision (\$m)	532	53	9	594
Loss allowance (\$m)	–	1	9	10

For the remaining receivables and other deposits (excluding prepayments) amounting to \$25,089 million as of 31 December 2019 (31 December 2018: \$17,662 million), the expected credit loss was minimal as these receivables were mainly due from Participants which are subject to the Group's stringent financial requirements and admission criteria, compliance monitoring and risk management measures, these receivables had no recent history of default, part of the receivables were subsequently settled, and there was no unfavourable current conditions and forecast future economic conditions at the reporting dates.

25. Accounts Receivable, Prepayments and Deposits (continued)

- (c) The movements in provision for impairment losses of receivables were as follows:

	2019 \$m	2018 \$m
At 1 Jan	10	9
Acquisition of a subsidiary (note 47)	11	–
Provision for loss allowance for receivables under other operating expenses	9	1
Exchange differences	(1)	–
At 31 Dec	29	10

- (d) CNS money obligations receivable mature within two days after the trade date. The majority of the remaining accounts receivable, prepayments and deposits were due within three months.

26. Principal Subsidiaries and Controlled Structured Entities

Accounting Policy

Subsidiaries are entities (including structured entities (note (b)) over which the Group has control. The Group controls an entity when the Group is exposed to, or has the rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity.

A structured entity is an entity that has been designed so that voting or similar rights are not the dominant factor in deciding who controls the entity, such as when any voting rights relate to administrative tasks only and the relevant activities are directed by means of contractual arrangements.

The Group considers all of its investments in collective investment schemes to be investments in unconsolidated structured entities, which are classified as financial assets measured at fair value through profit or loss (note 21).

26. Principal Subsidiaries and Controlled Structured Entities (continued)

(a) Principal subsidiaries

HKEX had direct or indirect interests in the following principal subsidiaries:

Company	Place of incorporation and operation	Issued and fully paid up share/registered capital	Principal activities	Interest held by the Group	
				At 31 Dec 2019	At 31 Dec 2018
Direct principal subsidiaries:					
The Stock Exchange of Hong Kong Limited	Hong Kong	929 ordinary shares (\$929)	Operates the single Stock Exchange in Hong Kong	100%	100%
Hong Kong Futures Exchange Limited	Hong Kong	230 ordinary shares (\$28,750,000)	Operates a futures and options exchange in Hong Kong	100%	100%
Hong Kong Securities Clearing Company Limited (HKSCC)	Hong Kong	4 ordinary shares (\$1,060,000,002)	Operates a clearing house for securities traded on the Stock Exchange in Hong Kong, Shanghai Stock Exchange and Shenzhen Stock Exchange in Mainland China through Stock Connect and the central securities depository, and provides custody and nominee services for eligible securities listed in Hong Kong and Mainland China	100%	100%
OTC Clearing Hong Kong Limited (OTC Clear) (note (i))	Hong Kong	11,187 ordinary shares (\$921,206,421) 3,541 non-voting ordinary shares (\$433,291,660)	Operates a clearing house for over-the-counter derivatives	76%	76%
HKFE Clearing Corporation Limited (HKCC)	Hong Kong	3,766,700 ordinary shares (\$831,010,000)	Operates a clearing house for derivatives contracts traded on the Futures Exchange	100%	100%
The SEHK Options Clearing House Limited (SEOCH)	Hong Kong	4,000,000 ordinary shares (\$271,000,000)	Operates a clearing house for stock options contracts traded on the Stock Exchange in Hong Kong	100%	100%
Indirect principal subsidiaries:					
The London Metal Exchange	United Kingdom	100 ordinary shares of £1 each	Operates an exchange for the trading of base, ferrous and precious metals futures and options contracts	100%	100%
LME Clear Limited	United Kingdom	107,500,001 ordinary share of £1 each	Operates a clearing house for base, ferrous and precious metals futures and options contracts	100%	100%
Qianhai Mercantile Exchange Co.,Ltd. (QME) (note (ii))	Mainland China	RMB400,000,000	Operates a commodity trading platform in Mainland China	90.01%	90.01%

The above table lists the subsidiaries of the Group which, in the opinion of its directors, principally affect the results or assets of the Group.

26. Principal Subsidiaries and Controlled Structured Entities (continued)

(a) Principal subsidiaries (continued)

(i) Subsidiaries with non-controlling interests

At 31 December 2019, the Group held 76 per cent (31 December 2018: 76 per cent) interest in OTC Clear, while the remaining 24 per cent (31 December 2018: 24 per cent) interest was held by non-controlling interests. The non-controlling interests do not have voting rights at general meetings of OTC Clear.

QME is a limited company established in Mainland China. At 31 December 2019, the Group held 90.01 per cent (31 December 2018: 90.01 per cent) interest in QME, while the remaining 9.99 per cent (31 December 2018: 9.99 per cent) interest was held by non-controlling interests.

On 28 June 2019, the Group completed the acquisition of BayConnect, a limited company established in Mainland China. At 31 December 2019, the Group held 51 per cent interest in BayConnect, while the remaining 49 per cent interest was held by non-controlling interests. Details of the acquisition are set out in note 47.

Set out below is the financial information related to the non-controlling interests of each subsidiary:

	OTC Clear		QME		BayConnect	
	2019 \$m	2018 \$m	2019 \$m	2018 \$m	2019 \$m	2018 \$m
Profit/(loss) allocated to non-controlling interests	13	(10)	(14)	(11)	-	-
Accumulated non-controlling interests	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Accumulated non-controlling interests	186	173	(13)	1	155	-

No summarised financial information of OTC Clear, QME and BayConnect is presented as the non-controlling interests are not material to the Group.

(ii) Significant restrictions

Cash and savings deposits are held by subsidiaries in Mainland China and are subject to exchange control restrictions. The carrying amount of these restricted assets in the consolidated statement of financial position at 31 December 2019 was \$394 million (31 December 2018: \$132 million).

26. Principal Subsidiaries and Controlled Structured Entities (continued)

(b) Controlled structured entities

HKEX controls two structured entities which operate in Hong Kong, particulars of which are as follows:

Structured entity	Principal activities
The HKEx Employees' Share Award Scheme (HKEX Employee Share Trust)	Purchases, administers and holds HKEX shares for the Share Award Scheme for the benefit of eligible HKEX employees (note 42)
HKEX Foundation Limited	Charitable foundation

HKEX has the power to direct the relevant activities of the HKEX Employee Share Trust and HKEX Foundation Limited and it has the ability to use its power over the entities to affect its exposure to returns. Therefore, they are considered as controlled structured entities of the Group.

27. Interests in Joint Ventures

Accounting Policy

Interests in joint ventures are accounted for in the consolidated financial statements under the equity method. The entire carrying amount of each investment is tested for impairment in accordance with the accounting policy stated in note 2(e).

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Share of net assets of joint ventures	95	63

(a) Details of the joint ventures were as follows:

Name	Place of business and country of incorporation	Principal activities	% of ownership interest	
			At 31 Dec 2019	At 31 Dec 2018
China Exchanges Services Company Limited (CESC)	Hong Kong	Development of index-linked and equity derivatives products	33.33%	33.33%
Bond Connect Company Limited (BCCL)	Hong Kong	Provision of support services related to Bond Connect	40%	40%

In 2012, HKEX, the Shanghai Stock Exchange and the Shenzhen Stock Exchange established a joint venture, CESC, with an aim of developing financial products and related services. CESC is a strategic investment for the Group and it is expected to enhance the competitiveness of Hong Kong, help promote the development of Mainland China's capital markets and the internationalisation of the Group.

In 2017, HKEX and China Foreign Exchange Trade System (CFETS) established a joint venture, BCCL, which provides support services related to Bond Connect. BCCL is a strategic investment of the Group as it provides services to facilitate the trading of Bond Connect, which enhances HKEX's position in the fixed income market and expands the mutual market programme from equity into bonds.

27. Interests in Joint Ventures (continued)

(a) (continued)

Set out below is the measurement method and the carrying amounts of the two joint ventures:

Name	Measurement method	Carrying amount	
		At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
CESC	Equity	37	43
BCCL	Equity	58	20
		95	63

The two joint ventures are private companies and no quoted market prices are available for their shares.

No summarised financial information of CESC and BCCL is presented as the joint ventures are not material to the Group.

28. Goodwill and Other Intangible Assets

Accounting Policy

Goodwill

Goodwill arising on the acquisition of subsidiaries is carried at cost as established at the date of acquisition less accumulated impairment losses, if any.

For the purpose of impairment testing, goodwill acquired in a business combination is allocated to each CGU, or group of CGUs, that is expected to benefit from the synergies of the combination. Each CGU or group of CGUs to which the goodwill is allocated represents the lowest level within the entity at which the goodwill is monitored for internal management purposes (ie, operating segment level).

Goodwill is not amortised but impairment reviews are undertaken annually or more frequently if events or changes in circumstances indicate a potential impairment. The carrying value of goodwill is compared to the recoverable amount, which is the higher of value-in-use and the fair value less costs to sell. Any impairment is recognised immediately in the consolidated income statement and is not subsequently reversed.

Tradenames

Tradenames acquired in a business combination are recognised at fair value at the acquisition date. The fair value is based on the discounted estimated royalty payments that are expected to be avoided as a result of the tradenames being owned.

Tradenames arising from the acquisition of the LME Group have indefinite useful lives and are carried at cost less accumulated impairment losses, if any.

Tradenames are reviewed annually to determine whether events and circumstances continue to support the indefinite useful life assessment.

28. Goodwill and Other Intangible Assets (continued)

Accounting Policy (continued)

Customer relationships

Customer relationships acquired in a business combination are recognised initially at fair value at the acquisition date. The fair value is determined using the multi-period excess earnings method, whereby the asset is valued after deducting a fair return on all other assets that are part of creating the related cash flows. Subsequently, the customer relationships are carried at cost (ie, the initial fair value) less accumulated amortisation and impairment losses, if any. Amortisation is calculated using the straight-line method over the expected lives of the customer relationships, which are determined to be 8 to 25 years.

Computer software systems

Development costs that are directly attributable to the design, building and testing of identifiable and unique software products controlled by the Group are recognised as intangible assets if the related software does not form an integral part of the hardware on which it operates (ie, system software without which the related hardware can still operate) and when the following criteria are met:

- It is technically feasible to complete the software so that it will be available for use;
- Management intends to complete the software and use it;
- There is an ability to use the software;
- It can be demonstrated how the software will generate probable future economic benefits;
- Adequate technical, financial and other resources to complete the development and to use the software are available; and
- The expenditure attributable to the software during its development can be reliably measured.

Other development expenditures that do not meet these criteria are recognised in the consolidated income statement as incurred. Development costs previously recognised in the consolidated income statement are not recognised as an asset in a subsequent period.

Qualifying software system development expenditure and related directly attributable costs capitalised as intangible assets are amortised when they are available for use. They are amortised at rates sufficient to write off their costs net of residual values over their estimated useful lives of three to five years on a straight-line basis. The residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period, with the effect of any changes in estimate accounted for on a prospective basis.

Costs associated with maintaining computer systems and software programmes are recognised in the consolidated income statement as incurred.

The Group's accounting policy for impairment is described in note 2(e).

28. Goodwill and Other Intangible Assets (continued)

	Other Intangible Assets				
	Goodwill \$m	Tradenames \$m	Customer relationships \$m	Software systems \$m	Total \$m
Cost:					
At 1 Jan 2018	13,277	898	3,136	2,833	20,144
Exchange differences	21	1	5	(2)	25
Additions	–	–	–	602	602
Disposals	–	–	–	(13)	(13)
At 31 Dec 2018	13,298	899	3,141	3,420	20,758
At 1 Jan 2019	13,298	899	3,141	3,420	20,758
Exchange differences	(65)	(4)	(15)	(11)	(95)
Acquisition of a subsidiary (note 47)	111	–	18	20	149
Additions	–	–	–	830	830
Disposals	–	–	–	(85)	(85)
At 31 Dec 2019	13,344	895	3,144	4,174	21,557
Accumulated amortisation:					
At 1 Jan 2018	–	–	661	1,558	2,219
Exchange differences	–	–	1	(3)	(2)
Amortisation	–	–	130	405	535
Disposals	–	–	–	(13)	(13)
At 31 Dec 2018	–	–	792	1,947	2,739
At 1 Jan 2019	–	–	792	1,947	2,739
Exchange differences	–	–	(5)	(8)	(13)
Amortisation	–	–	132	406	538
Disposals	–	–	–	(85)	(85)
At 31 Dec 2019	–	–	919	2,260	3,179
Net book value:					
At 31 Dec 2019	13,344	895	2,225	1,914	18,378
At 31 Dec 2018	13,298	899	2,349	1,473	18,019
Cost of software systems under development included above:					
At 31 Dec 2019	–	–	–	1,044	1,044
At 31 Dec 2018	–	–	–	674	674

Amortisation of \$538 million (2018: \$535 million) is included in “depreciation and amortisation” in the consolidated income statement.

Tradenames are regarded as having indefinite useful lives and there is no foreseeable limit to the period over which they are expected to generate cash flows for the Group as it is expected that their values will not be reduced through usage and there are no legal or similar limits on the period for their use.

28. Goodwill and Other Intangible Assets (continued)

Impairment tests for CGUs containing goodwill and intangible assets with indefinite useful lives

Goodwill and tradenames that arose on the acquisition of subsidiaries are allocated to and monitored by management at the operating segment level, which comprises CGUs, or groups of CGUs that are expected to benefit from synergies of combination with the acquired businesses. A summary of the allocation of goodwill and tradenames to these operating segments is as follows:

	At 31 Dec 2019		At 31 Dec 2018	
	Goodwill \$m	Tradenames \$m	Goodwill \$m	Tradenames \$m
Commodities segment	10,361	701	10,412	704
Post Trade segment	2,872	194	2,886	195
Technology segment (note 47)	111	-	-	-
	13,344	895	13,298	899

The Commodities segment comprises the commodities trading platform in the UK (LME commodities CGU) and the commodities trading platform in Mainland China (China commodities CGU). As the China commodities CGU is still considered at an early stage of operation and has only ended its fee waiver in 2019, its valuation has not been taken into account in determining the recoverable amount of the Commodities segment at 31 December 2019.

The recoverable amount of each CGU is determined based on value-in-use calculations. These calculations use cash flow projections based on financial forecasts approved by management covering a five-year period. Cash flows beyond the five-year period are extrapolated using the estimated terminal growth rates stated below. The key assumptions, EBITDA margins, growth rates and discount rates used for value-in-use calculations are as follows:

	At 31 Dec 2019			At 31 Dec 2018	
	Commodities segment	Post Trade segment	Technology segment	Commodities segment	Post Trade segment
EBITDA margin (average of next five years)	65%	50%	24%	61%	49%
Growth rate	3%	3%	3%	3%	3%
Discount rate	9%	9%	14%	9%	9%

Management determined the EBITDA margins based on past performance, expectations regarding market development, and the business model the entity undertakes. The growth rates do not exceed the long-term average growth rate for the business in the markets in which each of the CGUs currently operates. The discount rates used are pre-tax and reflect specific risks relating to each CGU.

The recoverable amounts of the operating segments based on the estimated value-in-use calculations were higher than their carrying amounts (including goodwill and tradenames) at 31 December 2019 and 31 December 2018. Accordingly, no provision for impairment loss for goodwill or tradenames is considered necessary.

If the LME trading fee in the forecast period was 11 per cent lower than forecast, or the discount rate increased to 10 per cent, the recoverable amount of the Commodities segment would be approximately equal to its carrying amount. Except for this, any reasonably possible changes in the key assumptions used in the value-in-use assessment would not affect management's view on impairment at 31 December 2019.

29. Fixed Assets

Accounting Policy

Tangible fixed assets are stated at historical cost less accumulated depreciation and impairment losses. Historical cost includes expenditure that is directly attributable to the acquisition of the assets.

Tangible fixed assets are depreciated when they are available for use. They are depreciated at rates sufficient to write off their costs net of expected residual values over their estimated useful lives on a straight-line basis. The residual values and useful lives are reviewed at the end of each reporting period, with the effect of any changes in estimate accounted for on a prospective basis.

The useful lives of major categories of fixed assets are as follows:

Leasehold buildings	Up to 35 years or remaining lives of the leases if shorter
Leasehold improvements	Over the remaining lives of the leases but not exceeding 10 years
Computer trading and clearing systems – hardware and software	3 to 5 years
Other computer hardware and software	3 years
Furniture, equipment and motor vehicles	3 to 5 years
Data centre facilities and equipment	3 to 20 years

Expenditure incurred in the construction of leasehold buildings and other directly attributable costs are capitalised when it is probable that future economic benefits associated with the expenditure will flow to the Group and the costs can be measured reliably.

Qualifying software expenditure and related directly attributable costs are capitalised and recognised as a fixed asset if the software forms an integral part of the hardware on which it operates (ie, operating system software without which the related hardware cannot operate).

Subsequent costs and qualifying development expenditure incurred after the completion of a system are included in the asset's carrying amount or recognised as a separate asset only when it is probable that future economic benefits associated with that item will flow to the Group and the cost of the item can be measured reliably. All other repairs and maintenance costs and other subsequent expenditure are charged to the consolidated income statement when incurred.

The Group's accounting policy for impairment is described in note 2(e).

29. Fixed Assets (continued)

	Leasehold buildings \$m	Computer trading and clearing systems \$m	Other computer hardware and software \$m	Data centre facilities and equipment \$m	Leasehold improvements, furniture, equipment and motor vehicles \$m	Total \$m
Cost:						
At 1 Jan 2018	708	1,421	546	416	997	4,088
Exchange differences	–	(2)	(1)	–	(2)	(5)
Additions	–	35	112	12	227	386
Disposals	–	(27)	(8)	–	(6)	(41)
At 31 Dec 2018	708	1,427	649	428	1,216	4,428
At 1 Jan 2019, as previously reported	708	1,427	649	428	1,216	4,428
Effect of adoption of HKFRS 16 (note 2(c)(i))	–	–	–	–	(53)	(53)
At 1 Jan 2019, as restated	708	1,427	649	428	1,163	4,375
Exchange differences	–	(1)	(2)	–	(1)	(4)
Additions	–	44	95	12	87	238
Disposals	–	(370)	(111)	–	(142)	(623)
At 31 Dec 2019	708	1,100	631	440	1,107	3,986
Accumulated depreciation:						
At 1 Jan 2018	149	1,237	475	139	619	2,619
Exchange differences	–	(1)	–	–	(1)	(2)
Depreciation	29	31	42	28	97	227
Disposals	–	(27)	(8)	–	(6)	(41)
At 31 Dec 2018	178	1,240	509	167	709	2,803
At 1 Jan 2019, as previously reported	178	1,240	509	167	709	2,803
Effect of adoption of HKFRS 16 (note 2(c)(i))	–	–	–	–	(17)	(17)
At 1 Jan 2019, as restated	178	1,240	509	167	692	2,786
Exchange differences	–	–	(1)	–	(1)	(2)
Depreciation	28	42	33	29	103	235
Disposals	–	(370)	(111)	–	(141)	(622)
At 31 Dec 2019	206	912	430	196	653	2,397
Net book value:						
At 31 Dec 2019	502	188	201	244	454	1,589
At 1 Jan 2019, as restated	530	187	140	261	471	1,589
At 31 Dec 2018	530	187	140	261	507	1,625
Cost of fixed assets in the course of construction included above:						
At 31 Dec 2019	–	56	118	–	86	260
At 31 Dec 2018	–	46	91	–	132	269

Depreciation of \$235 million (2018: \$227 million) is included in “depreciation and amortisation” in the consolidated income statement.

30. Right-of-use Assets

Accounting Policy

A contract is, or contains, a lease if the contract conveys a right to control the use of an identified asset for a period of time in exchange for consideration. The Group recognises a right-of-use asset and a lease liability (note 37) at the lease commencement date.

For an asset leased by the Group, the right-of-use asset is initially measured at cost (which comprises the initial measurement of lease liabilities, initial direct costs, reinstatement costs, any payments made at or before the commencement date less any lease incentives received), and subsequently at cost less any accumulated depreciation and impairment losses. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis.

The Group has applied judgement to determine the lease term of some lease contracts which includes renewal options. The assessment of whether the Group is reasonably certain to exercise such options impacts the lease term, which significantly affects the amount of lease liabilities and right-of-use assets recognised.

Payments associated with short-term leases (ie, leases with a lease term of 12 months or less) and low value leases are recognised on a straight-line basis as an expense in the consolidated income statement.

The Group has applied HKFRS 16 from 1 January 2019. As permitted by the transitional provision of HKFRS 16, comparatives for 2018 were not restated. In the comparative period, leases where substantially all the rewards and risks of ownership of assets remained with the lessor were accounted for as operating leases. Operating lease rentals were recognised under operating expenses in the consolidated income statement on a straight-line basis over the lease term. Commitments under operating leases for future periods were not recognised as liabilities.

The movements of right-of-use assets were as follows:

	Lease premium for land \$m	Properties \$m	Information technology facilities \$m	Equipment and motor vehicles \$m	Total \$m
At 1 Jan 2019, upon adoption of HKFRS 16 (note 2(c)(i))	20	2,398	38	19	2,475
Additions	-	172	-	1	173
Adjustment relating to reassessment of lease liabilities	-	(11)	-	-	(11)
Depreciation	(1)	(255)	(10)	(5)	(271)
31 Dec 2019	19	2,304	28	15	2,366

- (a) Lease premium for land represents prepaid lease payment for a medium-term lease in Hong Kong. In addition, the Group leases various properties, information technology facilities, office equipment and motor vehicles through lease contracts. These contracts are expected to expire within 11 years.
- (b) Depreciation of \$271 million is included in "depreciation and amortisation" in the consolidated income statement.

31. Financial Liabilities at Fair Value through Profit or Loss

Accounting Policy

Financial liabilities at fair value through profit or loss are initially recognised at fair value on trade date and subsequently remeasured at their fair values. Changes in fair value of the liabilities are recognised in the consolidated income statement.

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Held by LME Clear in its capacity as a central counterparty		
Derivative financial instruments:		
– base, ferrous and precious metals futures and options contracts cleared through LME Clear (note (a))	48,008	53,915
	48,008	53,915

- (a) The amount represents the fair value of outstanding base, ferrous and precious metals futures and options contracts cleared through LME Clear that do not qualify for netting under HKAS 32: Financial Instruments-Presentation, where LME Clear is acting in its capacity as a central counterparty to the contracts traded on the LME.

32. Margin Deposits, Mainland Security and Settlement Deposits, and Cash Collateral from Clearing Participants

Accounting Policy

The obligation to refund the Margin deposits, Mainland security and settlement deposits, and cash collateral from Clearing Participants is disclosed under current liabilities. Non-cash collateral received from Clearing Participants is not recognised on the consolidated statement of financial position.

Margin Funds are established by cash received or receivable from Clearing Participants in respect of margin deposits, Mainland security and settlement deposits, and cash collateral of the five clearing houses to cover their open positions. Part of the Mainland security and settlement deposits is used by HKSCC to satisfy its obligations as a clearing participant of ChinaClear in respect of trades transacted through Stock Connect. These funds are held in segregated accounts of the respective clearing houses for this specified purpose and cannot be used by the Group to finance any other activities.

32. Margin Deposits, Mainland Security and Settlement Deposits, and Cash Collateral from Clearing Participants (continued)

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Margin deposits, Mainland security and settlement deposits, and cash collateral from Clearing Participants comprised:		
SEOCH Clearing Participants' margin deposits	8,174	9,011
HKCC Clearing Participants' margin deposits	55,664	52,446
HKSCC Clearing Participants' margin deposits, Mainland security and settlement deposits, and cash collateral	12,367	7,982
OTC Clear Clearing Participants' margin deposits	5,180	3,395
LME Clear Clearing Participants' margin deposits	61,151	50,894
	142,536	123,728
The margin deposits, Mainland security and settlement deposits, and cash collateral were invested in the following instruments for managing the obligations of the Margin Funds (note 19):		
Cash and cash equivalents (note 20)	100,095	90,773
Financial assets measured at fair value through other comprehensive income (note 22)	4,569	3,755
Financial assets measured at amortised cost (note 23)	32,348	26,045
Settlement Reserve Fund and Settlement Guarantee Fund held by ChinaClear (note 25)	5,516	3,150
Margin receivable from Clearing Participants	8	5
	142,536	123,728

33. Accounts Payable, Accruals and Other Liabilities

Accounting Policy

Financial liabilities (other than financial liabilities at fair value through profit or loss (note 31) and financial guarantee contracts (note 35)) are initially recognised at fair value, which is then treated as their cost after initial recognition, and subsequently carried at amortised cost using the effective interest method.

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Payable to ChinaClear and Exchange and Clearing Participants:		
– CNS money obligations payable (note 25(a))	20,076	16,279
– HKD/USD cash collateral for A shares (note 20(a)(ii))	115	206
– others	298	191
Transaction levy payable to the SFC	97	90
Unclaimed dividends (note (a))	343	276
Stamp duty payable to the Collector of Stamp Revenue	420	323
Other payables, accruals and deposits received	1,098	1,004
	22,447	18,369

33. Accounts Payable, Accruals and Other Liabilities (continued)

- (a) Unclaimed dividends represent dividends declared by listed companies, including HKEX, but not yet claimed by their shareholders. During the year, cash dividends of listed companies other than HKEX held by HKSCC Nominees Limited which had remained unclaimed for a period of more than seven years amounting to \$9 million (2018: \$10 million) were forfeited and recognised as sundry income (note 7) and dividends declared by HKEX which were unclaimed over a period of six years amounting to \$19 million (2018: \$23 million) were forfeited and transferred to retained earnings in accordance with HKEX's Articles of Association (note 45).
- (b) CNS money obligations payable mature within two days after the trade date. The majority of the remaining accounts payable, accruals and other liabilities would mature within three months.

34. Deferred Revenue

Accounting Policy

Deferred revenue, or “contract liability” under HKFRS 15, is recognised when the Group receives consideration (or the amount is due) from the customers before the Group transfers goods or services to the customers.

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Deferred revenue arising from unsatisfied performance obligations	1,436	1,418
Analysed as:		
Non-current liabilities	403	418
Current liabilities	1,033	1,000
	1,436	1,418

35. Other Financial Liabilities

Accounting Policy

A financial guarantee contract is a contract that requires the Group to make specified payments to reimburse the holder for a loss it incurs because a specified entity or person fails to make payment when due in accordance with the original or modified terms of an undertaking.

Financial guarantee contracts are initially recognised at fair value, and subsequently at the higher of the amount determined in accordance with the expected credit loss model under HKFRS 9 (2014) and the amount initially recognised less, where appropriate, the cumulative amount of income recognised in accordance with the principles of HKFRS 15: Revenue from Contracts with Customers.

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Financial liabilities of Clearing House Funds (note 36)	39	39
Financial liabilities of Corporate Funds:		
Financial guarantee contract (note (a))	20	20
	59	59

- (a) The amount represents the carrying value of a financial guarantee provided by the Group to the Collector of Stamp Revenue, details of which are disclosed in note 49(b).

36. Clearing House Funds

Accounting Policy

Clearing Participants' cash contributions to Clearing House Funds are included under current liabilities. Non-cash collateral received from Clearing Participants is not recognised on the consolidated statement of financial position.

Clearing House Funds, or default funds, are established under the Clearing House Rules. Assets contributed by the Clearing Participants and the Group are held by the respective clearing houses (together with the accumulated income less related expenses for the clearing houses in Hong Kong) expressly for the purpose of ensuring that the respective clearing houses are able to fulfil their counterparty obligations in the event that one or more of the Clearing Participants fail to meet their obligations to the clearing houses. The HKSCC Guarantee Fund also provides resources to enable HKSCC to discharge its liabilities and obligations if defaulting Clearing Participants deposit defective securities into CCASS. The amounts earmarked for contribution to the Rates and FX Guarantee Resources of OTC Clear and its accumulated investment income was also included in Clearing House Funds for presentation purpose. These funds are held in segregated accounts of the respective clearing houses for this specified purpose and cannot be used by the Group to finance any other activities. Contributions by HKSCC, HKCC and SEOCH to their respective default funds (Skin-in-the-Game) are set at 10 per cent of the size of the respective funds, and such contributions, together with default fund credits granted to HKSCC and HKCC Participants, are included in Corporate Funds.

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
The Clearing House Funds comprised:		
Clearing Participants' cash contributions	14,394	14,787
Contribution to OTC Clear Rates and FX Guarantee Resources	156	156
Clearing house funds reserves (note 44)	587	523
	15,137	15,466
The Clearing House Funds were invested in the following instruments for managing the obligations of the Funds (note 19):		
Cash and cash equivalents (note 20)	15,176	15,505
Less: Other financial liabilities of Clearing House Funds (note 35)	(39)	(39)
	15,137	15,466
The Clearing House Funds comprised the following Funds:		
HKSCC Guarantee Fund	2,281	2,075
SEOCH Reserve Fund	947	957
HKCC Reserve Fund	1,660	1,167
OTC Clear Rates and FX Guarantee Fund	2,548	2,561
OTC Clear Rates and FX Guarantee Resources	168	164
LME Clear Default Fund	7,533	8,542
	15,137	15,466

- (a) At 31 December 2019, the Skin-in-the-Game, together with default fund credits granted to HKSCC and HKCC Participants (note 53(c)), amounted to \$818 million (31 December 2018: \$724 million), and were included in Corporate Funds (note 20(b)).

37. Lease Liabilities

Accounting Policy

A contract is, or contains, a lease if the contract conveys a right to control the use of an identified asset for a period of time in exchange for consideration. The Group recognises a right-of-use asset (note 30) and a lease liability at the lease commencement date.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the lessee's incremental borrowing rate is used. Generally, the lessee uses its incremental borrowing rate as the discount rate. The lease liability subsequently increases by the interest cost on the lease liability and is reduced by lease payments made. Each lease payment is allocated between the principal and interest expense.

	At 31 Dec 2019 \$m	At 1 Jan 2019 \$m
Total lease liabilities	2,506	2,512
Analysed as:		
Non-current liabilities	2,234	2,277
Current liabilities	272	235
	2,506	2,512

Some lease contracts include an option to renew for an additional period after the end of the initial contract term. Where practicable, the Group seeks to include in all leases such extension options exercisable by the Group to provide operational flexibility. The Group assesses at the lease commencement date the likelihood of exercising the extension options, and only include those reasonably certain to be exercised in the measurement of lease liabilities. At 31 December 2019, the potential future lease payments under extension options for a leased property of \$14 million (undiscounted) have not been included in the lease liabilities as the options are unlikely to be exercised.

38. Borrowings

Accounting Policy

Borrowings are recognised initially at fair value of proceeds received, net of transaction costs incurred (net proceeds). The difference between the net proceeds and the redemption value is amortised and recognised in the consolidated income statement as interest expense over the period of the borrowings using the effective interest method and added to borrowings.

The borrowings are subsequently carried at amortised cost (ie, net proceeds plus the cumulative amortisation using the effective interest method less payments).

Borrowings are classified as current liabilities unless the Group has an unconditional right to defer settlement of the liability for at least twelve months after the end of the reporting period.

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Notes (note (a))	-	753
Written put options to non-controlling interests (note (b))	418	413
Total borrowings	418	1,166
Analysed as:		
Non-current liabilities	80	161
Current liabilities	338	1,005
	418	1,166

The borrowings were repayable as follows:

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Within one year	338	1,005
After one year but within two years	-	85
After two years but within five years	80	76
	418	1,166

(a) Notes

In January 2014, HKEX issued US\$95 million (HK\$737 million) of fixed rate senior notes which matured and were fully repaid in January 2019. The average effective interest rate of the senior notes prior to its repayment was 2.9 per cent (2018: 2.9 per cent) per annum.

38. Borrowings (continued)

- (b) Written put options to non-controlling interests

Accounting Policy

The potential cash payments related to put options issued by HKEX for the non-voting ordinary shares of a subsidiary held by non-controlling interests are accounted for as financial liabilities, which are initially recognised at present value of amount payable by HKEX to acquire the shares held by non-controlling interests with a corresponding charge directly to equity under “reserve relating to written put options to non-controlling interests”.

The written put option financial liabilities are subsequently measured at amortised cost (ie, the initial fair value plus cumulative amortisation of the difference between the initial fair value and the cash payments related to the put options using the effective interest method). The interest charge arising is recorded under finance costs in the consolidated income statement.

	2019 \$m	2018 \$m
At 1 Jan	413	327
Issuance of written put options to non-controlling interests debited against related reserve under equity attributable to shareholders of HKEX (note (i))	-	76
Interest expenses (note (ii))	5	10
At 31 Dec	418	413

- (i) Prior to 2018, OTC Clear issued 1,620 non-voting ordinary shares to certain third party shareholders at a total consideration of \$340 million. In October 2018, a further 1,921 non-voting ordinary shares of OTC Clear were issued at a consideration of \$93 million. As part of the arrangement, put options were written by HKEX to the non-controlling interests to sell part or all of their non-voting ordinary shares in OTC Clear to HKEX at the initial subscription prices less accumulated dividends received by the non-controlling interests. The put options are exercisable by the non-controlling interests at any time following the date falling five years after the shares were issued if the non-controlling interests can demonstrate to HKEX that they have used reasonable endeavours for at least three months to find a suitable purchaser for their shares at a price equal to or more than their fair market values. The carrying amount of written put options represents the present value of the amount payable by HKEX to acquire the shares held by non-controlling interests at the date at which the written put options first become exercisable.
- \$252 million of the written put options became exercisable in October 2018, and \$86 million and \$80 million of the options will become exercisable in August 2020 and October 2023 respectively.
- (ii) The effective interest rate of the liabilities was 3.0 per cent (2018: 3.0 per cent) per annum.

39. Provisions

Accounting Policy

Provisions are recognised when the Group has a present legal or constructive obligation as a result of past events, it is probable that an outflow of resources will be required to settle the obligation, and a reliable estimate of the amount can be made. The amount recognised as a provision is the best estimate of the consideration required to settle the present obligation at the end of the reporting period.

	Reinstatement costs \$m	Employee benefit costs \$m	Total \$m
At 1 Jan 2019	102	80	182
Acquisition of a subsidiary (note 47)	–	1	1
Provision for the year	15	118	133
Amount used during the year	–	(102)	(102)
Amount paid during the year	(12)	(8)	(20)
At 31 Dec 2019	105	89	194
Analysed as:			
Non-current liabilities	104	–	104
Current liabilities	1	89	90
	105	89	194

- (a) The provision for reinstatement costs represents the estimated costs of restoring the leased office premises to their original state upon the expiry of the leases. The leases are expected to expire within eleven years.
- (b) The provision for employee benefit costs represents unused annual leave that has been accumulated at the end of the reporting period. It is expected to be fully utilised in the coming twelve months.

40. Deferred Taxation

Accounting Policy

Deferred tax is recognised, using the liability method, on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the financial statements, except that deferred tax liabilities are not recognised if they arise from the initial recognition of goodwill. Deferred tax is determined using tax rates that have been enacted or substantively enacted by the end of the reporting period and are expected to apply when the related deferred tax asset is realised or the deferred tax liability is settled.

Deferred tax assets are recognised to the extent that it is probable that future taxable profit will be available against which the temporary differences or the current tax losses can be utilised.

- (a) The movements on the net deferred tax liabilities account were as follows:

	2019 \$m	2018 \$m
At 1 Jan	724	681
Exchange differences	(3)	1
Acquisition of a subsidiary (note 47)	6	–
Charged to the consolidated income statement (note 16(a))	48	41
Charged directly to retained earnings	–	1
At 31 Dec (note (d))	775	724

40. Deferred Taxation (continued)

- (b) The Group had unrecognised tax losses of \$1,443 million at 31 December 2019 (31 December 2018: \$1,280 million) that may be carried forward for offsetting against future taxable income. Tax losses of PRC entities amounting to \$556 million (31 December 2018: \$458 million) will expire 5 years after the losses were incurred, and the remaining tax losses have no expiry date and can be carried forward indefinitely.
- (c) The movements on the net deferred tax liabilities/(assets) were as follows:

	Accelerated tax depreciation		Intangible assets ¹		Tax losses		Employee benefits		Leases		Total	
	2019 \$m	2018 \$m	2019 \$m	2018 \$m	2019 \$m	2018 \$m	2019 \$m	2018 \$m	2019 \$m	2018 \$m	2019 \$m	2018 \$m
At 1 Jan	226	174	555	578	(39)	(51)	(18)	(20)	-	-	724	681
Exchange differences	-	-	(3)	1	-	-	-	-	-	-	(3)	1
Acquisition of a subsidiary (note 47)	-	-	6	-	-	-	-	-	-	-	6	-
Charged/(credited) to the consolidated income statement	79	52	(25)	(24)	17	12	(3)	1	(20)	-	48	41
Charged directly to retained earnings	-	-	-	-	-	-	-	1	-	-	-	1
At 31 Dec	305	226	533	555	(22)	(39)	(21)	(18)	(20)	-	775	724

1 Intangible assets include customer relationships and tradenames.

- (d) Deferred tax assets and liabilities are offset when there is a legally enforceable right to set off current tax assets against current tax liabilities and when the deferred taxes relate to tax levied by the same taxation authority on the same taxable entity or different taxable entities where there is an intention to settle the balances on a net basis. The following amounts, determined after appropriate offsetting, are shown in the consolidated statement of financial position:

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Deferred tax assets	(17)	(19)
Deferred tax liabilities	792	743
	775	724

- (e) The analysis of deferred tax (assets)/liabilities is as follows:

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Deferred tax assets		
Amounts to be recovered after more than 12 months	(17)	(10)
Amounts to be recovered within 12 months	-	(9)
	(17)	(19)
Deferred tax liabilities		
Amounts to be settled after more than 12 months	788	730
Amounts to be settled within 12 months	4	13
	792	743
Net deferred tax liabilities	775	724

41. Share Capital and Shares Held for Share Award Scheme

Accounting Policy

Shares

Ordinary shares are classified as equity.

Shares held for Share Award Scheme

Where HKEX shares are acquired by the Share Award Scheme from the market or by electing for scrip in lieu of cash dividends, the total consideration of shares acquired from the market (including any directly attributable incremental costs) or under the scrip dividend scheme is presented as Shares held for Share Award Scheme and deducted from total equity.

Upon vesting, the related costs of the vested Awarded Shares purchased from the market and shares acquired under the scrip dividend scheme (dividend shares) are credited to Shares held for Share Award Scheme, with a corresponding decrease in employee share-based compensation reserve for Awarded Shares, and decrease in retained earnings for dividend shares.

Issued and fully paid – ordinary shares with no par:

	Number of shares '000	Number of shares held for Share Award Scheme ¹ '000	Share capital \$m	Shares held for Share Award Scheme \$m	Total \$m
At 1 Jan 2018	1,239,809	(2,994)	25,141	(606)	24,535
Shares issued in lieu of cash dividends (note (a))	10,823	(81)	2,605	(18)	2,587
Shares purchased for Share Award Scheme (note (b))	–	(1,288)	–	(300)	(300)
Vesting of shares of Share Award Scheme (note (c))	–	1,248	4	242	246
At 31 Dec 2018	1,250,632	(3,115)	27,750	(682)	27,068
At 1 Jan 2019	1,250,632	(3,115)	27,750	(682)	27,068
Shares issued in lieu of cash dividends (note (a))	10,569	(84)	2,694	(21)	2,673
Shares purchased for Share Award Scheme (note (b))	–	(1,115)	–	(285)	(285)
Vesting of shares of Share Award Scheme (note (c))	–	1,040	5	218	223
At 31 Dec 2019	1,261,201	(3,274)	30,449	(770)	29,679

¹ Excluding shares vested but not yet transferred to awardees of 50,341 shares at 31 December 2019 (31 December 2018: 121,520 shares)

41. Share Capital and Shares Held for Share Award Scheme (continued)

- (a) During the year, the following shares were issued to shareholders who elected to receive HKEX shares in lieu of cash dividends pursuant to the scrip dividend scheme:

	2019				
	Number of shares	Scrip price \$	Share capital \$m	Shares held for Share Award Scheme \$m	Total \$m
Issued as 2018 second interim scrip dividends:					
- total	7,476,293	260.77	1,950	-	1,950
- to Share Award Scheme	(36,539)	260.77	-	(10)	(10)
Issued as 2019 first interim scrip dividends:					
- total	3,092,966	240.40	744	-	744
- to Share Award Scheme	(47,800)	240.40	-	(11)	(11)
	10,484,920		2,694	(21)	2,673
	2018				
	Number of shares	Scrip price \$	Share capital \$m	Shares held for Share Award Scheme \$m	Total \$m
Issued as 2017 final scrip dividends:					
- total	6,949,778	252.98	1,758	-	1,758
- to Share Award Scheme	(32,705)	252.98	-	(8)	(8)
Issued as 2018 first interim scrip dividends:					
- total	3,872,805	218.83	847	-	847
- to Share Award Scheme	(48,012)	218.83	-	(10)	(10)
	10,741,866		2,605	(18)	2,587

- (b) During the year, the Share Award Scheme (note 42) acquired 1,115,300 HKEX shares (2018: 1,287,300 shares) through purchases on the open market. The total amount paid to acquire the shares during the year was \$285 million (2018: \$300 million).
- (c) During the year, a total of 1,040,143 HKEX shares (2018: 1,247,793 shares) were vested. The total cost of the vested shares was \$218 million (2018: \$242 million). In 2019, \$5 million (2018: \$4 million) was credited to share capital in respect of vesting of certain shares whose fair values were higher than the costs.

42. Employee Share-based Arrangements

Accounting Policy

The Group operates the Share Award Scheme (the Scheme), which is an equity-settled share-based compensation plan under which Awarded Shares are granted to employees of the Group (including the Executive Director) as part of their remuneration package.

The amount to be expensed as share-based compensation expenses is determined by reference to the fair value of the Awarded Shares granted, taking into account all non-vesting conditions associated with the grants on grant date. The total expense is recognised on a straight-line basis over the relevant vesting periods (or on the grant date if the shares vest immediately), with a corresponding credit to an employee share-based compensation reserve under equity.

For those Awarded Shares which are amortised over the vesting periods, the Group revises its estimates of the number of Awarded Shares that are expected to ultimately vest based on the vesting conditions at the end of each reporting period. Any resulting adjustment to the cumulative amount recognised in prior years is charged/credited to employee share-based compensation expense in the current year, with a corresponding adjustment to the employee share-based compensation reserve.

The movements of employee share-based compensation reserve were as follows:

	2019 \$m	2018 \$m
At 1 Jan	218	222
Employee share-based compensation benefits (note 8)	240	226
Vesting of shares of Share Award Scheme	(208)	(230)
At 31 Dec	250	218

The Scheme allows shares to be granted to employees under the following two categories of awards:

- (i) Employee Share Awards – for all employees of the Group (including the Executive Director); and
- (ii) Senior Executive Awards – for selected senior executives of the Group (including the Executive Director).

Following the Board's decision to award an award sum (Awarded Sum) for the purchase of Awarded Shares to eligible employees and/or selected senior executives, the Awarded Shares are either purchased from the market or are awarded by regranting the forfeited or unallocated shares held by the Scheme. Before vesting, the Awarded Shares are held in a trust set up by the Scheme.

Further shares are derived from dividends payable on the Awarded Shares held in the Scheme from scrip shares received under the scrip dividend scheme (dividend shares), and are allocated to the awardees on a pro rata basis and have the same vesting periods as the related Awarded Shares.

42. Employee Share-based Arrangements (continued)

(a) Employee Share Awards

Employee Share Awards vest progressively over the vesting period after the awards are granted, provided that the relevant awardee (i) remains employed by the Group (ii) is made redundant or (iii) is deemed to be a “good leaver”, and Employee Share Awards vest immediately if the relevant awardee retires on reaching normal retirement age or suffers from permanent disability. Unless otherwise determined by the Board, the Remuneration Committee or the Chief Executive, the vesting period of Employee Share Awards granted is three years, and the shares will be vested in two equal tranches from the second to the third year after the shares are granted.

For awardees who do not meet the vesting criteria, the unvested shares are forfeited. The forfeited shares are held by the trustee of the Scheme who may award such shares to the other awardees, taking into consideration recommendations of the Board.

Details of Awarded Shares awarded during 2018 and 2019

Date of award	Number of Awarded Shares awarded	Average fair value per share \$	Vesting period
5 Mar 2018	1,400	282.45	29 Dec 2019 - 29 Dec 2020
4 Apr 2018	6,499	253.91	31 Dec 2018 - 1 Apr 2020
30 May 2018	4,199	253.05	10 Mar 2019 - 22 Mar 2021
6 Jul 2018	5,099	228.79	1 Oct 2018 - 29 Jun 2021
17 Aug 2018	500	220.72	24 Feb 2019 - 24 Feb 2020
31 Aug 2018	2,100	224.85	18 Jan 2019 - 18 Jan 2020
4 Oct 2018	800	215.54	31 Dec 2018 - 31 Dec 2020
14 Nov 2018	5,900	225.84	28 Feb 2019 - 28 Feb 2021
19 Nov 2018	200	228.90	1 Nov 2021 - 1 Jan 2022
7 Dec 2018	900	231.24	20 Jan 2019 - 20 Jan 2022
31 Dec 2018	1,367,631 ^{1,2}	232.10	7 Dec 2020 - 7 Dec 2021
13 Jun 2019	996	259.65	13 Jun 2019 - 12 Dec 2019
13 Jun 2019	9,603	259.65	8 Apr 2021 - 8 Apr 2022
18 Nov 2019	6,400	245.67	18 Nov 2019 - 10 Jun 2022
31 Dec 2019	1,261,069 ^{1,2}	254.40	12 Dec 2021 - 12 Dec 2022

1 61,560 and 55,169 shares were awarded to HKEX's Chief Executive on 31 December 2018 and 31 December 2019 respectively.

2 169,670 and 219,143 shares were awarded by re-granting the forfeited or unallocated shares held by the Scheme on 31 December 2018 and 31 December 2019 respectively.

Details of Awarded Shares (excluding dividend shares) vested during 2018 and 2019

During the year, 944,989 HKEX shares (2018: 1,105,298 shares) were vested at an aggregate fair value of \$200 million (2018: \$218 million), of which 61,031 shares (2018: 61,820 shares) were for HKEX's Chief Executive.

42. Employee Share-based Arrangements (continued)

(b) Senior Executive Awards

The actual number of shares to be transferred to the awardees under the Senior Executive Awards is conditional on the satisfaction of performance conditions set by the Board. The Board has full discretion to determine the actual amount of award to be paid at the end of a performance assessment period (which shall normally be a period of at least three financial years) in accordance with these criteria.

The vesting of Senior Executive Awards is not affected by the awardees ceasing employment with the Group before the end of the performance assessment period. The Senior Executive Awards are considered to be vested immediately upon grant and the performance conditions are considered as non-vesting conditions.

Details of Senior Executive Awards awarded during 2018 and 2019

Date of award	Number of Awarded Shares awarded	Average fair value per share \$	Total fair value \$m	Performance period
31 Dec 2018	61,560	174.07	11	2019 - 2021
31 Dec 2019	56,154	190.80	11	2020 - 2022

All of the Senior Executive Awards were awarded to the HKEX's Chief Executive. The fair value per share is determined by taking into account various factors including the probability of the performance conditions being satisfied.

Details of Senior Executive Awards transferred to awardee during 2018 and 2019

In 2019, 30,672 of the HKEX shares awarded on 31 December 2015 (2018: 68,472 of the shares awarded on 2 January 2015) under the Senior Executive Awards were transferred to the HKEX's Chief Executive at a fair value of \$8 million (2018: \$12 million), and \$2 million (2018: \$1 million) was credited to share capital as the cost of Awarded Shares vested was lower than the fair value of shares previously charged to the consolidated income statement.

42. Employee Share-based Arrangements (continued)

(c) Summary of Awarded Shares awarded and dividend shares

Movements in number of Awarded Shares awarded and dividend shares

	2019	2018
Number of Awarded Shares and dividend shares:		
Outstanding at 1 Jan	3,114,689	2,990,188
Awarded ³	1,334,222	1,456,788
Forfeited	(207,979)	(154,658)
Vested	(975,661)	(1,173,770)
Dividend shares:		
– allocated to awardees	79,809	76,781
– allocated to awardees but subsequently forfeited	(8,556)	(6,617)
– vested ⁴	(64,482)	(74,023)
Outstanding at 31 Dec	3,272,042	3,114,689

3 Average fair value per share was \$251.72 (2018: \$232.24).

4 In 2019, 64,482 dividend shares (2018: 74,023 shares), including 7,134 shares (2018: 9,634 shares) for HKEX's Chief Executive, at a cost of \$15 million (2018: \$16 million) were vested.

Remaining vesting periods or performance period of Awarded Shares awarded and dividend shares outstanding at 31 December

	At 31 Dec 2019		At 31 Dec 2018	
	Remaining vesting or performance period	Number of Awarded Shares and dividend shares outstanding	Remaining vesting or performance period	Number of Awarded Shares and dividend shares outstanding
Shares awarded in				
2015	–	–	–	56,800
2016	–	67,400	0.34 year to 1.00 year	550,505
2017	0.04 year to 1.00 year	482,125	0.04 year to 2.00 years	1,013,930
2018	0.05 year to 2.06 years	1,323,153	0.05 year to 3.06 years	1,431,255
2019	0.12 year to 3.00 years	1,330,394	–	–
Dividend shares	0.00 year to 2.27 years	68,970	0.00 year to 2.50 years	62,199
		3,272,042		3,114,689

42. Employee Share-based Arrangements (continued)

(d) Total number of shares held by Share Award Scheme

	At 31 Dec 2019	At 31 Dec 2018
Number of Awarded Shares and dividend shares (note (c))	3,272,042	3,114,689
Forfeited or unallocated shares ⁵	2,322	179
Number of shares held by Share Award Scheme ⁶ (note 41)	3,274,364	3,114,868

5 The shares will be regranted to eligible employees in future.

6 Excluding shares vested but not yet transferred to awardees of 50,341 shares (31 December 2018: 121,520 shares).

43. Hedging and Revaluation Reserves

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Hedging reserve (note (a))	6	–
Revaluation reserve (note (b))	(3)	(6)
	3	(6)

(a) Hedging reserve

Accounting Policy

The Group designates certain bank balances as hedges of foreign exchange risks associated with the cash flows of highly probable forecast transactions (cash flow hedges).

The Group documents at the inception of the transaction the relationship between hedging instruments and hedged items, as well as its risk management objectives and strategies for undertaking various hedge transactions. The Group also documents its assessment, both at hedge inception and on an ongoing basis, of whether the hedging instruments have been and will continue to be highly effective in offsetting changes in cash flows of hedged items.

The changes in the fair value relating to the effective portion of hedging instruments that are designated and qualify as cash flow hedges is recognised in other comprehensive income and accumulated in hedging reserve in equity. The gains or losses relating to the ineffective portion are recognised immediately in the consolidated income statement.

Amounts accumulated in hedging reserve are reclassified to the consolidated income statement in the periods when the hedged item is recognised in the consolidated income statement.

When a hedging instrument expires or is sold, or when a hedge no longer meets the criteria for hedge accounting, any cumulative gain or loss existing in hedging reserve at that time remains in hedging reserve and is recognised when the forecast transaction is ultimately recognised in the consolidated income statement. When a forecast transaction is no longer expected to occur, the cumulative gain or loss that is retained in hedging reserve is immediately reclassified to the consolidated income statement.

43. Hedging and Revaluation Reserves (continued)

(a) Hedging reserve (continued)

The movements of hedging reserve were as follows:

	2019 \$m	2018 \$m
At 1 Jan	-	1
Cash flow hedges:		
– net fair value losses of hedging instruments	(2)	(2)
– reclassified to goodwill as part of acquisition cost of BayConnect (notes (i) and 47)	9	–
– reclassified to the consolidated income statement as staff costs and related expenses (note (ii))	–	1
– reclassified to the consolidated income statement as information technology and computer maintenance expenses (note (ii))	(1)	–
At 31 Dec	<u>6</u>	–
Fair value of hedging instruments at 31 Dec	<u>103</u>	–

- (i) During the year ended 31 December 2019, the Group designated certain bank deposits of RMB233 million as cash flow hedges for hedging the foreign exchange risks of the acquisition of a 51 per cent equity interest of BayConnect (note 47). The net fair value loss of the bank deposits of \$9 million was initially deferred in hedging reserve and included as part of the cost of the acquisition completed on 28 June 2019.
- (ii) The functional currency of the LME Group is United States Dollars (USD). To hedge the foreign currency exposure of its operating expenses, the LME Group has designated certain bank balances of Pound sterling (GBP) as cash flow hedges for hedging the foreign exchange risk of its staff costs and related expenses, and information technology and computer maintenance expenses. At 31 December 2019, GBP10 million of the bank balances was outstanding (31 December 2018: GBP Nil).
- (iii) The total amounts arising from ineffective cash flow hedges recognised in the consolidated income statement of the Group during the year amounted to \$Nil (2018: \$Nil).

(b) Revaluation reserve

	2019 \$m	2018 \$m
At 1 Jan	(6)	(4)
Changes in fair value of financial assets measured at fair value through other comprehensive income	<u>3</u>	(2)
At 31 Dec	<u>(3)</u>	(6)

44. Designated Reserves

Clearing House Funds reserves (note 36)

	HKSCC Guarantee Fund reserve \$m	SEOCH Reserve Fund reserve \$m	HKCC Reserve Fund reserve \$m	OTC Clear Rates and FX Guarantee Fund reserve \$m	OTC Clear Rates and FX Guarantee Resources reserve \$m	Total \$m
At 1 Jan 2018	357	105	349	6	5	822
Contributions from clearing houses reappropriated to retained earnings of clearing houses (note (a))	(200)	–	(120)	–	–	(320)
Surplus of net investment income net of expenses of Clearing House Funds	4	1	2	11	3	21
Transfer (to)/from retained earnings (note 45)	(196)	1	(118)	11	3	(299)
At 31 Dec 2018	161	106	231	17	8	523
At 1 Jan 2019	161	106	231	17	8	523
Surplus of net investment income net of expenses of Clearing House Funds transfer from retained earnings (note 45)	13	5	8	34	4	64
At 31 Dec 2019	174	111	239	51	12	587

- (a) In June 2018, the contributions by HKSCC and HKCC to the HKSCC Guarantee Fund and HKCC Reserve Fund were changed from fixed contributions to 10 per cent of their respective fund size and are currently kept under Corporate Funds. Therefore, the fixed contributions of \$320 million from the two clearing houses to their respective Clearing House Funds were transferred to retained earnings of the respective clearing houses during the year ended 31 December 2018.

45. Retained Earnings

	2019 \$m	2018 \$m
At 1 Jan, as previously reported	13,379	11,813
Effect of adoption of HKFRS 16 (note 2(c)(i))	(8)	–
At 1 Jan, as restated	13,371	11,813
Profit attributable to shareholders	9,391	9,312
Transfer (to)/from Clearing House Funds reserves (note 44)	(64)	299
Dividends:		
2017 final dividend	–	(3,525)
2018 second interim dividend	(3,830)	–
2019/2018 first interim dividend	(4,668)	(4,527)
Unclaimed HKEX dividends forfeited (note 33(a))	19	23
Vesting of shares of Share Award Scheme	(15)	(16)
Tax relating to Share Award Scheme	–	(1)
Changes in ownership interest in a subsidiary	–	1
At 31 Dec	14,204	13,379

46. Notes to the Consolidated Statement of Cash Flows

- (a) Reconciliation of profit before taxation to net cash inflow from principal operating activities

	2019 \$m	2018 \$m
Profit before taxation	10,951	10,883
Adjustments for:		
Net interest income	(1,945)	(1,704)
Net fair value (gains)/losses including interest income on financial assets mandatorily measured at fair value through profit or loss and financial liabilities at fair value through profit or loss	(789)	106
Finance costs	177	114
Depreciation and amortisation	1,044	762
Employee share-based compensation benefits	240	226
Provision for impairment losses of receivables	9	1
Share of profits less losses of joint ventures	(32)	(2)
Other non-cash adjustments	6	(2)
Net (increase)/decrease in financial assets of Margin Funds	(18,805)	34,084
Net increase/(decrease) in financial liabilities of Margin Funds	18,808	(34,086)
Net decrease in Clearing House Fund financial assets	329	2,137
Net decrease in Clearing House Fund financial liabilities	(393)	(1,838)
Decrease/(increase) in cash prepayments and collateral for A shares	1,554	(1,325)
Increase in Corporate Funds used for supporting Skin-in-the-Game and default fund credits	(94)	(724)
Increase in accounts receivable, prepayments and deposits	(5,479)	(704)
Increase in other liabilities	4,145	2,168
Net cash inflow from principal operations	9,726	10,096
Interest received from financial assets measured at amortised cost and cash and cash equivalents	3,096	2,714
Interest paid to Participants	(1,248)	(1,071)
Income tax paid	(431)	(1,323)
Net cash inflow from principal operating activities	11,143	10,416

46. Notes to the Consolidated Statement of Cash Flows (continued)

(b) Reconciliation of liabilities arising from financing activities

	Borrowings \$m	Lease liabilities \$m
At 1 Jan 2018	1,860	–
Issuance of written put options during the year	76	–
Interest on borrowings (note 13)	52	–
Cash flows		
– Repayment of notes	(781)	–
– Payments of interest on notes	(42)	–
Exchange differences	1	–
At 31 Dec 2018	1,166	–
At 1 Jan 2019, as previously stated	1,166	–
Effect of adoption of HKFRS 16 (note 2(c)(i))	–	2,512
At 1 Jan 2019, as restated	1,166	2,512
New leases	–	156
Adjustment relating to reassessment of lease liabilities	–	(11)
Interest on borrowings (note 13)	7	–
Interest on lease liabilities (note 13)	–	89
Cash flows		
– Repayment of notes	(744)	–
– Payments of interest on notes	(11)	–
– Payments of capital elements of lease liabilities	–	(159)
– Payments of interest elements of lease liabilities	–	(89)
Exchange differences	–	8
At 31 Dec 2019	418	2,506

(c) Cash outflow for leases

Amounts included in the cash flow statement for leases comprise the following:

	2019 \$m	2018 \$m
Within operating cash flows	(17)	(373)
Within financing cash flows	(248)	–
Total lease rental paid	(265)	(373)

47. Acquisition of a Subsidiary

Accounting Policy

The Group uses the acquisition method of accounting to account for business combination. The consideration transferred for the acquisition of a subsidiary is the fair values of the assets transferred, the liabilities assumed from the former owners of the acquiree and the equity interests issued by the Group. Acquisition-related costs are expensed when incurred in the Group's consolidated financial statements. Identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date. The Group recognises any non-controlling interest in the acquiree on an acquisition-by-acquisition basis either at fair value or at the non-controlling interest's proportionate share of the acquiree's net identified assets.

The excess of the consideration transferred and the amount of any non-controlling interest in the acquiree over the fair value of the identifiable net assets acquired is recorded as goodwill (note 28).

On 28 June 2019, the Group completed the acquisition of a 51 per cent equity interest of BayConnect for a total cash consideration of RMB233 million (\$262 million) through capital injection into BayConnect.

BayConnect is a Shenzhen-based financial markets technology firm that specialises in financial exchanges, regulation technologies and data applications. The acquisition is expected to support the Group's strategy to further build its financial markets technological capabilities, at a time of rapid changes in the global exchange landscape.

The goodwill arising from the acquisition is attributable to the workforce and the synergies expected from integrating BayConnect into the Group's technology business. It has been included under the Technology segment. The goodwill recognised is not expected to be deductible for income tax purposes.

The following table summarises the purchase consideration for BayConnect, the fair value of assets acquired and liabilities assumed at the acquisition date.

	\$m
Cash and cash equivalents	41
Accounts receivable, prepayments and deposits	4
Intangible assets (note 28)	38
Deferred revenue	(15)
Provisions (note 39)	(1)
Accounts payable, accruals and other liabilities	(9)
Deferred tax liabilities (note 40)	(6)
Net identifiable assets acquired (before capital injection by the Group)	52
Add: Capital injection by the Group	262
Net identifiable assets acquired (after capital injection by the Group)	314
Less: non-controlling interests	(154)
Add: goodwill (note 28)	111
Total	271
Total cash consideration	262
Add: Net loss on cash flow hedges reclassified from hedging reserve	9
Total	271
Cash and cash equivalents acquired in respect of the acquisition of BayConnect	41

47. Acquisition of a Subsidiary (continued)

Acquisition-related costs of less than \$1 million were included in “professional fees” in the consolidated income statement for the year ended 31 December 2019.

The accounts receivables, prepayments and deposits acquired included accounts receivables with fair value of \$3 million. The gross contractual amount for accounts receivables due is \$14 million, of which \$11 million is expected to be uncollectible.

The Group has chosen to recognise the non-controlling interests at its proportionate share of the acquired net identifiable assets.

The total revenue and net loss contributed by BayConnect from its date of acquisition (ie, 28 June 2019) to 31 December 2019 and included in the consolidated income statement were \$30 million and \$1 million respectively.

Had BayConnect been consolidated from 1 January 2019, the Group’s consolidated revenue and profit for the year ended 31 December 2019 would have been \$13,584 million and \$9,388 million respectively. These amounts have been calculated by adopting the Group’s accounting policies. In determining these amounts, it is assumed that the fair value adjustments that arose on the acquisition date would have been the same had the acquisition occurred on 1 January 2019.

48. Commitments

(a) Commitments in respect of capital expenditures

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Contracted but not provided for:		
– fixed assets	24	30
– intangible assets	82	64
Authorised but not contracted for:		
– fixed assets	461	270
– intangible assets	650	571
	1,217	935

48. Commitments (continued)

- (b) Commitments for total future minimum lease payments under non-cancellable leases

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Land and buildings		
– within one year	–	244
– in the second to fifth years	–	1,234
– after the fifth year	–	1,597
	<hr/>	<hr/>
	–	3,075
Computer systems, software and equipment		
– within one year	–	60
– in the second to fifth years	–	105
	<hr/>	<hr/>
	–	165
	<hr/>	<hr/>
	–	3,240

Balance in 2018 represented the commitments for future minimum lease payments of non-cancellable operating leases. Upon adoption of HKFRS 16, the majority of operating leases (except for short-term leases) are recognised in the consolidated statement of financial position as lease liabilities and right-of-use assets and no longer disclosed as commitments, and certain leases are not classified as leases under HKFRS 16.

At 31 December 2018, the Group did not have any purchase options in respect of computer systems, software and equipment.

- (c) Commitments for investment in an unlisted equity investment

In December 2019, the Group entered into a subscription agreement to become a minority shareholder in Huakong TsingJiao Information Science (Beijing) Limited (TsingJiao). TsingJiao specialises in the research and development of Multi-party Computation (MPC) technologies, a subfield of cryptography that seeks to allow collaborative data analysis without revealing private data during the computation and analysis process. If all the pre-conditions are fulfilled, the total capital investment to be made by the Group will be up to RMB100 million.

49. Contingent Liabilities

Accounting Policy

A contingent liability is a possible obligation that arises from past events and whose existence will only be confirmed by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the Group. It can also be a present obligation arising from past events that is not recognised because it is not probable that outflow of economic resources will be required or the amount of obligation cannot be measured reliably.

A contingent liability is not recognised but is disclosed in the consolidated financial statements. When a change in the probability of an outflow occurs so that outflow is probable or when the amount of obligation becomes reliably measurable, it will then be recognised as a provision.

49. Contingent Liabilities (continued)

At 31 December 2019, the Group's material contingent liabilities were as follows:

- (a) The Group had a contingent liability in respect of potential calls to be made by the SFC to replenish all or part of compensation less recoveries paid by the Unified Exchange Compensation Fund established under the repealed Securities Ordinance up to an amount not exceeding \$71 million (31 December 2018: \$71 million). Up to 31 December 2019, no calls had been made by the SFC in this connection.
- (b) The Group had undertaken to indemnify the Collector of Stamp Revenue against any underpayment of stamp duty by its Participants of up to \$200,000 for each Participant (note 35(a)). In the unlikely event that all of its 658 trading Participants (31 December 2018: 640) covered by the indemnity at 31 December 2019 defaulted, the maximum contingent liability of the Group under the indemnity would amount to \$132 million (31 December 2018: \$128 million).
- (c) HKEX has given an undertaking in favour of HKSCC to contribute up to \$50 million in the event of HKSCC being wound up while it is a wholly-owned subsidiary of HKEX or within one year after HKSCC ceases to be a wholly-owned subsidiary of HKEX, for payment of the liabilities of HKSCC contracted before HKSCC ceases to be a wholly-owned subsidiary of HKEX, and for the costs of winding up.

50. Connected Transactions and Material Related Party Transactions

- (a) Connected transactions and related party transactions

Certain Directors of HKEX may be directors and/or shareholders of (i) Exchange Participants of the Stock Exchange, Futures Exchange, the LME and QME (Exchange Participants) and Clearing Participants of HKSCC, HKCC, SEOCH, LME Clear and OTC Clear (Clearing Participants); (ii) companies listed on the Stock Exchange; and (iii) Exchange Participants for buying shares on behalf of HKSCC. Securities and derivatives contracts traded by, and fees levied on, these Exchange Participants and Clearing Participants, fees levied on these listed companies and fees paid to these Exchange Participants for buying shares on behalf of HKSCC are all undertaken in the ordinary course of business of the Group on the standard terms and conditions applicable to all other Exchange Participants, Clearing Participants, listed companies and Exchange Participants for buying shares on behalf of HKSCC.

- (b) Material related party transactions

In addition to the above and those disclosed elsewhere in these consolidated financial statements, the Group entered into the following material related party transactions:

- (i) Key management personnel compensation

	2019 \$m	2018 \$m
Salaries and other short-term employee benefits	187	179
Employee share-based compensation benefits	80	74
Retirement benefit costs	8	8
	275	261

- (ii) Post-retirement benefit plans

The Group has sponsored an ORSO Plan and the LME Pension Scheme as its post-retirement benefit plans (note 8(a)).

- (iii) Save as aforesaid, the Group has entered into other transactions in the ordinary course of business with companies that are related parties but the amounts were immaterial.

51. Pledges of Assets

LME Clear receives securities, gold bullion and warrants as collateral for margins posted by its Clearing Participants. The total fair value of this collateral was US\$1,872 million (HK\$14,586 million) at 31 December 2019 (31 December 2018: US\$1,490 million (HK\$11,666 million)). LME Clear is obliged to return this non-cash collateral upon request when the Clearing Participants' collateral obligations have been substituted with cash collateral or otherwise discharged.

LME Clear also holds securities as collateral in respect of its investments in overnight triparty reverse repurchase agreements under which it is obliged to return equivalent securities to the counterparties at maturity of the reverse repurchase agreements. The fair value of this collateral was US\$8,904 million (HK\$69,378 million) at 31 December 2019 (31 December 2018: US\$7,650 million (HK\$59,895 million)).

The above non-cash collateral, which LME Clear is permitted to sell or repledge in the absence of default by the counterparties, was not recorded on the consolidated statement of financial position of the Group at 31 December 2019. Such non-cash collateral, together with certain financial assets amounting to US\$474 million (HK\$3,692 million) at 31 December 2019 (31 December 2018: US\$420 million (HK\$3,288 million)), have been repledged to LME Clear's investment agent and custodian banks under first floating charge and security arrangements for the settlement and depository services they provide in respect of the collateral and investments held. The floating charge could convert to a fixed charge in the event of contract termination, or default or insolvency of LME Clear.

52. Capital Management

The Group's objectives when managing capital are:

- To safeguard the Group's ability to continue as a going concern, so that it continues to provide returns for shareholders and benefits for other stakeholders;
- To support the Group's stability and growth;
- To provide capital for the purpose of strengthening the Group's risk management capability; and
- To ensure that the Group's regulated entities comply with their respective regulatory capital requirements.

The Group actively and regularly reviews and manages its capital structure to ensure an optimal capital structure and shareholder returns. The Group takes into consideration the expected capital requirements and capital efficiency, regulatory capital requirements of its regulated entities, prevailing and projected profitability, projected operating cash flows, projected capital expenditures and projected strategic investment opportunities.

52. Capital Management (continued)

The Group has a number of regulated entities that are subject to capital requirements set by the respective regulators. The regulatory capital requirements of the Group's subsidiaries at 31 December 2019 are summarised as follows:

Subsidiaries	Regulatory authority	Regulatory capital requirements
Stock Exchange, Futures Exchange	SFC, Hong Kong	Maintain at all times net current assets funded by equity sufficient to cover each subsidiary's projected total operating expenses for at least the following six months (approximately \$1,434 million), and net current assets funded by equity or long-term loans from HKEX sufficient to cover its projected total operating expenses for at least the following twelve months (approximately \$2,868 million).
HKSCC, HKCC, SEOCH, OTC Clear	SFC, Hong Kong	Maintain at all times liquid net assets funded by equity (ie, liquid assets of Corporate Funds (excluding those solely used to support Skin-in-the-Game and default fund credits of Clearing House Funds) minus non-current liabilities) sufficient to cover each subsidiary's projected total operating expenses for at least the following six months (approximately \$662 million), and net current assets funded by equity or long-term loans from HKEX (excluding those solely used to support Skin-in-the-Game and default fund credits of Clearing House Funds) sufficient to cover its projected total operating expenses for at least the following twelve months (approximately \$1,324 million).
LME	Financial Conduct Authority, UK	Maintain at all times liquid financial assets amounting to at least six months' operating costs plus a risk based capital charge (approximately US\$66 million (HK\$514 million)), and net capital of at least this amount.
LME Clear	Bank of England, UK	Maintain cash or highly liquid financial instruments with minimal market and credit risk, amounting to US\$91.5 million (HK\$713 million), plus 10 per cent minimum reporting threshold of US\$9.1 million (HK\$71 million) and US\$22.9 million (HK\$178 million) financial resources available to set off losses in the event of default. Capital resources must be in the form of share capital, retained earnings and reserves, reduced by intangible assets and retained losses.

At 31 December 2019, the Group had set aside \$4,000 million (31 December 2018: \$4,000 million) of shareholders' funds for the purpose of supporting the risk management regime of the clearing houses in their roles as central counterparties, of which \$2,160 million (31 December 2018: \$2,160 million) had been injected into HKSCC, HKCC and SEOCH as share capital.

52. Capital Management (continued)

All regulated entities of the Group had adequate capital to meet their regulatory requirements at 31 December 2019 and 31 December 2018.

The Group adopts a dividend policy of providing shareholders with regular dividends with a normal target payout ratio of 90 per cent of the Group's profit of the year and it may also offer a scrip dividend alternative to shareholders. The consideration of share capital issued under the scrip dividend scheme, together with the 10 per cent of the profit not declared as dividends, are retained as capital of the Group for future use.

The Group monitors capital on the basis of its gross gearing ratio (ie, gross debt divided by adjusted capital) and net gearing ratio (ie, net debt divided by adjusted capital). For this purpose, the Group defines gross debt as the total borrowings (excluding lease liabilities), net debt as gross debt less cash and cash equivalents of Corporate Funds (excluding those reserved for supporting Skin-in-the-Game and default fund credits of Clearing House Funds), and adjusted capital as all components of equity attributable to shareholders of HKEX other than designated reserves. The Group's strategy is to maintain the ratios at less than 50 per cent.

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Borrowings (note 38)	418	1,166
Less:		
Cash and cash equivalents of Corporate Funds (note 20)	11,421	11,904
Less: Amounts reserved for supporting Skin-in-the-Game and default fund credits of Clearing House Funds (note 20(b))	(818)	(724)
	(10,603)	(11,180)
Net debt (note (a))	–	–
Equity attributable to shareholders of HKEX	44,173	40,729
Less: designated reserves	(587)	(523)
Adjusted capital	43,586	40,206
Gross gearing ratio	1%	3%
Net gearing ratio	0%	0%

- (a) Net debt is zero when the amount of cash and cash equivalents of Corporate Funds (excluding those reserved for supporting Skin-in-the-Game and default fund credits of Clearing House Funds) is higher than gross debt.

53. Financial Risk Management

The Group's activities expose it to a variety of financial risks: market risk (including foreign exchange risk, price risk and interest rate risk), liquidity risk and credit risk. The Group's overall risk management programme focuses on the unpredictability of financial markets and seeks to minimise potential adverse effects on the Group's performance.

(a) Market risk

Nature of risk

Market risk is the risk of loss arising from movements in observable market variables such as foreign exchange rates, equity prices and interest rates. The Group is exposed to market risk primarily through its financial assets and financial liabilities (including borrowings and lease liabilities). The Group is also exposed to credit-contingent market risk arising from the default of Clearing Participants, which is further elaborated under credit risk (note (c)).

Risk management

The Group's investment policy is to prudently invest all funds managed by the Group in a manner which will satisfy liquidity requirements, safeguard financial assets and manage risks while optimising return on investments.

Investment and fund management by HKEX and the Group's subsidiaries is governed by the HKEX Investment Policy, Restrictions and Guidelines (Investment Guidelines), which is approved by the Board and reviewed regularly. Investment restrictions and guidelines form an integral part of risk control. Fund-specific restrictions and guidelines are set according to the investment objectives of each fund (ie, Corporate Funds, Clearing House Funds, Margin Funds and Cash for A shares). Specific limits are set for each fund to control risks (eg, permissible asset type, asset allocation, liquidity, credit requirement, counterparty concentration, maturity, foreign exchange exposures and interest rate risks) of the investments.

A portion of the Corporate Funds is invested in collective investment schemes (External Portfolio) under the External Investment Guidelines (the Investment Policy, Restrictions and Guidelines for externally-managed Corporate Funds) approved by the Board. The guidelines include an asset allocation policy which aims to preserve and enhance the return of the External Portfolio by investing in a diverse mix of asset classes whose returns are not highly correlated to each other over time to mitigate portfolio volatility and asset class concentration risk. The guidelines also define the risk-return parameters for the External Portfolio and restrictions to be observed, and the governance structure on selection and monitoring of fund managers. The fund managers of the collective investment schemes are selected based on their performance track records and areas of expertise, and each should be financially strong and stable, and their selections are approved by the Investment Committee (formerly known as Investment Advisory Committee) as delegated by the Board. Specific risk management limits are set for the External Portfolio (eg, permissible asset type, asset allocation, liquidity and foreign exchange exposures and stress loss limits under extreme but plausible conditions).

The Investment Committee, comprised of Non-executive Directors of HKEX, advises the Board on portfolio management and monitors the risk and performance of HKEX's investments. A Treasury team in the Finance Division is dedicated to the day-to-day management and investment of the internally-managed funds, and monitor the performance of the External Portfolio.

53. Financial Risk Management (continued)

- (a) Market risk (continued)
 - (i) Foreign exchange risk

Nature of risk

Foreign exchange risk is the risk that the value or cash flows of an asset, liability or forecast transaction denominated in foreign currency (ie, a currency other than the functional currency of the entity to which the transactions relate) will fluctuate because of changes in foreign exchange rates. The functional currency of the Hong Kong and PRC entities are either HKD or Renminbi (RMB) and the functional currency of LME entities is USD. Foreign exchange risks arise mainly from the Group's investments and bank deposits in currencies other than HKD and USD and its GBP expenditure for the LME entities.

Risk management

Forward foreign exchange contracts and foreign currency bank deposits may be used to hedge the currency exposure of the Group's non-HKD and non-USD assets and liabilities and highly probable forecast transactions to mitigate risks arising from fluctuations in exchange rates. In particular, the LME Group designates certain GBP bank balances as cash flow hedges for hedging the foreign exchange risk of certain operating expenses.

Under the Investment Guidelines, investment in non-HKD financial instruments is subject to the following restrictions:

- Under the External Investment Guidelines, up to 50 per cent of the External Portfolio may be invested in non-HKD or non-USD investments not hedged back to HKD or USD.
- For internally-managed Corporate Funds, Clearing House Funds, Margin Funds and Cash for A shares, unhedged investments in currencies other than HKD or USD must fully match the respective liabilities or forecast payments for the funds. Unhedged investments in USD may not exceed 20 per cent of the respective funds.

For LME Clear, investments of the Margin Fund and Default Fund will generally be in the currency in which cash was received.

53. Financial Risk Management (continued)

(a) Market risk (continued)

(i) Foreign exchange risk (continued)

Exposure

The following table details the Group's financial assets and financial liabilities denominated in a currency other than the functional currency of the entity to which they relate and the net open foreign currency positions (ie, gross positions less forward foreign exchange contracts and other offsetting exposures (hedges)), at 31 December presented in HKD equivalents.

	Foreign currency	At 31 Dec 2019			At 31 Dec 2018		
		Gross open position \$m	Hedges \$m	Net open position \$m	Gross open position \$m	Hedges \$m	Net open position \$m
Financial assets ¹	EUR	9,649	(9,640)	9	5,664	(5,655)	9
	GBP	11,455	(11,026)	429	9,110	(8,577)	533
	JPY	8,264	(8,262)	2	229	(228)	1
	RMB	10,601	(10,468)	133	10,011	(9,806)	205
	USD	3,192	(1,553)	1,639	4,228	(801)	3,427
	Others	2	-	2	3	-	3
Financial liabilities ²	EUR	(9,640)	9,640	-	(5,657)	5,655	(2)
	GBP	(11,445)	11,026	(419)	(8,737)	8,577	(160)
	JPY	(8,262)	8,262	-	(228)	228	-
	RMB	(10,473)	10,468	(5)	(9,808)	9,806	(2)
	USD	(1,598)	1,553	(45)	(1,577)	801	(776)
	Others	(1)	-	(1)	(3)	-	(3)
Total net open positions for the Group	EUR			9			7
	GBP			10			373
	JPY			2			1
	RMB			128			203
	USD			1,594			2,651
	Others			1			-
				1,744			3,235

1 Financial assets comprised cash and cash equivalents, financial assets measured at fair value through profit or loss (excluding collective investment schemes), financial assets measured at fair value through other comprehensive income, financial assets measured at amortised cost, and accounts receivable and deposits.

2 Financial liabilities comprised margin deposits, Mainland security and settlement deposits, and cash collateral from Clearing Participants, Participants' contributions to Clearing House Funds, financial liabilities at fair value through profit or loss, borrowings, lease liabilities, and accounts payable and other liabilities.

53. Financial Risk Management (continued)

- (a) Market risk (continued)
 (ii) Equity and commodity price risk

Nature of risk

The Group is exposed to equity price risk from investments in collective investment schemes held as part of the External Portfolio. The Group is also exposed to equity price risk on the investment in a minority interest in an unlisted company, but the amount is insignificant.

The movements of fair value of base, ferrous and precious metals futures and options contracts cleared through LME Clear would not have any financial impact on the Group's results as the assets and liabilities will move by the same amount and fully offset each other.

Risk management

The Group sets prudent investment limits and restrictions to control investments in collective investment schemes and a stress loss limit is set to limit its exposures. The Group selects fund managers after an extensive assessment of the underlying funds, their strategy and the overall quality of the fund managers, and the performance of the funds is monitored on a monthly basis.

- (iii) Interest rate risk

Nature of risk

There are two types of interest rate risk:

- Fair value interest rate risk - the risk that the value of a financial instrument will fluctuate because of changes in market interest rates; and
- Cash flow interest rate risk - the risk that the future cash flows of a financial instrument will fluctuate because of changes in market interest rates.

The Group is exposed to both fair value and cash flow interest rate risks as the Group has significant assets and liabilities (including borrowings) which are interest-bearing.

Risk management

The Group manages its interest rate risks by setting limits on the residual maturity of the investments and on the fixed and floating rate mismatches of its assets and liabilities.

Exposure

The following tables present the carrying value and highest and lowest contractual interest rates of the financial assets held by the Group (excluding investments in collective investment schemes and bank deposits held at savings and current accounts) at 31 December:

	Fixed rate financial assets		Floating rate financial assets	
	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Carrying value (\$m)	58,305	72,229	70,779	60,724
Highest contractual interest rates	4.50%	5.90%	3.00%	3.25%
Lowest contractual interest rates ¹	0.66%	0.69%	-0.70%	-1.00%

1 The contractual interest rates for certain reverse repurchase investments denominated in Euro held by LME Clear were below 0 per cent.

53. Financial Risk Management (continued)

(a) Market risk (continued)

(iv) Sensitivity analysis

Investments other than collective investment schemes

The Group uses Value at Risk (VaR) and portfolio stress testing to identify, measure, monitor and control foreign exchange risk and interest rate risks of the Group's investments other than collective investment schemes.

VaR measures the expected maximum loss over a given time interval (a holding period of 10 trading days is used by the Group) at a given confidence level (95 per cent confidence interval is adopted by the Group) based on historical data (one year is used by the Group). VaR is monitored on a weekly basis and the Board sets a limit on total VaR for the Group.

VaR is a statistical measure of risks and has limitations associated with the assumptions employed. The calculation is based on historical simulation and therefore vulnerable to sudden changes in market behaviour. The use of a 10-day holding period may be insufficient at times of severe illiquidity. Also, VaR does not necessarily reflect all aspects of risks that affect the price of financial instruments and may underestimate real market risk exposure. In addition, VaR does not factor in the possibility of catastrophic risks but the use of stress testing for abnormal market conditions can mitigate this limitation.

The VaR for each risk factor and the total VaR of the investments other than collective investment schemes and related hedges of the Group at 31 December were as follows:

	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Foreign exchange risk	11	16
Interest rate risk	20	17
Total VaR	26	24

VaR for each risk factor is the independently derived largest potential loss due to fluctuations solely in that risk factor. The individual VaRs did not add up to the total VaR as there was diversification effect due to correlation amongst the risk factors.

53. Financial Risk Management (continued)

(a) Market risk (continued)

(iv) Sensitivity analysis (continued)

Collective investment schemes

At 31 December, the fair value of the Group's collective investment schemes (Funds) by strategy employed was as follows:

Strategy	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Public Equities	2,440	2,021
Absolute Return	1,604	1,312
Multi-Sector Fixed Income	2,583	2,108
US Government Bonds and Mortgage-backed Securities	2,716	1,648
Total	9,343	7,089
Number of Funds	23	18

The Group monitors the market value sensitivity of the Funds through a high-level simulation of the Funds' 1-year Value at Risk (simplified 1-year VaR) using the Funds' returns and volatilities. The simplified 1-year VaR helps to determine the potential changes in the market values of the Funds over a 1-year period. At 31 December 2019, the simplified 1-year VaR calculated at a 95 per cent confidence interval was 2.3 per cent (31 December 2018: 0.9 per cent), implying that the market value of the Group's Funds during the year ended 31 December 2019 could potentially change by approximately \$215 million (2018: \$64 million).

The simplified 1-year VaR is computed using historical monthly returns of the Funds with the following steps:

1. Compute blended monthly returns of the Group's Funds using monthly historical returns of the respective Funds for the past 36 months, and their corresponding portfolio weights as of the latest month;
2. Compute the average monthly return and standard deviation of the Funds' returns and derive the annualised amounts; and
3. Compute the simplified 1-year VaR, at a 95 per cent confidence interval, by subtracting 1.65 times of the annualised standard deviation from the annualised average return.

The methodology for computing the simplified 1-year VaR is updated in 2019 to reflect the corresponding weights of the respective Funds as of the latest month to better reflect the risk of the portfolio at the reporting date. As a result, the comparative figure for 2018 has been restated to conform with current year's computation.

The simplified 1-year VaR is a statistical measure of the historical risks and has limitations associated with the assumptions employed. Historical simulation assumes that actual observed historical changes in the respective Funds' monthly performance reflect possible future changes. This implies that the approach is vulnerable to sudden changes in market behaviour. In addition, it does not cover stressed market events, nor does it represent the Group's forecast of the Funds' future returns.

53. Financial Risk Management (continued)

(b) Liquidity risk

Nature of risk

Liquidity risk is the risk that an entity will encounter difficulty in meeting obligations associated with financial liabilities that are settled by delivering cash or another financial asset, and it results from amount and maturity mismatches of assets and liabilities.

Risk management

The Group employs projected cash flow analysis to manage liquidity risk by forecasting the amount of cash required and monitoring the working capital of the Group to ensure that all liabilities due and known funding requirements could be met.

Investments are kept sufficiently liquid to meet operational needs and regulatory requirements, and possible liquidity requirements of the Clearing House Funds and Margin Funds. The Group sets minimum levels of highly liquid assets for Corporate Funds, Clearing House Funds and Margin Funds. In particular, Corporate Funds solely used for supporting the Skin-in-the Game and default fund credits of Clearing House Funds are invested in overnight deposits and monitored on a daily basis.

As recognised clearing houses, the Group's clearing houses have to observe the liquidity requirements laid down in Principles for Financial Market Infrastructures (PFMI requirements) issued by the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO). In particular, HKSCC, HKCC and SEOCH conduct daily liquidity stress testing that covers a number of potential stress scenarios, and sufficient liquidity has to be set aside to cover such stress testing.

Banking facilities have been put in place for contingency purposes. At 31 December 2019, the Group's total available banking facilities for its daily operations amounted to \$21,246 million (31 December 2018: \$20,024 million), which included \$14,745 million (31 December 2018: \$13,523 million) of committed banking facilities and \$6,500 million (31 December 2018: \$6,500 million) of repurchase facilities.

The Group also put in place foreign exchange facilities for its daily clearing operations and for the RMB Equity Trading Support Facility to support the trading of RMB stocks listed on the Stock Exchange. At 31 December 2019, the total amount of such facilities was RMB21,500 million (HK\$24,052 million) (31 December 2018: RMB21,500 million (HK\$24,501 million)).

In addition, the Group has arranged contingency banking facilities amounting to RMB13,000 million (HK\$14,543 million) (31 December 2018: RMB13,000 million (HK\$14,815 million)) for settling payment obligations to ChinaClear should there be events that disrupt normal settlement arrangements for Stock Connect.

53. Financial Risk Management (continued)

(b) Liquidity risk (continued)

Exposure

The Group is not exposed to liquidity risk on the outstanding base, ferrous and precious metals futures and options contracts cleared through LME Clear. Accordingly, they are not included in the analyses for financial assets and financial liabilities in the tables below.

The tables below analyse the Group's financial assets into the relevant maturity buckets based on the following criteria:

- investments held under the collective investment schemes are allocated taking into account the redemption notice periods, lock-up periods and redemption restrictions;
- the expected amounts, subject to costs to liquidate that are expected to be immaterial, that could be realised from the investments (other than collective investment schemes), bank deposits and cash and cash equivalents within one month to meet cash outflows on financial liabilities if required are allocated to the up to 1-month bucket;
- investment in minority interest in an unlisted company is allocated to the >5 years bucket; and
- other financial assets are allocated based on their contractual maturity dates or the expected dates of disposal.

	At 31 Dec 2019					
	Up to 1 month \$m	>1 month to 3 months \$m	>3 months to 1 year \$m	>1 year to 5 years \$m	>5 years \$m	Total \$m
Cash and cash equivalents	128,152	–	–	–	–	128,152
Financial assets measured at fair value through profit or loss	6,242	2,033	446	622	50	9,393
Financial assets measured at fair value through other comprehensive income	4,569	–	–	–	–	4,569
Financial assets measured at amortised cost	40,573	–	–	23	76	40,672
Accounts receivable and deposits ¹	25,647	28	5	–	–	25,680
	205,183	2,061	451	645	126	208,466

	At 31 Dec 2018					
	Up to 1 month \$m	>1 month to 3 months \$m	>3 months to 1 year \$m	>1 year to 5 years \$m	>5 years \$m	Total \$m
Cash and cash equivalents	121,196	–	–	–	–	121,196
Financial assets measured at fair value through profit or loss	5,646	861	582	–	–	7,089
Financial assets measured at fair value through other comprehensive income	3,755	–	–	–	–	3,755
Financial assets measured at amortised cost	31,788	–	3	19	75	31,885
Accounts receivable and deposits ¹	18,213	32	1	–	–	18,246
	180,598	893	586	19	75	182,171

¹ Amounts exclude prepayments of \$132 million (31 December 2018: \$116 million).

53. Financial Risk Management (continued)

(b) Liquidity risk (continued)

Exposure (continued)

The table below analyses the Group's financial liabilities at 31 December into relevant maturity buckets based on their contractual maturity dates. The amounts disclosed in the tables are the contractual undiscounted cash flows.

	At 31 Dec 2019					
	Up to 1 month \$m	>1 month to 3 months \$m	>3 months to 1 year \$m	>1 year to 5 years \$m	>5 years \$m	Total \$m
Margin deposits, Mainland security and settlement deposits, and cash collateral from Clearing Participants	142,536	-	-	-	-	142,536
Accounts payable, accruals and other liabilities ²	22,321	16	110	-	-	22,447
Other financial liabilities:						
Other financial liabilities of Clearing House Funds	34	4	1	-	-	39
Other financial liabilities of Corporate Funds:						
Financial guarantee contract (maximum amount guaranteed) (note 49(b))	132	-	-	-	-	132
Participants' contributions to Clearing House Funds	13,873	468	53	-	-	14,394
Borrowings:						
Written put options to non-controlling interests	-	-	340	93	-	433
Lease liabilities	38	55	264	1,276	1,325	2,958
Total	178,934	543	768	1,369	1,325	182,939

	At 31 Dec 2018					
	Up to 1 month \$m	>1 month to 3 months \$m	>3 months to 1 year \$m	>1 year to 5 years \$m	>5 years \$m	Total \$m
Margin deposits, Mainland security and settlement deposits, and cash collateral from Clearing Participants	123,728	-	-	-	-	123,728
Accounts payable, accruals and other liabilities ²	18,190	15	111	-	-	18,316
Other financial liabilities:						
Other financial liabilities of Clearing House Funds	38	1	-	-	-	39
Other financial liabilities of Corporate Funds:						
Financial guarantee contract (maximum amount guaranteed) (note 49(b))	128	-	-	-	-	128
Participants' contributions to Clearing House Funds	14,270	465	52	-	-	14,787
Borrowings:						
Notes	754	-	-	-	-	754
Written put options to non-controlling interests	-	-	252	181	-	433
Total	157,108	481	415	181	-	158,185

² Amounts exclude non-financial liabilities of \$Nil (31 December 2018: \$53 million).

53. Financial Risk Management (continued)

(c) Credit risk

Nature of risk

The Group is exposed to credit risk, which is the risk that a counterparty will be unable to pay amounts in full when due. It arises primarily from the Group's investments and accounts receivable. Impairment provisions are made against the Group's investments and accounts receivable based on the accounting policy set out in notes 22 and 23.

The Group is also exposed to clearing and settlement risk, as the clearing houses of the Group act as the counterparties to eligible trades concluded on the Stock Exchange, the Futures Exchange, the over-the-counter market, and the LME through the novation of the obligations of the buyers and sellers. HKSCC is also responsible for the good title to the securities deposited and accepted in the CCASS depository. As a result, the Group has considerable market risk and credit risk since the Participants' ability to honour their obligations in respect of their trades and securities deposited may be adversely impacted by economic conditions. If the Participants default on their obligations on settlement or there are defects in the title of securities deposited and accepted in the CCASS depository, the Group could be exposed to potential risks not otherwise accounted for in these consolidated financial statements.

Risk management – Investment and accounts receivable risk

The Group limits its exposure to credit risk by rigorously selecting the counterparties (ie, deposit-takers, bond issuers, debtors and fund managers) and by diversification. All investments (excluding those held by the collective investment schemes) were governed by the Group Credit Limit for Settlement and Investments framework. Under the framework, specific limits are set on an investment portfolio level and on single counterparty level. The investment portfolio is subject to a maximum portfolio expected loss limit, each investment counterparty is subject to a minimum investment grade rating, and each investment is also subject to maximum concentration limit per counterparty. Fund managers of collective investment schemes are financially strong and stable, and their selections are approved by the Investment Committee as delegated by the Board.

At 31 December 2019, the investments in debt securities held by the Group (excluding those held by the collective investment schemes) were of investment grade and had a weighted average credit rating of Aa1 (Moody) (31 December 2018: Aa1 (Moody)). Deposits are placed only with the investment grade banks (licensed banks and restricted licence banks regulated by the Hong Kong Monetary Authority, and banks regulated by local banking regulators in the countries where the Group's subsidiaries operate). The LME Group invests a significant portion of cash in reverse repurchase investments, where high quality assets are held against such investments as collateral.

The Group mitigates its exposure to risks relating to accounts receivable from its Participants by requiring the Participants to meet the Group's established financial requirements and criteria for admission as Participants.

53. Financial Risk Management (continued)

(c) Credit risk (continued)

Risk management – Clearing and settlement risk

The Group mitigates its exposure to clearing and settlement-related risks by requiring the Participants to meet the Group's established financial requirements and criteria for admission as Participants, monitoring compliance with risk management measures such as imposing position limits and requiring Clearing Participants to deposit margins, Mainland security and settlement deposits, and cash collateral and contribute to the Clearing House Funds set up by the Group's five clearing houses. HKSCC also retains recourse against those Participants whose securities are deposited and accepted in the CCASS depository.

Under the Margin Fund and Guarantee Fund arrangements, each HKSCC Clearing Participant is granted by HKSCC a Margin Credit of \$5 million and a Dynamic Contribution Credit of \$1 million, and each HKCC Clearing Participant is granted a Dynamic Contribution Credit of HKCC Reserve Fund of \$1 million. If an HKSCC or HKCC Clearing Participant defaults and any loss arises, HKSCC will absorb the default loss up to the Margin Credit and Dynamic Contribution Credit utilised by the defaulting HKSCC Clearing Participant, after deducting its collateral and Guarantee Fund contribution maintained with HKSCC, and HKCC will absorb the default loss up to the Dynamic Contribution Credit utilised by the defaulting HKCC Clearing Participant, after deducting its collateral and Reserve Fund contribution maintained with HKCC. After the initial losses, HKSCC is required to absorb further losses after the HKSCC Guarantee Fund reserve and the Guarantee Fund contribution (excluding the Dynamic Contribution portion) of non-defaulting HKSCC Clearing Participants are depleted, and HKCC is required to absorb further losses after the HKCC Reserve Fund reserve and the Reserve Fund contribution (excluding the Dynamic Contribution portion) of non-defaulting HKCC Clearing Participants are depleted. The amount of losses borne by HKSCC and HKCC will be calculated on a pro rata basis with reference to the non-defaulting HKSCC and HKCC Clearing Participants' Dynamic Contributions and Dynamic Contribution Credits granted by HKSCC and HKCC respectively.

At 31 December 2019, HKSCC had 647 Clearing Participants (31 December 2018: 625) and the total amounts of Margin Credit and Dynamic Contribution Credit utilised by HKSCC Clearing Participants amounted to \$949 million (31 December 2018: \$790 million), while HKCC had 169 Clearing Participants (31 December 2018: 171) and the total amount of Dynamic Contribution Credit utilised by HKCC Clearing Participants amounted to \$65 million (31 December 2018: \$53 million).

The HKSCC Margin Credit and Dynamic Contribution Credit and the HKCC Dynamic Contribution Credit are supported by the \$4,000 million of shareholders' funds set aside by the HKEX Group for risk management purpose, of which \$1,060 million and \$830 million were injected into HKSCC and HKCC respectively.

53. Financial Risk Management (continued)

(c) Credit risk (continued)

Exposure

At 31 December, the maximum exposure to credit risk of the financial assets of the Group was equal to their carrying amounts. The maximum exposure to credit risk of the financial guarantee contract issued by the Group was as follows:

	At 31 Dec 2019		At 31 Dec 2018	
	Carrying amount in consolidated statement of financial position \$m	Maximum exposure to credit risk \$m	Carrying amount in consolidated statement of financial position \$m	Maximum exposure to credit risk \$m
Financial guarantee contract				
Undertaking to indemnify the Collector of Stamp Revenue (note 49(b))	(20)	132	(20)	128

Collateral held for mitigating credit risk

Certain securities, cash deposits and non-cash collateral are being held by the Group to mitigate the Group's exposure to credit risk. The financial effect of the collateral, which is capped by the amount receivable from each counterparty, was as follows:

	At 31 Dec 2019		At 31 Dec 2018	
	Carrying amount in consolidated statement of financial position \$m	Collateral held for mitigating credit risk \$m	Carrying amount in consolidated statement of financial position \$m	Collateral held for mitigating credit risk \$m
Accounts receivable and deposits ¹	25,680	6,914	18,246	5,997
Fair value of base, ferrous and precious metals future and options contracts cleared through LME Clear	48,008	48,008	53,915	53,915
Reverse repurchase investments	66,291	66,291	57,373	57,373

1 Amounts exclude prepayments of \$132 million (31 December 2018: \$116 million).

53. Financial Risk Management (continued)

(d) Fair values of financial assets and financial liabilities

(i) Financial assets and financial liabilities carried at fair value

At 31 December 2019 and 31 December 2018, no non-financial assets or liabilities were carried at fair values.

The following tables present the carrying value of financial assets and financial liabilities measured at fair value according to the levels of the fair value hierarchy defined in HKFRS 13: Fair Value Measurement, with the fair value of each financial asset and financial liability categorised based on the lowest level of input that is significant to that fair value measurement. The levels are defined as follows:

- Level 1: fair values measured using quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2: fair values measured using valuation techniques in which all significant inputs other than quoted prices included within Level 1 are directly or indirectly based on observable market data.
- Level 3: fair values measured using valuation techniques in which any significant input is not based on observable market data.

Recurring fair value measurements:	At 31 Dec 2019				At 31 Dec 2018		
	Level 1 \$m	Level 2 \$m	Level 3 \$m	Total \$m	Level 1 \$m	Level 2 \$m	Total \$m
Financial assets							
Financial assets measured at fair value through profit or loss:							
- collective investment schemes	2,647	6,696	-	9,343	1,987	5,102	7,089
- equity securities	-	-	50	50	-	-	-
- base, ferrous, and precious metals futures and options contracts cleared through LME Clear	-	48,008	-	48,008	-	53,915	53,915
Financial assets measured at fair value through other comprehensive income:							
- debt securities	3,059	1,510	-	4,569	3,054	701	3,755
	5,706	56,214	50	61,970	5,041	59,718	64,759
Financial liabilities							
Financial liabilities at fair value through profit or loss:							
- base, ferrous, and precious metals futures and options contracts cleared through LME Clear	-	48,008	-	48,008	-	53,915	53,915

53. Financial Risk Management (continued)

(d) Fair values of financial assets and financial liabilities (continued)

(i) Financial assets and financial liabilities carried at fair value (continued)

During 2019 and 2018, there were no transfers of instruments between Level 1 and Level 2 or transfer into or out of Level 3.

Level 2 fair values of collective investment schemes, debt securities, base, ferrous and precious metals futures and options contracts have been determined based on quotes from market makers, funds administrators or alternative pricing sources supported by observable inputs. The most significant input are market interest rates, market prices of metals, net asset values and latest redemption prices or transaction prices of the respective collective investment schemes.

The Group's policy is to recognise transfers into and out of fair value hierarchy levels as of the date of the event or change in circumstances that caused the transfer.

Fair value measurements using significant unobservable inputs (Level 3)

	\$m
At 1 Jan 2019	-
Investment in an unlisted company	50
At 31 Dec 2019	50
Change in unrealised gains for the year included in profit or loss for assets held at 31 Dec 2019, under net investment income	-

The amount represents the investment in a minority equity interest in Fusion Bank Limited, which was granted a virtual banking license by the Hong Kong Monetary Authority. As the investment is not traded in an active market, and still at an early stage of development without incurring significant costs, its fair value at 31 December 2019 is not expected to be significantly different from its investment cost of \$50 million.

53. Financial Risk Management (continued)

(d) Fair values of financial assets and financial liabilities (continued)

(ii) Fair values of financial assets and financial liabilities not reported at fair values

Summarised in the following table are the carrying amounts and fair values of financial assets and financial liabilities not presented in the consolidated statement of financial position at their fair values, except for lease liabilities where disclosure of fair values is not required. These assets and liabilities were classified under Level 2 in the fair value hierarchy.

	At 31 Dec 2019		At 31 Dec 2018	
	Carrying amount in consolidated statement of financial position \$m	Fair value \$m	Carrying amount in consolidated statement of financial position \$m	Fair value \$m
Assets				
Financial assets measured at amortised cost:				
– debt securities maturing over one year ¹	619	619	301	301
– other financial assets maturing over one year ²	99	79	97	74
Liabilities				
Borrowings:				
– notes ³	–	–	753	753
– written put options to non-controlling interests ³	418	422	413	416
Financial guarantee to the Collector of Stamp Revenue ⁴	20	50	20	46

1 The fair values are provided by the custodian of the investments, a reputable independent third party custodian bank, or by the banks from whom the investments were purchased.

2 The fair values are based on cash flows discounted using Hong Kong Government bond rates of a tenor similar to the contractual maturity of the respective assets, adjusted by an estimated credit spread. The discount rates used ranged from 2.44 per cent to 2.58 per cent at 31 December 2019 (31 December 2018: 2.59 per cent to 2.74 per cent).

3 The fair values are based on cash flows discounted using the prevailing market interest rates for loans with similar credit rating and similar tenor of the respective loans. The discount rates used ranged from 2.82 per cent to 2.99 per cent at 31 December 2019 (31 December 2018: 3.03 per cent to 3.15 per cent).

4 The fair values are based on the fees charged by financial institutions for granting such guarantees discounted to perpetuity using a ten-year Hong Kong Government bond rate, adjusted by an estimated credit spread, but capped at the maximum exposure of the financial guarantee. The discount rate used was 3.26 per cent at 31 December 2019 (31 December 2018: 3.51 per cent).

The carrying amounts of short-term financial assets and receivables (eg, accounts receivable, financial assets measured at amortised cost and cash and cash equivalents) and short-term payables (eg, accounts payable and other liabilities) approximated their fair values, and accordingly no disclosure of the fair values of these items is presented.

53. Financial Risk Management (continued)

(e) Offsetting financial assets and financial liabilities

Accounting Policy

Financial assets and liabilities are offset and the net amount reported in the consolidated statement of financial position when there is a legally enforceable right to offset the recognised amounts and there is an intention to settle on a net basis or realise the asset 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.

For base, ferrous and precious metals futures and options contracts cleared through LME Clear, the asset and liability positions of LME Clear arising through its activities as a central counterparty are matched. Therefore, the same amounts are recorded for both assets and liabilities with the fair value gains and losses recognised, but offset, in the consolidated income statement.

The disclosures set out in the tables below include financial assets and financial liabilities that:

- are offset in the Group's consolidated statement of financial position; or
 - are subject to an enforceable master netting arrangement or similar agreement that covers similar financial instruments, irrespective of whether they are offset in the consolidated statement of financial position.
- (i) Financial assets and financial liabilities subject to offsetting, enforceable master netting arrangements or similar agreements

Type of financial instruments	At 31 Dec 2019					
	Gross amount \$m	Gross amount offset in the consolidated statement of financial position \$m	Net amount presented in the consolidated statement of financial position ³ \$m	Related amounts not offset in the consolidated statement of financial position	Amounts subject to master netting arrangements \$m	Cash collateral \$m
Financial assets:						
CNS money obligations receivable ¹	244,632	(225,902)	18,730	(3,249)	(5,267)	10,214
Base, ferrous and precious metals futures and options contracts cleared through LME Clear ²	967,485	(919,477)	48,008	(32,429)	(15,579)	-
Other accounts receivable from Participants, ChinaClear, information vendors and hosting services customers, net of provision for impairment losses	502	-	502	-	(106)	396
Total	1,212,619	(1,145,379)	67,240	(35,678)	(20,952)	10,610
Financial liabilities:						
CNS money obligations payable ¹	245,978	(225,902)	20,076	(3,249)	-	16,827
Base, ferrous and precious metals futures and options contracts cleared through LME Clear ²	967,485	(919,477)	48,008	(32,429)	-	15,579
Total	1,213,463	(1,145,379)	68,084	(35,678)	-	32,406

53. Financial Risk Management (continued)

(e) Offsetting financial assets and financial liabilities (continued)

(i) Financial assets and financial liabilities subject to offsetting, enforceable master netting arrangements or similar agreements (continued)

Type of financial instruments	At 31 Dec 2018					
	Gross amount \$m	Gross amount offset in the consolidated statement of financial position \$m	Net amount presented in the consolidated statement of financial position ³ \$m	Related amounts not offset in the consolidated statement of financial position		
				Amounts subject to master netting arrangements \$m	Cash collateral \$m	Net amount \$m
Financial assets:						
CNS money obligations receivable ¹	172,937	(159,466)	13,471	(3,412)	(4,399)	5,660
Base, ferrous and precious metals futures and options contracts cleared through LME Clear ²	1,288,531	(1,234,616)	53,915	(26,992)	(26,923)	-
Other accounts receivable from Participants, ChinaClear, information vendors and hosting services customers, net of provision for impairment losses	3,533	-	3,533	(2,541)	(89)	903
Total	1,465,001	(1,394,082)	70,919	(32,945)	(31,411)	6,563
Financial liabilities:						
CNS money obligations payable ¹	175,745	(159,466)	16,279	(5,953)	-	10,326
Base, ferrous and precious metals futures and options contracts cleared through LME Clear ²	1,288,531	(1,234,616)	53,915	(26,992)	-	26,923
Total	1,464,276	(1,394,082)	70,194	(32,945)	-	37,249

1 HKSCC currently has a legally enforceable right to set off certain CNS money obligations receivable and payable relating to the same Clearing Participant and it intends to settle on a net basis.

2 LME Clear has a legally enforceable right to set off open positions of certain contracts within an individual member's account for those contracts settling on the same date and it intends to settle on a net basis.

3 For the net amounts of CNS money obligations receivable or payable and net fair value of base, ferrous and precious metals futures and options contracts (ie, after set-off) and other accounts receivable due from customers, they do not meet the criteria for offsetting in the consolidated statement of financial position since the right of set-off of the recognised amounts is only enforceable following an event of default of the customers. In addition, the Group does not intend to settle the balances on a net basis.

53. Financial Risk Management (continued)

(e) Offsetting financial assets and financial liabilities (continued)

(ii) The tables below reconcile the “net amounts of financial assets and financial liabilities presented in the consolidated statement of financial position”, as set out above, to the “accounts receivable, prepayments and deposits”, “accounts payable, accruals and other liabilities”, “financial assets measured at fair value through profit or loss” and “financial liabilities at fair value through profit or loss” presented in the consolidated statement of financial position.

	Accounts receivable, prepayments and deposits		Financial assets measured at fair value through profit or loss	
	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Net amount of financial assets after offsetting as stated above:				
– CNS money obligations receivable	18,730	13,471	–	–
– Other accounts receivable from Participants, ChinaClear, information vendors and hosting services customers, net of provision for impairment losses	502	3,533	–	–
– Base, ferrous and precious metals futures and options contracts cleared through LME Clear	–	–	48,008	53,915
Financial assets not in scope of offsetting disclosures	6,448	1,242	9,393	7,089
Prepayments	132	116	–	–
Amounts presented in the consolidated statement of financial position	25,812	18,362	57,401	61,004
<hr/>				
	Accounts payable, accruals and other liabilities		Financial liabilities at fair value through profit or loss	
	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m	At 31 Dec 2019 \$m	At 31 Dec 2018 \$m
Net amount of financial liabilities after offsetting as stated above:				
– CNS money obligations payable	20,076	16,279	–	–
– Base, ferrous and precious metals futures and options contracts cleared through LME Clear	–	–	48,008	53,915
Financial liabilities not in scope of offsetting disclosures	2,371	2,037	–	–
Non-financial liabilities	–	53	–	–
Amounts presented in the consolidated statement of financial position	22,447	18,369	48,008	53,915

54. Statement of Financial Position and Reserve Movements of HKEX

Accounting Policy

In HKEX's statement of financial position, investments in subsidiaries are stated at cost less impairment losses, if necessary. The results of subsidiaries are accounted for by HKEX on the basis of dividends received and receivable.

Investment in a subsidiary is tested for impairment upon receiving a dividend from that subsidiary if the dividend exceeds the total comprehensive income of the subsidiary concerned in the period the dividend is declared or if the carrying amount of the subsidiary in HKEX's statement of financial position exceeds the carrying amount of the subsidiary's net assets.

The financial statements of the controlled special purpose entity, The HKEx Employees' Share Award Scheme, are included in HKEX's financial statements.

Written put options to non-controlling interests initially recognised at fair value are accounted for as an investment in subsidiaries with a corresponding credit to financial liabilities at fair value through profit or loss. Subsequent changes in fair value of the financial liabilities are recognised in HKEX's income statement. Written put options to non-controlling interests are included under financial liabilities at fair value through profit or loss on the statement of financial position.

54. Statement of Financial Position and Reserve Movements of HKEX (continued)

Statement of Financial Position of HKEX

	At 31 Dec 2019			At 31 Dec 2018		
	Current \$m	Non-current \$m	Total \$m	Current \$m	Non-current \$m	Total \$m
Assets						
Cash and cash equivalents	2,309	-	2,309	3,530	-	3,530
Financial assets measured at fair value through profit or loss	8,721	622	9,343	7,089	-	7,089
Financial assets measured at amortised cost	3,856	75	3,931	2,216	303	2,519
Accounts receivable, prepayments and deposits	62	21	83	428	21	449
Amounts due from subsidiaries	798	11,822	12,620	948	11,700	12,648
Interests in joint ventures	-	114	114	-	114	114
Intangible assets	-	340	340	-	181	181
Fixed assets	-	446	446	-	436	436
Right-of-use assets	-	1,985	1,985	-	-	-
Investments in subsidiaries	-	15,141	15,141	-	14,766	14,766
Total assets	15,746	30,566	46,312	14,211	27,521	41,732
Liabilities and equity						
Liabilities						
Financial liabilities at fair value through profit or loss	325	-	325	327	-	327
Accounts payable, accruals and other liabilities	528	-	528	513	-	513
Amounts due to subsidiaries	269	-	269	284	-	284
Taxation payable	236	-	236	78	-	78
Other financial liabilities	11	-	11	11	-	11
Lease liabilities	189	1,867	2,056	-	-	-
Borrowings	-	-	-	753	-	753
Provisions	81	66	147	74	1	75
Deferred tax liabilities	-	57	57	-	41	41
Total liabilities	1,639	1,990	3,629	2,040	42	2,082
Equity						
Share capital			30,449			27,750
Shares held for Share Award Scheme			(770)			(682)
Employee share-based compensation reserve			250			218
Merger reserve			694			694
Retained earnings			12,060			11,670
Equity attributable to shareholders of HKEX			42,683			39,650
Total liabilities and equity			46,312			41,732
Net current assets			14,107			12,171

Approved by the Board of Directors on 26 February 2020

Laura M CHA
Director

LI Xiaojia, Charles
Director

54. Statement of Financial Position and Reserve Movements of HKEX (continued)

(a) Reserve movements of HKEX

	Employee share-based compensation reserve \$m	Merger reserve \$m	Retained earnings \$m
At 1 Jan 2018	222	694	10,890
Profit attributable to shareholders	–	–	8,825
2017 final dividend at \$2.85 per share	–	–	(3,525)
2018 first interim dividend at \$3.64 per share	–	–	(4,527)
Unclaimed HKEX dividends forfeited	–	–	23
Vesting of shares of Share Award Scheme	(230)	–	(16)
Employee share-based compensation benefits	226	–	–
At 31 Dec 2018	218	694	11,670
At 1 Jan 2019, as previously reported	218	694	11,670
Effect of adoption of HKFRS 16	–	–	(2)
At 1 Jan 2019, as restated	218	694	11,668
Profit attributable to shareholders	–	–	8,886
2018 second interim dividend at \$3.07 per share	–	–	(3,830)
2019 first interim dividend at \$3.72 per share	–	–	(4,668)
Unclaimed HKEX dividends forfeited	–	–	19
Vesting of shares of Share Award Scheme	(208)	–	(15)
Employee share-based compensation benefits	240	–	–
At 31 Dec 2019	250	694	12,060

Financial Calendar 2020

Announce 2019 final results	26 February
2020 AGM	7 May
Announce 2020 first quarter results	May
Announce 2020 interim results	August
Announce 2020 third quarter results	November

For Shareholders to Attend and Vote at 2020 AGM

Latest time to lodge transfer documents for registration with HKEX's registrar	At 4:30 pm on 29 April 2020
Closure of HKEX's Register of Members	4 to 7 May 2020 (both dates inclusive)
Record date	7 May 2020

Dividend Policy

HKEX adopts a dividend policy of providing Shareholders with regular dividends. In general, HKEX will declare/propose dividends semi-annually when the Board approves the interim results and the annual results.

In determining the appropriate amount of dividend, the Group actively and regularly reviews and manages its capital structure to ensure an optimal capital structure and shareholder returns by considering:

- the expected capital requirements and capital efficiency;
- regulatory capital requirements of its regulated entities;
- prevailing and projected profitability;
- projected operating cash flows; and
- projected capital expenditures and strategic investment opportunities.

The normal target payout ratio is 90 per cent of the Group's profit attributable to Shareholders of the year. HKEX may also offer a scrip dividend alternative to Shareholders.

2019 Dividends

First interim dividend	\$3.72 per share
Second interim dividend	\$2.99 per share
Dividend payout ratio	90 per cent

The second interim dividend for 2019 will be payable in cash with a scrip alternative where a 3 per cent discount on the subscription price will be offered to Shareholders who elect to subscribe for shares. The scrip dividend alternative is conditional upon the SFC's granting the listing of, and permission to deal in, new shares of HKEX to be issued pursuant thereto. Details of the scrip dividend alternative will be set out in a circular to Shareholders.

Further information about HKEX's scrip dividend scheme and dividend history is available on the HKEX Group website [IR](#).

Key Dates for 2019 Second Interim Dividend

Ex-dividend date	11 March 2020
Latest time to lodge transfer documents for registration with HKEX's registrar	At 4:30 pm on 12 March 2020
Closure of HKEX's Register of Members	13 to 16 March 2020 (both dates inclusive)
Record date	16 March 2020
Despatch scrip dividend circular and election form	On or about 20 March 2020
Announce scrip share subscription price	On or about 26 March 2020
Despatch dividend warrants/definitive share certificates	15 April 2020

Share Information

HKEX shares are listed on the Stock Exchange and are eligible for Southbound Trading under Stock Connect. HKEX is currently a constituent stock of the HSI and a number of sustainability indices as disclosed on the HKEX Group website [CG](#).

Stock Codes

Stock Exchange	388
Bloomberg	388 HK Equity
Reuters	0388.HK
ISIN	HK0388045442
SEDOL1	6267359 HK

Listing

As at 31 December 2019

– Number of issued shares	1,261,201,319 shares
– Market capitalisation	\$319.1 billion
Board lot size	100 shares

American Depository Receipts

Ticker Symbol	HKXCY
CUSIP	43858F109

HKEX Share Price Performance vs HSI in 2019



Shareholding Distribution as at 31 December 2019 (based on HKEX's Register of Members)

Size of shareholding	Number of Shareholders	% of Shareholders ¹	Number of shares held	% of HKEX shares in issue
1 – 1,000	2,631	49.0	1,145,387	0.1
1,001 – 5,000	1,692	31.5	4,180,937	0.3
5,001 – 10,000	409	7.6	3,052,522	0.2
10,001 – 100,000	510	9.5	14,872,241	1.2
100,001 and above	125	2.3	1,237,950,232	98.2
Total	5,367	100.0	1,261,201,319	100.0

¹ Percentage is for reference only, and may not add up to the total due to rounding.

Details about HKEX's major Shareholder are disclosed in the Corporate Governance Report contained in this Annual Report.

Electronic Communication

This Annual Report is printed in English and Chinese, and is available in the Investor Relations (Regulatory Disclosure) section of the HKEX Group website [IR](#).

Shareholders are encouraged to access HKEX's corporate communications electronically via the HKEX Group website to help protect the environment. Shareholders may at any time change their choice of language or means of receipt of HKEX's corporate communications free of charge by giving not less than seven days' notice in writing to HKEX's registrar.

Registration for News Alerts

Shareholders who would like to be notified when HKEX publishes its corporate communications on the HKEXnews website can register for the News Alerts service in the Market Data section of the HKEX Market website (www.hkex.com.hk). Further information about Shareholder communications can be found in the Corporate Governance Report contained in this Annual Report.

HKEX's Registrar – Hong Kong Registrars Limited

For corporate communications:

By post: 17M Floor, Hopewell Centre
183 Queen's Road East
Wan Chai, Hong Kong

By email: hkex.ecom@computershare.com.hk

For transfer of shares:

Address: Shops 1712-1716, 17th Floor,
Hopewell Centre
183 Queen's Road East
Wan Chai, Hong Kong

Tel: +852 2862 8555
Fax: +852 2865 0990 / +852 2529 6087

Feedback on Annual Report

HKEX values feedback on this Annual Report as well as its reporting of the Group's financial and governance performance. Shareholders may give their comments via the online form at www.hkexgroup.com/Investor-Relations/Regulatory-Disclosure/Regulatory-Reports or email at ssd@hkex.com.hk.

Glossary

2019 AGM AGM held on 24 April 2019 at 4:30 pm at the HKEX Connect Hall on the 1st Floor, One and Two Exchange Square, Central, Hong Kong	CNH Offshore RMB traded outside Mainland China
2020 AGM AGM to be held on 7 May 2020	CNS Continuous Net Settlement
ADT Average daily turnover value	Corporate Governance Code Refer to Appendix 14 to the Main Board Listing Rules
ADV Average daily volume (in number of contracts/lots)	CPs Clearing Participants
AGM(s) HKEX's annual general meeting(s)	CSR Corporate Social Responsibility
Alibaba Alibaba Group Holding Limited	Derivatives Market HKEX's derivatives related business including stock options
Awarded Shares Shares awarded under the Share Award Scheme	Director(s) HKEX's director(s)
BayConnect BayConnect Technology Company Limited (formerly known as Shenzhen Ronghui Tongjin Technology Co., Ltd. (Ronghui Tongjin))	DWs Derivative warrants
BBS Bronze Bauhinia Star	Elected Director(s) Director(s) elected by the Shareholders at general meetings
Board HKEX's board of directors	EPs Exchange Participants
Bond Connect A mutual bond market access programme between Hong Kong and Mainland China, under which Northbound trading enables overseas investors to invest in the China Interbank Bond Market, and Southbound trading will be explored at a later stage	ESG Environmental, Social and Governance
Budweiser APAC Budweiser Brewing Company APAC Limited	ESG Reporting Guide Appendix 27 to the Main Board Listing Rules
Cash Market HKEX's securities related business excluding stock options	ETF(s) Exchange Traded Fund(s)
CBBCs Callable Bull/Bear Contracts	EU European Union
CCASS Central Clearing and Settlement System	Euro The official currency of the Eurozone
CCP Central counterparty	Exchange or SEHK or Stock Exchange The Stock Exchange of Hong Kong Limited
ChinaClear China Securities Depository and Clearing Corporation Limited	FCA Financial Conduct Authority
	FIC Fixed income and currency
	Financial Secretary Financial Secretary of the HKSAR
	Fintech Financial technology
	Futures Exchange or HKFE Hong Kong Futures Exchange Limited

GBM Grand Bauhinia Medal	January 2003 MOU Memorandum of Understanding Governing Listing Matters between the SFC and SEHK, dated 28 January 2003 (as supplemented by the addendum dated 9 March 2018)
GBS Gold Bauhinia Star	JP Justice of the Peace
GEM Listing Rules Rules Governing the Listing of Securities on GEM of The Stock Exchange of Hong Kong Limited	Listing Committee Listing Committee of the Main Board and GEM
Government HKSAR Government	Listing Rule(s) Main Board Listing Rules and GEM Listing Rules
Government Appointed Director(s) Director(s) appointed by the Financial Secretary pursuant to Section 77 of the SFO	LME The London Metal Exchange
Group or HKEX Group HKEX and its subsidiaries	LME Clear LME Clear Limited
HKCC HKFE Clearing Corporation Limited	LME Group HKEX Investment (UK) Limited, LMEH, the LME and LME Clear
HKEX or the Company Hong Kong Exchanges and Clearing Limited	LMEH LME Holdings Limited
HKEX's Articles HKEX's Articles of Association	LMEmercury LME Clear's clearing system which enables its Members to view their risk positions in real time
HKFRS(s) Hong Kong Financial Reporting Standard(s)	London Metal Mini Futures London Aluminium/Zinc/Copper/Nickel/Tin/Lead Mini Futures
HKICPA Hong Kong Institute of Certified Public Accountants	LSEG London Stock Exchange Group plc
HKSAR Hong Kong Special Administrative Region of the People's Republic of China	Main Board Listing Rules Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited
HKSCC Hong Kong Securities Clearing Company Limited	MiFID II Markets in Financial Instruments Directive II
HSCEI Hang Seng China Enterprises Index	Model Code Model Code for Securities Transactions by Directors of Listed Issuers, Appendix 10 to the Main Board Listing Rules
HSI Hang Seng Index	MOU Memorandum of Understanding
INED(s) Independent Non-executive Director(s) of HKEX	MSCI MSCI Inc.
IPO(s) Initial Public Offering(s)	
Iron Ore Futures TSI Iron Ore Fines 62 per cent Fe CFR China Futures	
IT Information Technology	

Northbound Trading | Hong Kong and overseas investors trading in eligible securities that are listed on the Shanghai Stock Exchange or the Shenzhen Stock Exchange through Stock Connect

OECD | Organisation for Economic Co-operation and Development

OTC | Over-the-counter

OTC Clear | OTC Clearing Hong Kong Limited

PFMI | “Principles for financial market infrastructures” published by the Committee on Payment and Settlement Systems (now known as the Committee on Payments and Market Infrastructures) and the International Organization of Securities Commissions

PRC | The People’s Republic of China

QME | Qianhai Mercantile Exchange Co., Ltd.

RMB | Renminbi

SBS | Silver Bauhinia Star

Senior Management | Members of the Executive Committee of HKEX, and the membership list as at the date of this Annual Report is set out in the Board of Directors and Senior Management section of this Annual Report

SEOCH | The SEHK Options Clearing House Limited

SFC | Securities and Futures Commission

SFO | Securities and Futures Ordinance (Chapter 571 of the Laws of Hong Kong)

Shanghai-Hong Kong Stock Connect | A mutual market access programme that links the stock markets in Shanghai and Hong Kong, enabling investors in Hong Kong and Mainland China to trade and settle shares listed on the other market via the exchange and clearing house in their home market

Shareholder(s) | HKEX’s shareholder(s)

Share Award Scheme or the Scheme | The Employees’ Share Award Scheme adopted by the Board on 14 September 2005 which was subsequently amended on 16 August 2006, 13 May 2010, 17 December 2013 and 17 June 2015

Shenzhen-Hong Kong Stock Connect | A mutual market access programme that links the stock markets in Shenzhen and Hong Kong, enabling investors in Hong Kong and Mainland China to trade and settle shares listed on the other market via the exchange and clearing house in their home market

Southbound Trading | Mainland investors trading in eligible securities that are listed on the Stock Exchange through Stock Connect

Stock Connect | Shanghai-Hong Kong Stock Connect and Shenzhen-Hong Kong Stock Connect

UK | United Kingdom

US | United States of America

US\$/USD | United States dollar

¥/HK\$/HKD | Hong Kong dollar

\$bn/bn | Hong Kong dollar in billion/billion

¥m | Hong Kong dollar in million

£/GBP | Pound sterling

Q1, Q2, Q3, Q4, 1H, 2H | First quarter, second quarter, third quarter, fourth quarter, first half, second half



**HONG KONG EXCHANGES
AND CLEARING LIMITED**

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