
Pursuant to Chapter 38 of the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited, the Securities and Futures Commission regulates Hong Kong Exchanges and Clearing Limited (HKEX) in relation to the listing of its shares on The Stock Exchange of Hong Kong Limited. The Securities and Futures Commission takes no responsibility for the contents of this document, makes no representation as to its accuracy or completeness, and expressly disclaims any liability whatsoever for any loss howsoever arising from or in reliance upon the whole or any part of the contents of this document.

The financial information relating to the years ended 31 December 2021 and 2020 included in this document does not constitute the statutory annual consolidated financial statements of HKEX for those years but is derived from those financial statements. Further information relating to these statutory financial statements required to be disclosed in accordance with section 436 of the Companies Ordinance is as follows:

HKEX has delivered the financial statements for the year ended 31 December 2020 to the Registrar of Companies as required by section 662(3) of, and Part 3 of Schedule 6 to, the Companies Ordinance and will deliver the financial statements for the year ended 31 December 2021 in due course.

HKEX's auditor has reported on the consolidated financial statements for both years. The auditor's reports were unqualified, did not include a reference to any matters to which the auditor drew attention by way of emphasis without qualifying its reports, and did not contain a statement under sections 406(2), 407(2) or (3) of the Companies Ordinance.



香港交易及結算所有限公司
HONG KONG EXCHANGES AND CLEARING LIMITED
(Incorporated in Hong Kong with limited liability)
(Stock Code: 388)

Consolidated Financial Statements

For the year ended 31 December 2021

As at 24 February 2022, the board of directors of HKEX comprises 12 Independent Non-executive Directors, namely Mrs Laura May-Lung CHA (Chairman), Mr Nicholas Charles ALLEN, Mr Apurv BAGRI, Mr CHEAH Cheng Hye, Ms CHEUNG Ming Ming, Anna, Mrs CHOW WOO Mo Fong, Susan, Mr Rafael GIL-TIENDA, Mr HUNG Pi Cheng, Benjamin, Ms LEUNG Nisa Bernice Wing-Yu, Mr LEUNG Pak Hon, Hugo, Mr YIU Kin Wah, Stephen and Mr ZHANG Yichen, and one Executive Director, Mr Alejandro Nicolas AGUZIN, who is also the Chief Executive of HKEX.

CONSOLIDATED INCOME STATEMENT FOR THE YEAR ENDED 31 DECEMBER 2021

(Financial figures are expressed in Hong Kong Dollar)

	Note	2021 \$m	2020 \$m
Trading fees and trading tariffs	5(a)	7,931	6,959
Clearing and settlement fees		5,214	4,355
Stock Exchange listing fees	5(b)	2,185	1,899
Depository, custody and nominee services fees		1,543	1,264
Market data fees		1,034	953
Other revenue	5(c)	1,564	1,405
Revenue	5	19,471	16,835
Investment income		1,351	2,577
Interest rebates to Participants		(47)	(349)
Net investment income	6	1,304	2,228
HKEX Foundation donation income	7	139	106
Sundry income	8	36	21
Revenue and other income		20,950	19,190
Less: Transaction-related expenses	9	(152)	(110)
Revenue and other income less transaction-related expenses		20,798	19,080
Operating expenses			
Staff costs and related expenses	10	(2,948)	(2,967)
Information technology and computer maintenance expenses	11	(715)	(635)
Premises expenses		(117)	(119)
Product marketing and promotion expenses		(116)	(81)
Professional fees		(157)	(151)
HKEX Foundation charitable donations		(105)	(112)
Other operating expenses	12	(371)	(374)
		(4,529)	(4,439)
EBITDA		16,269	14,641
Depreciation and amortisation		(1,354)	(1,197)
Operating profit	13	14,915	13,444
Finance costs	14	(154)	(181)
Share of profits less losses of joint ventures		80	69
Profit before taxation		14,841	13,332
Taxation	17	(2,343)	(1,845)
Profit for the year		12,498	11,487
Profit/(loss) attributable to:			
Shareholders of HKEX	46	12,535	11,505
Non-controlling interests	27(a)(i)	(37)	(18)
Profit for the year		12,498	11,487
Basic earnings per share	18(a)	\$9.91	\$9.11
Diluted earnings per share	18(b)	\$9.89	\$9.09

The notes on pages 8 to 96 are an integral part of these consolidated financial statements.

Details of dividends are set out in note 19 to the consolidated financial statements.

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME FOR THE YEAR ENDED 31 DECEMBER 2021

(Financial figures are expressed in Hong Kong Dollar)

	Note	2021 \$m	2020 \$m
Profit for the year		12,498	11,487
Other comprehensive income			
Items that may be reclassified subsequently to profit or loss:			
Currency translation differences of foreign subsidiaries	2(e)(iii)	104	(29)
Cash flow hedges	44(a)	(2)	(6)
Changes in fair value of financial assets measured at fair value through other comprehensive income, net of tax	44(b)	(8)	28
Other comprehensive income/(loss)		94	(7)
Total comprehensive income		12,592	11,480
Total comprehensive income/(loss) attributable to:			
Shareholders of HKEX		12,626	11,490
Non-controlling interests		(34)	(10)
Total comprehensive income		12,592	11,480

The notes on pages 8 to 96 are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENT OF FINANCIAL POSITION

AT 31 DECEMBER 2021

(Financial figures are expressed in Hong Kong Dollar)

	Note	At 31 Dec 2021			At 31 Dec 2020		
		Current \$m	Non-current \$m	Total \$m	Current \$m	Non-current \$m	Total \$m
Assets							
Cash and cash equivalents	20,21	181,361	-	181,361	157,996	-	157,996
Financial assets measured at fair value through profit or loss	20,22	99,915	946	100,861	100,081	516	100,597
Financial assets measured at fair value through other comprehensive income	20,23	9,755	-	9,755	7,942	-	7,942
Financial assets measured at amortised cost	20,24	51,302	526	51,828	62,589	99	62,688
Accounts receivable, prepayments and deposits	26	32,717	21	32,738	47,059	21	47,080
Tax recoverable		19	-	19	26	-	26
Interests in joint ventures	28	-	244	244	-	164	164
Goodwill and other intangible assets	29	-	18,972	18,972	-	18,737	18,737
Fixed assets	30	-	1,605	1,605	-	1,657	1,657
Right-of-use assets	31	-	1,896	1,896	-	2,193	2,193
Deferred tax assets	41(c)	-	25	25	-	26	26
Total assets		375,069	24,235	399,304	375,693	23,413	399,106
Liabilities and equity							
Liabilities							
Financial liabilities at fair value through profit or loss	32	91,424	-	91,424	92,884	-	92,884
Margin deposits, Mainland security and settlement deposits, and cash collateral from Clearing Participants	20,33	203,536	-	203,536	187,008	-	187,008
Accounts payable, accruals and other liabilities	34	28,335	-	28,335	42,974	-	42,974
Deferred revenue	35	1,100	354	1,454	1,049	371	1,420
Taxation payable		1,153	-	1,153	1,174	-	1,174
Other financial liabilities	36	513	-	513	48	-	48
Participants' contributions to Clearing House Funds	20,37	19,182	-	19,182	20,439	-	20,439
Lease liabilities	38	299	1,760	2,059	304	2,054	2,358
Borrowings	39	340	86	426	340	83	423
Provisions	40	82	98	180	114	98	212
Deferred tax liabilities	41(c)	-	1,132	1,132	-	930	930
Total liabilities		345,964	3,430	349,394	346,334	3,536	349,870
Equity							
Share capital	42			31,896			31,891
Shares held for Share Award Scheme	42			(901)			(485)
Employee share-based compensation reserve	43			306			232
Hedging and revaluation reserves	44			15			25
Exchange reserve	2(e)(iii)			(117)			(218)
Designated reserves	45			623			628
Reserve relating to written put options to non-controlling interests				(369)			(369)
Retained earnings	46			18,173			17,214
Equity attributable to shareholders of HKEX				49,626			48,918
Non-controlling interests	27(a)(i)			284			318
Total equity				49,910			49,236
Total liabilities and equity				399,304			399,106
Net current assets				29,105			29,359

The notes on pages 8 to 96 are an integral part of these consolidated financial statements.

Approved by the Board of Directors on 24 February 2022

Laura M CHA

Director

Alejandro Nicolas AGUZIN

Director

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY FOR THE YEAR ENDED 31 DECEMBER 2021

(Financial figures are expressed in Hong Kong Dollar)

	Attributable to shareholders of HKEX									Total equity \$m
	Share capital and shares held for Share Award Scheme (note 42) \$m	Employee share-based compensation reserve (note 43) \$m	Hedging and revaluation reserves (note 44) \$m	Exchange reserve \$m	Designated reserves (note 45) \$m	Reserve relating to written put options to non-controlling interests \$m	Retained earnings (note 46) \$m	Total \$m	Non- controlling interests \$m	
At 1 Jan 2020	29,679	250	3	(181)	587	(369)	14,204	44,173	328	44,501
Profit for the year	-	-	-	-	-	-	11,505	11,505	(18)	11,487
Other comprehensive income	-	-	22	(37)	-	-	-	(15)	8	(7)
Total comprehensive income	-	-	22	(37)	-	-	11,505	11,490	(10)	11,480
Total transactions with shareholders of HKEX, recognised directly in equity:										
- 2019 second interim dividend at \$2.99 per share	-	-	-	-	-	-	(3,761)	(3,761)	-	(3,761)
- 2020 first interim dividend at \$3.71 per share	-	-	-	-	-	-	(4,692)	(4,692)	-	(4,692)
- Unclaimed HKEX dividends forfeited (note 34(a))	-	-	-	-	-	-	21	21	-	21
- Shares issued in lieu of cash dividends	1,428	-	-	-	-	-	-	1,428	-	1,428
- Shares purchased for Share Award Scheme	(31)	-	-	-	-	-	-	(31)	-	(31)
- Vesting of shares of Share Award Scheme	330	(299)	-	-	-	-	(31)	-	-	-
- Employee share-based compensation benefits	-	281	-	-	-	-	-	281	-	281
- UK tax relating to Share Award Scheme	-	-	-	-	-	-	9	9	-	9
- Transfer of reserves	-	-	-	-	41	-	(41)	-	-	-
	1,727	(18)	-	-	41	-	(8,495)	(6,745)	-	(6,745)
At 31 Dec 2020	31,406	232	25	(218)	628	(369)	17,214	48,918	318	49,236

**CONSOLIDATED STATEMENT OF CHANGES IN EQUITY (CONTINUED)
FOR THE YEAR ENDED 31 DECEMBER 2021**

	Attributable to shareholders of HKEX									
	Share capital and shares held for Share Award Scheme (note 42)	Employee share-based compensation reserve (note 43)	Hedging and revaluation reserves (note 44)	Exchange reserve	Designated reserves (note 45)	Reserve relating to written put options to non-controlling interests	Retained earnings (note 46)	Total	Non- controlling interests	Total equity
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
At 1 Jan 2021	31,406	232	25	(218)	628	(369)	17,214	48,918	318	49,236
Profit for the year	-	-	-	-	-	-	12,535	12,535	(37)	12,498
Other comprehensive income	-	-	(10)	101	-	-	-	91	3	94
Total comprehensive income	-	-	(10)	101	-	-	12,535	12,626	(34)	12,592
Total transactions with shareholders of HKEX, recognised directly in equity:										
- 2020 second interim dividend at \$4.46 per share	-	-	-	-	-	-	(5,646)	(5,646)	-	(5,646)
- 2021 first interim dividend at \$4.69 per share	-	-	-	-	-	-	(5,934)	(5,934)	-	(5,934)
- Unclaimed HKEX dividends forfeited (note 34(a))	-	-	-	-	-	-	12	12	-	12
- Shares purchased for Share Award Scheme	(681)	-	-	-	-	-	-	(681)	-	(681)
- Vesting of shares of Share Award Scheme	270	(250)	-	-	-	-	(20)	-	-	-
- Employee share-based compensation benefits	-	324	-	-	-	-	-	324	-	324
- UK tax relating to Share Award Scheme	-	-	-	-	-	-	7	7	-	7
- Transfer of reserves	-	-	-	-	(5)	-	5	-	-	-
	(411)	74	-	-	(5)	-	(11,576)	(11,918)	-	(11,918)
At 31 Dec 2021	30,995	306	15	(117)	623	(369)	18,173	49,626	284	49,910

The notes on pages 8 to 96 are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENT OF CASH FLOWS FOR THE YEAR ENDED 31 DECEMBER 2021

(Financial figures are expressed in Hong Kong Dollar)

	Note	2021 \$m	2020 \$m
Cash flows from principal operating activities			
Net cash inflow from principal operating activities	47(a)	13,897	11,956
Cash flows from other operating activities			
Net (payments to)/redemption from external fund managers for (purchases)/sales of financial assets measured at fair value through profit or loss		(1,557)	2,813
Net cash inflow from operating activities		12,340	14,769
Cash flows from investing activities			
Payments for purchases of fixed assets and intangible assets		(1,070)	(1,351)
Net decrease/(increase) in financial assets of Corporate Funds:			
Decrease/(increase) in time deposits with original maturities more than three months		3,276	(5,850)
Proceeds received upon maturity of financial assets measured at amortised cost (excluding time deposits)		810	207
Payments for purchases of financial assets measured at amortised cost (excluding time deposits)		(429)	(384)
Payments for financial assets measured at fair value through profit or loss		(349)	(160)
Interest received from financial assets measured at fair value through other comprehensive income		38	56
Net cash inflow/(outflow) from investing activities		2,276	(7,482)
Cash flows from financing activities			
Purchases of shares for Share Award Scheme		(681)	(31)
Payments of other finance costs		(72)	(87)
Dividends paid to shareholders of HKEX		(11,527)	(6,983)
Lease payments	47(b), 47(c)		
- Capital elements		(310)	(284)
- Interest elements		(79)	(89)
Net cash outflow from financing activities		(12,669)	(7,474)
Net increase/(decrease) in cash and cash equivalents		1,947	(187)
Cash and cash equivalents at 1 Jan		10,442	10,603
Exchange differences on cash and cash equivalents		9	26
Cash and cash equivalents at 31 Dec		12,398	10,442
Analysis of cash and cash equivalents			
Cash on hand and balances and deposits with banks and short-term investments of Corporate Funds	21	12,900	10,753
Less: Cash reserved for supporting Skin-in-the-Game and default fund credits of clearing houses	21(b)	(502)	(311)
		12,398	10,442

The notes on pages 8 to 96 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

(Financial figures are expressed in Hong Kong Dollar unless otherwise stated)

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 24 February 2022.

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 2021, the Group has adopted the following amendment to HKFRSs which is pertinent to the Group's operations:

Amendments to HKFRS 16 Leases: COVID-19-Related Rent Concessions¹

¹ Effective for accounting periods beginning on or after 1 June 2020

The adoption of the amendment did not have any financial impact on the Group.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

2. Principal Accounting Policies (continued)

(b) Basis of preparation (continued)

New/revised HKFRSs issued before 31 December 2021 but not yet effective and not early adopted

The Group has not applied the following amendments to HKFRSs which were issued before 31 December 2021 and are pertinent to its operations but not yet effective:

Amendments to HKAS 1	Presentation of Financial Statements: Classification of Liabilities as Current or Non-current ³
Amendments to HKAS 1	Presentation of Financial Statements: Disclosure of Accounting Policies ³
Amendments to HKAS 8	Accounting Policies, Changes in Accounting Estimates and Errors: Definition of Accounting Estimates ³
Amendments to HKAS 12	Income Taxes: Deferred Tax related to Assets and Liabilities arising from a Single Transaction ³
Amendments to HKAS 16	Property, Plant and Equipment: Proceeds before Intended Use ²
Amendments to HKAS 37	Provisions, Contingent Liabilities and Contingent Assets: Onerous Contracts – Cost of Fulfilling a Contract ²
Amendments to HKFRS 3	Business combinations: Reference to the Conceptual Framework ²
Amendments to HKFRS 16	Leases: COVID-19-Related Rent Concessions beyond 30 June 2021 ¹
Annual Improvements to HKFRSs 2018-2020:	
Amendments to HKFRS 9	Financial Instruments: Fees in the “10 per cent” Test for Derecognition of Financial Liabilities ²
Amendments to Illustrative Examples accompanying HKFRS 16	Leases: Lease Incentives ²

¹ Effective for accounting periods beginning on or after 1 April 2021

² Effective for accounting periods beginning on or after 1 January 2022

³ Effective for accounting periods beginning on or after 1 January 2023

The adoption of the amendments to HKFRSs 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 financial impact on the Group.

(c) 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)**(d) 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 (i.e., 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.

(e) 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 44(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 each of the Group's 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 29.

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 29. 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 investments in minority stakes in unlisted companies (note 53(d)(i)), 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 2021, 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 \$9,762 million (31 December 2020: \$9,085 million) which mainly comprised \$7,063 million (31 December 2020: \$6,362 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).

(c) Income taxes

The Group is subject to income taxes in the countries in which the Group operates. Judgement is required in determining the provision for income taxes and deferred taxes. There are transactions and calculations for which the ultimate tax determination is uncertain. The Group recognises liabilities for potential tax exposures based on its estimates of whether additional taxes will be due. Where the final tax outcome of these matters is different from the amounts that were initially recorded, such differences would impact the income tax and deferred tax provisions in the year in which such determination is made.

If the actual taxation charge differs by 5 per cent from management's estimates, the Group's profit will be affected by \$117 million (2020: \$92 million).

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 Officer 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.

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 of The Stock Exchange of Hong Kong Limited (Stock Exchange), 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 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, derivative warrants (DWs), callable bull/bear contracts (CBBs) 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 commodities 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.

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 BayConnect Technology Company Limited (BayConnect). Its major sources of revenue are network, terminal user, data line and software sub-license fees and hosting services fees.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

4. Operating Segments (continued)

Central income (including net investment income of Corporate Funds and HKEX Foundation donation income) and central costs (including costs of central support functions that provide services to all operating segments, HKEX Foundation charitable donations 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. 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:

	2021						Group \$m
	Cash \$m	Equity and Financial Derivatives \$m	Commodities \$m	Post Trade \$m	Technology \$m	Corporate Items \$m	
Timing of revenue recognition:							
Point in time	4,494	2,030	1,176	6,656	86	3	14,445
Over time	1,636	1,405	288	731	960	6	5,026
Revenue	6,130	3,435	1,464	7,387	1,046	9	19,471
Net investment income	-	-	-	596	-	708	1,304
HKEX Foundation donation income	-	-	-	-	-	139	139
Sundry income	1	1	14	12	4	4	36
Revenue and other income	6,131	3,436	1,478	7,995	1,050	860	20,950
Less: Transaction-related expenses	-	(126)	-	(26)	-	-	(152)
Revenue and other income less transaction-related expenses	6,131	3,310	1,478	7,969	1,050	860	20,798
Operating expenses	(614)	(665)	(695)	(844)	(305)	(1,406)	(4,529)
Reportable segment EBITDA	5,517	2,645	783	7,125	745	(546)	16,269
Depreciation and amortisation	(169)	(142)	(346)	(358)	(72)	(267)	(1,354)
Finance costs	(12)	(12)	(8)	(66)	(2)	(54)	(154)
Share of profits less losses of joint ventures	80	-	-	-	-	-	80
Reportable segment profit before taxation	5,416	2,491	429	6,701	671	(867)	14,841
Other segment information:							
Interest income	-	-	-	639	-	174	813
Interest rebates to Participants	-	-	-	(47)	-	-	(47)
Other material non-cash item: Employee share-based compensation expenses	(50)	(41)	(36)	(41)	(6)	(150)	(324)

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

4. Operating Segments (continued)

	2020						Group \$m
	Cash \$m	Equity and Financial Derivatives \$m	Commodities \$m	Post Trade \$m	Technology \$m	Corporate Items \$m	
Timing of revenue recognition:							
Point in time	3,460	2,079	1,171	5,667	62	1	12,440
Over time	1,531	1,162	278	575	844	5	4,395
Revenue	4,991	3,241	1,449	6,242	906	6	16,835
Net investment income	-	-	-	1,386	-	842	2,228
HKEX Foundation donation income	-	-	-	-	-	106	106
Sundry income	-	-	5	9	4	3	21
Revenue and other income	4,991	3,241	1,454	7,637	910	957	19,190
Less: Transaction-related expenses	-	(85)	-	(25)	-	-	(110)
Revenue and other income less transaction-related expenses	4,991	3,156	1,454	7,612	910	957	19,080
Operating expenses	(595)	(607)	(692)	(860)	(304)	(1,381)	(4,439)
Reportable segment EBITDA	4,396	2,549	762	6,752	606	(424)	14,641
Depreciation and amortisation	(133)	(114)	(340)	(322)	(38)	(250)	(1,197)
Finance costs	(13)	(13)	(8)	(84)	(2)	(61)	(181)
Share of profits less losses of joint ventures	68	1	-	-	-	-	69
Reportable segment profit before taxation	4,318	2,423	414	6,346	566	(735)	13,332
Other segment information:							
Interest income	-	-	-	1,738	-	384	2,122
Interest rebates to Participants	-	-	-	(349)	-	-	(349)
Other material non-cash item: Employee share-based compensation expenses	(40)	(40)	(42)	(46)	(7)	(106)	(281)

(a) Geographical information

The Group's revenue 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	
	2021 \$m	2020 \$m	At 31 Dec 2021 \$m	At 31 Dec 2020 \$m
Hong Kong (place of domicile)	17,220	14,641	5,307	5,374
United Kingdom	2,179	2,124	17,137	17,096
Mainland China	72	70	294	302
	19,471	16,835	22,738	22,772

(b) Information about major customers

In 2021 and 2020, 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

	2021 \$m	2020 \$m
Equity securities traded on the Stock Exchange and through Stock Connect	4,468	3,409
DWs, CBBCs and warrants traded on the Stock Exchange	782	699
Futures and options contracts traded on the Stock Exchange and the Futures Exchange	1,613	1,764
Base, ferrous and precious metals futures and options contracts traded on the LME and QME	1,068	1,087
	7,931	6,959

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

5. Revenue (continued)

(b) Stock Exchange Listing Fees

	2021				2020			
	Equity		CBBCs, DWs & others	Total	Equity		CBBCs, DWs & others	Total
	Main Board	GEM			Main Board	GEM		
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	
Annual listing fees	718	50	3	771	713	52	3	768
Initial and subsequent issue listing fees	168	11	1,229	1,408	130	14	979	1,123
Other listing fees	5	1	-	6	7	1	-	8
	891	62	1,232	2,185	850	67	982	1,899

(c) Other Revenue

	2021 \$m	2020 \$m
Network, terminal user, data line and software sub-license fees	720	610
Hosting services fees	257	230
Commodities stock levies and warehouse listing fees	78	67
Participants' subscription and application fees	87	112
Accommodation income (note (i))	201	160
Sales of Trading Rights	22	24
LME financial over-the-counter booking fees	53	49
BayConnect sales and service revenue	69	66
Brokerage on IPO direct allotments	5	26
Miscellaneous revenue	72	61
	1,564	1,405

(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 2021 that was included in the deferred revenue balance at the beginning of the year amounted to \$1,049 million (2020: \$1,033 million).

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

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.

	2021 \$m	2020 \$m
Gross interest income from financial assets measured at amortised cost	775	2,066
Gross interest income from financial assets measured at fair value through other comprehensive income	38	56
Interest rebates to Participants	(47)	(349)
Net interest income	766	1,773
Net gains on financial assets mandatorily measured at fair value through profit or loss and financial liabilities at fair value through profit or loss		
- collective investment schemes	364	487
- other investments	121	-
	485	487
Others	53	(32)
Net investment income	1,304	2,228

7. HKEX Foundation Donation Income

Accounting Policy

HKEX Foundation donation income is recognised when the right to receive such donation is established.

	2021 \$m	2020 \$m
Stock Code Balloting Scheme	138	105
Others	1	1
	139	106

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

8. Sundry Income

	2021 \$m	2020 \$m
Forfeiture of unclaimed dividends (note (a))	12	9
Others	24	12
	36	21

(a) In accordance with CCASS Rule 1109, the Group exercised its forfeiture right to appropriate cash dividends of \$12 million (2020: \$9 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 \$218 million at 31 December 2021 (31 December 2020: \$206 million) if adequate proof of entitlement is provided by the beneficial owner claiming any dividends forfeited.

9. Transaction-related Expenses

Accounting Policy

Transaction-related expenses comprise of license fees, bank charges and other costs which directly vary with trading and clearing transactions. They are presented below Revenue and other income to reflect the nature of such direct costs. They are expensed in the period in which they are incurred.

10. Staff Costs and Related Expenses

	2021 \$m	2020 \$m
Salaries and other short-term employee benefits	2,425	2,487
Employee share-based compensation benefits of Share Award Scheme (note 43)	324	281
Termination benefits	20	20
Retirement benefit costs (note (a)):		
- ORSO Plan	137	142
- MPF Scheme	4	5
- LME Pension Scheme	29	28
- PRC Retirement Schemes	9	4
	2,948	2,967

(a) Retirement Benefit Costs

Accounting Policy

Contribution to the defined contribution plans are expensed as incurred.

10. Staff Costs and Related Expenses (continued)**(a) Retirement Benefit Costs (continued)**

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 employees of LME and LME Clear, the Group has also sponsored a defined contribution pension scheme (LME Pension Scheme). For employees who joined LME and LME Clear 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 and LME Clear 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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**11. Information Technology and Computer Maintenance Expenses**

	2021	2020
	\$m	\$m
Costs of services and goods:		
- consumed by the Group	634	551
- directly consumed by Participants	81	84
	715	635

12. Other Operating Expenses

	2021	2020
	\$m	\$m
Bank charges	15	14
Communication expenses	11	13
Custodian and fund management related fees	37	28
Financial data subscription fees	52	49
Insurance	12	10
Non-executive directors' fees	22	21
Office demolition and relocation expenses	11	9
Provision for impairment losses of receivables	7	12
Repairs and maintenance expenses	62	69
Security expenses	21	23
Travel expenses	16	19
UK regulatory fees	22	18
Other miscellaneous expenses	83	89
	371	374

13. Operating Profit

	2021	2020
	\$m	\$m
Operating profit is stated after charging/(crediting):		
Auditor's remuneration		
- audit fees	18	19
- other non-audit fees	2	3
Lease rentals for land and buildings (note (a))	1	4
Provision for impairment losses of receivables	7	12
Net foreign exchange (gains)/losses on financial assets and liabilities (excluding financial assets and financial liabilities measured at fair value through profit or loss)	(53)	32

(a) The amounts represent lease rentals relating to short-term leases under HKFRS 16.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

14. 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 38) 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.

	2021 \$m	2020 \$m
Interest on borrowings	3	5
Interest on lease liabilities (note 38)	79	89
Banking facility commitment fees	54	53
Negative interest on Euro and Japanese Yen deposits	18	34
	154	181

15. Directors' Emoluments and Interests of Directors

All Directors, including Executive Directors (HKEX's Chief Executive Officer and ex-HKEX's Interim Chief Executive), received emoluments during the years ended 31 December 2021 and 31 December 2020. The aggregate emoluments paid and payable to the Directors during the year were as follows:

	2021 \$'000	2020 \$'000
Executive Directors:		
Salaries and other short-term employee benefits	8,987	14,684
Performance cash incentive	19,438	80,700
Retirement benefit costs	1,100	1,333
	29,525	96,717
Employee share-based compensation benefits (note (a))	50,405	23,773
	79,930	120,490
Non-executive Directors:		
Fees	22,079	21,327
Other benefits	12	37
	22,091	21,364
	102,021	141,854

- (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 43) recognised in the consolidated income statement during the year.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

15. Directors' Emoluments and Interests of Directors (continued)

- (b) The emoluments of all Directors, including HKEX's Chief Executive Officer and HKEX's ex-Interim Chief Executive who are ex-officio members, are set out below. The amounts represent emoluments paid or receivable in respect of their services as a director.

2021								
Name of Director	Fees \$'000	Salary \$'000	Other benefits (note (i)) \$'000	Performance cash incentive \$'000	Retirement benefit costs (note (ii)) \$'000	Sub-total \$'000	Employee share-based compensation benefits \$'000	Total \$'000
Laura M Cha	4,949	-	12	-	-	4,961	-	4,961
Alejandro N Aguzin (note (iii))	-	6,048	157	16,500	756	23,461	47,762	71,223
Calvin C K Tai (note (iv))	-	2,750	32	2,938	344	6,064	2,643	8,707
Nicholas C Allen (note (v))	878	-	-	-	-	878	-	878
Apurv Bagri	1,130	-	-	-	-	1,130	-	1,130
T C Chan (note (vii))	356	-	-	-	-	356	-	356
C H Cheah	1,596	-	-	-	-	1,596	-	1,596
Anna M Cheung (note (v))	998	-	-	-	-	998	-	998
Susan M F Chow Woo	1,598	-	-	-	-	1,598	-	1,598
Anita Y M Fung (note (vii))	304	-	-	-	-	304	-	304
Rafael Gil-Tienda	1,970	-	-	-	-	1,970	-	1,970
Fred Z Hu (note (vii))	340	-	-	-	-	340	-	340
Benjamin P C Hung	1,170	-	-	-	-	1,170	-	1,170
Nisa B W Y Leung (note (vi))	878	-	-	-	-	878	-	878
Hugo P H Leung	1,577	-	-	-	-	1,577	-	1,577
John M Williamson (note (vii))	451	-	-	-	-	451	-	451
Stephen K W Yiu	3,006	-	-	-	-	3,006	-	3,006
Y Zhang (note (v))	878	-	-	-	-	878	-	878
Total	22,079	8,798	201	19,438	1,100	51,616	50,405	102,021

2020								
Name of Director	Fees \$'000	Salary \$'000	Other benefits (note (i)) \$'000	Performance cash incentive \$'000	Retirement benefit costs (note (ii)) \$'000	Sub-total \$'000	Employee share-based compensation benefits \$'000	Total \$'000
Laura M Cha	4,894	-	37	-	-	4,931	-	4,931
Charles X Li (note (viii))	-	9,315	5,369	80,700	1,333	96,717	23,773	120,490
Apurv Bagri	1,010	-	-	-	-	1,010	-	1,010
T C Chan	1,354	-	-	-	-	1,354	-	1,354
C H Cheah	1,580	-	-	-	-	1,580	-	1,580
Susan M F Chow Woo (note (ix))	788	-	-	-	-	788	-	788
Anita Y M Fung	1,182	-	-	-	-	1,182	-	1,182
Rafael Gil-Tienda	1,945	-	-	-	-	1,945	-	1,945
Fred Z Hu	1,277	-	-	-	-	1,277	-	1,277
Benjamin P C Hung	1,125	-	-	-	-	1,125	-	1,125
Hugo P H Leung	1,536	-	-	-	-	1,536	-	1,536
John M Williamson	1,755	-	-	-	-	1,755	-	1,755
Stephen K W Yiu	2,881	-	-	-	-	2,881	-	2,881
Total	21,327	9,315	5,406	80,700	1,333	118,081	23,773	141,854

Notes:

- (i) Other benefits included leave pay, insurance premium, club membership and relocation allowance.
- (ii) Retirement benefit costs include employer's contributions to provident fund and long service payment. 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 24 May 2021
- (iv) Mr. Tai served as Interim Chief Executive and Executive Director of HKEX from 1 January 2021 to 23 May 2021, and continues in his roles as Chief Operating Officer and Co-President (up to 31 July 2021) / President (since 1 August 2021) of HKEX. The amounts disclosed above represent his remuneration from 1 January 2021 to 23 May 2021, which are calculated on a pro rata basis with reference to his actual remuneration for the year ended 31 December 2021.
- (v) Elected on 28 April 2021
- (vi) Appointment effective 28 April 2021
- (vii) Retired on 28 April 2021
- (viii) Mr. Li retired on 31 December 2020. His performance cash incentive in 2020 included a special cash incentive payment of \$30 million approved by the Board.
- (ix) Appointment effective 7 May 2020

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**15. Directors' Emoluments and Interests of Directors (continued)**

- (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.

16. Five Top-paid Employees

One (2020: one) of the five top-paid employees was the Chief Executive Officer whose emoluments are disclosed in note 15. Details of the emoluments of the other four (2020: four) top-paid employees, which included the emoluments payable to HKEX's ex-Interim Chief Executive served as Executive Director (note 15) were as follows:

	2021 \$'000	2020 \$'000
Salaries and other short-term employee benefits	26,966	17,681
Inducement fees	3,614	-
Performance cash incentive	17,167	19,716
Retirement benefit costs	2,398	1,654
	50,145	39,051
Employee share-based compensation benefits (note (a))	27,844	21,554
	77,989	60,605

- (a) Employee share-based compensation benefits represent the fair value of Awarded Shares on grant date (note 43) amortised to the consolidated income statement during the year.
- (b) The emoluments of these four (2020: four) employees, including share-based compensation benefits, were within the following bands:

	2021 Number of employees	2020 Number of employees
\$12,500,001 - \$13,000,000	-	1
\$14,500,001 - \$15,000,000	-	1
\$15,000,001 - \$15,500,000	1	1
\$17,500,001 - \$18,000,000	1	1
\$22,000,001 - \$22,500,000	1	-
\$22,500,001 - \$23,000,000	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.

17. 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. Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation and considers whether it is probable that a taxation authority will accept an uncertain tax treatment. Provisions are established where appropriate on the basis of amounts expected to be paid to tax authorities.

The Group's accounting policy for recognition of deferred tax is described in note 41.

(a) Taxation charge/(credit) in the consolidated income statement represented:

	2021 \$m	2020 \$m
Current tax - Hong Kong Profits Tax		
- Provision for the year	1,969	1,537
- Over provision in respect of prior years	-	(2)
	1,969	1,535
Current tax - Overseas Tax		
- Provision for the year	174	177
- Under provision in respect of prior years	2	1
	176	178
Total current tax (note (i))	2,145	1,713
Deferred tax		
- Provision for temporary differences	38	71
- Impact of changes in UK Corporate Tax rate (note (ii))	160	61
Total deferred tax (note 41(a))	198	132
Taxation charge	2,343	1,845

- (i) Hong Kong Profits Tax has been provided at the rate of 16.5 per cent (2020: 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 rate applicable to the subsidiaries in the UK being 19 per cent (2020: 19 per cent).
- (ii) Through the enactment of the Finance Act 2021 in June 2021, the UK Corporate Tax rate would increase from 19 per cent to 25 per cent from 1 April 2023. As a result, a one-off deferred tax charge on acquired LME intangible assets of \$160 million was recognised during the year ended 31 December 2021 (2020: \$61 million deferred tax charge was recognised as the UK Corporate Tax rate remained at 19 per cent from 1 April 2020 instead of reducing to 17 per cent as previously enacted).

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

17. Taxation (continued)

- (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:

	2021 \$m	2020 \$m
Profit before taxation	14,841	13,332
Tax calculated at domestic tax rates applicable to profits in the respective countries (note (i))	2,441	2,188
Income not subject to taxation	(410)	(510)
Expenses not deductible for taxation purposes	96	59
Remeasurement of deferred tax assets and liabilities arising from changes in UK Corporate Tax rate	160	61
Change in deferred tax arising from unrecognised tax losses and other deferred tax adjustments	54	48
Under/(over) provision in respect of prior years	2	(1)
Taxation charge	2,343	1,845

- (i) The weighted average applicable tax rate was 16.4 per cent (2020: 16.4 per cent).

18. Earnings Per Share

The calculation of the basic and diluted earnings per share is as follows:

- (a) Basic earnings per share

	2021	2020
Profit attributable to shareholders (\$m)	12,535	11,505
Weighted average number of shares in issue less shares held for Share Award Scheme (in '000)	1,265,431	1,262,746
Basic earnings per share (\$)	9.91	9.11

- (b) Diluted earnings per share

	2021	2020
Profit attributable to shareholders (\$m)	12,535	11,505
Weighted average number of shares in issue less shares held for Share Award Scheme (in '000)	1,265,431	1,262,746
Effect of Awarded Shares (in '000)	2,140	3,057
Weighted average number of shares for the purpose of calculating diluted earnings per share (in '000)	1,267,571	1,265,803
Diluted earnings per share (\$)	9.89	9.09

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

19. 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.

	2021 \$m	2020 \$m
First interim dividend paid:		
\$4.69 (2020: \$3.71) per share	5,946	4,704
Less: Dividend for shares held by Share Award Scheme (note (a))	(12)	(12)
	5,934	4,692
Second interim dividend declared (note (b)):		
\$4.18 (2020: \$4.46) per share based on issued share capital at 31 Dec	5,300	5,655
Less: Dividend for shares held by Share Award Scheme at 31 Dec (note (a))	(10)	(9)
	5,290	5,646
	11,224	10,338

- (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.

20. 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 22) or through other comprehensive income (note 23)); and
- those measured at amortised cost (note 24).

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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

21. 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, time deposits and short-term debt securities), with original maturities of three months or less, or with remaining maturities of three months or less from the date of acquisition.

	At 31 Dec 2021				Total \$m
	Cash for A-shares (notes (a) and (c)) \$m	Corporate Funds (notes (b) and 25) \$m	Margin Funds (notes (c) and 33) \$m	Clearing House Funds (notes (c) and 37) \$m	
Cash on hand and balances and deposits with banks	7,372	11,443	54,546	6,884	80,245
Unlisted debt securities	-	-	-	75	75
Reverse repurchase investments	-	1,457	91,040	8,544	101,041
	7,372	12,900	145,586	15,503	181,361

	At 31 Dec 2020				Total \$m
	Cash for A-shares (notes (a) and (c)) \$m	Corporate Funds (notes (b) and 25) \$m	Margin Funds (notes (c) and 33) \$m	Clearing House Funds (notes (c) and 37) \$m	
Cash on hand and balances and deposits with banks	6,212	9,824	48,673	5,044	69,753
Unlisted debt securities	-	-	-	3,262	3,262
Reverse repurchase investments	-	929	73,511	10,541	84,981
	6,212	10,753	122,184	18,847	157,996

(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 2021, cash and cash equivalents of Corporate Funds of \$502 million (31 December 2020: \$311 million) (note 25(b)) were solely used to support Skin-in-the-Game and default fund credits of Clearing House Funds (note 37(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.

22. 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 23) or amortised cost (note 24). 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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

22. Financial Assets Measured at Fair Value through Profit or Loss (continued)

	At 31 Dec 2021		
	Corporate Funds (note 25) \$m	Metals derivatives contracts (note (a)) \$m	Total \$m
<u>Mandatorily measured at fair value</u>			
Collective investment schemes:			
- listed outside Hong Kong	1,680	-	1,680
- unlisted	7,063	-	7,063
	8,743	-	8,743
Unlisted equity securities	694	-	694
Derivative financial instruments:			
- base, ferrous and precious metals futures and options contracts cleared through LME Clear (note (a))	-	91,424	91,424
	9,437	91,424	100,861
The expected recovery dates of the financial assets are analysed as follows:			
Within twelve months	8,491	91,424	99,915
More than twelve months	946	-	946
	9,437	91,424	100,861

	At 31 Dec 2020		
	Corporate Funds (note 25) \$m	Metals derivatives contracts (note (a)) \$m	Total \$m
<u>Mandatorily measured at fair value</u>			
Collective investment schemes:			
- listed outside Hong Kong	1,131	-	1,131
- unlisted	6,362	-	6,362
	7,493	-	7,493
Unlisted equity securities	220	-	220
Derivative financial instruments:			
- base, ferrous and precious metals futures and options contracts cleared through LME Clear (note (a))	-	92,884	92,884
	7,713	92,884	100,597
The expected recovery dates of the financial assets are analysed as follows:			
Within twelve months	7,197	92,884	100,081
More than twelve months	516	-	516
	7,713	92,884	100,597

- (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 32).

23. 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 22).

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 or investments with an active market 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 (i.e., 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.

23. Financial Assets Measured at Fair Value through Other Comprehensive Income (continued)**Accounting Policy (continued)**Impairment (continued)

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.

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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

23. Financial Assets Measured at Fair Value through Other Comprehensive Income (continued)

	At 31 Dec 2021		
	Margin Funds (note 33) \$m	Clearing House Funds (note 37) \$m	Total \$m
Listed debt securities (note (a))	467	-	467
Unlisted debt securities (note (a))	4,816	4,472	9,288
	5,283	4,472	9,755

The expected recovery dates of the financial assets are analysed as follows:

Within twelve months (note (b))	5,283	4,472	9,755
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	At 31 Dec 2020		
	Margin Funds (note 33) \$m	Clearing House Funds (note 37) \$m	Total \$m
Unlisted debt securities (note (a))	5,538	2,404	7,942

The expected recovery dates of the financial assets are analysed as follows:

Within twelve months (note (b))	5,538	2,404	7,942
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- (a) No provision for impairment loss was made at 31 December 2021 and 31 December 2020 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 Aa2 (Moody) (31 December 2020: Aa2 (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 \$3,879 million (31 December 2020: \$3,435 million) attributable to Margin Funds that could readily be liquidated to meet liquidity requirements of the Fund (note 53(b)).

24. 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 22).

Accounts receivable and other deposits are also classified under this category (note 26).

24. Financial Assets Measured at Amortised Cost (continued)**Accounting Policy (continued)**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.

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 23) 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 23 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 23). 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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

24. Financial Assets Measured at Amortised Cost (continued)

	At 31 Dec 2021		
	Corporate Funds (notes (b) and 25) \$m	Margin Funds (note 33) \$m	Total \$m
Debt securities	1,194	-	1,194
Time deposits with original maturities over three months	10,166	40,371	50,537
Other financial assets	97	-	97
	11,457	40,371	51,828
The expected recovery dates of the financial assets are analysed as follows:			
Within twelve months	10,931	40,371	51,302
More than twelve months	526	-	526
	11,457	40,371	51,828
	At 31 Dec 2020		
	Corporate Funds (notes (b) and 25) \$m	Margin Funds (note 33) \$m	Total \$m
Debt securities	1,740	-	1,740
Time deposits with original maturities over three months	13,442	47,407	60,849
Other financial assets	99	-	99
	15,281	47,407	62,688
The expected recovery dates of the financial assets are analysed as follows:			
Within twelve months	15,182	47,407	62,589
More than twelve months	99	-	99
	15,281	47,407	62,688

- (a) No provision for impairment loss for these financial assets was made at 31 December 2021 and 31 December 2020 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 Aa2 (Moody) (31 December 2020: Aa2 (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) At 31 December 2021, debt securities of Corporate Funds of \$765 million (31 December 2020: \$930 million) (note 25(b)) were solely used to support Skin-in-the-Game and default fund credits of HKSCC Guarantee Fund (note 37(a)).
- (c) The fair values of financial assets maturing after twelve months are disclosed in note 53(d)(ii).

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

25. Corporate Funds

	At 31 Dec 2021 \$m	At 31 Dec 2020 \$m
Corporate Funds comprised the following instruments:		
Cash and cash equivalents (notes (b) and 21)	12,900	10,753
Financial assets measured at fair value through profit or loss (note 22)	9,437	7,713
Financial assets measured at amortised cost (notes (b) and 24)	11,457	15,281
	33,794	33,747

- (a) Financial assets held by the Group which are funded by share capital and funds generated from operations are classified as Corporate Funds (i.e., 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 2021, cash and cash equivalents of Corporate Funds of \$502 million (31 December 2020: \$311 million) and financial assets measured at amortised cost of Corporate Funds of \$765 million (31 December 2020: \$930 million) were solely used to support Skin-in-the-Game and default fund credits of Clearing House Funds (note 37(a)).

26. 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 described in note 24.

	At 31 Dec 2021 \$m	At 31 Dec 2020 \$m
Receivable from ChinaClear, and Exchange and Clearing Participants:		
- CNS money obligations receivable (note (a))	17,921	32,910
- transaction levy, stamp duty and fees receivable	950	1,321
- Settlement Reserve Fund and Settlement Guarantee Fund held by ChinaClear (note 33)	12,757	11,862
- others	23	17
Receivables for collective investment schemes sold before 31 Dec	98	28
Payment in advance for collective investment schemes traded after 31 Dec	97	-
Other receivables, prepayments and deposits	942	984
Less: Provision for impairment losses of receivables (notes (b) and (c))	(50)	(42)
	32,738	47,080

- (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 34) 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 Participants is created through novation. The CNS money obligations due by/to HKSCC Clearing Participants and ChinaClear are recognised as receivables and payables (note 34) when the trades are confirmed on the trade day.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

26. Accounts Receivable, Prepayments and Deposits (continued)

(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 2021 and 31 December 2020 was determined as follows:

	At 31 Dec 2021			Total
	Current or within 30 days past due	31 to 180 days past due	More than 180 days past due	
Expected loss rate	3%	10%	100%	
Gross carrying amount – accounts receivable subject to expected credit loss provision (\$m)	545	21	29	595
Loss allowance (\$m)	19	2	29	50

	At 31 Dec 2020			Total
	Current or within 30 days past due	31 to 180 days past due	More than 180 days past due	
Expected loss rate	2%	9%	100%	
Gross carrying amount – accounts receivable subject to expected credit loss provision (\$m)	581	53	26	660
Loss allowance (\$m)	11	5	26	42

For the remaining receivables and other deposits (excluding prepayments) amounting to \$31,964 million as of 31 December 2021 (31 December 2020: \$46,266 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.

(c) The movements in provision for impairment losses of receivables were as follows:

	2021 \$m	2020 \$m
At 1 Jan	42	29
Provision for loss allowance for receivables under other operating expenses	7	12
Exchange differences	1	1
At 31 Dec	50	42

(d) CNS money obligations receivable mature within two days after the trade date. The balance of Settlement Reserve Fund and Settlement Guarantee Fund with ChinaClear is rebalanced on a monthly basis. Fees receivable are due immediately or up to 60 days depending on the type of services rendered. The majority of the remaining accounts receivable, prepayments and deposits were due within three months.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

27. 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 22).

(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 2021	At 31 Dec 2020
Direct principal subsidiaries:					
The Stock Exchange of Hong Kong Limited	Hong Kong	929 ordinary shares (\$929)	Operates the only 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	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%

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

27. Principal Subsidiaries and Controlled Structured Entities (continued)

(a) Principal subsidiaries (continued)

Company	Place of incorporation and operation	Issued and fully paid up share/registered capital	Principal activities	Interest held by the Group	
				At 31 Dec 2021	At 31 Dec 2020
Direct principal subsidiaries (continued):					
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 shares 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 (i))	Mainland China	RMB400,000,000	Operates a commodity trading platform in Mainland China	90%	90%

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.

(i) Subsidiaries with non-controlling interests

At 31 December 2021, the Group held 76 per cent (31 December 2020: 76 per cent) interest in OTC Clear, while the remaining 24 per cent (31 December 2020: 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 2021, the Group held 90 per cent (31 December 2020: 90 per cent) interest in QME, while the remaining 10 per cent (31 December 2020: 10 per cent) interest was held by non-controlling interests.

BayConnect is a limited company established in Mainland China. At 31 December 2021, the Group held 51 per cent (31 December 2020: 51 per cent) interest in BayConnect, while the remaining 49 per cent (31 December 2020: 49 per cent) interest was held by non-controlling interests.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

27. Principal Subsidiaries and Controlled Structured Entities (continued)

(a) Principal subsidiaries (continued)

(i) Subsidiaries with non-controlling interests (continued)

Set out below is the financial information related to the non-controlling interests of each subsidiary:

	OTC Clear		QME		BayConnect	
	2021 \$m	2020 \$m	2021 \$m	2020 \$m	2021 \$m	2020 \$m
Amounts allocated to non-controlling interests:						
(Loss)/profit for the year	(13)	9	(15)	(13)	(9)	(14)
Other comprehensive (loss)/income	-	-	(1)	(2)	4	10
Total comprehensive (loss)/income	(13)	9	(16)	(15)	(5)	(4)
	At 31 Dec 2021 \$m	At 31 Dec 2020 \$m	At 31 Dec 2021 \$m	At 31 Dec 2020 \$m	At 31 Dec 2021 \$m	At 31 Dec 2020 \$m
Accumulated non-controlling interests	182	195	(44)	(28)	146	151

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 2021 was \$290 million (31 December 2020: \$327 million).

(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 43)
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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

28. 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(d).

	At 31 Dec 2021 \$m	At 31 Dec 2020 \$m
Share of net assets of joint ventures	244	164

(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 2021	At 31 Dec 2020
China Exchanges Services Company Limited (CESC)	Hong Kong	Development of index-linked and equity derivatives products	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. It is expected to enhance the competitiveness of Hong Kong, and it aims to 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.

Set out below is the measurement method and the carrying amounts of the two joint ventures:

Name	Measurement method	Carrying amount	
		At 31 Dec 2021 \$m	At 31 Dec 2020 \$m
CESC	Equity	38	38
BCCL	Equity	206	126
		244	164

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.

29. 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 (i.e., 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 LME entities 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.

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 (i.e., 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.

29. Goodwill and Other Intangible Assets (continued)**Accounting Policy (continued)**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 (i.e., 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 incurred in configuring or customising software in a cloud computing arrangement can only be recognised as intangible assets if the activities create an intangible asset that the Group controls and the intangible asset meets the recognition criteria. Those costs that do not result in intangible assets are expensed when service is delivered, unless they are incurred for customising the cloud-based software which the promises are not distinct to the cloud computing arrangement, where such costs are amortised over the contract terms of the cloud computing arrangement.

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(d).

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

29. Goodwill and Other Intangible Assets (continued)

	Other Intangible Assets				Total \$m
	Goodwill \$m	Tradenames \$m	Customer relationships \$m	Software systems \$m	
Cost:					
At 1 Jan 2020	13,344	895	3,144	4,174	21,557
Exchange differences	(58)	(4)	(14)	3	(73)
Additions	-	-	-	1,073	1,073
Disposals	-	-	-	(45)	(45)
At 31 Dec 2020	13,286	891	3,130	5,205	22,512
At 1 Jan 2021	13,286	891	3,130	5,205	22,512
Exchange differences	75	5	18	18	116
Additions	-	-	-	904	904
Disposals	-	-	-	(150)	(150)
At 31 Dec 2021	13,361	896	3,148	5,977	23,382
Accumulated amortisation:					
At 1 Jan 2020	-	-	919	2,260	3,179
Exchange differences	-	-	(3)	-	(3)
Amortisation	-	-	131	513	644
Disposals	-	-	-	(45)	(45)
At 31 Dec 2020	-	-	1,047	2,728	3,775
At 1 Jan 2021	-	-	1,047	2,728	3,775
Exchange differences	-	-	5	11	16
Amortisation	-	-	132	637	769
Disposals	-	-	-	(150)	(150)
At 31 Dec 2021	-	-	1,184	3,226	4,410
Net book value:					
At 31 Dec 2021	13,361	896	1,964	2,751	18,972
At 31 Dec 2020	13,286	891	2,083	2,477	18,737
Cost of software systems under development included above:					
At 31 Dec 2021	-	-	-	1,200	1,200
At 31 Dec 2020	-	-	-	1,143	1,143

Amortisation of \$769 million (2020: \$644 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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

29. 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 2021		At 31 Dec 2020	
	Goodwill \$m	Tradenames \$m	Goodwill \$m	Tradenames \$m
Commodities segment	10,368	702	10,310	698
Post Trade segment	2,873	194	2,858	193
Technology segment	120	-	118	-
	13,361	896	13,286	891

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 development stage, its valuation has not been taken into account in determining the recoverable amount of the Commodities segment at 31 December 2021.

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 2021			At 31 Dec 2020		
	Commodities segment	Post Trade segment	Technology segment	Commodities segment	Post Trade segment	Technology segment
EBITDA margin (average of next five years)	61%	44%	30%	65%	49%	33%
Growth rate	3%	3%	3%	3%	3%	3%
Discount rate	8%	8%	13%	9%	9%	14%

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 2021 and 31 December 2020. Accordingly, no provision for impairment loss for goodwill or tradenames is considered necessary.

If the LME trading fee in the forecast period was 17 per cent lower than forecast, or the discount rate increased to 10 per cent, the recoverable amount of the Commodities segment would be lower than its carrying amount. If LME Clear clearing fees in the forecast period was 14 per cent lower than forecast, or the discount rate increased to 10 per cent, the recoverable amount of LME Clear under the Post Trade segment would be lower than 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 2021.

30. 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 (i.e., 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(d).

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

30. 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 2020	708	1,100	631	440	1,107	3,986
Exchange differences	-	5	-	-	2	7
Additions	-	154	105	7	49	315
Disposals	-	(49)	(105)	-	(6)	(160)
At 31 Dec 2020	708	1,210	631	447	1,152	4,148
At 1 Jan 2021	708	1,210	631	447	1,152	4,148
Exchange differences	-	2	2	-	2	6
Additions	-	43	62	64	54	223
Disposals	-	(92)	(20)	-	(9)	(121)
At 31 Dec 2021	708	1,163	675	511	1,199	4,256
Accumulated depreciation:						
At 1 Jan 2020	206	912	430	196	653	2,397
Exchange differences	-	3	-	-	2	5
Depreciation	28	46	53	30	91	248
Disposals	-	(48)	(105)	-	(6)	(159)
At 31 Dec 2020	234	913	378	226	740	2,491
At 1 Jan 2021	234	913	378	226	740	2,491
Exchange differences	-	2	2	-	2	6
Depreciation	28	59	63	30	95	275
Disposals	-	(92)	(20)	-	(9)	(121)
At 31 Dec 2021	262	882	423	256	828	2,651
Net book value:						
At 31 Dec 2021	446	281	252	255	371	1,605
At 31 Dec 2020	474	297	253	221	412	1,657
Cost of fixed assets in the course of construction included above:						
At 31 Dec 2021	-	19	72	46	50	187
At 31 Dec 2020	-	150	91	-	102	343

Depreciation of \$275 million (2020: \$248 million) is included in “depreciation and amortisation” in the consolidated income statement.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

31. 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 38) 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 (i.e., 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.

	Lease premium for land \$m	Properties \$m	Information technology facilities \$m	Equipment and motor vehicles \$m	Total \$m
At 1 Jan 2020	19	2,304	28	15	2,366
Exchange differences	-	3	-	-	3
Additions of leases	-	60	69	-	129
Depreciation	(1)	(285)	(14)	(5)	(305)
At 31 Dec 2020	18	2,082	83	10	2,193
At 1 Jan 2021	18	2,082	83	10	2,193
Exchange differences	-	2	-	-	2
Additions and reassessment of leases	-	10	-	1	11
Depreciation	(1)	(288)	(16)	(5)	(310)
At 31 Dec 2021	17	1,806	67	6	1,896

- (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 9 years.
- (b) Depreciation of \$310 million (2020: \$305 million) is included in "depreciation and amortisation" in the consolidated income statement.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

32. 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 2021 \$m	At 31 Dec 2020 \$m
<u>Held by LME Clear in its capacity as a central counterparty</u>		
Derivative financial instruments:		
- base, ferrous and precious metals futures and options contracts cleared through LME Clear (note (a))	91,424	92,884
	91,424	92,884

- (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.

33. 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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

33. Margin Deposits, Mainland Security and Settlement Deposits, and Cash Collateral from Clearing Participants (continued)

	At 31 Dec 2021 \$m	At 31 Dec 2020 \$m
Margin deposits, Mainland security and settlement deposits, and cash collateral from Clearing Participants comprised:		
SEOCH Clearing Participants' margin deposits	21,051	16,873
HKCC Clearing Participants' margin deposits	56,840	59,422
HKSCC Clearing Participants' margin deposits, Mainland security and settlement deposits, and cash collateral	24,353	27,111
OTC Clear Clearing Participants' margin deposits	7,211	6,899
LME Clear Clearing Participants' margin deposits	94,081	76,703
	203,536	187,008
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 20):		
Cash and cash equivalents (note 21)	145,586	122,184
Financial assets measured at fair value through other comprehensive income (note 23)	5,283	5,538
Financial assets measured at amortised cost (note 24)	40,371	47,407
Settlement Reserve Fund and Settlement Guarantee Fund held by ChinaClear (note 26)	12,757	11,862
Margin receivable from Clearing Participants	7	17
Less: Other financial liabilities of Margin Funds (note (a) and 36)	(468)	-
	203,536	187,008

(a) Other financial liabilities of Margin Funds represent payable for debt securities traded before 31 December.

34. Accounts Payable, Accruals and Other Liabilities

Accounting Policy

Financial liabilities (other than financial liabilities at fair value through profit or loss (note 32) and financial guarantee contracts (note 36)) 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 2021 \$m	At 31 Dec 2020 \$m
Payable to ChinaClear and Exchange and Clearing Participants:		
- CNS money obligations payable (note 26(a))	25,293	39,120
- HKD/USD cash collateral for A-shares (note 21(a)(ii))	-	2
- others	429	553
Transaction levy payable to the SFC	158	185
Levies payable to the Financial Reporting Council	32	-
Unclaimed dividends (note (a))	467	376
Stamp duty payable to the Collector of Stamp Revenue	509	914
Payables for collective investment schemes traded before 31 Dec	-	504
Other payables, accruals and deposits received	1,447	1,320
	28,335	42,974

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

34. 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 \$12 million (2020: \$9 million) were forfeited and recognised as sundry income (note 8) and dividends declared by HKEX which were unclaimed over a period of six years amounting to \$12 million (2020: \$21 million) were forfeited and transferred to retained earnings in accordance with HKEX's Articles of Association (note 46).
- (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.

35. 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 2021 \$m	At 31 Dec 2020 \$m
Deferred revenue arising from unsatisfied performance obligations	1,454	1,420
Analysed as:		
Non-current liabilities	354	371
Current liabilities	1,100	1,049
	1,454	1,420

36. 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 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 2021 \$m	At 31 Dec 2020 \$m
Financial liabilities of Margin Funds (note 33)	468	-
Financial liabilities of Clearing House Funds (note 37)	25	28
Financial liabilities of Corporate Funds:		
Financial guarantee contract (note (a))	20	20
	513	48

- (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).

37. 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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

37. Clearing House Funds (continued)

	At 31 Dec 2021 \$m	At 31 Dec 2020 \$m
The Clearing House Funds comprised:		
Clearing Participants' cash contributions	19,182	20,439
Contribution to OTC Clear Rates and FX Guarantee Resources	156	156
Clearing House Funds reserves (note 45)	612	628
	19,950	21,223
The Clearing House Funds were invested in the following instruments for managing the obligations of the Funds (note 20):		
Cash and cash equivalents (note 21)	15,503	18,847
Financial assets measured at fair value through other comprehensive income (note 23)	4,472	2,404
Less: Other financial liabilities of Clearing House Funds (note 36)	(25)	(28)
	19,950	21,223
The Clearing House Funds comprised the following Funds:		
HKSCC Guarantee Fund	4,552	5,667
SEOCH Reserve Fund	1,851	909
HKCC Reserve Fund	2,055	1,205
OTC Clear Rates and FX Guarantee Fund	2,778	2,730
OTC Clear Rates and FX Guarantee Resources	171	171
LME Clear Default Fund	8,543	10,541
	19,950	21,223

- (a) At 31 December 2021, the Skin-in-the-Game, together with default fund credits granted to HKSCC and HKCC Participants (note 53(c)), amounted to \$1,267 million (31 December 2020: \$1,241 million), and were included in Corporate Funds (note 25(b)).

38. 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 31) 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 2021 \$m	At 31 Dec 2020 \$m
Total lease liabilities	2,059	2,358
Analysed as:		
Non-current liabilities	1,760	2,054
Current liabilities	299	304
	2,059	2,358

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.

39. Borrowings

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 under borrowings, 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 (i.e., 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.

The written put options liabilities 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 2021 \$m	At 31 Dec 2020 \$m
Written put options to non-controlling interests	426	423
Analysed as:		
Non-current liabilities	86	83
Current liabilities	340	340
	426	423

The amounts were repayable as follows:

	At 31 Dec 2021 \$m	At 31 Dec 2020 \$m
Within one year	340	340
After one year but within two years	86	-
After two years but within five years	-	83
	426	423

At 31 December 2021, OTC Clear has issued 3,541 non-voting ordinary shares to certain third party shareholders at a total consideration of \$433 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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

39. Borrowings (continued)

At 31 December 2021, \$340 million of the written put options were exercisable (31 December 2020: \$340 million) and the remaining \$86 million of the options will become exercisable in October 2023. During the year ended 31 December 2021, none of the written put options was exercised (2020: none).

The effective interest rate of the options before they are exercisable was 3.0 per cent (2020: 3.0 per cent) per annum.

40. 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 2021	106	106	212
Provision for the year	-	112	112
Amount used during the year	-	(121)	(121)
Amount paid during the year	(5)	(18)	(23)
At 31 Dec 2021	101	79	180
Analysed as:			
Non-current liabilities	98	-	98
Current liabilities	3	79	82
	101	79	180

- (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 9 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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

41. 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/(assets) were as follows:

	Accelerated tax depreciation		Intangible assets ¹		Tax losses		Employee benefits		Leases		Financial assets		Total	
	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
At 1 Jan	382	305	566	533	(19)	(22)	(29)	(21)	(1)	(20)	5	-	904	775
Exchange differences	-	-	4	(3)	-	-	-	-	-	-	-	-	4	(3)
Charged/(credited) to the consolidated income statement (note 17(a))	25	77	135	36	6	3	4	(3)	-	19	28	-	198	132
(Credited)/charged to the consolidated statement of comprehensive income	-	-	-	-	-	-	-	-	-	-	(1)	5	(1)	5
Charged/(credited) directly to retained earnings	-	-	-	-	-	-	2	(5)	-	-	-	-	2	(5)
At 31 Dec	407	382	705	566	(13)	(19)	(23)	(29)	(1)	(1)	32	5	1,107	904

¹ Intangible assets include customer relationships and tradenames.

(b) The Group had unrecognised tax losses of \$1,810 million at 31 December 2021 (31 December 2020: \$1,623 million) that may be carried forward for offsetting against future taxable income. Tax losses of PRC entities amounting to \$772 million (31 December 2020: \$662 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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**41. Deferred Taxation (continued)**

- (c) 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 2021 \$m	At 31 Dec 2020 \$m
Deferred tax assets	(25)	(26)
Deferred tax liabilities	1,132	930
	1,107	904

- (d) The analysis of deferred tax (assets)/liabilities is as follows:

	At 31 Dec 2021 \$m	At 31 Dec 2020 \$m
Deferred tax assets		
Amounts to be recovered after more than 12 months	(23)	(25)
Amounts to be recovered within 12 months	(2)	(1)
	(25)	(26)
Deferred tax liabilities		
Amounts to be settled after more than 12 months	1,114	921
Amounts to be settled within 12 months	18	9
	1,132	930
Net deferred tax liabilities	1,107	904

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

42. 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 from reinvesting dividends or received 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 2020	1,261,201	(3,274)	30,449	(770)	29,679
Shares issued in lieu of cash dividends (note (a))	6,636	(45)	1,438	(10)	1,428
Shares purchased for Share Award Scheme (note (b))	-	(84)	-	(31)	(31)
Vesting of shares of Share Award Scheme (note (c))	-	1,420	4	326	330
At 31 Dec 2020	1,267,837	(1,983)	31,891	(485)	31,406
At 1 Jan 2021	1,267,837	(1,983)	31,891	(485)	31,406
Shares purchased for Share Award Scheme (note (b))	-	(1,455)	-	(681)	(681)
Vesting of shares of Share Award Scheme (note (c))	-	1,067	5	265	270
At 31 Dec 2021	1,267,837	(2,371)	31,896	(901)	30,995

¹ Excluding shares vested but not yet transferred to awardees of 33,763 shares at 31 December 2021 (31 December 2020: 307,960 shares)

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**42. Share Capital and Shares Held for Share Award Scheme (continued)**

- (a) During the year ended 31 December 2020, the following shares were issued to shareholders who elected to receive HKEX shares in lieu of cash dividends pursuant to the scrip dividend scheme:

	2020				
	Number of shares	Scrip price \$	Share capital \$m	Shares held for Share Award Scheme \$m	Total \$m
Issued as 2019 second interim scrip dividends:					
- total	6,635,576	216.70	1,438	-	1,438
- to Share Award Scheme	(45,127)	216.70	-	(10)	(10)
	6,590,449		1,438	(10)	1,428

Following the suspension of the scrip dividend scheme from August 2020, no HKEX shares were issued during the year ended 31 December 2021.

- (b) During the year, the Share Award Scheme (note 43) acquired 1,454,300 HKEX shares (2020: 84,000 shares) through purchases on the open market. The total amount paid to acquire the shares during the year was \$681 million (2020: \$31 million).
- (c) During the year, a total of 1,066,959 HKEX shares (2020: 1,419,931 shares) were vested. The total cost of the vested shares was \$265 million (2020: \$326 million). In 2021, \$5 million (2020: \$4 million) was credited to share capital in respect of vesting of certain shares whose fair values were higher than the costs.

43. 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 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:

	2021 \$m	2020 \$m
At 1 Jan	232	250
Employee share-based compensation benefits (note 10)	324	281
Vesting of shares of Share Award Scheme	(250)	(299)
At 31 Dec	306	232

The Scheme allows shares to be granted to employees of the Group, including the Executive Director (Employee Share Awards).

The awarded amounts for the purchase of shares (Awarded Shares) to eligible employees and/or selected senior executives (Awarded Sum) are approved by the Board. The Awarded Shares are either purchased from the market or are awarded by regranteeing 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 reinvesting dividends or 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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

43. 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 Officer, 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 2020 and 2021

<u>Date of award</u>	<u>Number of Awarded Shares awarded</u>	<u>Average fair value per share</u> \$	<u>Vesting period</u>
22 Jun 2020	9,700	307.10	17 Jun 2022 - 17 Jun 2023
4 Dec 2020	42,500	389.08	8 Feb 2021 - 8 Feb 2024
13 May 2021	600	442.39	31 Mar 2022 - 31 Mar 2023
13 May 2021	727,088 ¹	439.26	9 Dec 2022 - 9 Dec 2023
2 Jun 2021	211,756 ²	484.20	24 May 2022 - 24 May 2023
6 Sep 2021	5,300	493.22	6 Feb 2022 - 11 Feb 2024
29 Sep 2021	6,100	474.48	13 Jan 2022 - 13 Jan 2024
30 Sep 2021	200	478.82	11 Feb 2022 - 11 Feb 2024
30 Sep 2021	400	479.36	13 Jan 2022 - 13 Jan 2024
12 Nov 2021	900	466.12	27 Mar 2022 - 24 Mar 2024
30 Nov 2021	21,200	435.15	30 Nov 2023 - 30 Nov 2024

¹ 261,516 shares were awarded by re-granting the forfeited or unallocated shares held by the Scheme

² The shares were awarded to HKEX's Chief Executive Officer.

In addition to the above, total Awarded Sum amounting to \$377 million were also granted to selected employees in 2021. At 31 December 2021, the shares had not yet been awarded to the employees.

Details of Awarded Shares (excluding dividend shares) vested during 2020 and 2021

During the year, 1,011,400 HKEX shares (2020: 1,112,075 shares) were vested at an aggregate fair value of \$250 million (2020: \$257 million), of which none of shares were for the HKEX's Chief Executive Officer (2020: 146,156 shares were for the then HKEX's Chief Executive).

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

43. Employee Share-based Arrangements (continued)

(b) Summary of Awarded Shares awarded and dividend shares

Movements in number of Awarded Shares awarded and dividend shares

	2021	2020
Number of Awarded Shares and dividend shares:		
Outstanding at 1 Jan	1,722,044	3,272,042
Awarded ³	973,544	52,200
Forfeited	(155,227)	(246,576)
Vested	(1,011,400)	(1,339,766)
Dividend shares:		
- allocated to awardees	37,818	73,046
- allocated to awardees but subsequently forfeited	(5,009)	(8,737)
- vested ⁴	(55,559)	(80,165)
Outstanding at 31 Dec	1,506,211	1,722,044

³ Average fair value per share was \$449.51 (2020: \$373.85).

⁴ In 2021, 55,559 dividend shares (2020: 80,165 shares), of which none of shares were for the HKEX's Chief Executive Officer (2020: 21,065 shares were for the then HKEX's Chief Executive), at a cost of \$20 million (2020: \$21 million) were vested.

Remaining vesting periods or performance period of Awarded Shares awarded and dividend shares outstanding at 31 December

	At 31 Dec 2021		At 31 Dec 2020	
	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				
2018	0.05 year	117	0.05 year to 1.05 years	523,567
2019	0.19 year to 0.95 year	497,700	0.11 year to 1.95 years	1,093,163
2020	0.11 year to 2.11 years	38,600	0.11 year to 3.11 years	52,200
2021	0.04 year to 2.92 years	939,430	-	-
Dividend shares	0.05 year to 2.11 years	30,364	0.05 year to 2.46 years	53,114
		1,506,211		1,722,044

(c) Total number of shares held by Share Award Scheme

	At 31 Dec 2021	At 31 Dec 2020
Number of Awarded Shares and dividend shares (note (b))	1,506,211	1,722,044
Forfeited or unallocated shares ⁵	864,690	261,516
Number of shares held by Share Award Scheme ⁶ (note 42)	2,370,901	1,983,560

⁵ The shares will be granted to eligible employees in future.

⁶ Excluding shares vested but not yet transferred to awardees of 33,763 shares at 31 December 2021 (31 December 2020: 307,960 shares).

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

44. Hedging and Revaluation Reserves

	At 31 Dec 2021 \$m	At 31 Dec 2020 \$m
Hedging reserve (note (a))	(2)	-
Revaluation reserve (note (b))	17	25
	15	25

(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. Where the hedged item subsequently results in the recognition of a non-financial asset (such as fixed assets), the amounts accumulated in hedging reserve are reclassified and included in the initial measurement of the cost of the asset.

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.

The movements of hedging reserve were as follows:

	2021 \$m	2020 \$m
At 1 Jan	-	6
Cash flow hedges:		
- net fair value (losses)/gains of hedging instruments	(7)	10
- reclassified to the consolidated income statement as staff costs and related expenses (note (i))	3	(15)
- reclassified to the consolidated income statement as information technology and computer maintenance expenses (note (i))	-	(1)
- reclassified to intangible assets (note (i))	2	-
At 31 Dec	(2)	-
Fair value of hedging instruments at 31 Dec	341	-

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**44. Hedging and Revaluation Reserves (continued)**

(a) Hedging reserve (continued)

- (i) The functional currencies of LME and LME Clear are United States Dollars (USD). To hedge the foreign currency exposure of their operating expenses, these entities have designated certain bank balances of Pound sterling (GBP) as cash flow hedges for hedging the foreign exchange risk of their staff costs and related expenses, information technology and computer maintenance expenses and intangible assets. At 31 December 2021, GBP32.3 million of the bank balances was outstanding (31 December 2020: GBP Nil).
- (ii) The total amounts arising from ineffective cash flow hedges recognised in the consolidated income statement of the Group during the year amounted to \$Nil (2020: \$Nil).

(b) Revaluation reserve

	2021 \$m	2020 \$m
At 1 Jan	25	(3)
Changes in fair value of financial assets measured at fair value through other comprehensive income	(9)	33
Deferred tax on financial assets measured at fair value through other comprehensive income	1	(5)
At 31 Dec	17	25

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

45. Designated Reserves

	At 31 Dec 2021 \$m	At 31 Dec 2020 \$m
Clearing House Funds reserves (notes (a) and 37)	612	628
PRC statutory reserve (note (b))	11	-
At 31 Dec	623	628

(a) Clearing House Funds reserves

	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 2020	174	111	239	51	12	587
Surplus of net investment income net of expenses of Clearing House Funds transfer from retained earnings (note 46)	11	2	5	20	3	41
At 31 Dec 2020	185	113	244	71	15	628
At 1 Jan 2021	185	113	244	71	15	628
(Deficit)/surplus of net investment income net of expenses of Clearing House Funds transfer (to)/from retained earnings (note 46)	(20)	1	-	3	-	(16)
At 31 Dec 2021	165	114	244	74	15	612

(b) PRC statutory reserve

	2021 \$m	2020 \$m
At 1 Jan	-	-
Transfer from retained earnings (note 46)	11	-
At 31 Dec	11	-

Upon relevant PRC laws, each of the subsidiaries in Mainland China is required to appropriate 10 per cent of its net profit to a non-distributable statutory reserve until such reserve reaches 50 per cent of the subsidiary's registered capital. The statutory reserve can be utilised, upon approval by the shareholders of the subsidiary, to offset accumulated losses or to increase the paid-in capital of the subsidiary, provided that the balance of the reserve after transfer to paid-up capital is not less than 25 per cent of the subsidiary's registered capital.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**46. Retained Earnings**

	2021	2020
	\$m	\$m
At 1 Jan	17,214	14,204
Profit attributable to shareholders	12,535	11,505
Transfer from/(to) Clearing House Funds reserves (note 45(a))	16	(41)
Transfer to PRC statutory reserve (note 45(b))	(11)	-
Dividends:		
2020/2019 second interim dividend	(5,646)	(3,761)
2021/2020 first interim dividend	(5,934)	(4,692)
Unclaimed HKEX dividends forfeited (note 34(a))	12	21
Vesting of shares of Share Award Scheme	(20)	(31)
UK tax relating to Share Award Scheme	7	9
At 31 Dec	18,173	17,214

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**47. Notes to the Consolidated Statement of Cash Flows**

(a) Reconciliation of profit before taxation to net cash inflow from principal operating activities

	2021 \$m	2020 \$m
Profit before taxation	14,841	13,332
Adjustments for:		
Net interest income	(766)	(1,773)
Net fair value gains on financial assets mandatorily measured at fair value through profit or loss and financial liabilities at fair value through profit or loss	(485)	(487)
Finance costs	154	181
Depreciation and amortisation	1,354	1,197
Employee share-based compensation benefits	324	281
Provision for impairment losses of receivables	7	12
Share of profits less losses of joint ventures	(80)	(69)
Other non-cash adjustments	(43)	12
Net increase in financial assets of Margin Funds	(17,005)	(44,439)
Net increase in financial liabilities of Margin Funds	16,996	44,472
Net decrease/(increase) in Clearing House Fund financial assets	1,276	(6,075)
Net (decrease)/increase in Clearing House Fund financial liabilities	(1,260)	6,034
Increase in cash prepayments and collateral for A-shares	(1,160)	(4,752)
Increase in Corporate Funds used for supporting Skin-in-the-Game and default fund credits	(26)	(423)
Decrease/(increase) in accounts receivable, prepayments and deposits	15,389	(14,901)
(Decrease)/increase in other liabilities	(14,197)	19,957
Net cash inflow from principal operations	15,319	12,559
Interest received from financial assets measured at amortised cost and cash and cash equivalents	775	2,066
Interest paid to Participants	(47)	(349)
Income tax paid	(2,150)	(2,320)
Net cash inflow from principal operating activities	13,897	11,956

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

47. 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 2020	418	2,506
Additions of leases	-	127
Interest on borrowings (note 14)	5	-
Interest on lease liabilities (note 14)	-	89
Cash flows		
- Payments of capital elements of lease liabilities	-	(284)
- Payments of interest elements of lease liabilities	-	(89)
Exchange differences	-	9
At 31 Dec 2020	423	2,358
At 1 Jan 2021	423	2,358
Additions and reassessment of leases	-	10
Interest on borrowings (note 14)	3	-
Interest on lease liabilities (note 14)	-	79
Cash flows		
- Payments of capital elements of lease liabilities	-	(310)
- Payments of interest elements of lease liabilities	-	(79)
Exchange differences	-	1
At 31 Dec 2021	426	2,059

(c) Cash outflow for leases

Amounts for leases included in the consolidated statement of cash flow comprise the following:

	2021 \$m	2020 \$m
Within operating cash flows	(1)	(4)
Within financing cash flows	(389)	(373)
Total lease rental paid	(390)	(377)

48. Commitments

Commitments in respect of capital expenditures

	At 31 Dec 2021 \$m	At 31 Dec 2020 \$m
Contracted but not provided for:		
- fixed assets	21	15
- intangible assets	175	146
Authorised but not contracted for:		
- fixed assets	361	260
- intangible assets	258	469
	815	890

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.

At 31 December 2021, 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 2020: \$71 million). Up to 31 December 2021, 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 36(a)). In the unlikely event that all of its 638 trading Participants (31 December 2020: 635) covered by the indemnity at 31 December 2021 defaulted, the maximum contingent liability of the Group under the indemnity would amount to \$128 million (31 December 2020: \$127 million).
- (c) HKEX had 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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

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

	2021 \$m	2020 \$m
Salaries and other short-term employee benefits	173	233
Employee share-based compensation benefits	104	68
Retirement benefit costs	7	8
	284	309

(ii) Post-retirement benefit plans

The Group has sponsored an ORSO Plan and the LME Pension Scheme as its post-retirement benefit plans (note 10(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 and gold bullion as non-cash collateral for margins posted by its Clearing Participants. The total fair value of this non-cash collateral was US\$971 million (HK\$7,570 million) at 31 December 2021 (31 December 2020: US\$2,241 million (HK\$17,376 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 is permitted to sell or pledge such collateral in the event of the default of a Clearing Participant. Any non-cash collateral lodged at central securities depositories or custodians is subject to a lien or pledge for the services they provide in respect of the collateral held.

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\$13,513 million (HK\$105,351 million) at 31 December 2021 (31 December 2020: US\$11,486 million (HK\$89,061 million)). Such non-cash collateral, together with certain financial assets amounting to US\$400 million (HK\$3,117 million) at 31 December 2021 (31 December 2020: US\$496 million (HK\$3,845 million)), have been pledged to LME Clear's investment agent and custodian banks under security arrangements for the settlement and depository services they provide in respect of the collateral and investments held.

Non-cash collateral is not recorded on the consolidated statement of financial position of the Group.

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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**52. Capital Management (continued)**

The Group has a number of regulated entities that are subject to regulatory capital requirements set by the respective regulators. The regulatory capital requirements of the Group's subsidiaries at 31 December 2021 are summarised as follows:

<u>Subsidiaries</u>	<u>Regulatory authority</u>	<u>Regulatory capital requirements</u>
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 \$1,674 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 \$3,348 million).
HKSCC, HKCC, SEOCH, OTC Clear	SFC, Hong Kong	Maintain at all times liquid net assets funded by equity (i.e., 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 \$809 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 \$1,618 million).
LME	The Financial Conduct Authority, UK	Maintain at all times net capital and liquid financial resources of at least the costs of orderly closure plus a risk based capital charge, amounting to US\$81.5 million (approximately HK\$635 million).
LME Clear	Bank of England, UK	Maintain cash or highly liquid financial instruments with minimal market and credit risk, amounting to US\$98.5 million (HK\$768 million), plus 10 per cent minimum reporting threshold of US\$9.9 million (HK\$77 million) and US\$24.6 million (HK\$192 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 2021, the Group had set aside \$4,000 million (31 December 2020: \$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 2020: \$2,160 million) had been injected into HKSCC, HKCC and SEOCH as share capital.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

52. Capital Management (continued)

All regulated entities of the Group had adequate capital to meet their regulatory requirements at 31 December 2021 and 31 December 2020.

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 (excluding the financial results of HKEX Foundation Limited) and it may also offer a scrip dividend alternative to shareholders if considered appropriate. The consideration of share capital issued under the scrip dividend scheme (if any), 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 (i.e., gross debt divided by adjusted capital) and net gearing ratio (i.e., 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 2021 \$m	At 31 Dec 2020 \$m
Borrowings (note 39)	426	423
Less:		
Cash and cash equivalents of Corporate Funds (note 21)	12,900	10,753
Less: Amounts reserved for supporting Skin-in-the-Game and default fund credits of Clearing House Funds (note 21(b))	(502)	(311)
	(12,398)	(10,442)
Net debt (note (a))	-	-
Equity attributable to shareholders of HKEX	49,626	48,918
Less: Designated reserves (note 45)	(623)	(628)
Adjusted capital	49,003	48,290
Gross gearing ratio	1%	1%
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 riskNature 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 Group Investment Guidelines, which are approved by the Board and reviewed regularly. Investment restrictions and guidelines set out in the Investment Guidelines form an integral part of risk control. Fund-specific restrictions and guidelines are set according to the investment objectives of each fund (i.e., 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, interest rate risks and stress loss limits under extreme but plausible conditions) of the investments.

A portion of the Corporate Funds is invested in collective investment schemes (External Portfolio) under the External Investment Guidelines. 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 as delegated by the Board. Specific risk management limits are set for the External Portfolio (eg, permissible asset type, asset allocation, liquidity, 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 (i.e., 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 the 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

The Group manages its foreign exchange rate risks by setting limits of net foreign currency unhedged positions held from single currency and on an aggregated basis.

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 entities may designate certain GBP bank balances and forward foreign exchange contracts 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:

- For the External Portfolio, at least 50 per cent of the External Portfolio must be invested in HKD or USD investments or investments hedged back to HKD or USD, except that a further HK\$500 million can be invested in RMB investments.
- 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 and unhedged investments in RMB for internally-managed Corporate Funds may not exceed RMB1 billion.

For LME Clear, investments of the Margin Fund and Default Fund will generally be in the currency in which cash was received.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

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 (i.e., gross positions less forward foreign exchange contracts and other offsetting exposures (hedges)), at 31 December presented in HKD equivalents.

	Foreign currency	At 31 Dec 2021			At 31 Dec 2020		
		Gross open position	Hedges	Net open position	Gross open position	Hedges	Net open position
		\$m	\$m	\$m	\$m	\$m	\$m
Financial assets ¹	EUR	4,476	(4,471)	5	3,902	(3,897)	5
	GBP	13,111	(12,837) ³	274	5,499	(5,193)	306
	JPY	829	(828)	1	4,908	(4,906)	2
	RMB	26,462	(25,921)	541	25,951	(25,602)	349
	USD	11,282	(8,745)	2,537	7,285	(4,353)	2,932
	Others	4	(2)	2	6	(1)	5
Financial liabilities ²	EUR	(4,471)	4,471	-	(3,897)	3,897	-
	GBP	(12,770)	12,496	(274)	(5,469)	5,193	(276)
	JPY	(828)	828	-	(4,906)	4,906	-
	RMB	(25,924)	25,921	(3)	(25,606)	25,602	(4)
	USD	(9,303)	8,745	(558)	(4,918)	4,354	(564)
	Others	(3)	2	(1)	(6)	1	(5)
Total net open positions for the Group	EUR			5			5
	GBP			-			30
	JPY			1			2
	RMB			538			345
	USD			1,979			2,368
	Others			1			-
			2,524			2,750	

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.

³ Includes \$341 million of bank deposits designated as cash flow hedges (note 44(a))

(ii) Equity and commodity price risk

Nature of risk

The Group is exposed to equity price risk from equity investments in collective investment schemes held as part of the External Portfolio. The Group is also exposed to equity price risk on the investments in minority stakes in unlisted companies (note 53(d)(i)).

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.

53. Financial Risk Management (continued)

(a) Market risk (continued)

(ii) Equity and commodity price risk (continued)

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, or on an ad hoc basis during adverse market conditions.

(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 a stress loss limit to limit its exposure. Limits are also set for maturity of the investments under the internally managed funds.

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, zero-coupon Exchange Fund Bills, and bank deposits held at savings and current accounts) at 31 December:

	Fixed rate financial assets		Floating rate financial assets	
	At 31 Dec 2021 \$m	At 31 Dec 2020 \$m	At 31 Dec 2021 \$m	At 31 Dec 2020 \$m
Carrying value (\$m)	88,992	84,696	103,998	89,503
Highest contractual interest rates	3.50%	3.25%	1.21%	1.33%
Lowest contractual interest rates ¹	0.07%	0.03%	-3.54%	-2.00%

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 also uses Value at Risk (VaR) and portfolio stress testing to identify and measure 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 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 2021 \$m	At 31 Dec 2020 \$m
Foreign exchange risk	19	16
Interest rate risk	16	18
Total VaR	25	19

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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

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 2021 \$m	At 31 Dec 2020 \$m
Public Equities	1,774	1,684
Diversifiers ¹	4,949	4,130
Government Bonds and Mortgage-backed Securities	2,020	1,679
Total	8,743	7,493
Number of Funds	34	25

¹ Diversifiers comprise Absolute Return and Multi-Sector Fixed Income asset classes.

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 2021, the simplified 1-year VaR calculated at a 95 per cent confidence interval was 1.0 per cent (31 December 2020: 1.5 per cent), implying that the market value of the Group's Funds could potentially change by approximately \$87 million (2020: \$112 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 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 or Exchange Fund Bills issued by the Hong Kong Monetary Authority 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 2021, the Group's total available banking facilities for its daily operations amounted to \$21,249 million (31 December 2020: \$21,223 million), which included \$14,748 million (31 December 2020: \$14,722 million) of committed banking facilities and \$6,500 million (31 December 2020: \$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 2021, the total amount of such facilities was \$31,041 million (31 December 2020: \$30,244 million).

In addition, the Group has arranged contingency banking facilities amounting to RMB13,000 million (HK\$15,938 million) (31 December 2020: RMB13,000 million (HK\$15,516 million)) for settling payment obligations to ChinaClear should there be events that disrupt normal settlement arrangements for Stock Connect.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

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;
- investments in minority stakes in unlisted companies are 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 2021					Total \$m
	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	
Cash and cash equivalents	181,361	-	-	-	-	181,361
Financial assets measured at fair value through profit or loss	4,772	2,287	1,432	252	694	9,437
Financial assets measured at fair value through other comprehensive income	9,755	-	-	-	-	9,755
Financial assets measured at amortised cost	51,731	-	-	89	8	51,828
Accounts receivable and deposits ¹	32,502	7	-	-	-	32,509
	280,121	2,294	1,432	341	702	284,890

	At 31 Dec 2020					Total \$m
	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	
Cash and cash equivalents	157,996	-	-	-	-	157,996
Financial assets measured at fair value through profit or loss	4,264	1,818	1,115	296	220	7,713
Financial assets measured at fair value through other comprehensive income	7,942	-	-	-	-	7,942
Financial assets measured at amortised cost	62,589	-	-	91	8	62,688
Accounts receivable and deposits ¹	46,858	24	2	-	-	46,884
	279,649	1,842	1,117	387	228	283,223

¹ Amounts exclude prepayments of \$229 million (31 December 2020: \$196 million).

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

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 2021					Total \$m
	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	
Margin deposits, Mainland security and settlement deposits, and cash collateral from Clearing Participants	203,536	-	-	-	-	203,536
Accounts payable, accruals and other liabilities	28,193	18	124	-	-	28,335
Other financial liabilities:						
Other financial liabilities of Margin Funds	468	-	-	-	-	468
Other financial liabilities of Clearing House Funds	24	-	1	-	-	25
Other financial liabilities of Corporate Funds:						
Financial guarantee contract (maximum amount guaranteed) (note 49(b))	128	-	-	-	-	128
Participants' contributions to Clearing House Funds	18,645	485	52	-	-	19,182
Borrowings:						
Written put options to non-controlling interests	-	-	340	93	-	433
Lease liabilities	36	58	281	1,143	842	2,360
Total	251,030	561	798	1,236	842	254,467

	At 31 Dec 2020					Total \$m
	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	
Margin deposits, Mainland security and settlement deposits, and cash collateral from Clearing Participants	187,008	-	-	-	-	187,008
Accounts payable, accruals and other liabilities	42,834	13	127	-	-	42,974
Other financial liabilities:						
Other financial liabilities of Clearing House Funds	28	-	-	-	-	28
Other financial liabilities of Corporate Funds:						
Financial guarantee contract (maximum amount guaranteed) (note 49(b))	127	-	-	-	-	127
Participants' contributions to Clearing House Funds	19,916	471	52	-	-	20,439
Borrowings:						
Written put options to non-controlling interests	-	-	340	93	-	433
Lease liabilities	38	60	288	1,248	1,101	2,735
Total	249,951	544	807	1,341	1,101	253,744

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 23 and 24.

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 (i.e., 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 2021, 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 Aa2 (Moody) (31 December 2020: Aa2 (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. LME entities invest 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 a 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 2021, HKSCC had 642 Clearing Participants (31 December 2020: 643) and the total amounts of Margin Credit and Dynamic Contribution Credit utilised by HKSCC Clearing Participants amounted to \$903 million (31 December 2020: \$1,212 million), while HKCC had 166 Clearing Participants (31 December 2020: 166) and the total amount of Dynamic Contribution Credit utilised by HKCC Clearing Participants amounted to \$65 million (31 December 2020: \$58 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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

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 2021		At 31 Dec 2020	
	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)	128	(20)	127

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 2021		At 31 Dec 2020	
	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	32,509	13,037	46,884	11,953
Fair value of base, ferrous and precious metals futures and options contracts cleared through LME Clear	91,424	91,424	92,884	92,884
Reverse repurchase investments	101,041	101,041	84,981	84,981

¹ Amounts exclude prepayments of \$229 million (31 December 2020: \$196 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 2021 and 31 December 2020, 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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

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)

Recurring fair value measurements:	At 31 Dec 2021				At 31 Dec 2020			
	Level 1 \$m	Level 2 \$m	Level 3 \$m	Total \$m	Level 1 \$m	Level 2 \$m	Level 3 \$m	Total \$m
Financial assets								
Financial assets measured at fair value through profit or loss:								
- collective investment schemes	1,680	7,063	-	8,743	1,131	6,362	-	7,493
- equity securities	-	-	694	694	-	-	220	220
- base, ferrous, and precious metals futures and options contracts cleared through LME Clear	-	91,424	-	91,424	-	92,884	-	92,884
Financial assets measured at fair value through other comprehensive income:								
- debt securities	7,750	2,005	-	9,755	5,439	2,503	-	7,942
	9,430	100,492	694	110,616	6,570	101,749	220	108,539
Financial liabilities								
Financial liabilities at fair value through profit or loss:								
- base, ferrous, and precious metals futures and options contracts cleared through LME Clear	-	91,424	-	91,424	-	92,884	-	92,884

During 2021 and 2020, 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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

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)

Fair value measurements using significant unobservable inputs (Level 3)

	2021 \$m	2020 \$m
At 1 Jan	220	50
Investment in minority stakes in unlisted companies	349	160
Gains recognised in profit or loss	121	-
Gains recognised in other comprehensive income	4	10
At 31 Dec	694	220
Total gains or losses recognised in the consolidated income statement for assets held at 31 Dec	121	-

Level 3 valuations are prepared on bi-annually basis, at each interim and annual reporting date. The assumptions and inputs to the valuation model, the valuation techniques and the valuation results are reviewed and approved by management.

The following table summarises the basis of valuation used in level 3 fair value measurements:

Description	Fair value		Valuation technique	Unobservable inputs	Range
	At 31 Dec 2021 \$m	At 31 Dec 2020 \$m			
Minority stake in Fusion Bank Limited	200	100	Market approach ¹	N/A	N/A
Minority stake in Huakong TsingJiao Information Science (Beijing) Limited	236	120	Market approach ¹	N/A	N/A
Minority stake in Guangzhou Futures Exchange	258	-	Market approach ¹	N/A	N/A
Total	694	220			

¹ Based on recent transactions

Fusion Bank Limited has a virtual banking license granted by the Hong Kong Monetary Authority. The investment is not traded in an active market. The company launched its virtual banking platform in 2020, offering a variety of banking services including savings, time deposits, local fund transfers and foreign exchange. At 31 December 2021, the latest fair value was based on recent market transactions.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

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)

Huakong TsingJiao Information Science (Beijing) Limited is a data technology company, which specialises in the research and development of multi-party computation technologies, allowing collaborative data analysis without revealing private data during the computation and analysis process. The investment is not traded in an active market. At 31 December 2021, the latest fair value was based on recent market transactions.

Guangzhou Futures Exchange was officially launched in April 2021, and it seeks to become an innovative and market-oriented exchange with international influence, focusing on serving the real economy and green development initiatives. At 31 December 2021, the latest fair value was based on recent market transactions.

(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 long-term 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 2021		At 31 Dec 2020	
	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	429	429	-	-
- other financial assets maturing over one year ²	97	87	99	94
Liabilities				
Borrowings:				
- written put options to non-controlling interests ³	426	430	423	430
Financial guarantee to the Collector of Stamp Revenue ⁴	20	56	20	76

¹ The fair values are provided by a reputable independent financial institution.

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 0.41 per cent to 1.45 per cent at 31 December 2021 (31 December 2020: 0.12 per cent to 0.60 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 rate used was 1.70 per cent at 31 December 2021 (31 December 2020: 1.19 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 2.84 per cent at 31 December 2021 (31 December 2020: 2.10 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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

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

Type of financial instruments	At 31 Dec 2021					
	Gross amounts \$m	Gross amounts set off in the consolidated statement of financial position \$m	Net amounts 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 amounts \$m
Financial assets:						
CNS money obligations receivable ¹	330,705	(312,784)	17,921	(3,101)	(10,472)	4,348
Base, ferrous and precious metals futures and options contracts cleared through LME Clear ²	1,512,980	(1,421,556)	91,424	(39,489)	(51,935)	-
Other accounts receivable from Participants, ChinaClear, information vendors and hosting services customers, net of provision for impairment losses	13,311	-	13,311	(5,607)	(113)	7,591
Total	1,856,996	(1,734,340)	122,656	(48,197)	(62,520)	11,939
Financial liabilities:						
CNS money obligations payable ¹	338,077	(312,784)	25,293	(8,708)	-	16,585
Base, ferrous and precious metals futures and options contracts cleared through LME Clear ²	1,512,980	(1,421,556)	91,424	(39,489)	-	51,935
Total	1,851,057	(1,734,340)	116,717	(48,197)	-	68,520

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

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 2020					
	Gross amounts \$m	Gross amounts set off in the consolidated statement of financial position \$m	Net amounts 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 amounts \$m
Financial assets:						
CNS money obligations receivable ¹	489,300	(456,390)	32,910	(10,134)	(8,009)	14,767
Base, ferrous and precious metals futures and options contracts cleared through LME Clear ²	1,556,627	(1,463,743)	92,884	(38,673)	(54,211)	-
Other accounts receivable from Participants, ChinaClear, information vendors and hosting services customers, net of provision for impairment losses	878	-	878	-	(140)	738
Total	2,046,805	(1,920,133)	126,672	(48,807)	(62,360)	15,505
Financial liabilities:						
CNS money obligations payable ¹	495,510	(456,390)	39,120	(10,134)	-	28,986
Base, ferrous and precious metals futures and options contracts cleared through LME Clear ²	1,556,627	(1,463,743)	92,884	(38,673)	-	54,211
Total	2,052,137	(1,920,133)	132,004	(48,807)	-	83,197

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 (i.e., 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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

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	At	At	At
	31 Dec 2021 \$m	31 Dec 2020 \$m	31 Dec 2021 \$m	31 Dec 2020 \$m
Net amount of financial assets after offsetting as stated above:				
- CNS money obligations receivable	17,921	32,910	-	-
- Other accounts receivable from Participants, ChinaClear, information vendors and hosting services customers, net of provision for impairment losses	13,311	878	-	-
- Base, ferrous and precious metals futures and options contracts cleared through LME Clear	-	-	91,424	92,884
Financial assets not in scope of offsetting disclosures	1,277	13,096	9,437	7,713
Prepayments	229	196	-	-
Amounts presented in the consolidated statement of financial position	32,738	47,080	100,861	100,597

	Accounts payable, accruals and other liabilities		Financial liabilities at fair value through profit or loss	
	At	At	At	At
	31 Dec 2021 \$m	31 Dec 2020 \$m	31 Dec 2021 \$m	31 Dec 2020 \$m
Net amount of financial liabilities after offsetting as stated above:				
- CNS money obligations payable	25,293	39,120	-	-
- Base, ferrous and precious metals futures and options contracts cleared through LME Clear	-	-	91,424	92,884
Financial liabilities not in scope of offsetting disclosures	3,042	3,854	-	-
Amounts presented in the consolidated statement of financial position	28,335	42,974	91,424	92,884

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.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

54. Statement of Financial Position and Reserve Movements of HKEX (continued)

Statement of Financial Position of HKEX

	At 31 Dec 2021			At 31 Dec 2020		
	Current \$m	Non-current \$m	Total \$m	Current \$m	Non-current \$m	Total \$m
ASSETS						
Cash and cash equivalents	3,808	-	3,808	4,057	-	4,057
Financial assets measured at fair value through profit or loss	8,491	510	9,001	7,197	296	7,493
Financial assets measured at amortised cost	5,264	197	5,461	7,263	74	7,337
Accounts receivable, prepayments and deposits	315	21	336	96	21	117
Amounts due from subsidiaries	808	11,594	12,402	1,008	11,581	12,589
Interests in joint ventures	-	114	114	-	114	114
Intangible assets	-	464	464	-	457	457
Fixed assets	-	404	404	-	434	434
Right-of-use assets	-	1,656	1,656	-	1,867	1,867
Investments in subsidiaries	-	15,694	15,694	-	15,451	15,451
Total assets	18,686	30,654	49,340	19,621	30,295	49,916
LIABILITIES AND EQUITY						
Liabilities						
Financial liabilities at fair value through profit or loss	333	-	333	347	-	347
Accounts payable, accruals and other liabilities	673	-	673	994	-	994
Amounts due to subsidiaries	159	-	159	345	-	345
Taxation payable	325	-	325	299	-	299
Other financial liabilities	11	-	11	11	-	11
Lease liabilities	209	1,543	1,752	211	1,745	1,956
Provisions	73	63	136	103	63	166
Deferred tax liabilities	-	95	95	-	90	90
Total liabilities	1,783	1,701	3,484	2,310	1,898	4,208
Equity						
Share capital			31,896			31,891
Shares held for Share Award Scheme			(901)			(485)
Employee share-based compensation reserve			306			232
Merger reserve			694			694
Retained earnings			13,861			13,376
Equity attributable to shareholders of HKEX			45,856			45,708
Total liabilities and equity			49,340			49,916
Net current assets			16,903			17,311

Approved by the Board of Directors on 24 February 2022

Laura M CHA
Director

Alejandro Nicolas AGUZIN
Director

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**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 2020	250	694	12,060
Profit attributable to shareholders	-	-	9,779
2019 second interim dividend at \$2.99 per share	-	-	(3,761)
2020 first interim dividend at \$3.71 per share	-	-	(4,692)
Unclaimed HKEX dividends forfeited	-	-	21
Vesting of shares of Share Award Scheme	(299)	-	(31)
Employee share-based compensation benefits	281	-	-
At 31 Dec 2020	232	694	13,376
At 1 Jan 2021	232	694	13,376
Profit attributable to shareholders	-	-	12,073
2020 second interim dividend at \$4.46 per share	-	-	(5,646)
2021 first interim dividend at \$4.69 per share	-	-	(5,934)
Unclaimed HKEX dividends forfeited	-	-	12
Vesting of shares of Share Award Scheme	(250)	-	(20)
Employee share-based compensation benefits	324	-	-
At 31 Dec 2021	306	694	13,861