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 2018 and 2017 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 2017 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 2018 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.

HKEX
香港交易所

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 2018

At 27 February 2019, the board of directors of HKEX comprises 12 Independent Non-executive Directors, namely Mrs Laura May-Lung CHA (Chairman), Mr Apurv BAGRI, Mr CHAN Tze Ching, Ignatius, Mr CHEAH Cheng Hye, Ms FUNG Yuen Mei, Anita, Mr Rafael GIL-TIENDA, Dr HU Zuliu, Fred, Mr HUNG Pi Cheng, Benjamin, Mrs LEUNG KO May Yee, Margaret, Mr LEUNG Pak Hon, Hugo, Mr John Mackay McCulloch WILLIAMSON and Mr YIU Kin Wah, Stephen, and one Executive Director, Mr LI Xiaojia, Charles, who is also HKEX's Chief Executive.

CONSOLIDATED INCOME STATEMENT
FOR THE YEAR ENDED 31 DECEMBER 2018

(Financial figures are expressed in Hong Kong Dollar)

	Note	**2018** **$m**	2017 $m
Trading fees and trading tariffs	5(a)	**6,339**	4,856
Stock Exchange listing fees	5(b)	**1,721**	1,333
Clearing and settlement fees		**3,281**	2,691
Depository, custody and nominee services fees		**979**	892
Market data fees		**899**	857
Other revenue	5(c)	**1,033**	945
REVENUE	5	**14,252**	11,574
Investment income		**2,655**	2,171
Interest rebates to Participants		**(1,071)**	(572)
Net investment income	6	**1,584**	1,599
Sundry income	7	**31**	7
REVENUE AND OTHER INCOME		**15,867**	13,180
OPERATING EXPENSES			
Staff costs and related expenses	8	**(2,540)**	(2,273)
Information technology and computer maintenance expenses	9	**(508)**	(433)
Premises expenses		**(437)**	(354)
Product marketing and promotion expenses		**(52)**	(47)
Legal and professional fees		**(132)**	(79)
Other operating expenses	10	**(441)**	(380)
		(4,110)	(3,566)
EBITDA		**11,757**	9,614
Depreciation and amortisation		**(762)**	(858)
OPERATING PROFIT	11	**10,995**	8,756
Finance costs	12	**(114)**	(134)
Share of profits less losses of joint ventures		**2**	(12)
PROFIT BEFORE TAXATION		**10,883**	8,610
TAXATION	15	**(1,592)**	(1,255)
PROFIT FOR THE YEAR		**9,291**	7,355
PROFIT/(LOSS) ATTRIBUTABLE TO:			
Shareholders of HKEX	42	**9,312**	7,404
Non-controlling interests	25(a)(ii)	**(21)**	(49)
PROFIT FOR THE YEAR		**9,291**	7,355
Basic earnings per share	16(a)	**$7.50**	$6.03
Diluted earnings per share	16(b)	**$7.48**	$6.02

The notes on pages 9 to 103 are an integral part of these consolidated financial statements.

Details of dividends are set out in note 17 to the consolidated financial statements.

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME FOR THE YEAR ENDED 31 DECEMBER 2018

(Financial figures are expressed in Hong Kong Dollar)

	Note	**2018 $m**	2017 $m
PROFIT FOR THE YEAR		**9,291**	7,355
OTHER COMPREHENSIVE INCOME			
Items that may be reclassified subsequently to profit or loss:			
Currency translation differences of foreign subsidiaries	2(f)(iii)	**21**	156
Cash flow hedges	40(a)	**(1)**	1
Changes in fair value of financial assets measured at fair value through other comprehensive income	40(b)	**(2)**	-
OTHER COMPREHENSIVE INCOME		**18**	157
TOTAL COMPREHENSIVE INCOME		**9,309**	7,512
TOTAL COMPREHENSIVE INCOME ATTRIBUTABLE TO:			
Shareholders of HKEX		**9,329**	7,561
Non-controlling interests		**(20)**	(49)
TOTAL COMPREHENSIVE INCOME		**9,309**	7,512

The notes on pages 9 to 103 are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENT OF FINANCIAL POSITION AT 31 DECEMBER 2018

(Financial figures are expressed in Hong Kong Dollar)

		At 31 Dec 2018			At 31 Dec 2017		
	Note	Current $m	Non-current $m	Total $m	Current $m	Non-current $m	Total $m
ASSETS							
Cash and cash equivalents	18, 19	**121,196**	**-**	**121,196**	155,660	-	155,660
Financial assets measured at fair value through profit or loss	18, 20	**61,004**	**-**	**61,004**	95,037	-	95,037
Financial assets measured at fair value through other comprehensive income	18, 21	**3,755**	**-**	**3,755**	-	-	-
Financial assets measured at amortised cost	18, 22	**31,487**	**398**	**31,885**	30,757	60	30,817
Accounts receivable, prepayments and deposits	24	**18,341**	**21**	**18,362**	16,564	21	16,585
Interests in joint ventures	26	**-**	**63**	**63**	-	61	61
Goodwill and other intangible assets	27	**-**	**18,019**	**18,019**	-	17,925	17,925
Fixed assets	28	**-**	**1,625**	**1,625**	-	1,469	1,469
Lease premium for land		**-**	**20**	**20**	-	20	20
Deferred tax assets	37(d)	**-**	**19**	**19**	-	30	30
Total assets		**235,783**	**20,165**	**255,948**	298,018	19,586	317,604
LIABILITIES AND EQUITY							
Liabilities							
Financial liabilities at fair value through profit or loss	29	**53,915**	**-**	**53,915**	85,335	-	85,335
Margin deposits, Mainland security and settlement deposits, and cash collateral from Clearing Participants	18, 30	**123,728**	**-**	**123,728**	157,814	-	157,814
Accounts payable, accruals and other liabilities	31	**18,316**	**53**	**18,369**	16,159	51	16,210
Deferred revenue	32	**1,000**	**418**	**1,418**	957	-	957
Taxation payable		**678**	**-**	**678**	505	-	505
Other financial liabilities	33	**59**	**-**	**59**	58	-	58
Participants' contributions to Clearing House Funds	18, 34	**14,787**	**-**	**14,787**	16,626	-	16,626
Borrowings	35	**1,005**	**161**	**1,166**	1,027	833	1,860
Provisions	36	**93**	**89**	**182**	85	68	153
Deferred tax liabilities	37(d)	**-**	**743**	**743**	-	711	711
Total liabilities		**213,581**	**1,464**	**215,045**	278,566	1,663	280,229

CONSOLIDATED STATEMENT OF FINANCIAL POSITION (CONTINUED)
AT 31 DECEMBER 2018

		At 31 Dec 2018			At 31 Dec 2017		
	Note	Current $m	Non-current $m	Total $m	Current $m	Non-current $m	Total $m
Equity							
Share capital	38			**27,750**			25,141
Shares held for Share Award Scheme	38			**(682)**			(606)
Employee share-based compensation reserve	39			**218**			222
Hedging and revaluation reserves	40			**(6)**			1
Exchange reserve	2(f)(iii)			**(84)**			(104)
Designated reserves	34, 41			**523**			822
Reserve relating to written put options to non-controlling interests				**(369)**			(293)
Retained earnings	42			**13,379**			12,090
Equity attributable to shareholders of HKEX				**40,729**			37,273
Non-controlling interests	25(a)(ii)			**174**			102
Total equity				**40,903**			37,375
Total liabilities and equity				**255,948**			317,604
Net current assets				**22,202**			19,452

The notes on pages 9 to 103 are an integral part of these consolidated financial statements.

Approved by the Board of Directors on 27 February 2019

Laura M CHA
Director

LI Xiaojia, Charles
Director

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY
FOR THE YEAR ENDED 31 DECEMBER 2018

(Financial figures are expressed in Hong Kong Dollar)

	Attributable to shareholders of HKEX									
	Share capital less shares held for Share Award Scheme (note 38) $m	Employee share-based compensation reserve (note 39) $m	Hedging and revaluation reserves (note 40) $m	Exchange reserve $m	Designated reserves (note 41) $m	Reserve relating to written put options to non-controlling interests $m	Retained earnings (note 42) $m	Total $m	Non-controlling interests $m	Total equity $m
At 1 Jan 2017	21,486	226	-	(260)	773	(293)	10,334	32,266	118	32,384
Profit for the year	-	-	-	-	-	-	7,404	7,404	(49)	7,355
Other comprehensive income	-	-	1	156	-	-	-	157	-	157
Total comprehensive income	-	-	1	156	-	-	7,404	7,561	(49)	7,512
Total transactions with shareholders of HKEX, recognised directly in equity:										
- 2016 final dividend at $2.04 per share	-	-	-	-	-	-	(2,491)	(2,491)	-	(2,491)
- 2017 first interim dividend at $2.55 per share	-	-	-	-	-	-	(3,133)	(3,133)	-	(3,133)
- Unclaimed HKEX dividends forfeited (note 31(a))	-	-	-	-	-	-	26	26	-	26
- Shares issued in lieu of cash dividends	3,037	-	-	-	-	-	-	3,037	-	3,037
- Shares purchased for Share Award Scheme	(228)	-	-	-	-	-	-	(228)	-	(228)
- Vesting of shares of Share Award Scheme	240	(224)	-	-	-	-	(16)	-	-	-
- Employee share-based compensation benefits	-	220	-	-	-	-	-	220	-	220
- Tax relating to Share Award Scheme	-	-	-	-	-	-	3	3	-	3
- Transfer of reserves	-	-	-	-	49	-	(49)	-	-	-
- Changes in ownership interests in a subsidiary (note 46)	-	-	-	-	-	-	12	12	33	45
	3,049	(4)	-	-	49	-	(5,648)	(2,554)	33	(2,521)
At 31 Dec 2017	24,535	222	1	(104)	822	(293)	12,090	37,273	102	37,375

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY (CONTINUED)

FOR THE YEAR ENDED 31 DECEMBER 2018

	Attributable to shareholders of HKEX									
	Share capital less shares held for Share Award Scheme (note 38) $m	Employee share-based compensation reserve (note 39) $m	Hedging and revaluation reserves (note 40) $m	Exchange reserve $m	Designated reserves (note 41) $m	Reserve relating to written put options to non-controlling interests $m	Retained earnings (note 42) $m	Total $m	Non-controlling interests $m	Total equity $m
At 1 Jan 2018, as previously reported	24,535	222	1	(104)	822	(293)	12,090	37,273	102	37,375
Effect of adoption of HKFRS 9 (2014) (note 2(c)(i))	-	-	(4)	-	-	-	4	-	-	-
Effect of adoption of HKFRS 15 (note 2(c)(ii))	-	-	-	-	-	-	(281)	(281)	-	(281)
At 1 Jan 2018, as restated	24,535	222	(3)	(104)	822	(293)	11,813	36,992	102	37,094
Profit for the year	-	-	-	-	-	-	9,312	9,312	(21)	9,291
Other comprehensive income	-	-	(3)	20	-	-	-	17	1	18
Total comprehensive income	-	-	(3)	20	-	-	9,312	9,329	(20)	9,309
Total transactions with shareholders of HKEX, recognised directly in equity:										
- 2017 final dividend at $2.85 per share	-	-	-	-	-	-	(3,525)	(3,525)	-	(3,525)
- 2018 first interim dividend at $3.64 per share	-	-	-	-	-	-	(4,527)	(4,527)	-	(4,527)
- Unclaimed HKEX dividends forfeited (note 31(a))	-	-	-	-	-	-	23	23	-	23
- Shares issued in lieu of cash dividends	2,587	-	-	-	-	-	-	2,587	-	2,587
- Shares purchased for Share Award Scheme	(300)	-	-	-	-	-	-	(300)	-	(300)
- Vesting of shares of Share Award Scheme	246	(230)	-	-	-	-	(16)	-	-	-
- Employee share-based compensation benefits	-	226	-	-	-	-	-	226	-	226
- Transfer of reserves	-	-	-	-	(299)	-	299	-	-	-
- Tax relating to Share Award Scheme	-	-	-	-	-	-	(1)	(1)	-	(1)
- Put options written to non-controlling interests (note 35(b))	-	-	-	-	-	(76)	-	(76)	-	(76)
- Changes in ownership interests in a subsidiary (note 46)	-	-	-	-	-	-	1	1	92	93
	2,533	(4)	-	-	(299)	(76)	(7,746)	(5,592)	92	(5,500)
At 31 Dec 2018	27,068	218	(6)	(84)	523	(369)	13,379	40,729	174	40,903

The notes on pages 9 to 103 are an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENT OF CASH FLOWS
FOR THE YEAR ENDED 31 DECEMBER 2018

(Financial figures are expressed in Hong Kong Dollar)

	Note	**2018 $m**	2017 $m
CASH FLOWS FROM PRINCIPAL OPERATING ACTIVITIES			
Net cash inflow from principal operating activities	43(a)	**10,416**	8,013
CASH FLOWS FROM OTHER OPERATING ACTIVITIES			
Net payments to external fund managers for purchases of financial assets measured at fair value through profit or loss		**(936)**	(600)
Net cash inflow from operating activities		**9,480**	7,413
CASH FLOWS FROM INVESTING ACTIVITIES			
Payments for purchases of fixed assets and intangible assets		**(860)**	(688)
Payment for interest in a joint venture		**-**	(14)
Net (increase)/decrease in financial assets of Corporate Funds:			
(Increase)/decrease in time deposits with original maturities more than three months		**(4,620)**	2,285
Proceeds received upon maturity of financial assets measured at amortised cost (excluding time deposits)		**393**	-
Payments for purchases of financial assets measured at amortised cost (excluding time deposits)		**(300)**	(315)
Sales proceeds from financial assets measured at fair value through profit or loss		**-**	14
Interest received from financial assets measured at fair value through other comprehensive income		**60**	-
Interest received from financial assets measured at fair value through profit or loss		**-**	32
Net cash (outflow)/inflow from investing activities		**(5,327)**	1,314
CASH FLOWS FROM FINANCING ACTIVITIES			
Purchases of shares for Share Award Scheme		**(300)**	(228)
Repayment of borrowings	43(b)	**(781)**	(1,603)
Payments of interest on borrowings	43(b)	**(42)**	(66)
Payments of other finance costs		**(62)**	(54)
Dividends paid to shareholders of HKEX		**(5,427)**	(2,561)
Proceeds from disposal of interest in subsidiaries without loss of control	46(b)	**93**	28
Capital injection by non-controlling interest to a subsidiary		**-**	17
Net cash outflow from financing activities		**(6,519)**	(4,467)
Net (decrease)/increase in cash and cash equivalents		**(2,366)**	4,260
Cash and cash equivalents at 1 Jan		**13,546**	9,286
Cash and cash equivalents at 31 Dec		**11,180**	13,546
Analysis of cash and cash equivalents			
Cash on hand and balances and deposits with banks and short-term investments of Corporate Funds	19	**11,904**	13,546
Less: Cash reserved for supporting Skin-in-the-Game and default fund credits of clearing houses	19(b)	**(724)**	-
		11,180	13,546

The notes on pages 9 to 103 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.

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 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 27 February 2019.

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 2018, the Group has adopted the following new standards and interpretation to HKFRSs which are pertinent to the Group's operations and effective for accounting periods beginning on or after 1 January 2018:

HKFRS 9 (2014)	Financial Instruments
HKFRS 15	Revenue from Contracts with Customers
HK(IFRIC) Interpretation 22	Foreign Currency Transactions and Advance Consideration

The impact of adoption of these new/revised standards is set out in note 2(c).

2. Principal Accounting Policies (continued)

(b) Basis of preparation (continued)

New/revised HKFRSs issued before 31 December 2018 but not yet effective and not early adopted

The Group has not applied the following new standard and interpretation to HKFRSs which were issued before 31 December 2018 and are pertinent to its operations but not yet effective:

HKFRS 16	Leases[1]
HK(IFRIC) Interpretation 23	Uncertainty over Income Tax Treatments[1]

[1]Effective for accounting periods beginning on or after 1 January 2019

HKFRS 16 will primarily affect the accounting for the Group's operating leases. Upon adoption of HKFRS 16 the majority of operating leases will be recognised in the consolidated statement of financial position as lease liabilities and right-of-use assets. The lease liabilities will be measured at the present value of the remaining lease payments and will subsequently be measured at amortised cost. The right-of-use assets will be 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 depreciated on a straight-line basis during the lease term. The Group will adopt the simplified transition approach and will not restate comparatives amounts for the year prior to its first adoption.

Upon adoption of HKFRS 16 on 1 January 2019, the Group recognised right-of-use assets under fixed assets of $2,419 million and current and non-current lease liabilities amounting to $235 million and $2,277 million respectively, and de-recognised provision for lease incentives included under current and non-current liabilities of $32 million and $53 million, with the net difference of $8 million being recognised as a reduction in retained earnings. In addition, reinstatement costs of $36 million, which were previously included under leasehold improvements, were reclassified to right-of-use assets. As a result, the Group's net current assets and its shareholders' equity will decrease by $203 million and $8 million respectively.

The adoption of HK(IFRIC) Interpretation 23 would not have any financial impact on the Group.

There are no other new/revised HKFRSs not yet effective that are expected to have any impact on the Group.

2. Principal Accounting Policies (continued)

(c) Impact of adoption of new/revised HKFRSs

(i) Adoption of HKFRS 9 (2014)

The adoption of HKFRS 9 (2014) resulted in changes in accounting policies for financial instruments and adjustments to amounts recognised in the consolidated financial statements. The new accounting policies are set out in notes 18, 20, 21, 22 and 33 and the adjustments to the consolidated financial statements are set out below and in note (iv).

Classification and measurement

The table below presents the original measurement category and carrying amount for each class of financial instruments of the Group determined in accordance with HKFRS 9 (2009) and the new measurement category and carrying amount determined in accordance with HKFRS 9 (2014) at 1 January 2018.

	Measurement category		Carrying amount	
	Original (HKFRS 9 (2009))	New (HKFRS 9 (2014))	Original $m	New $m
Non-current assets				
Other financial assets	Amortised cost	Amortised cost	60	60
Current assets				
Collective investment schemes	FVPL(1)	FVPL	6,643	6,643
Debt securities of Margin Funds (note)	FVPL	FVOCI(2)	3,059	3,059
Derivative financial instruments	FVPL	FVPL	85,335	85,335
Debt securities of Corporate Funds	Amortised cost	Amortised cost	627	627
Time deposits with original maturities over three months	Amortised cost	Amortised cost	30,130	30,130
Accounts receivable and deposits(3)	Amortised cost	Amortised cost	16,481	16,481
Cash and cash equivalents	Amortised cost	Amortised cost	155,660	155,660
Current liabilities				
Derivative financial instruments	FVPL	FVPL	85,335	85,335

(1) FVPL - Financial assets/liabilities measured at fair value through profit or loss
(2) FVOCI - Financial assets measured at fair value through other comprehensive income
(3) Amounts exclude prepayments of $83 million

Note: Debt securities of Margin Funds are held by the Group in a separate portfolio to provide interest income, but may be sold to meet liquidity requirements arising in the normal course of business. The Group considers that these securities are held within a business model whose objective is achieved both by collecting contractual cash flows and by selling the securities. These assets have therefore been classified as financial assets measured at fair value through other comprehensive income under HKFRS 9 (2014). Accordingly, the related cumulative fair value losses of $4 million were transferred from retained earnings to revaluation reserve on 1 January 2018. During the year ended 31 December 2018, net fair value losses of $2 million relating to these investments, which would otherwise have been charged to the consolidated income statement under HKFRS 9 (2009), were taken to revaluation reserve.

2. Principal Accounting Policies (continued)

(c) Impact of adoption of new/revised HKFRSs (continued)

(i) Adoption of HKFRS 9 (2014) (continued)

Impairment

The new impairment model under HKFRS 9 (2014) requires the recognition of provision for impairment losses based on expected credit losses rather than incurred credit losses. There was no material change in the amount of provision for impairment losses required under the expected credit loss model compared with the incurred credit loss model, and there was no material financial impact on such change at 1 January 2018, 31 December 2018, and for the year ended 31 December 2018.

(ii) Adoption of HKFRS 15

The adoption of HKFRS 15 resulted in changes in accounting policies for certain upfront fees and initial listing fees charged by the Group, and adjustments to amounts recognised in the consolidated financial statements. The new accounting policies are set out in note 5 and the adjustments to the consolidated financial statements are set out below and in note (iv).

HKFRS 15 is based on the principle that revenue is recognised when control of goods or services is transferred to customers.

Upfront fees

Prior to the adoption of HKFRS 15, certain upfront fees charged by the Group were recognised upon receipt. Under HKFRS 15, upfront fees are recognised over time when the services are provided. The financial impact of the change in recognition policy for upfront fees was as follows:

- During the year ended 31 December 2018, the amount of upfront fees recognised under HKFRS 15 was $20 million, as compared to $18 million before the adoption of HKFRS 15.
- Cumulative financial impact of previously recognised upfront fees of $62 million was deducted from retained earnings and transferred to deferred revenue on 1 January 2018.

The revised accounting policy on upfront fees is consistent with that adopted and disclosed in the Quarterly Results Announcement for the three months ended 31 March 2018, the Interim Report for the six months ended 30 June 2018 and the Quarterly Results Announcement for the nine months ended 30 September 2018.

Initial listing fees

Prior to the adoption of HKFRS 15, initial listing fees for initial public offerings (IPOs) were recognised upon the listing of an applicant, cancellation of the application or six months after submission of the application, whichever was earlier, while initial listing fees for derivative warrants (DWs), callable bull/bear contracts (CBBCs) and other securities were recognised upon the listing of the securities.

2. Principal Accounting Policies (continued)

(c) Impact of adoption of new/revised HKFRSs (continued)

(ii) Adoption of HKFRS 15 (continued)

Initial listing fees (continued)

Based on the Group's previous assessment of HKFRS 15 as disclosed in the Quarterly Results Announcement for the three months ended 31 March 2018, the Interim Report for the six months ended 30 June 2018 and the Quarterly Results Announcement for the nine months ended 30 September 2018, initial listing fees were recognised over time when the listed companies or issuers of DWs, CBBCs and other securities received the listing services, which approximate the amount of vetting work performed, and the timing differences of recognising initial listing fees upon the adoption of HKFRS 15 were insignificant. As a result, there was no financial impact on initial listing fees on adoption of HKFRS 15.

In January 2019, the IFRS Interpretations Committee of the International Accounting Standards Board published a final agenda decision (the final decision) on how a stock exchange should recognise its initial listing fees and concluded that the performance of admission activities (eg, vetting services) does not transfer a service to the customers. Therefore, initial listing fees are considered as advance payments for future services, and should be recognised as revenue when those future services are provided (ie, throughout the periods the companies are listed). Accordingly, the Group has revised its accounting policy to adopt the final decision retrospectively from 1 January 2018. The financial impact of adopting HKFRS 15 on initial listing fees was as follows:

- During the year ended 31 December 2018, the amount of initial and subsequent issue listing fees recognised under HKFRS 15 was $972 million, as compared to $1,006 million before the final decision.
- Cumulative financial impact of previously recognised initial listing fees of $274 million was deducted from retained earnings and transferred to deferred revenue on 1 January 2018.

The related tax impact for adoption of HKFRS 15 is disclosed in the tables in note (iv).

(iii) Adoption of HK(IFRIC) Interpretation 22

The Interpretation clarifies that the date of the transaction for the purpose of determining the exchange rate to be used on initial recognition of the related asset, expense or income is the date on which the Group initially pays or receives the advance consideration. The adoption did not have any financial impact on the Group.

2. Principal Accounting Policies (continued)

(c) Impact of adoption of new/revised HKFRSs (continued)

(iv) Impact on the consolidated financial statements

The Group has applied HKFRS 9 (2014) and HKFRS 15 retrospectively from 1 January 2018. As permitted by the respective transitional provisions of these accounting standards, comparatives for 2017 were not restated. The reclassifications and adjustments were recognised in the opening consolidated statement of financial position on 1 January 2018. The following table shows the adjustments recognised for each individual line item. Line items that were not affected by the changes have not been included, and therefore the line items disclosed do not add up to the sub-totals and totals below.

Consolidated statement of financial position (extracts)	31 Dec 2017 As originally presented $m	Impact of adoption of HKFRS 9 (2014) (note 2(c)(i)) $m	Impact of adoption of HKFRS 15 (note 2(c)(ii)) $m	1 Jan 2018 Restated $m
Assets				
Financial assets measured at fair value through profit or loss	**95,037**	**(3,059)**	**-**	**91,978**
Financial assets measured at fair value through other comprehensive income	**-**	**3,059**	**-**	**3,059**
Total assets	**317,604**	**-**	**-**	**317,604**
Liabilities				
Deferred revenue	**957**	**-**	**336**	**1,293**
Taxation payable	**505**	**-**	**(55)**	**450**
Total liabilities	**280,229**	**-**	**281**	**280,510**
Equity				
Hedging and revaluation reserves	**1**	**(4)**	**-**	**(3)**
Retained earnings	**12,090**	**4**	**(281)**	**11,813**
Equity attributable to shareholders of HKEX	**37,273**	**-**	**(281)**	**36,992**
Total equity	**37,375**	**-**	**(281)**	**37,094**
Total liabilities and equity	**317,604**	**-**	**-**	**317,604**

2. Principal Accounting Policies (continued)

(c) Impact of adoption of new/revised HKFRSs (continued)

(iv) Impact on the consolidated financial statements (continued)

The following tables show the impact on each individual line item of the consolidated income statement and consolidated statement of comprehensive income for the year ended 31 December 2018 and the consolidated statement of financial position as of 31 December 2018 following the adoption of the HKFRS 9 (2014) and HKFRS 15. Line items that were not affected by the changes have not been included, and therefore the line items disclosed do not add up to the sub-totals and totals below.

	Year ended 31 Dec 2018			
		Impact of adoption of		
Consolidated income statement (extracts)	Before adoption of HKFRS 9 (2014) and HKFRS 15 $m	HKFRS 9 (2014) (note 2(c)(i)) $m	HKFRS 15 (note 2(c)(ii)) $m	As reported $m
REVENUE				
Stock Exchange listing fees	**1,755**	**-**	**(34)**	**1,721**
Other revenue	**1,031**	**-**	**2**	**1,033**
Net investment income	**1,582**	**2**	**-**	**1,584**
REVENUE AND OTHER INCOME	**15,897**	**2**	**(32)**	**15,867**
PROFIT BEFORE TAXATION	**10,913**	**2**	**(32)**	**10,883**
TAXATION	**(1,597)**	**-**	**5**	**(1,592)**
PROFIT FOR THE YEAR	**9,316**	**2**	**(27)**	**9,291**
PROFIT ATTRIBUTABLE TO SHAREHOLDERS OF HKEX	**9,337**	**2**	**(27)**	**9,312**

	Year ended 31 Dec 2018			
		Impact of adoption of		
Consolidated statement of comprehensive income (extracts)	Before adoption of HKFRS 9 (2014) and HKFRS 15 $m	HKFRS 9 (2014) (note 2(c)(i)) $m	HKFRS 15 (note 2(c)(ii)) $m	As reported $m
PROFIT FOR THE YEAR	**9,316**	**2**	**(27)**	**9,291**
OTHER COMPREHENSIVE INCOME				
Items that may be reclassified subsequently to profit or loss:				
Changes in fair value of financial assets measured at fair value through other comprehensive income	**-**	**(2)**	**-**	**(2)**
OTHER COMPREHENSIVE INCOME	**20**	**(2)**	**-**	**18**
TOTAL COMPREHENSIVE INCOME	**9,336**	**-**	**(27)**	**9,309**
TOTAL COMPREHENSIVE INCOME ATTRIBUTABLE TO SHAREHOLDERS OF HKEX	**9,356**	**-**	**(27)**	**9,329**

2. Principal Accounting Policies (continued)

(c) Impact of adoption of new/revised HKFRSs (continued)

(iv) Impact on the consolidated financial statements (continued)

	At 31 Dec 2018			
	Before	Impact of adoption of		
Consolidated statement of financial position (extracts)	adoption of HKFRS 9 (2014) and HKFRS 15 $m	HKFRS 9 (2014) (note 2(c)(i)) $m	HKFRS 15 (note 2(c)(ii)) $m	As reported $m
Assets				
Financial assets measured at fair value through profit or loss	**64,759**	**(3,755)**	**-**	**61,004**
Financial assets measured at fair value through other comprehensive income	**-**	**3,755**	**-**	**3,755**
Total assets	**255,948**	**-**	**-**	**255,948**
Liabilities				
Deferred revenue	**1,050**	**-**	**368**	**1,418**
Taxation payable	**738**	**-**	**(60)**	**678**
Total liabilities	**214,737**	**-**	**308**	**215,045**
Equity				
Hedging and revaluation reserves	**-**	**(6)**	**-**	**(6)**
Retained earnings	**13,681**	**6**	**(308)**	**13,379**
Equity attributable to shareholders of HKEX	**41,037**	**-**	**(308)**	**40,729**
Total equity	**41,211**	**-**	**(308)**	**40,903**
Total liabilities and equity	**255,948**	**-**	**-**	**255,948**

Basic earnings per share has decreased by $0.02 in 2018 as a result of the adoption of HKFRS 9 (2014) and HKFRS 15. The adoption of these standards has no impact on the net cash flow from operating, investing and financing activities on the consolidated statement of cash flows.

(d) Basis of consolidation

Subsidiaries are entities (including structured entities) over which the Group has control. Subsidiaries are fully consolidated from the date on which control is transferred to the Group. They are deconsolidated from the date that control ceases. All material intra-group transactions and balances have been eliminated on consolidation.

Accounting policies of subsidiaries have been aligned on consolidation to ensure consistency with the policies adopted by the Group.

2. Principal Accounting Policies (continued)

(e) Impairment of non-financial assets

Assets with an indefinite useful life, which include interests in joint ventures, goodwill and tradenames, are not subject to amortisation but are tested at least annually for impairment. Assets subject to amortisation are reviewed for impairment whenever there is any indication that the carrying amount may not be recoverable. An impairment loss is recognised for the amount by which the asset's carrying amount exceeds its recoverable amount (ie, the higher of an asset's fair value less costs to sell and value-in-use). Such impairment losses are recognised in the consolidated income statement. An impairment loss other than goodwill is reversed if the circumstances and events leading to the impairment cease to exist.

(f) Foreign currency translation

(i) Functional and presentation currency

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the entity operates (the functional currency). The consolidated financial statements are presented in Hong Kong Dollar (HKD), which is the Company's functional and presentation currency.

(ii) Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of transactions. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognised in the consolidated income statement. They are deferred in hedging reserve under equity if they relate to qualifying cash flow hedges (note 40(a)).

Translation differences on non-monetary financial assets that are classified as financial assets measured at fair value through profit or loss are reported as part of the fair value gain or loss.

(iii) Group companies

The results and financial position of all the Group entities that have a non-HKD functional currency are translated into HKD as follows:

- assets and liabilities (including goodwill and fair value adjustments arising on the acquisition of foreign subsidiaries) for each statement of financial position presented are translated at the closing rate at the end of the reporting period;
- income and expenses for each income statement are translated at the exchange rates approximating the foreign exchange rates ruling at the dates of the transactions; and
- all resulting currency translation differences are recognised in other comprehensive income in the exchange reserve under equity.

3. Critical Accounting Estimates and Assumptions

The Group makes estimates and assumptions concerning the future when the consolidated financial statements are prepared. The resulting accounting estimates may differ from the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are discussed below:

(a) Goodwill and tradenames

The Group tests annually whether goodwill and tradenames have suffered any impairment in accordance with the accounting policy stated in note 27.

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 27. 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. The valuations have been determined based on quotes from market makers, alternative pricing sources supported by observable inputs, latest transactions prices or redemption prices provided by fund administrators of collective investment schemes.

At 31 December 2018 , the financial assets that were not classified as Level 1 investments (excluding the base 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 $5,803 million (31 December 2017: $4,802 million) which mainly comprised $5,102 million (31 December 2017: $4,802 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 50(a)(iv).

4. Operating Segments

Accounting Policy

Operating segments are reported in a manner consistent with the internal management reports that are used to make strategic decisions provided to the chief operating decision-maker. The chief operating decision-maker, who is responsible for allocating resources and assessing performance of the operating segments, is the Chief Executive of HKEX. Information relating to segment assets and liabilities is not disclosed as such information is not regularly reported to the chief operating decision-maker.

The accounting policies of the reportable segments are the same as the Group's accounting policies. Taxation charge/credit is not allocated to reportable segments.

The Group has five reportable segments ("Corporate Items" is not a reportable segment). The segments are managed separately as each segment offers different products and services and requires different information technology systems and marketing strategies. The operations in each of the Group's reportable segments are as follows:

The **Cash** segment covers all equity products traded on the Cash Market platforms, the Shanghai Stock Exchange and the Shenzhen Stock Exchange through Shanghai-Hong Kong Stock Connect and Shenzhen-Hong Kong Stock Connect (Stock Connect), sales of market data relating to these products and other related activities. The major sources of revenue of the segment are trading fees, trading tariffs, listing fees of equity products and market data fees.

The **Equity and Financial Derivatives** segment refers to derivatives products traded on The Stock Exchange of Hong Kong Limited (Stock Exchange) and Hong Kong Futures Exchange Limited (Futures Exchange) and other related activities. These include the provision and maintenance of trading platforms for a range of equity and financial derivatives products, such as stock and equity index futures and options, DWs, CBBCs and warrants and sales of related market data. The major sources of revenue are trading fees, trading tariffs, listing fees of derivatives products and market data fees.

The **Commodities** segment refers to the operations of The London Metal Exchange (LME), which operates an exchange in the UK for the trading of base and precious metals futures and options contracts, and the operations of Qianhai Mercantile Exchange Co., Ltd. (QME), the new commodity trading platform in the Mainland. It also covers the Asia Commodities contracts and gold and iron ore futures contracts traded on the Futures Exchange. The major sources of revenue of the segment are trading fees of commodity products, commodity market data fees and fees from ancillary operations.

The **Clearing** 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 **Platform and Infrastructure** segment refers to all services in connection with providing users with access to the platform and infrastructure of the Group. Its major sources of revenue are network, terminal user, dataline and software sub-license fees and hosting services fees.

4. Operating Segments (continued)

Central income (including net investment income of Corporate Funds) and central costs (costs of central support functions that provide services to all operating segments and other costs not directly related to any operating segment) are included as "Corporate Items".

The chief operating decision-maker assesses the performance of the operating segments principally based on their EBITDA (defined below).

EBITDA is defined as earnings before interest expenses and other finance costs, taxation, depreciation and amortisation. It excludes the Group's share of results of the joint ventures. 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 disaggregation of revenue by timing of revenue recognition) for the year, is set out as follows:

	2018						
	Cash $m	Equity and Financial Derivatives $m	Commodities $m	Clearing $m	Platform and Infrastructure $m	Corporate Items $m	Group $m
Timing of revenue recognition:							
Point in time	2,423	2,470	1,144	4,446	62	11	10,556
Over time	1,432	1,033	271	335	616	9	3,696
Revenue from external customers	3,855	3,503	1,415	4,781	678	20	14,252
Net investment income	-	-	-	1,377	-	207	1,584
Sundry income	-	-	-	10	-	21	31
Revenue and other income	3,855	3,503	1,415	6,168	678	248	15,867
Operating expenses	(584)	(573)	(717)	(812)	(170)	(1,254)	(4,110)
Reportable segment EBITDA	3,271	2,930	698	5,356	508	(1,006)	11,757
Depreciation and amortisation	(82)	(71)	(298)	(193)	(37)	(81)	(762)
Finance costs	-	-	-	(38)	-	(76)	(114)
Share of profits less losses of joint ventures	10	(8)	-	-	-	-	2
Reportable segment profit before taxation	3,199	2,851	400	5,125	471	(1,163)	10,883
Other segment information:							
Interest income	-	-	-	2,446	-	329	2,775
Interest rebates to Participants	-	-	-	(1,071)	-	-	(1,071)
Other material non-cash item:							
Employee share-based compensation expenses	(36)	(31)	(35)	(29)	(2)	(93)	(226)

4. Operating Segments (continued)

	2017						
	Cash $m	Equity and Financial Derivatives $m	Commodities $m	Clearing $m	Platform and Infrastructure $m	Corporate Items $m	Group $m
Revenue from external customers	3,363	2,195	1,436	4,009	560	11	11,574
Net investment income	-	-	-	809	-	790	1,599
Sundry income	-	-	-	7	-	-	7
Revenue and other income	3,363	2,195	1,436	4,825	560	801	13,180
Operating expenses	(581)	(477)	(659)	(752)	(151)	(946)	(3,566)
Reportable segment EBITDA	2,782	1,718	777	4,073	409	(145)	9,614
Depreciation and amortisation	(69)	(77)	(395)	(196)	(42)	(79)	(858)
Finance costs	-	-	-	(38)	-	(96)	(134)
Share of losses of joint ventures	(4)	(8)	-	-	-	-	(12)
Reportable segment profit before taxation	2,709	1,633	382	3,839	367	(320)	8,610
Other segment information:							
Interest income	-	-	-	1,342	-	142	1,484
Interest rebates to Participants	-	-	-	(572)	-	-	(572)
Other material non-cash item:							
Employee share-based compensation expenses	(36)	(25)	(40)	(39)	(2)	(78)	(220)

(a) Geographical information

The Group's revenue from external customers is derived from its operations in Hong Kong and the UK. 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**	
	2018 **$m**	2017 $m	**At 31 Dec 2018** **$m**	At 31 Dec 2017 $m
Hong Kong (place of domicile)	**12,241**	9,544	**2,438**	2,067
United Kingdom	**2,011**	2,030	**17,232**	17,351
Mainland China	**-**	-	**78**	78
	14,252	11,574	**19,748**	19,496

(b) Information about major customers

In 2018 and 2017, 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 and precious metals futures and options contracts transacted on LME are recognised on the trade day (or trade match day, if later). 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 on 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.

In the comparative period, initial listing fees for IPOs were recognised upon the listing of an applicant, cancellation of the application or six months after submission of the application, whichever was earlier. Initial and subsequent listing fees for DWs, CBBCs and other securities were recognised upon the listing of the securities.

(a) Trading Fees and Trading Tariffs

	2018 $m	2017 $m
Equity securities traded on the Stock Exchange and through Stock Connect	**2,386**	1,954
DWs, CBBCs and warrants traded on the Stock Exchange	**776**	526
Futures and options contracts traded on the Stock Exchange and the Futures Exchange	**2,108**	1,260
Base and precious metals futures and options contracts traded on the LME	**1,069**	1,116
	6,339	4,856

5. Revenue (continued)

(b) Stock Exchange Listing Fees

	2018				2017			
	Equity		CBBCs,		Equity		CBBCs,	
	Main Board	GEM	DWs & others	Total	Main Board	GEM	DWs & others	Total
	$m	$m	$m	$m	$m	$m	$m	$m
Annual listing fees	**684**	**53**	**3**	**740**	642	42	3	687
Initial and subsequent issue listing fees	**121**	**22**	**829**	**972**	87	32	519	638
Other listing fees	**7**	**2**	**-**	**9**	5	3	-	8
	812	**77**	**832**	**1,721**	734	77	522	1,333

(c) Other Revenue

	2018 $m	2017 $m
Network, terminal user, dataline and software sub-license fees	**515**	413
Hosting services fees	**162**	143
Commodities stock levies and warehouse listing fees	**66**	77
Participants' subscription and application fees	**90**	84
Accommodation income (note (i))	**59**	48
Sales of Trading Rights	**20**	41
LME financial over-the-counter booking fee	**27**	-
Post-liquidation interest arising from a Participant's default on market contracts (note (ii))	**-**	55
Miscellaneous revenue	**94**	84
	1,033	945

(i) Accommodation income mainly comprises income from Participants on securities deposited as alternatives to cash deposits of Margin Funds, income from Participants on foreign currencies deposited if the 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.

(ii) In 2017, the liquidators of Lehman Brothers Securities Asia Limited (LBSA) paid post-liquidation interest of $55 million on LBSA's debts arising from its default on market contracts, and an equal amount was appropriated to the Guarantee Fund reserve of Hong Kong Securities Clearing Company Limited (HKSCC) from retained earnings during the year ended 31 December 2017 (note 41).

(d) Revenue recognised in 2018 that was included in the deferred revenue balance at 1 January 2018 amounted to $1,022 million.

6. Net Investment Income

Accounting Policy

Interest income on investments and interest rebates to Participants are recognised on a time apportionment basis using the effective interest method.

Gains and losses arising from changes in fair value of financial assets measured at fair value through profit or loss and financial liabilities at fair value through profit or loss are included under net investment income in the consolidated income statement.

	2018 $m	2017 $m
Gross interest income from financial assets measured at amortised cost	**2,715**	1,484
Gross interest income from financial assets measured at fair value through other comprehensive income	**60**	-
Interest rebates to Participants	**(1,071)**	(572)
Net interest income	**1,704**	912
Net (losses)/gains including interest income on financial assets mandatorily measured at fair value through profit or loss and financial liabilities at fair value through profit or loss	**(106)**	682
Others	**(14)**	5
Net investment income	**1,584**	1,599

7. Sundry Income

	2018 $m	2017 $m
Forfeiture of unclaimed dividends (note (a))	**10**	7
Others	**21**	-
	31	7

(a) In accordance with CCASS Rule 1109, the Group exercised its forfeiture right to appropriate cash dividends of $10 million (2017: $7 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 $188 million at 31 December 2018 (31 December 2017: $178 million) if adequate proof of entitlement is provided by the beneficial owner claiming any dividends forfeited.

8. Staff Costs and Related Expenses

	2018 $m	2017 $m
Salaries and other short-term employee benefits	**2,130**	1,865
Employee share-based compensation benefits of Share Award Scheme (note 39)	**226**	220
Termination benefits	**26**	38
Retirement benefit costs (note (a)):		
- ORSO Plan	**124**	116
- MPF Scheme	**3**	2
- LME Pension Scheme	**24**	23
- PRC Retirement Schemes	**7**	9
	2,540	2,273

(a) Retirement Benefit Costs

Accounting Policy

Contribution to the defined contribution plans are expensed as incurred.

The Group has sponsored a defined contribution provident fund scheme (ORSO Plan) which is registered under the Occupational Retirement Schemes Ordinance (ORSO) and a Mandatory Provident Fund scheme (MPF Scheme) for the benefits of its employees in Hong Kong. The Group contributes 12.5 per cent of the employee's basic salary to the ORSO Plan if an employee contributes 5 per cent. If the employee chooses not to contribute, the Group will contribute 10 per cent of the employee's salary to the ORSO Plan. Contributions to the MPF Scheme are in accordance with the statutory limits prescribed by the MPF Ordinance. Forfeited contributions of the ORSO Plan for employees who leave before the contributions are fully vested are not used to offset existing contributions but are credited to a reserve account of that Plan, and are available for distribution to the members of the Plan at the discretion of the trustees.

For all employees of HKEX Investment (UK) Limited, LME Holdings Limited (LMEH), LME and LME Clear (collectively, LME Group), the Group has also sponsored a defined contribution pension scheme (LME Pension Scheme). For employees who joined the LME Group before 1 May 2014, the Group contributes 15 per cent to 17 per cent of the employee's basic salary to the LME Pension Scheme. For employees who joined the LME Group on or after 1 May 2014, they are automatically enrolled into the LME Pension Scheme on a matched contribution basis and may choose a personal contribution level ranging from 3 per cent to 5 per cent of their basic salaries, which is matched by the Group's contribution ranging from 6 per cent to 10 per cent of their basic salaries. Staff may opt-out of the scheme if they wish. There are no forfeited contributions for the LME Pension Scheme as the contributions are fully vested to the employees upon payment to the scheme.

8. Staff Costs and Related Expenses (continued)

(a) Retirement Benefit Costs (continued)

Pursuant to the relevant laws and regulations in the People's Republic of China (PRC), the Group has joined defined contribution retirement schemes for the employees arranged by local government labour and security authorities (PRC Retirement Schemes). The Group makes contributions to the retirement schemes at the applicable rates based on the amounts stipulated by the local government organisations. Upon retirement, the local government labour and security authorities are responsible for the payment of the retirement benefits to the retired employees.

Assets of the ORSO Plan, MPF Scheme, LME Pension Scheme and PRC Retirement Schemes are held separately from those of the Group and are independently administered and are not included in the consolidated statement of financial position.

9. Information Technology and Computer Maintenance Expenses

	2018 **$m**	2017 $m
Costs of services and goods:		
- consumed by the Group	**420**	360
- directly consumed by Participants	**88**	73
	508	433

10. Other Operating Expenses

	2018 $m	2017 $m
Bank charges	**25**	19
Communication expenses	**16**	14
Contribution to Financial Reporting Council	**8**	8
Custodian and fund management related fees	**27**	27
Financial data subscription fees	**38**	28
Insurance	**12**	11
License fees	**44**	31
Office demolition and relocation expenses	**30**	8
Repairs and maintenance expenses	**62**	61
Security expenses	**19**	18
Travel expenses	**44**	54
Other miscellaneous expenses	**116**	101
	441	380

11. Operating Profit

	2018 $m	2017 $m
Operating profit is stated after charging/(crediting):		
Auditor's remuneration		
- audit fees	**15**	14
- other non-audit fees	**2**	5
Operating lease rentals		
- land and buildings	**330**	263
- computer systems and equipment	**43**	31
Provision for impairment losses of receivables	**1**	6
Net foreign exchange losses/(gains) on financial assets and liabilities (excluding financial assets and financial liabilities measured at fair value through profit or loss)	**14**	(5)

12. Finance Costs

Accounting Policy

Interest expenses are charged to the consolidated income statement and recognised on a time apportionment basis, taking into account the principal outstanding and the applicable interest rates using the effective interest method. Other finance costs, which include 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.

	2018 $m	2017 $m
Interest for financial liabilities not at fair value through profit or loss	**52**	80
Banking facility commitment fees	**45**	41
Negative interest on Euro and Japanese Yen deposits	**17**	13
	114	134

13. Directors' Emoluments and Interests of Directors

All Directors, including one Executive Director (HKEX's Chief Executive), received emoluments during the years ended 31 December 2018 and 31 December 2017. The aggregate emoluments paid and payable to the Directors during the year were as follows:

	2018 $'000	2017 $'000
Executive Director:		
Salaries and other short-term employee benefits	**9,336**	9,403
Performance bonus	**18,500**	15,000
Retirement benefit costs	**1,133**	1,125
	28,969	25,528
Employee share-based compensation benefits (note (a))	**23,444**	23,328
	52,413	48,856
Non-executive Directors:		
Fees	**16,573**	16,140
Other benefits	**7**	-
	16,580	16,140
	68,993	64,996

(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 39) amortised to the consolidated income statement during the year.

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

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

	2018							
Name of Director	**Fees $'000**	**Salary $'000**	**Other benefits (note (i)) $'000**	**Performance bonus $'000**	**Retirement benefit costs (note (ii)) $'000**	**Sub-total $'000**	**Employee share-based compensation benefits $'000**	**Total $'000**
Laura M Cha (note (iii))	**2,435**	**-**	**7**	**-**	**-**	**2,442**	**-**	**2,442**
C K Chow (note (iv))	**858**	**-**	**-**	**-**	**-**	**858**	**-**	**858**
Charles X Li	**-**	**9,066**	**270**	**18,500**	**1,133**	**28,969**	**23,444**	**52,413**
Apurv Bagri	**816**	**-**	**-**	**-**	**-**	**816**	**-**	**816**
T C Chan	**987**	**-**	**-**	**-**	**-**	**987**	**-**	**987**
C H Cheah (note (v))	**1,169**	**-**	**-**	**-**	**-**	**1,169**	**-**	**1,169**
Timothy G Freshwater (note (iv))	**256**	**-**	**-**	**-**	**-**	**256**	**-**	**256**
Anita Y M Fung	**1,124**	**-**	**-**	**-**	**-**	**1,124**	**-**	**1,124**
Rafael Gil-Tienda	**1,624**	**-**	**-**	**-**	**-**	**1,624**	**-**	**1,624**
Fred Z Hu	**1,071**	**-**	**-**	**-**	**-**	**1,071**	**-**	**1,071**
Benjamin P C Hung (note (iii))	**644**	**-**	**-**	**-**	**-**	**644**	**-**	**644**
Margaret M Y Leung Ko	**987**	**-**	**-**	**-**	**-**	**987**	**-**	**987**
Hugo P H Leung (note (v))	**987**	**-**	**-**	**-**	**-**	**987**	**-**	**987**
John M M Williamson	**1,086**	**-**	**-**	**-**	**-**	**1,086**	**-**	**1,086**
Stephen K W Yiu (note (vi))	**2,529**	**-**	**-**	**-**	**-**	**2,529**	**-**	**2,529**
Total	**16,573**	**9,066**	**277**	**18,500**	**1,133**	**45,549**	**23,444**	**68,993**

	2017							
Name of Director	Fees $'000	Salary $'000	Other benefits (note (i)) $'000	Performance bonus $'000	Retirement benefit costs (note (ii)) $'000	Sub-total $'000	Employee share-based compensation benefits $'000	Total $'000
C K Chow (note (iv))	3,240	-	-	-	-	3,240	-	3,240
Charles X Li	-	9,000	403	15,000	1,125	25,528	23,328	48,856
Apurv Bagri	793	-	-	-	-	793	-	793
T C Chan	961	-	-	-	-	961	-	961
C H Cheah (note (v))	816	-	-	-	-	816	-	816
Timothy G Freshwater (note (iv))	1,021	-	-	-	-	1,021	-	1,021
Anita Y M Fung	1,102	-	-	-	-	1,102	-	1,102
Rafael Gil-Tienda	1,259	-	-	-	-	1,259	-	1,259
John B Harrison (note (vii))	700	-	-	-	-	700	-	700
Fred Z Hu	1,018	-	-	-	-	1,018	-	1,018
Bill C P Kwok (note (vii))	432	-	-	-	-	432	-	432
Vincent K H Lee (note (vii))	277	-	-	-	-	277	-	277
Margaret M Y Leung Ko	961	-	-	-	-	961	-	961
Hugo P H Leung (note (v))	723	-	-	-	-	723	-	723
John M M Williamson	1,051	-	-	-	-	1,051	-	1,051
Stephen K W Yiu (note (vi))	1,786	-	-	-	-	1,786	-	1,786
Total	16,140	9,000	403	15,000	1,125	41,668	23,328	64,996

Notes:

(i) Other benefits represented estimated money value of leave pay, insurance premium, club membership and UK tax liability of Non-Resident Director.

(ii) Employees who retire before normal retirement age are eligible for 18 per cent of the employer's contribution to the provident fund after completion of two years of service. The rate of vested benefit increases at an annual increment of 18 per cent thereafter reaching 100 per cent after completion of seven years of service.

(iii) Appointment effective 25 April 2018

(iv) Retired on 25 April 2018

(v) Elected on 26 April 2017

(vi) Appointment effective 26 April 2017

(vii) Retired on 26 April 2017

13. 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.

14. Five Top-paid Employees

One (2017: one) of the five top-paid employees was a Director whose emoluments are disclosed in note 13. Details of the emoluments of the other four (2017: four) top-paid employees were as follows:

	2018 $'000	2017 $'000
Salaries and other short-term employee benefits	**17,150**	22,196
Performance bonus	**23,477**	17,946
Sign-on bonus	**-**	3,050
Retirement benefit costs	**2,306**	2,211
	42,933	45,403
Employee share-based compensation benefits (note (a))	**25,064**	17,583
	67,997	62,986

(a) Employee share-based compensation benefits represent the fair value of Awarded Shares on grant date (note 39) amortised to the consolidated income statement during the year.

(b) The emoluments of these four (2017: four) employees, including share-based compensation benefits, were within the following bands:

	2018 Number of employees	2017 Number of employees
$13,500,001 – $14,000,000	**1**	-
$14,000,001 – $14,500,000	**-**	1
$15,000,001 – $15,500,000	**-**	1
$16,000,001 – $16,500,000	**1**	1
$17,000,001 – $17,500,000	**1**	-
$17,500,001 – $18,000,000	**-**	1
$20,500,001 – $21,000,000	**1**	-
	4	4

The above employees included senior executives who were also Directors of the subsidiaries during the years. No Directors of the subsidiaries waived any emoluments.

15. Taxation

Accounting Policy

Tax charge for the period comprises current and deferred tax. Tax is recognised in the consolidated income statement, except to the extent that it relates to items recognised directly in equity, in which case, the tax is also recognised directly in equity.

The current tax charge is calculated on the basis of the tax laws enacted or substantively enacted at the end of the reporting period in the countries where HKEX and its subsidiaries operate and generate taxable income. Provisions are established where appropriate on the basis of amounts expected to be paid to the tax authorities.

The Group's accounting policy for recognition of deferred tax is described in note 37.

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

	2018 $m	2017 $m
Current tax – Hong Kong Profits Tax		
- Provision for the year	**1,421**	1,047
- Over provision in respect of prior years	**-**	(4)
	1,421	1,043
Current tax – Overseas Tax		
- Provision for the year	**182**	229
- Over provision in respect of prior years	**(52)**	(4)
	130	225
Total current tax (note (i))	**1,551**	1,268
Deferred tax (note 37(a))		
- Provision for /(reversal of) temporary differences	**41**	(13)
Taxation charge	**1,592**	1,255

(i) Hong Kong Profits Tax has been provided at the rate of 16.5 per cent (2017: 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 (2017: 19.25 per cent).

15. 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:

	2018 $m	2017 $m
Profit before taxation	**10,883**	8,610
Tax calculated at domestic tax rates applicable to profits in the respective countries (note (i))	**1,843**	1,424
Income not subject to taxation	**(288)**	(267)
Expenses not deductible for taxation purposes	**34**	32
Change in deferred tax arising from unrecognised tax losses and other deferred tax adjustments	**55**	74
Over provision in respect of prior years	**(52)**	(8)
Taxation charge	**1,592**	1,255

(i) The weighted average applicable tax rate was 16.9 per cent (2017: 16.5 per cent).

16. Earnings Per Share

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

(a) Basic earnings per share

	2018	2017
Profit attributable to shareholders ($m)	**9,312**	7,404
Weighted average number of shares in issue less shares held for Share Award Scheme (in '000)	**1,242,059**	1,227,674
Basic earnings per share ($)	**7.50**	6.03

(b) Diluted earnings per share

	2018	2017
Profit attributable to shareholders ($m)	**9,312**	7,404
Weighted average number of shares in issue less shares held for Share Award Scheme (in '000)	**1,242,059**	1,227,674
Effect of Awarded Shares (in '000)	**2,759**	3,124
Weighted average number of shares for the purpose of calculating diluted earnings per share (in '000)	**1,244,818**	1,230,798
Diluted earnings per share ($)	**7.48**	6.02

17. 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.

	2018 $m	2017 $m
First interim dividend paid:		
$3.64 (2017: $2.55) per share	**4,537**	3,141
Less: Dividend for shares held by Share Award Scheme (note (a))	**(10)**	(8)
	4,527	3,133
Second interim dividend declared (notes (b) and (c)):		
$3.07 (2017: $Nil) per share based on issued share capital at 31 Dec 2018	**3,839**	-
Less: Dividend for shares held by Share Award Scheme at 31 Dec 2018 (note (a))	**(9)**	-
	3,830	-
Final dividend proposed (note (b)):		
$2.85 per share based on issued share capital at 31 Dec 2017	**-**	3,533
Less: Dividend for shares held by Share Award Scheme at 31 Dec 2017 (note (a))	**-**	(8)
	-	3,525
	8,357	6,658

(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 dividend proposed/declared after 31 December was not recognised as a liability at 31 December as it had not been approved by the shareholders/the Board.

(c) The 2018 second interim dividend will be payable in cash with a scrip dividend alternative subject to the permission of the Securities and Futures Commission (SFC) of the listing of and permission to deal in the new shares to be issued.

18. 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 20) or through other comprehensive income (note 21)); and
- those measured at amortised cost (note 22).

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.

In the comparative period, investments and other financial assets of the Group were classified under financial assets measured at fair value through profit or loss (note 20) or financial assets measured at amortised cost (note 22). The classification depends on the business model for managing the financial assets and the contractual terms of the cash flows.

19. Cash and Cash Equivalents

Accounting Policy

Cash and cash equivalents comprise cash on hand, bank balances and other short-term highly liquid investments that are readily convertible into known amounts of cash and are subject to an insignificant risk of changes in value (mainly reverse repurchase investments and time deposits), with original maturities of three months or less.

19. Cash and Cash Equivalents (continued)

	At 31 Dec 2018				
	Cash for A shares (notes (a) and (c)) $m	**Corporate Funds (notes (b) and 23) $m**	**Margin Funds (notes (c) and 30) $m**	**Clearing House Funds (notes (c) and 34) $m**	**Total $m**
Cash on hand and balances and deposits with banks	**3,014**	**10,681**	**43,165**	**6,963**	**63,823**
Reverse repurchase investments	**-**	**1,223**	**47,608**	**8,542**	**57,373**
	3,014	**11,904**	**90,773**	**15,505**	**121,196**

	At 31 Dec 2017				
	Cash for A shares (notes (a) and (c)) $m	Corporate Funds (notes (b) and 23) $m	Margin Funds (notes (c) and 30) $m	Clearing House Funds (notes (c) and 34) $m	Total $m
Cash on hand and balances and deposits with banks	1,689	12,540	42,410	8,413	65,052
Reverse repurchase investments	-	1,006	80,434	9,168	90,608
	1,689	13,546	122,844	17,581	155,660

(a) Cash for A shares includes:

(i) Renminbi (RMB) cash prepayments received by 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 2018, cash and cash equivalents of Corporate Funds of $724 million (31 December 2017: $Nil) were solely used to support Skin-in-the-Game and default fund credits for HKSCC Guarantee Fund, SEOCH Reserve Fund and HKCC Reserve Fund (note 34(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.

20. 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 21) or amortised cost (note 22). 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.

In the comparative period, investments and other financial assets were classified under financial assets measured at fair value through profit or loss if they did not meet the conditions to be measured at amortised cost (note 22).

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 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.

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

	At 31 Dec 2018			
	Corporate Funds (note 23) $m	**Margin Funds (note 30) $m**	**Metals derivatives contracts (note (a)) $m**	**Total $m**
Mandatorily measured at fair value				
Collective investment schemes:				
- listed outside Hong Kong	**1,987**	**-**	**-**	**1,987**
- unlisted	**5,102**	**-**	**-**	**5,102**
	7,089	**-**	**-**	**7,089**
Derivative financial instruments:				
- base and precious metals futures and options contracts cleared through LME Clear (note (a))	**-**	**-**	**53,915**	**53,915**
	7,089	**-**	**53,915**	**61,004**

	At 31 Dec 2017			
	Corporate Funds (note 23) $m	Margin Funds (note 30) $m	Metals derivatives contracts (note (a)) $m	Total $m
Mandatorily measured at fair value				
Collective investment schemes:				
- listed outside Hong Kong	1,841	-	-	1,841
- unlisted	4,802	-	-	4,802
	6,643	-	-	6,643
Unlisted debt securities	-	3,059	-	3,059
Derivative financial instruments:				
- base and precious metals futures and options contracts cleared through LME Clear (note (a))	-	-	85,335	85,335
	6,643	3,059	85,335	95,037

(a) Metals derivatives contracts represent the fair value of the outstanding base 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 29).

21. 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 20).

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 consolidated income statement.

Fair values of quoted investments are based on the most representative prices within the bid-ask spreads which are currently considered as the bid-prices. For unlisted securities or financial assets without an active market, the Group establishes the fair value by using valuation techniques including the use of recent arm's length transactions and dealer quotes for similar investments.

Impairment

The Group assesses on a forward looking basis the expected credit losses associated with its debt instruments measured at fair value through other comprehensive income. Expected credit losses are a probability-weighted estimate of credit losses. Credit losses are measured as the present value of all expected cash shortfalls (ie, the difference between the cash flows due to the Group in accordance with the contract and the cash flows that the Group expects to receive).

In measuring expected credit losses, the Group takes into account reasonable and supportable information that is available without undue cost or effort. This includes information about past events, current conditions and forecasts of future economic conditions.

Expected credit losses are measured on either of the following bases:

- 12-month expected credit losses: these are losses that are expected to result from possible default events within the 12 months after the reporting date; and
- Lifetime expected credit losses: these are losses that are expected to result from all possible default events over the expected lives of the items to which the expected credit loss model applies.

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

Accounting Policy (continued)

Impairment (continued)

For financial assets measured at fair value through other comprehensive income, the Group recognises a provision for impairment losses equal to 12-month expected credit losses unless there has been a significant increase in credit risk of the financial assets since initial recognition, in which case the provision for impairment losses is measured at an amount equal to lifetime expected credit losses.

Expected credit losses are measured at each reporting date to reflect changes in the financial asset's credit risk since initial recognition.

In assessing whether the credit risk of a financial asset has increased significantly since initial recognition, the Group compares the risk of default occurring on the financial asset assessed at the reporting date with that assessed at the date of initial recognition. In making this reassessment, the Group considers that a default event occurs when the financial asset is past due by 90 days or one or more credit impaired events that have a detrimental impact on the estimated future cash flows of that financial asset have occurred.

The following information is taken into account when assessing whether credit risk has increased significantly since initial recognition:

- failure to make payments of principal or interest on their contractually due dates;
- an actual or expected significant deterioration in a financial asset's external or internal credit rating (if available);
- an actual or expected significant deterioration in the operating results of the debtor; and
- existing or forecast changes in the technological, market, economic or legal environment that have a significant adverse effect on the debtor's ability to meet its obligation to the Group.

Depending on the nature of the financial instruments, the assessment of a significant increase in credit risk is performed on either an individual basis or a collective basis. When the assessment is performed on a collective basis, the financial assets are grouped based on shared credit risk characteristics, such as past due status and credit risk ratings.

Any change in the expected credit loss amount is recognised as an impairment loss or reversal of impairment loss in the consolidated income statement, with a corresponding adjustment to the other comprehensive income.

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

	Margin Funds (note 30)	
	At 31 Dec 2018 $m	At 31 Dec 2017 $m
Unlisted debt securities (note (a))	**3,755**	-
The expected recovery dates of the financial assets are analysed as follows:		
Within twelve months (note (b))	**3,755**	-

(a) No provision for impairment loss was made at 31 December 2018 as the financial assets were considered to be of low credit risk and the expected credit loss was minimal. The investments in debt securities held were of investment grade and had a weighted average credit rating of Aa1 (Moody) with no history of default and there was no unfavourable current conditions and forecast of future economic conditions at 31 December 2018.

(b) Includes financial assets maturing after twelve months of $1,875 million (31 December 2017: $Nil) attributable to Margin Funds that could readily be liquidated to meet liquidity requirements of the Fund (note 50 (b)).

22. 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 20).

Accounts receivable and other deposits are also classified under this category (note 24).

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.

22. Financial Assets Measured at Amortised Cost (continued)

Accounting Policy (continued)

Impairment

(i) Policy applicable from 1 January 2018

The Group assesses on a forward looking basis the expected credit losses associated with its financial assets measured at amortised cost.

For accounts receivable due from customers, the Group applied the simplified approach permitted by HKFRS 9 (2014), which requires expected lifetime losses (note 21) 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 21 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 21). 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 was previously written off are recognised as a reversal of impairment in the consolidated income statement in the period in which the recovery occurs.

(ii) Policy applicable prior to 1 January 2018

The Group assesses at the end of each reporting period whether there is objective evidence that a financial asset or a group of financial assets is impaired. Impairment losses are incurred when there is objective evidence of impairment that, as a result of one or more loss events that have occurred after the initial recognition of the financial assets, the estimated future cash flows of the financial assets have been affected.

If there is objective evidence that an impairment loss has been incurred, the loss is measured as the difference between the assets' carrying amounts and the present values of estimated future cash flows discounted at the financial assets' original effective interest rates. The carrying amounts of the assets are reduced through the use of a doubtful debt allowance account and the amount of the loss is recognised in the consolidated income statement.

If, in a subsequent period, the amount of impairment loss decreases and the decrease can be shown to relate objectively to an event occurring after the impairment was recognised, the previously recognised impairment loss is reversed by adjusting the doubtful debt allowance account. The amount of reversal is recognised in the consolidated income statement.

22. Financial Assets Measured at Amortised Cost (continued)

	At 31 Dec 2018 Corporate Funds (note 23) $m	Margin Funds (note 30) $m	Clearing House Funds (note 34) $m	Total $m
Debt securities	**535**	**-**	**-**	**535**
Time deposits with original maturities over three months	**5,208**	**26,045**	**-**	**31,253**
Other financial assets	**97**	**-**	**-**	**97**
	5,840	**26,045**	**-**	**31,885**
The expected recovery dates of the financial assets are analysed as follows:				
Within twelve months	**5,442**	**26,045**	**-**	**31,487**
More than twelve months	**398**	**-**	**-**	**398**
	5,840	**26,045**	**-**	**31,885**

	At 31 Dec 2017 Corporate Funds (note 23) $m	Margin Funds (note 30) $m	Clearing House Funds (note 34) $m	Total $m
Debt securities	627	-	-	627
Time deposits with original maturities over three months	588	29,481	61	30,130
Other financial assets	60	-	-	60
	1,275	29,481	61	30,817
The expected recovery dates of the financial assets are analysed as follows:				
Within twelve months	1,215	29,481	61	30,757
More than twelve months	60	-	-	60
	1,275	29,481	61	30,817

(a) No provision for impairment loss for these financial assets was made at 31 December 2018 as the financial assets were considered to be of low credit risk and the expected credit loss of these financial assets was minimal. Debt securities held were of investment grade and had a weighted average credit rating of Aa3 (Moody) (31 December 2017: Aaa (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 31 December 2018.

(b) The fair values of financial assets maturing after twelve months are disclosed in note 50(d)(ii).

23. Corporate Funds

	At 31 Dec 2018 $m	At 31 Dec 2017 $m
Corporate Funds comprised the following instruments:		
Cash and cash equivalents (notes (b) and 19)	**11,904**	13,546
Financial assets measured at fair value through profit or loss (note 20)	**7,089**	6,643
Financial assets measured at amortised cost (note 22)	**5,840**	1,275
	24,833	21,464

23. Corporate Funds (continued)

(a) Financial assets held by the Group which are funded by share capital and funds generated from operations are classified as Corporate Funds (ie, other than financial assets of Margin Funds, Clearing House Funds, Cash for A shares and base and precious metals derivatives contracts).

(b) At 31 December 2018, cash and cash equivalents of Corporate Funds of $724 million (31 December 2017: $Nil) were solely used to support Skin-in-the-Game and default fund credits for HKSCC Guarantee Fund, SEOCH Reserve Fund and HKCC Reserve Fund (note 34(a)).

24. Accounts Receivable, Prepayments and Deposits

Accounting Policy

Accounts receivable and other deposits are financial assets measured at amortised cost less impairment. The accounting policy for financial assets measured at amortised cost is disclosed in note 22.

	At 31 Dec 2018 $m	At 31 Dec 2017 $m
Receivable from ChinaClear, Exchange and Clearing Participants:		
- CNS money obligations receivable (note (a))	**13,471**	12,515
- transaction levy, stamp duty and fees receivable	**537**	676
- Settlement Reserve Fund and Settlement Guarantee Fund held by ChinaClear (note 30)	**3,150**	2,421
- others	**6**	12
Payment in advance for collective investment schemes traded on 1 Jan 2019	**229**	-
Receivables from collective investment schemes sold prior to 31 Dec 2018	**155**	-
Other receivables, prepayments and deposits	**824**	970
Less : Provision for impairment losses of receivables (notes (b) and (c))	**(10)**	(9)
	18,362	16,585

(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 31) when they are confirmed and accepted on the day after the trade day.

For a trade in A shares transacted for Stock Exchange Participants, the rights and obligations of the parties to the trade will be transferred to ChinaClear, and a market contract between HKSCC and the relevant HKSCC Clearing Participant is created through novation. The CNS money obligations due by/to HKSCC Clearing Participants and ChinaClear are recognised as receivables and payables (note 31) when they are confirmed on the trade day.

24. Accounts Receivable, Prepayments and Deposits (continued)

(b) Expected credit losses

For accounts receivable, the Group applied 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 2018 and 1 January 2018 (on the date of initial adoption of HKFRS 9 (2014)) was determined as follows:

	At 31 Dec 2018			
	Current or within 30 days past due	**31 to 180 days past due**	**More than 180 days past due**	**Total**
Expected loss rate	**<1%**	**2%**	**100%**	
Gross carrying amount – accounts receivable subject to expected credit loss provision ($m)	**532**	**53**	**9**	**594**
Loss allowance ($m)	**-**	**1**	**9**	**10**

	At 1 Jan 2018			
	Current or within 30 days past due	31 to180 days past due	More than 180 days past due	Total
Expected loss rate	<1%	2%	100%	
Gross carrying amount – accounts receivable subject to expected credit loss provision ($m)	558	25	8	591
Loss allowance ($m)	-	1	8	9

For the remaining receivables and other deposits (excluding prepayments) amounting to $17,662 million as of 31 December 2018 (1 January 2018: $15,899 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 receivables were subsequently settled, and there was no unfavourable current conditions and forecast future economic conditions at the reporting dates.

24. Accounts Receivable, Prepayments and Deposits (continued)

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

	2018 $m	2017 $m
At 1 Jan	**9**	3
Provision for loss allowance for receivables under other operating expenses	**1**	6
At 31 Dec	**10**	9

(i) The balance at 31 December 2017 was derived based on the incurred credit loss model. Upon adoption of HKFRS 9 (2014), there was no change in the amount of provision for impairment losses calculated based on the expected credit loss model.

(d) CNS money obligations receivable mature within two days after the trade date. The majority of the remaining accounts receivable, prepayments and deposits were due within three months.

25. Principal Subsidiaries and Controlled Structured Entity

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 20).

(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 2018	Interest held by the Group At 31 Dec 2017
Direct principal subsidiaries:					
The Stock Exchange of Hong Kong Limited	Hong Kong	929 ordinary shares ($929)	Operates the single Stock Exchange in Hong Kong	**100%**	100%
Hong Kong Futures Exchange Limited	Hong Kong	230 ordinary shares ($28,750,000)	Operates a futures and options exchange in Hong Kong	**100%**	100%

25. Principal Subsidiaries and Controlled Structured Entity (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 2018	Interest held by the Group At 31 Dec 2017
Direct principal subsidiaries (continued):					
Hong Kong Securities Clearing Company Limited (HKSCC) (note (i))	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 (ii))	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%**	75%
HKFE Clearing Corporation Limited (HKCC) (note (i))	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) (note (i))	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 and precious metals futures and options contracts	**100%**	100%
LME Clear Limited	United Kingdom	107,500,001 ordinary share of £1 each	Operates a clearing house for base and precious metals futures and options contracts	**100%**	100%
Qianhai Mercantile Exchange Co., Ltd. (QME) (note (ii))	Mainland China	RMB400,000,000	Operates a commodity trading platform in Mainland China	**90.01%**	90.01%

The above table lists the subsidiaries of the Group which, in the opinion of its directors, principally affect the results or assets of the Group.

25. Principal Subsidiaries and Controlled Structured Entity (continued)

(a) Principal subsidiaries (continued)

(i) Capital injection to clearing houses

In June 2018, the Group's clearing houses, HKSCC, HKCC and SEOCH implemented certain changes to their default fund resource arrangement. As a result, additional capital of $1,060 million, $830 million and $270 million were injected into HKSCC, HKCC and SEOCH respectively by HKEX in 2018 to provide resources for them to absorb losses in case of Participants' default.

(ii) Subsidiaries with non-controlling interests

At 31 December 2018, the Group held 76 per cent (31 December 2017: 75 per cent) interest in OTC Clear, while the remaining 24 per cent (31 December 2017: 25 per cent) interest was held by non-controlling interests. The non-controlling interests do not have voting rights at general meetings of OTC Clear. Details of change in interest held by the Group are set out in note 46.

QME is a limited company established in Mainland China. At 31 December 2018, the Group held 90.01 per cent (31 December 2017: 90.01 per cent) interest in QME, while the remaining 9.99 per cent (31 December 2017: 9.99 per cent) interest was held by non-controlling interests. Details of change in interest held by the Group in 2017 are set out in note 46.

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

	OTC Clear		QME	
	2018 $m	2017 $m	**2018 $m**	2017 $m
Loss allocated to non-controlling interests	**10**	27	**11**	22
	At 31 Dec 2018 $m	At 31 Dec 2017 $m	**At 31 Dec 2018 $m**	At 31 Dec 2017 $m
Accumulated non-controlling interests	**173**	91	**1**	11

No summarised financial information of OTC Clear or QME is presented as the non-controlling interests are not material to the Group.

(iii) 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 financial statements at 31 December 2018 was $132 million (31 December 2017: $148 million).

25. Principal Subsidiaries and Controlled Structured Entity (continued)

(b) Controlled structured entities

HKEX controls two structured entities which operate in Hong Kong, particulars of which are as follows:

Structured entity	Principal activities
The HKEx Employees' Share Award Scheme (HKEX Employee Share Trust)	Purchases, administers and holds HKEX shares for the Share Award Scheme for the benefit of eligible HKEX employees (note 39)
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.

26. 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 the investment is tested for impairment in accordance with the accounting policy stated in note 2(e).

	At 31 Dec 2018 $m	At 31 Dec 2017 $m
Share of net assets of joint ventures	**63**	61

(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 2018**	% of ownership interest At 31 Dec 2017
China Exchanges Services Company Limited (CESC)	Hong Kong	Development of index-linked and equity derivatives products	**33.33%**	33.33%
Bond Connect Company Limited (BCCL)	Hong Kong	Provision of support services related to Bond Connect	**40%**	40%

In 2012, HKEX, the Shanghai Stock Exchange and the Shenzhen Stock Exchange established a joint venture, CESC, with an aim of developing financial products and related services. CESC is a strategic investment for the Group and it is expected to enhance the competitiveness of Hong Kong, help promote the development of Mainland China's capital markets and the internationalisation of the Group.

26. Interests in Joint Ventures (continued)

(a) (continued)

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 a new asset class.

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

		Carrying amount	
Name	**Measurement method**	**At 31 Dec 2018 $m**	At 31 Dec 2017 $m
CESC	Equity	**43**	51
BCCL	Equity	**20**	10
		63	61

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.

27. Goodwill and Other Intangible Assets

Accounting Policy

Goodwill

Goodwill arising on the acquisition of subsidiaries is carried at cost as established at the date of acquisition less accumulated impairment losses, if any.

For the purpose of impairment testing, goodwill acquired in a business combination is allocated to each CGU, or group of CGUs, that is expected to benefit from the synergies of the combination. Each CGU or group of CGUs to which the goodwill is allocated represents the lowest level within the entity at which the goodwill is monitored for internal management purposes (ie, operating segment level).

Goodwill is not amortised but impairment reviews are undertaken annually or more frequently if events or changes in circumstances indicate a potential impairment. The carrying value of goodwill is compared to the recoverable amount, which is the higher of value-in-use and the fair value less costs to sell. Any impairment is recognised immediately in the consolidated income statement and is not subsequently reversed.

Tradenames

Tradenames acquired in a business combination are recognised at fair value at the acquisition date. The fair value is based on the discounted estimated royalty payments that are expected to be avoided as a result of the tradenames being owned.

27. Goodwill and Other Intangible Assets (continued)

Accounting Policy (continued)

Tradenames (continued)

Tradenames arising from the acquisition of the LME Group have indefinite useful lives and are carried at cost less accumulated impairment losses, if any.

Tradenames are reviewed annually to determine whether events and circumstances continue to support the indefinite useful life assessment.

Customer relationships

Customer relationships acquired in a business combination are recognised initially at fair value at the acquisition date. The fair value is determined using the multi-period excess earnings method, whereby the asset is valued after deducting a fair return on all other assets that are part of creating the related cash flows. Subsequently, the customer relationships are carried at cost (ie, the initial fair value) less accumulated amortisation and impairment losses, if any. Amortisation is calculated using the straight-line method over the expected lives of the customer relationships, which are determined to be 20 to 25 years.

Computer software systems

Development costs that are directly attributable to the design and testing of identifiable and unique software products controlled by the Group are recognised as intangible assets if the related software does not form an integral part of the hardware on which it operates (ie, system software without which the related hardware can still operate) and when the following criteria are met:

- It is technically feasible to complete the software so that it will be available for use;
- Management intends to complete the software and use it;
- There is an ability to use the software;
- It can be demonstrated how the software will generate probable future economic benefits;
- Adequate technical, financial and other resources to complete the development and to use the software are available; and
- The expenditure attributable to the software during its development can be reliably measured.

Other development expenditures that do not meet these criteria are recognised in the consolidated income statement as incurred. Development costs previously recognised in the consolidated income statement are not recognised as an asset in a subsequent period.

Qualifying software system development expenditure and related directly attributable costs capitalised as intangible assets are amortised when they are available for use. They are amortised at rates sufficient to write off their costs net of residual values over their estimated useful lives of three to five years on a straight-line basis. The residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period, with the effect of any changes in estimate accounted for on a prospective basis.

Costs associated with maintaining computer systems and software programmes are recognised in the consolidated income statement as incurred.

The Group's accounting policy for impairment is described in note 2(e).

27. Goodwill and Other Intangible Assets (continued)

	Goodwill $m	Other Intangible Assets Tradenames $m	Customer relationships $m	Software systems $m	Total $m
Cost:					
At 1 Jan 2017	13,167	891	3,111	2,292	19,461
Exchange differences	110	7	25	15	157
Additions	-	-	-	537	537
Disposals	-	-	-	(11)	(11)
At 31 Dec 2017	13,277	898	3,136	2,833	20,144
At 1 Jan 2018	**13,277**	**898**	**3,136**	**2,833**	**20,144**
Exchange differences	**21**	**1**	**5**	**(2)**	**25**
Additions	**-**	**-**	**-**	**602**	**602**
Disposals	**-**	**-**	**-**	**(13)**	**(13)**
At 31 Dec 2018	**13,298**	**899**	**3,141**	**3,420**	**20,758**
Accumulated amortisation:					
At 1 Jan 2017	-	-	527	1,122	1,649
Exchange differences	-	-	4	8	12
Amortisation	-	-	130	439	569
Disposals	-	-	-	(11)	(11)
At 31 Dec 2017	-	-	661	1,558	2,219
At 1 Jan 2018	**-**	**-**	**661**	**1,558**	**2,219**
Exchange differences	**-**	**-**	**1**	**(3)**	**(2)**
Amortisation	**-**	**-**	**130**	**405**	**535**
Disposals	**-**	**-**	**-**	**(13)**	**(13)**
At 31 Dec 2018	**-**	**-**	**792**	**1,947**	**2,739**
Net book value:					
At 31 Dec 2018	**13,298**	**899**	**2,349**	**1,473**	**18,019**
At 31 Dec 2017	13,277	898	2,475	1,275	17,925
Cost of software systems under development included above:					
At 31 Dec 2018	**-**	**-**	**-**	**674**	**674**
At 31 Dec 2017	**-**	**-**	**-**	547	547

Amortisation of $535 million (2017: $569 million) is included in “depreciation and amortisation” in the consolidated income statement.

27. Goodwill and Other Intangible Assets (continued)

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.

Impairment tests for CGUs containing goodwill and intangible assets with indefinite useful lives

Goodwill and tradenames that arose on the acquisition of the LME Group in 2012 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 2018		At 31 Dec 2017	
	Goodwill $m	**Tradenames $m**	Goodwill $m	Tradenames $m
Commodities segment	**10,412**	**704**	10,396	703
Clearing segment	**2,886**	**195**	2,881	195
	13,298	**899**	13,277	898

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 at an early stage of operation, its valuation has not been taken into account in determining the recoverable amount of the Commodities segment at 31 December 2018.

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 2018		At 31 Dec 2017	
	Commodities segment	**Clearing segment**	Commodities segment	Clearing segment
EBITDA margin (average of next five years)	**61%**	**49%**	61%	50%
Growth rate	**3%**	**3%**	3%	3%
Discount rate	**9%**	**9%**	9%	9%

For the LME commodities CGU and the Clearing segment, management determined the EBITDA margins based on past performance and expectations regarding market development. 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.

27. Goodwill and Other Intangible Assets (continued)

Impairment tests for CGUs containing goodwill and intangible assets with indefinite useful lives (continued)

The recoverable amounts of the operating segments (including goodwill and tradenames) based on the estimated value-in-use calculations were higher than their carrying amounts at 31 December 2018 and 31 December 2017. Accordingly, no provision for impairment loss for goodwill or tradenames is considered necessary.

If the LME trading fee in the forecast period was 9 per cent lower than forecast, or the discount rate increased to 10 per cent, the recoverable amount of the Commodities segment would be approximately equal to its carrying amount. Except for this, any reasonable possible changes in the key assumptions used in the value-in-use assessment would not affect management's view on impairment at 31 December 2018.

28. Fixed Assets

Accounting Policy

Tangible fixed assets are stated at historical cost less accumulated depreciation and impairment losses. Historical cost includes expenditure that is directly attributable to the acquisition of the assets.

Tangible fixed assets are depreciated when they are available for use. They are depreciated at rates sufficient to write off their costs net of expected residual values over their estimated useful lives on a straight-line basis. The residual values and useful lives are reviewed at the end of each reporting period, with the effect of any changes in estimate accounted for on a prospective basis.

The useful lives of major categories of fixed assets are as follows:

Leasehold buildings	Up to 35 years or remaining lives of the leases if shorter
Leasehold improvements	Over the remaining lives of the leases but not exceeding 10 years
Computer trading and clearing systems - hardware and software	3 to 5 years
Other computer hardware and software	3 years
Furniture, equipment and motor vehicles	3 to 5 years
Data centre facilities and equipment	3 to 20 years

Expenditure incurred in the construction of leasehold buildings and other directly attributable costs are capitalised when it is probable that future economic benefits associated with the expenditure will flow to the Group and the costs can be measured reliably.

Qualifying software expenditure and related directly attributable costs are capitalised and recognised as a fixed asset if the software forms an integral part of the hardware on which it operates (ie, operating system software without which the related hardware cannot operate).

Subsequent costs and qualifying development expenditure incurred after the completion of a system are included in the asset's carrying amount or recognised as a separate asset only when it is probable that future economic benefits associated with that item will flow to the Group and the cost of the item can be measured reliably. All other repairs and maintenance costs and other subsequent expenditure are charged to the consolidated income statement when incurred.

The Group's accounting policy for impairment is described in note 2(e).

28. 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 2017	708	1,348	523	410	888	3,877
Exchange differences	-	5	2	-	5	12
Additions	-	75	29	6	141	251
Disposals	-	(7)	(8)	-	(37)	(52)
At 31 Dec 2017	708	1,421	546	416	997	4,088
At 1 Jan 2018	**708**	**1,421**	**546**	**416**	**997**	**4,088**
Exchange differences	**-**	**(2)**	**(1)**	**-**	**(2)**	**(5)**
Additions	**-**	**35**	**112**	**12**	**227**	**386**
Disposals	**-**	**(27)**	**(8)**	**-**	**(6)**	**(41)**
At 31 Dec 2018	**708**	**1,427**	**649**	**428**	**1,216**	**4,428**
Accumulated depreciation:						
At 1 Jan 2017	121	1,187	438	112	520	2,378
Exchange differences	-	2	1	-	1	4
Depreciation	28	55	44	27	135	289
Disposals	-	(7)	(8)	-	(37)	(52)
At 31 Dec 2017	149	1,237	475	139	619	2,619
At 1 Jan 2018	**149**	**1,237**	**475**	**139**	**619**	**2,619**
Exchange differences	**-**	**(1)**	**-**	**-**	**(1)**	**(2)**
Depreciation	**29**	**31**	**42**	**28**	**97**	**227**
Disposals	**-**	**(27)**	**(8)**	**-**	**(6)**	**(41)**
At 31 Dec 2018	**178**	**1,240**	**509**	**167**	**709**	**2,803**
Net book value:						
At 31 Dec 2018	**530**	**187**	**140**	**261**	**507**	**1,625**
At 31 Dec 2017	559	184	71	277	378	1,469
Cost of fixed assets in the course of construction included above:						
At 31 Dec 2018	**-**	**46**	**91**	**-**	**132**	**269**
At 31 Dec 2017	-	110	14	1	103	228

29. 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 2018 $m	At 31 Dec 2017 $m
Held by LME Clear in its capacity as a central counterparty		
Derivative financial instruments:		
- base and precious metals futures and options contracts cleared through LME Clear (note (a))	**53,915**	85,335
	53,915	85,335

(a) The amount represents the fair value of outstanding base 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.

30. 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.

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

	At 31 Dec 2018 $m	At 31 Dec 2017 $m
Margin deposits, Mainland security and settlement deposits, and cash collateral from Clearing Participants comprised:		
SEOCH Clearing Participants' margin deposits	**9,011**	14,571
HKCC Clearing Participants' margin deposits	**52,446**	49,245
HKSCC Clearing Participants' margin deposits, Mainland security and settlement deposits, and cash collateral	**7,982**	8,553
OTC Clear Clearing Participants' margin deposits	**3,395**	1,730
LME Clear Clearing Participants' margin deposits	**50,894**	83,715
	123,728	157,814
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 18):		
Cash and cash equivalents (note 19)	**90,773**	122,844
Financial assets measured at fair value through profit or loss (note 20)	**-**	3,059
Financial assets measured at fair value through other comprehensive income (note 21)	**3,755**	-
Financial assets measured at amortised cost (note 22)	**26,045**	29,481
Settlement Reserve Fund and Settlement Guarantee Fund held by ChinaClear (note 24)	**3,150**	2,421
Margin receivable from Clearing Participants	**5**	9
	123,728	157,814

31. Accounts Payable, Accruals and Other Liabilities

Accounting Policy

Financial liabilities (other than financial liabilities at fair value through profit or loss (note 29) and financial guarantee contracts (note 33)) 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 2018 $m	At 31 Dec 2017 $m
Payable to ChinaClear and Exchange and Clearing Participants:		
- CNS money obligations payable (note 24(a))	**16,279**	14,204
- HKD/USD cash collateral for A shares (note 19(a)(ii))	**206**	-
- others	**191**	212
Transaction levy payable to the SFC	**90**	120
Unclaimed dividends (note (a))	**276**	269
Stamp duty payable to the Collector of Stamp Revenue	**323**	416
Other payables, accruals and deposits received	**1,004**	989
	18,369	16,210

31. Accounts Payable, Accruals and Other Liabilities (continued)

(a) Unclaimed dividends represent dividends declared by listed companies, including HKEX, which were held by HKSCC Nominees Limited (HKSN) but not yet claimed by shareholders of the companies concerned and dividends declared by HKEX but not yet claimed by its shareholders. During the year, cash dividends held by HKSN which had remained unclaimed for a period of more than seven years amounting to $10 million (2017: $7 million) were forfeited and recognised as sundry income (note 7) and dividends declared by HKEX which were unclaimed over a period of six years amounting to $23 million (2017: $26 million) were forfeited and transferred to retained earnings in accordance with HKEX's Articles of Association (note 42).

(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.

32. 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 2018 $m	At 31 Dec 2017 $m
Deferred revenue arising from unsatisfied performance obligations	**1,418**	957
Analysed as:		
Non-current liabilities	**418**	-
Current liabilities	**1,000**	957
	1,418	957

33. Other Financial Liabilities

Accounting Policy

A financial guarantee contract is a contract that requires the Group to make specified payments to reimburse the holder for a loss it incurs because a specified entity or person fails to make payment when due in accordance with the original or modified terms of an undertaking.

Financial guarantee contracts are initially recognised at fair value, and subsequently at the higher of the amount determined in accordance with the expected credit loss model under HKFRS 9 (2014) and the amount initially recognised less, where appropriate, the cumulative amount of income recognised in accordance with the principles of HKFRS 15.

In the comparative period, financial guarantee contracts were also initially recognised at fair value, and subsequently measured at the higher of the best estimate of the amount required to settle the guarantee (in accordance with HKAS 37: Provisions, Contingent Liabilities and Contingent Assets) and the amount initially recognised less, where appropriate, cumulative amortisation over the life of the guarantee on a straight-line basis.

	At 31 Dec 2018 $m	At 31 Dec 2017 $m
Financial liabilities of Clearing House Funds (note 34)	**39**	38
Financial liabilities of Corporate Funds:		
Financial guarantee contract (note (a))	**20**	20
	59	58

(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 45(b).

34. 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. From 1 June 2018 onwards, 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.

34. Clearing House Funds (continued)

	At 31 Dec 2018 $m	At 31 Dec 2017 $m
The Clearing House Funds comprised:		
Clearing Participants' cash contributions	**14,787**	16,626
Contribution to OTC Clear Rates and FX Guarantee Resources	**156**	156
Clearing house funds reserves (note 41)	**523**	822
	15,466	17,604
The Clearing House Funds were invested in the following instruments for managing the obligations of the Funds (note 18):		
Cash and cash equivalents (note 19)	**15,505**	17,581
Financial assets measured at amortised cost (note 22)	**-**	61
	15,505	17,642
Less: Other financial liabilities of Clearing House Funds (note 33)	**(39)**	(38)
	15,466	17,604
The Clearing House Funds comprised the following Funds:		
HKSCC Guarantee Fund	**2,075**	2,712
SEOCH Reserve Fund	**957**	2,454
HKCC Reserve Fund	**1,167**	1,887
OTC Clear Rates and FX Guarantee Fund	**2,561**	1,222
OTC Clear Rates and FX Guarantee Resources	**164**	161
LME Clear Default Fund	**8,542**	9,168
	15,466	17,604

(a) At 31 December 2018, the Skin-in-the-Game, together with default fund credits granted to HKSCC and HKCC Participants (note 50(c)), amounted to $724 million (31 December 2017: $Nil), and were included in Corporate Funds (note 19(b)).

35. Borrowings

Accounting Policy

Borrowings are recognised initially at fair value of proceeds received, net of transaction costs incurred (net proceeds). The difference between the net proceeds and the redemption value is amortised and recognised in the consolidated income statement as interest expense over the period of the borrowings using the effective interest method and added to borrowings.

The borrowings are subsequently carried at amortised cost (ie, net proceeds plus the cumulative amortisation using the effective interest method less payments).

Borrowings are classified as current liabilities unless the Group has an unconditional right to defer settlement of the liability for at least twelve months after the end of the reporting period.

	At 31 Dec 2018 $m	At 31 Dec 2017 $m
Notes (note (a))	**753**	1,533
Written put options to non-controlling interests (note (b))	**413**	327
Total borrowings	**1,166**	1,860
Analysed as:		
Non-current liabilities	**161**	833
Current liabilities	**1,005**	1,027
	1,166	1,860

The borrowings were repayable as follows:

	At 31 Dec 2018 $m	At 31 Dec 2017 $m
Within one year	**1,005**	1,027
After one year but within two years	**85**	751
After two years but within five years	**76**	82
	1,166	1,860

(a) Notes

In December 2013 and January 2014, HKEX issued US$100 million (HK$775 million) and US$95 million (HK$737 million) of fixed rate senior notes which were due in December 2018 and January 2019 respectively. The US$100 million note was fully repaid in December 2018. The average effective interest rate of the senior notes was 2.9 per cent (2017: 2.9 per cent) per annum.

35. Borrowings (continued)

(b) Written put options to non-controlling interests

Accounting Policy

The potential cash payments related to put options issued by HKEX for the non-voting ordinary shares of a subsidiary held by non-controlling interests are accounted for as financial liabilities, which are initially recognised at present value of amount payable by HKEX to acquire the shares held by non-controlling interests with a corresponding charge directly to equity under “reserve relating to written put options to non-controlling interests”.

The written put option financial liabilities are subsequently measured at amortised cost (ie, the initial fair value plus cumulative amortisation of the difference between the initial fair value and the cash payments related to the put options using the effective interest method). The interest charge arising is recorded under finance costs in the consolidated income statement.

	2018 $m	2017 $m
At 1 Jan	**327**	317
Issuance of written put options to non-controlling interests debited against related reserve under equity attributable to shareholders of HKEX (note (i))	**76**	-
Interest expenses (note (ii))	**10**	10
At 31 Dec	**413**	327

(i) Prior to 2018, OTC Clear issued 1,620 non-voting ordinary shares to certain third party shareholders at a total consideration of $340 million. In October 2018, a further 1,921 non-voting ordinary shares of OTC Clear were issued at a consideration of $93 million. As part of the arrangement, put options were written by HKEX to the non-controlling interests to sell part or all of their non-voting ordinary shares in OTC Clear to HKEX at the initial subscription prices less accumulated dividends received by the non-controlling interests. The put options are exercisable by the non-controlling interests at any time following the date falling five years after the shares were issued if the non-controlling interests can demonstrate to HKEX that they have used reasonable endeavours for at least three months to find a suitable purchaser for their shares at a price equal to or more than their fair market values. The carrying amount of written put options represents the present value of the amount payable by HKEX to acquire the shares held by non-controlling interests at the date at which the written put options first become exercisable.

$252 million of the written put options became exercisable in October 2018, and $85 million and $76 million of the options will become exercisable in August 2020 and October 2023 respectively.

(ii) The effective interest rate of the liabilities was 3.0 per cent (2017: 3.0 per cent) per annum.

36. 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 2018	**81**	**72**	**153**
Exchange differences	**(1)**	**-**	**(1)**
Provision for the year	**23**	**103**	**126**
Amount used during the year	**-**	**(86)**	**(86)**
Amount paid during the year	**(1)**	**(9)**	**(10)**
At 31 Dec 2018	**102**	**80**	**182**

(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 twelve 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.

37. Deferred Taxation

Accounting Policy

Deferred tax is recognised, using the liability method, on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the financial statements, except that deferred tax liabilities are not recognised if they arise from the initial recognition of goodwill. Deferred tax is determined using tax rates that have been enacted or substantively enacted by the end of the reporting period and are expected to apply when the related deferred tax asset is realised or the deferred tax liability is settled.

Deferred tax assets are recognised to the extent that it is probable that future taxable profit will be available against which the temporary differences or the current tax losses can be utilised.

(a) The movements on the net deferred tax liabilities account were as follows:

	2018 $m	2017 $m
At 1 Jan	**681**	691
Exchange differences	**1**	4
Charged/(credited) to the consolidated income statement (note 15(a))	**41**	(13)
Charged/(credited) directly to retained earnings	**1**	(1)
At 31 Dec (note (d))	**724**	681

37. Deferred Taxation (continued)

(b) The Group had unrecognised tax losses of $1,280 million at 31 December 2018 (31 December 2017: $1,068 million) that may be carried forward for offsetting against future taxable income. Tax losses of PRC entities amounting to $458 million (31 December 2017: $340 million) will expire 5 years after the losses were incurred, and the remaining tax losses can be carried forward indefinitely and have no expiry date.

(c) The movements on the net deferred tax liabilities/(assets) were as follows:

	Accelerated tax depreciation		Intangible assets[1]		Financial assets		Tax losses		Employee benefits		Total	
	2018	2017	**2018**	2017	**2018**	2017	**2018**	2017	**2018**	2017	**2018**	2017
	$m	$m	**$m**	$m	**$m**	$m	**$m**	$m	**$m**	$m	**$m**	$m
At 1 Jan	**174**	161	**578**	599	**-**	2	**(51)**	(52)	**(20)**	(19)	**681**	691
Exchange differences	**-**	-	**1**	4	**-**	-	**-**	-	**-**	-	**1**	4
Charged/(credited) to the consolidated income statement	**52**	13	**(24)**	(25)	**-**	(2)	**12**	1	**1**	-	**41**	(13)
Charged/(credited) directly to retained earnings	**-**	-	**-**	-	**-**	-	**-**	-	**1**	(1)	**1**	(1)
At 31 Dec	**226**	174	**555**	578	**-**	-	**(39)**	(51)	**(18)**	(20)	**724**	681

[1] Intangible assets include customer relationships and tradenames.

(d) Deferred tax assets and liabilities are offset when there is a legally enforceable right to set off current tax assets against current tax liabilities and when the deferred taxes relate to tax levied by the same taxation authority on the same taxable entity or different taxable entities where there is an intention to settle the balances on a net basis. The following amounts, determined after appropriate offsetting, are shown in the consolidated statement of financial position:

	At 31 Dec 2018 $m	At 31 Dec 2017 $m
Deferred tax assets	**(19)**	(30)
Deferred tax liabilities	**743**	711
	724	681

37. Deferred Taxation (continued)

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

	At 31 Dec 2018 $m	At 31 Dec 2017 $m
Deferred tax assets		
Amounts to be recovered after more than 12 months	**(10)**	(24)
Amounts to be recovered within 12 months	**(9)**	(6)
	(19)	(30)
Deferred tax liabilities		
Amounts to be settled after more than 12 months	**730**	695
Amounts to be settled within 12 months	**13**	16
	743	711
Net deferred tax liabilities	**724**	681

38. Share Capital and Shares Held for Share Award Scheme

Accounting Policy

Shares

Ordinary shares are classified as equity.

Shares held for Share Award Scheme

Where HKEX shares are acquired by the Share Award Scheme from the market or by electing for scrip in lieu of cash dividends, the total consideration of shares acquired from the market (including any directly attributable incremental costs) or under the scrip dividend scheme is presented as Shares held for Share Award Scheme and deducted from total equity.

Upon vesting, the related costs of the vested Awarded Shares purchased from the market and shares acquired under the scrip dividend scheme (dividend shares) are credited to Shares held for Share Award Scheme, with a corresponding decrease in employee share-based compensation reserve for Awarded Shares, and decrease in retained earnings for dividend shares.

38. Share Capital and Shares Held for Share Award Scheme (continued)

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 2017	1,224,322	(3,217)	22,085	(599)	21,486
Shares issued in lieu of cash dividends (note (a))	15,487	(74)	3,052	(15)	3,037
Shares purchased for Share Award Scheme (note (b))	-	(1,000)	-	(228)	(228)
Vesting of shares of Share Award Scheme (note (c))	-	1,297	4	236	240
At 31 Dec 2017	1,239,809	(2,994)	25,141	(606)	24,535
At 1 Jan 2018	**1,239,809**	**(2,994)**	**25,141**	**(606)**	**24,535**
Shares issued in lieu of cash dividends (note (a))	**10,823**	**(81)**	**2,605**	**(18)**	**2,587**
Shares purchased for Share Award Scheme (note (b))	**-**	**(1,288)**	**-**	**(300)**	**(300)**
Vesting of shares of Share Award Scheme (note (c))	**-**	**1,248**	**4**	**242**	**246**
At 31 Dec 2018	**1,250,632**	**(3,115)**	**27,750**	**(682)**	**27,068**

[1] Excluding shares vested but not yet transferred to awardees of 121,520 shares at 31 December 2018 (31 December 2017: 29,005 shares)

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

	2018				
	Number of shares	**Scrip price $**	**Share capital $m**	**Shares held for Share Award Scheme $m**	**Total $m**
Issued as 2017 final scrip dividends:					
- total	**6,949,778**	**252.98**	**1,758**	**-**	**1,758**
- to Share Award Scheme	**(32,705)**	**252.98**	**-**	**(8)**	**(8)**
Issued as 2018 first interim scrip dividends:					
- total	**3,872,805**	**218.83**	**847**	**-**	**847**
- to Share Award Scheme	**(48,012)**	**218.83**	**-**	**(10)**	**(10)**
	10,741,866		**2,605**	**(18)**	**2,587**

	2017				
	Number of shares	Scrip price $	Share capital $m	Shares held for Share Award Scheme $m	Total $m
Issued as 2016 final scrip dividends:					
- total	7,275,254	186.05	1,354	-	1,354
- to Share Award Scheme	(34,906)	186.05	-	(7)	(7)
Issued as 2017 first interim scrip dividends:					
- total	8,211,651	206.77	1,698	-	1,698
- to Share Award Scheme	(39,379)	206.77	-	(8)	(8)
	15,412,620		3,052	(15)	3,037

38. Share Capital and Shares Held for Share Award Scheme (continued)

(b) During the year, the Share Award Scheme (note 39) acquired 1,287,300 HKEX shares (2017: 999,700 shares) through purchases on the open market. The total amount paid to acquire the shares during the year was $300 million (2017: $228 million).

(c) During the year, a total of 1,247,793 HKEX shares (2017: 1,296,700 shares) were vested. The total cost of the vested shares was $242 million (2017: $236 million). In 2018, $4 million (2017: $4 million) was credited to share capital in respect of vesting of certain shares whose fair values were higher than the costs.

39. Employee Share-based Arrangements

Accounting Policy

The Group operates the Share Award Scheme (the Scheme), which is an equity-settled share-based compensation plan under which Awarded Shares are granted to employees of the Group (including the Executive Director) as part of their remuneration package.

The amount to be expensed as share-based compensation expenses is determined by reference to the fair value of the Awarded Shares granted, taking into account all non-vesting conditions associated with the grants on grant date. The total expense is recognised on a straight-line basis over the relevant vesting periods (or on the grant date if the shares vest immediately), with a corresponding credit to an employee share-based compensation reserve under equity.

For those Awarded Shares which are amortised over the vesting periods, the Group revises its estimates of the number of Awarded Shares that are expected to ultimately vest based on the vesting conditions at the end of each reporting period. Any resulting adjustment to the cumulative fair value 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:

	2018 $m	2017 $m
At 1 Jan	**222**	226
Employee share-based compensation benefits (note 8)	**226**	220
Vesting of shares of Share Award Scheme	**(230)**	(224)
At 31 Dec	**218**	222

The Scheme allows shares to be granted to employees under the following two categories of awards:

(i) Employee Share Awards – for all employees of the Group (including the Executive Director); and

(ii) Senior Executive Awards – for selected senior executives of the Group (including the Executive Director).

39. Employee Share-based Arrangements (continued)

Following the Board's decision to award an award sum (Awarded Sum) for the purchase of Awarded Shares to eligible employees and/or selected senior executives, the Awarded Shares are either purchased from the market or are awarded by regranting the forfeited or unallocated shares held by the Scheme. Before vesting, the Awarded Shares are held in a trust set up by the Scheme.

Further shares are derived from dividends payable on the Awarded Shares held in the Scheme from scrip shares received under the scrip dividend scheme (dividend shares), and are allocated to the awardees on a pro rata basis and have the same vesting periods as the related Awarded Shares.

(a) Employee Share Awards

Employee Share Awards vest progressively over the vesting period after the awards are granted, provided that the relevant awardee (i) remains employed by the Group (ii) is made redundant or (iii) is deemed to be a "good leaver", and Employee Share Awards vest immediately if the relevant awardee retires on reaching normal retirement age or suffers from permanent disability. Unless otherwise determined by the Board, the Remuneration Committee or the Chief Executive, the vesting period of Employee Share Awards granted is three years, and the shares will be vested in two equal tranches from the second to the third year after the shares are granted.

For awardees who do not meet the vesting criteria, the unvested shares are forfeited. The forfeited shares are held by the trustee of the Scheme who may award such shares to the other awardees, taking into consideration recommendations of the Board.

<u>Details of Awarded Shares awarded during 2017 and 2018</u>

Date of award	Number of Awarded Shares awarded	Average fair value per share $	Vesting period
1 Mar 2017	24,939	193.76	1 May 2017 – 1 May 2019
1 Mar 2017	25,960	193.76	1 Mar 2017 – 13 Jan 2020
15 May 2017	1,100	197.23	13 Jan 2018 – 13 Jan 2019
23 Jun 2017	2,900	200.82	3 Apr 2018 – 18 Mar 2019
12 Sep 2017	600	213.29	23 Jun 2019 – 23 Jun 2020
29 Dec 2017	1,017,886[1,2]	229.99	8 Dec 2019 – 8 Dec 2020
5 Mar 2018	1,400	282.45	29 Dec 2019 – 29 Dec 2020
4 Apr 2018	6,499	253.91	31 Dec 2018 – 1 Apr 2020
30 May 2018	4,199	253.05	10 Mar 2019 – 22 Mar 2021
6 Jul 2018	5,099	228.79	1 Oct 2018 – 29 Jun 2021
17 Aug 2018	500	220.72	24 Feb 2019 – 24 Feb 2020
31 Aug 2018	2,100	224.85	18 Jan 2019 – 18 Jan 2020
4 Oct 2018	800	215.54	31 Dec 2018 – 31 Dec 2020
14 Nov 2018	5,900	225.84	28 Feb 2019 – 28 Feb 2021
19 Nov 2018	200	228.90	1 Nov 2021 – 1 Jan 2022
7 Dec 2018	900	231.24	20 Jan 2019 – 20 Jan 2022
31 Dec 2018	1,367,631[1,2]	232.10	7 Dec 2020 – 7 Dec 2021

[1] 58,853 and 61,560 shares were awarded to HKEX's Chief Executive on 29 December 2017 and 31 December 2018 respectively.

[2] 135,970 and 169,670 shares were awarded by re-granting the forfeited or unallocated shares held by the Scheme on 29 December 2017 and 31 December 2018 respectively.

39. Employee Share-based Arrangements (continued)

(a) Employee Share Awards (continued)

Details of Awarded Shares vested during 2017 and 2018

During the year, 1,105,298 HKEX shares (2017: 1,175,914 shares) were vested at an aggregate fair value of $218 million (2017: $218 million), of which 61,820 shares (2017: 74,387 shares) were for HKEX's Chief Executive.

(b) Senior Executive Awards

The actual number of shares to be transferred to the awardees under the Senior Executive Awards is conditional on the satisfaction of performance conditions set by the Board. The Board has full discretion to determine the actual amount of award to be paid at the end of a performance assessment period (which shall normally be a period of at least three financial years) in accordance with these criteria.

The vesting of Senior Executive Awards is not affected by the awardees ceasing employment with the Group before the end of the performance assessment period. The Senior Executive Awards are considered to be vested immediately upon grant and the performance conditions are considered as non-vesting conditions.

Details of Senior Executive Awards awarded during 2017 and 2018

Date of award	Number of Awarded Shares awarded	Average fair value per share $	Total fair value $m	Performance period
29 Dec 2017	62,123	172.49	11	2018 - 2020
31 Dec 2018	61,560	174.07	11	2019 - 2021

All of the Senior Executive Awards were awarded to the HKEX's Chief Executive. The fair value per share is determined by taking into account various factors including the probability of the performance conditions being satisfied.

Details of Senior Executive Awards vested during 2017 and 2018

In 2018, 68,472 HKEX shares (2017: 42,720 shares) granted under the Senior Executive Awards were transferred to the awardee at a fair value of $12 million (2017: $6 million), and $1 million was credited to share capital as the cost of Awarded Shares vested was lower than the fair value of shares previously charged to the consolidated income statement (2017: $1 million was charged to retained earnings in respect of the vesting as the cost of Awarded Shares vested was higher than the fair value of shares previously charged to the consolidated income statement).

39. Employee Share-based Arrangements (continued)

(c) Summary of Awarded shares awarded and dividend shares

Movements in number of Awarded Shares awarded and dividend shares

	2018	2017
Number of Awarded Shares and dividend shares:		
Outstanding at 1 Jan	**2,990,188**	3,217,209
Awarded[3]	**1,456,788**	1,135,508
Forfeited	**(154,658)**	(132,444)
Vested	**(1,173,770)**	(1,218,634)
Dividend shares:		
- allocated to awardees	**76,781**	71,305
- allocated to awardees but subsequently forfeited	**(6,617)**	(4,690)
- vested[4]	**(74,023)**	(78,066)
Outstanding at 31 Dec	**3,114,689**	2,990,188

[3] Average fair value per share was $232.24 (2017: $225.11).

[4] In 2018, 74,023 dividend shares (2017: 78,066 shares), including 9,634 shares (2017: 7,509 shares) for HKEX's Chief Executive, at a cost of $16 million (2017: $15 million) were vested.

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

	At 31 Dec 2018		At 31 Dec 2017	
	Remaining vesting or performance period	**Number of Awarded Shares and dividend shares outstanding**	Remaining vesting or performance period	Number of Awarded Shares and dividend shares outstanding
Shares awarded in 2015	**-**	**56,800**	0.00 year to 1.00 year	687,790
2016	**0.34 year to 1.00 year**	**550,505**	0.34 year to 2.00 years	1,124,409
2017	**0.04 year to 2.00 years**	**1,013,930**	0.04 year to 3.00 years	1,111,931
2018	**0.05 year to 3.06 years**	**1,431,255**	-	-
Dividend shares	**0.00 year to 2.50 years**	**62,199**	0.00 year to 2.48 years	66,058
		3,114,689		2,990,188

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

	At 31 Dec 2018	At 31 Dec 2017
Number of Awarded Shares and dividend shares (note (c))	**3,114,689**	2,990,188
Forfeited or unallocated shares[5]	**179**	4,456
Number of shares held by Share Award Scheme[6] (note 38)	**3,114,868**	2,994,644

[5] These shares will be regranted to eligible employees in future.

[6] Excluding shares vested but not yet transferred to awardees of 121,520 shares at 31 December 2018 (31 December 2017: 29,005 shares)

40. Hedging and Revaluation Reserves

	At 31 Dec 2018 $m	At 31 Dec 2017 $m
Hedging reserve (note (a))	**-**	1
Revaluation reserve (note (b))	**(6)**	-
	(6)	1

(a) Hedging reserve

Accounting Policy

The Group designates certain bank balances as hedges of foreign exchange risks associated with the cash flows of highly probable forecast transactions (cash flow hedges).

The Group documents at the inception of the transaction the relationship between hedging instruments and hedged items, as well as its risk management objectives and strategies for undertaking various hedge transactions. The Group also documents its assessment, both at hedge inception and on an ongoing basis, of whether the hedging instruments have been and will continue to be highly effective in offsetting changes in cash flows of hedged items.

The changes in the fair value relating to the effective portion of hedging instruments that are designated and qualify as cash flow hedges is recognised in other comprehensive income and accumulated in hedging reserve in equity. The gains or losses relating to the ineffective portion are recognised immediately in the consolidated income statement.

Amounts accumulated in hedging reserve are reclassified to the consolidated income statement in the periods when the hedged item is recognised in the consolidated income statement.

When a hedging instrument expires or is sold, or when a hedge no longer meets the criteria for hedge accounting, any cumulative gain or loss existing in hedging reserve at that time remains in hedging reserve and is recognised when the forecast transaction is ultimately recognised in the consolidated income statement. When a forecast transaction is no longer expected to occur, the cumulative gain or loss that was retained in hedging reserve is immediately reclassified to the consolidated income statement.

The movements of hedging reserve were as follows:

	2018 $m	2017 $m
At 1 Jan	**1**	-
Cash flow hedges:		
- net fair value (losses)/gains of hedging instruments	**(2)**	8
- transfer to the consolidated income statement as staff costs and related expenses	**1**	(6)
- transfer to the consolidated income statement as information technology and computer maintenance expenses	**-**	(1)
At 31 Dec	**-**	1
Fair value of hedging instruments at 31 Dec	**-**	86

40. Hedging and Revaluation Reserves (continued)

(a) Hedging reserve (continued)

The functional currency of the LME Group is United States Dollars (USD). To hedge the foreign currency exposure of its operating expenses, the LME Group has designated certain bank balances of Pound sterling (GBP) as cash flow hedges for hedging the foreign exchange risk of its staff costs and related expenses, and information technology and computer maintenance expenses. At 31 December 2018, there was no outstanding bank balance designated as cash flow hedge (31 December 2017: GBP 8 million of the bank balances was outstanding).

The amounts arising from ineffective cash flow hedges recognised in the consolidated income statement of the Group during the year amounted to $Nil (2017: $Nil).

(b) Revaluation reserve

	2018 $m	2017 $m
At 1 Jan, as previously reported	**-**	-
Effect of adoption of HKFRS 9 (2014) (note 2(c)(i))	**(4)**	-
At 1 Jan, as restated	**(4)**	-
Changes in fair value of financial assets measured at fair value through other comprehensive income	**(2)**	-
At 31 Dec	**(6)**	-

41. Designated Reserves

Clearing House Funds reserves (note 34)

	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 2017	311	104	350	4	4	773
Post-liquidation interest arising from a Participant's default on market contracts (note 5(c)(ii))	55	-	-	-	-	55
(Deficit)/surplus of net investment income net of expenses of Clearing House Funds	(9)	1	(1)	2	1	(6)
Transfer from/(to) retained earnings (note 42)	46	1	(1)	2	1	49
At 31 Dec 2017	357	105	349	6	5	822
At 1 Jan 2018	**357**	**105**	**349**	**6**	**5**	**822**
Contributions from clearing houses reappropriated to retained earnings of clearing houses (note (a))	**(200)**	**-**	**(120)**	**-**	**-**	**(320)**
Surplus of net investment income net of expenses of Clearing House Funds	**4**	**1**	**2**	**11**	**3**	**21**
Transfer (to)/from retained earnings (note 42)	**(196)**	**1**	**(118)**	**11**	**3**	**(299)**
At 31 Dec 2018	**161**	**106**	**231**	**17**	**8**	**523**

(a) From 1 June 2018 onwards, the contributions by HKSCC and HKCC to the HKSCC Guarantee Fund and HKCC Reserve Fund have been changed from fixed contributions to 10 per cent of their respective fund size and are kept under Corporate Funds. Therefore, the fixed contributions from the two clearing houses to their respective Clearing House Funds are no longer needed and were transferred to retained earnings of the respective clearing houses during the year ended 31 December 2018.

42. Retained Earnings

	2018 $m	2017 $m
At 1 Jan, as previously reported	**12,090**	10,334
Effect of adoption of HKFRS 9 (2014) (note 2(c)(i))	**4**	-
Effect of adoption of HKFRS 15 (note 2(c)(ii))	**(281)**	-
At 1 Jan, as restated	**11,813**	10,334
Profit attributable to shareholders	**9,312**	7,404
Transfer from/(to) Clearing House Funds reserves (note 41)	**299**	(49)
Dividends:		
2017/2016 final dividend	**(3,525)**	(2,491)
2018/2017 first interim dividend	**(4,527)**	(3,133)
Unclaimed HKEX dividends forfeited (note 31(a))	**23**	26
Vesting of shares of Share Award Scheme	**(16)**	(16)
Tax relating to Share Award Scheme	**(1)**	3
Changes in ownership interests in subsidiaries (note 46(c))	**1**	12
At 31 Dec	**13,379**	12,090

43. Notes to the Consolidated Statement of Cash Flows

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

	2018 $m	2017 $m
Profit before taxation	**10,883**	8,610
Adjustments for:		
Net interest income	**(1,704)**	(912)
Net fair value losses/(gains) including interest income on financial assets mandatorily measured at fair value through profit or loss and financial liabilities at fair value through profit or loss	**106**	(682)
Finance costs	**114**	134
Depreciation and amortisation	**762**	858
Employee share-based compensation benefits	**226**	220
Provision for impairment losses of receivables	**1**	6
Other non-cash adjustments	**(4)**	37
Net decrease/(increase) in financial assets of Margin Funds	**34,084**	(30,964)
Net (decrease)/increase in financial liabilities of Margin Funds	**(34,086)**	30,968
Net decrease/(increase) in Clearing House Fund financial assets	**2,137**	(8,040)
Net (decrease)/increase in Clearing House Fund financial liabilities	**(1,838)**	7,991
Net decrease in financial assets measured at fair value through profit or loss less financial liabilities at fair value through profit or loss	**-**	5
Increase in cash prepayments and collateral for A shares	**(1,325)**	(1,426)
Increase in Corporate Funds used for supporting Skin-in-the-Game and default fund credits	**(724)**	-
Increase in accounts receivable, prepayments and deposits	**(704)**	(2,833)
Increase in other liabilities	**2,168**	4,245
Net cash inflow from principal operations	**10,096**	8,217
Interest received from financial assets measured at amortised cost and cash and cash equivalents	**2,714**	1,484
Interest paid to Participants	**(1,071)**	(572)
Income tax paid	**(1,323)**	(1,116)
Net cash inflow from principal operating activities	**10,416**	8,013

43. Notes to the Consolidated Statement of Cash Flows (continued)

(b) Reconciliation of liabilities arising from financing activities

	Borrowings due within one year $m	**Borrowings due after one year** $m
At 1 Jan 2017	-	3,422
Borrowings becoming due within one year in 2017	1,025	(1,025)
Interest on borrowings (note 12)	2	78
Cash flows		
- Repayment of bank borrowings	-	(1,603)
- Payments of interest on borrowings	-	(66)
Exchange differences	-	27
At 31 Dec 2017	1,027	833
At 1 Jan 2018	**1,027**	**833**
Borrowings becoming due within one year in 2018	**743**	**(743)**
Issuance of written put options during the year	**-**	**76**
Interest on borrowings (note 12)	**47**	**5**
Cash flows		
- Repayment of notes	**(781)**	**-**
- Payments of interest on borrowings	**(32)**	**(10)**
Exchange differences	**1**	**-**
At 31 Dec 2018	**1,005**	**161**

44. Commitments

(a) Commitments in respect of capital expenditures

	At 31 Dec 2018 $m	At 31 Dec 2017 $m
Contracted but not provided for:		
- fixed assets	**30**	13
- intangible assets	**64**	65
Authorised but not contracted for:		
- fixed assets	**270**	400
- intangible assets	**571**	955
	935	1,433

44. Commitments (continued)

(b) Commitments for total future minimum lease payments under non-cancellable operating leases

Accounting Policy
Leases where substantially all the rewards and risks of ownership of assets remain with the lessor are accounted for as operating leases. Rentals under such operating leases net of any incentives received from the lessor are charged to the consolidated income statement on a straight-line basis over the lease term.

	At 31 Dec 2018 $m	At 31 Dec 2017 $m
Land and buildings		
- within one year	**244**	321
- in the second to fifth years	**1,234**	1,008
- after the fifth year	**1,597**	1,026
	3,075	2,355
Computer systems, software and equipment		
- within one year	**60**	58
- in the second to fifth years	**105**	216
	165	274
	3,240	2,629

At 31 December 2018 and 31 December 2017, the Group did not have any purchase options in respect of computer systems, software and equipment.

(c) Commitments in respect of financial contributions to Financial Reporting Council

The Financial Reporting Council (FRC) is an independent statutory body established to receive and investigate complaints concerning irregularities of auditors and reporting accountants of listed companies and non-compliances with accounting requirements in the financial reports of listed companies. Since the establishment of the FRC in 2006, the Group has been contributing to the funding of the FRC’s operations.

Under a memorandum of understanding signed in November 2014, the Group has agreed to make recurrent contributions to the FRC as follows:

- 2015 – 2016: $7 million per annum
- 2017 – 2019: $8 million per annum

45. 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 2018, 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 2017: $71 million). Up to 31 December 2018, 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 33(a)). In the unlikely event that all of its 640 trading Participants (31 December 2017: 622) covered by the indemnity at 31 December 2018 defaulted, the maximum contingent liability of the Group under the indemnity would amount to $128 million (31 December 2017: $124 million).

(c) HKEX has given an undertaking in favour of HKSCC to contribute up to $50 million in the event of HKSCC being wound up while it is a wholly-owned subsidiary of HKEX or within one year after HKSCC ceases to be a wholly-owned subsidiary of HKEX, for payment of the liabilities of HKSCC contracted before HKSCC ceases to be a wholly-owned subsidiary of HKEX, and for the costs of winding up.

46. Transactions with Non-Controlling Interests

Accounting Policy

Transactions with non-controlling interests that do not result in loss of control are accounted for as equity transactions. The difference between the fair value of any consideration paid/received and the relevant share of the carrying value of net assets of the subsidiary acquired/disposed of is recorded in retained earnings.

(a) Acquisition of additional interest in OTC Clear

	2018 **$m**
Carrying amount of non-controlling interests acquired	**302**
Consideration paid	**(300)**
Surplus credited to retained earnings (note (c))	**2**

In July 2018, OTC Clear issued 6,186 ordinary shares to HKEX at a consideration of $300 million. After the issue, the Group's interest in OTC Clear increased to 87.2 per cent while the interest held by non-controlling interests dropped to 12.8 per cent.

(b) Disposal of interest in subsidiaries without loss of control

	2018 **$m**	2017 $m
Consideration received from non-controlling interests	**93**	28
Less: carrying amount of non-controlling interests disposed of	**(94)**	(16)
(Loss)/gain on disposal (debited)/credited to retained earnings (note (c))	**(1)**	12

In 2017, the Group entered into an agreement to sell a 9.99 per cent stake in QME to an independent third party at a consideration of RMB25 million. After the sale, the Group's interest in QME dropped to 90.01 per cent. Subsequent to the disposal, RMB135 million and RMB15 million were further injected by the Group and the non-controlling interests into QME respectively as its registered capital in 2017 in proportion to their interests.

In October 2018, OTC Clear issued 1,921 non-voting ordinary shares to the non-controlling interests at a consideration of $93 million and 141 ordinary shares to HKEX at a consideration of $7 million. After the issue, the Group's interest in OTC Clear dropped to 76 per cent while the interest held by non-controlling interests rose to 24 per cent.

(c) Effects of transactions with non-controlling interests on retained earnings

	2018 **$m**	2017 $m
Changes in retained earnings arising from:		
- Acquisition of additional interest in OTC Clear (note (a))	**2**	-
- Disposal of interest in subsidiaries without loss of control (note (b))	**(1)**	12
Net amount credited to retained earnings (note 42)	**1**	12

47. 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

	2018 **$m**	2017 $m
Salaries and other short-term employee benefits	**179**	173
Employee share-based compensation benefits	**74**	77
Retirement benefit costs	**8**	8
	261	258

(ii) Post-retirement benefit plans

The Group has sponsored an ORSO Plan and the LME Pension Scheme as its post-retirement benefit plans (note 8(a)).

(iii) Save as aforesaid, the Group has entered into other transactions in the ordinary course of business with companies that are related parties but the amounts were immaterial.

48. Pledges of Assets

LME Clear receives securities, gold bullion and warrants as collateral for margins posted by its Clearing Participants. The total fair value of this collateral was US$1,490 million (HK$11,666 million) at 31 December 2018 (31 December 2017: US$1,319 million (HK$10,311 million)). LME Clear is obliged to return this non-cash collateral upon request when the Clearing Participants' collateral obligations have been substituted with cash collateral or otherwise discharged.

LME Clear also holds securities as collateral in respect of its investments in overnight triparty reverse repurchase agreements under which it is obliged to return equivalent securities to the counterparties at maturity of the reverse repurchase agreements. The fair value of this collateral was US$7,650 million (HK$59,895 million) at 31 December 2018 (31 December 2017: US$11,462 million (HK$89,602 million)).

The above non-cash collateral, which LME Clear is permitted to sell or repledge in the absence of default by the counterparties, was not recorded on the consolidated statement of financial position of the Group at 31 December 2018. Such non-cash collateral, together with certain financial assets amounting to US$420 million (HK$3,288 million) at 31 December 2018 (31 December 2017: US$471 million (HK$3,686 million)), have been repledged to LME Clear's investment agent and custodian banks under first floating charge and security arrangements for the settlement and depository services they provide in respect of the collateral and investments held. The floating charge could convert to a fixed charge in the event of contract termination, or default or insolvency of LME Clear.

49. 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.

49. Capital Management (continued)

The Group has a number of regulated entities that are subject to capital requirements set by the respective regulators. The regulatory capital requirements of the Group's subsidiaries at 31 December 2018 are summarised as follows:

Subsidiaries	Regulatory authority	Regulatory capital requirements
Stock Exchange, Futures Exchange	SFC, Hong Kong	Maintain at all times net current assets funded by equity sufficient to cover each subsidiary's projected total operating expenses for at least the following six months (approximately $1,362 million), and net current assets funded by equity or long-term loans from HKEX sufficient to cover its projected total operating expenses for at least the following twelve months (approximately $2,725 million).
HKSCC, HKCC, SEOCH, OTC Clear	SFC, Hong Kong	Maintain at all times liquid net assets funded by equity (ie, liquid assets of Corporate Funds (excluding those solely used to support Skin-in-the-Game and default fund credits of Clearing House Funds) minus non-current liabilities) sufficient to cover each subsidiary's projected total operating expenses for at least the following six months (approximately $604 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 $1,208 million).
LME	Financial Conduct Authority, UK	Maintain at all times liquid financial assets amounting to at least six months' operating costs plus a risk based capital charge (approximately US$56 million (HK$435 million)), and net capital of at least this amount.
LME Clear	Bank of England, UK	Maintain cash or highly liquid financial instruments with minimal market and credit risk, amounting to US$81.3 million (HK$636 million), plus 10 per cent minimum reporting threshold of US$8.1 million (HK$63 million) and US$20.3 million (HK$159 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 2018, the Group had set aside $4,000 million (31 December 2017: $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 had been injected into HKSCC, HKCC and SEOCH as share capital.

49. Capital Management (continued)

All regulated entities of the Group had adequate capital to meet their regulatory requirements at 31 December 2018 and 31 December 2017.

The Group adopts a dividend policy of providing shareholders with regular dividends with a normal target payout ratio of 90 per cent of the Group's profit of the year and it may also offer a scrip dividend alternative to shareholders. The consideration of share capital issued under the scrip dividend scheme, together with the 10 per cent of the profit not declared as dividends, are retained as capital of the Group for future use.

The Group monitors capital on the basis of its gross gearing ratio (ie, gross debt divided by adjusted capital) and net gearing ratio (ie, net debt divided by adjusted capital). For this purpose, the Group defines gross debt as total borrowings, net debt as total borrowings 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 2018 $m	At 31 Dec 2017 $m
Total borrowings	**1,166**	1,860
Less:		
Cash and cash equivalents of Corporate Funds (note 19)	**11,904**	13,546
Less: Amounts reserved for supporting Skin-in-the-Game and default fund credits of Clearing House Funds (note 19(b))	**(724)**	-
	(11,180)	(13,546)
Net debt (note (a))	**-**	-
Equity attributable to shareholders of HKEX	**40,729**	37,273
Less: designated reserves	**(523)**	(822)
Adjusted capital	**40,206**	36,451
Gross gearing ratio	**3%**	5%
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 total borrowings.

50. Financial Risk Management

The Group's activities expose it to a variety of financial risks: market risk (including foreign exchange risk, price risk and interest rate risk), liquidity risk and credit risk. The Group's overall risk management programme focuses on the unpredictability of financial markets and seeks to minimise potential adverse effects on the Group's performance.

(a) Market risk

Nature of risk

Market risk is the risk of loss arising from movements in observable market variables such as foreign exchange rates, equity prices and interest rates. The Group is exposed to market risk primarily through its financial assets and financial liabilities (including borrowings).

Risk management

The Group's investment policy is to prudently invest all funds managed by the Group in a manner which will satisfy liquidity requirements, safeguard financial assets and manage risks while optimising return on investments.

Investment and fund management by HKEX and the Group's subsidiaries is governed by the HKEX Investment Policy, Restrictions and Guidelines (Investment Guidelines), which is approved by the Board and reviewed regularly. Investment restrictions and guidelines form an integral part of risk control. Fund-specific restrictions and guidelines are set according to the investment objectives of each fund (ie, Corporate Funds, Clearing House Funds, Margin Funds and Cash for A shares). Specific limits are set for each fund to control risks (eg, permissible asset type, asset allocation, liquidity, credit requirement, counterparty concentration, maturity, foreign exchange exposures and interest rate risks) of the investments.

A portion of the Corporate Funds is invested in collective investment schemes (External Portfolio) under the External Investment Guidelines (the Investment Policy, Restrictions and Guidelines for externally-managed Corporate Funds) approved by the Board. The guidelines include an asset allocation policy which aims to preserve and enhance the return of the External Portfolio by investing in a diverse mix of asset classes whose returns are not highly correlated to each other over time to mitigate portfolio volatility and asset class concentration risk. The guidelines also define the risk-return parameters for the External Portfolio and restrictions to be observed, and the governance structure on selection and monitoring of fund managers. The fund managers of the collective investment schemes are selected based on their performance track records and areas of expertise, and each should be financially strong and stable, and their selections are approved by the Investment Advisory Committee as delegated by the Board. Specific risk management limits are set for the External Portfolio (eg, permissible asset type, asset allocation, liquidity and foreign exchange exposures).

The Investment Advisory 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.

50. Financial Risk Management (continued)

(a) Market risk (continued)

(i) Foreign exchange risk

Nature of risk

Foreign exchange risk is the risk that the value or cash flows of an asset, liability or forecast transaction denominated in foreign currency (ie, a currency other than the functional currency of the entity to which the transactions relate) will fluctuate because of changes in foreign exchange rates. The functional currency of the Hong Kong and PRC entities are HKD and Renminbi (RMB) respectively and the functional currency of LME entities is USD. Foreign exchange risks arise mainly from the Group’s investments and bank deposits in currencies other than HKD and USD and its GBP expenditure for the LME entities.

Risk management

Forward foreign exchange contracts and foreign currency bank deposits may be used to hedge the currency exposure of the Group’s non-HKD and non-USD assets and liabilities and highly probable forecast transactions to mitigate risks arising from fluctuations in exchange rates. In particular, the LME Group designates certain GBP bank balances as cash flow hedges for hedging the foreign exchange risk of certain operating expenses.

Under the Investment Guidelines, investment in non-HKD financial instruments is subject to the following restrictions:

- Under the External Investment Guidelines, up to 50 per cent of the External Portfolio may be invested in non-HKD or non-USD investments not hedged back to HKD or USD.
- For internally-managed Corporate Funds, Clearing House Funds, Margin Funds and Cash for A shares, unhedged investments in currencies other than HKD or USD must fully match the respective liabilities or forecast payments for the funds. Unhedged investments in USD may not exceed 20 per cent of the respective funds.

The Group’s non-HKD borrowings by the Hong Kong entities are denominated in USD, which is pegged against HKD, and are therefore not subject to significant foreign currency risks.

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

50. Financial Risk Management (continued)

(a) Market risk (continued)

(i) Foreign exchange risk (continued)

Exposure

The following table details the Group's financial assets and financial liabilities denominated in a currency other than the functional currency of the entity to which they relate and the net open foreign currency positions (ie, gross positions less forward foreign exchange contracts and other offsetting exposures (hedges)), at 31 December presented in HKD equivalents.

		At 31 Dec 2018			At 31 Dec 2017		
	Foreign currency	**Gross open position $m**	**Hedges $m**	**Net open position $m**	Gross open position $m	Hedges $m	Net open position $m
Financial assets[1]	EUR	**5,664**	**(5,655)**	**9**	5,471	(5,465)	6
	GBP	**9,110**	**(8,577)**	**533**	9,125	(8,775)	350
	JPY	**229**	**(228)**	**1**	232	(231)	1
	RMB	**10,011**	**(9,806)**	**205**	6,514	(6,502)	12
	USD	**4,228**	**(801)**	**3,427**	2,847	(445)	2,402
	Others	**3**	**-**	**3**	1	-	1
Financial liabilities[2]	EUR	**(5,657)**	**5,655**	**(2)**	(5,465)	5,465	-
	GBP	**(8,737)**	**8,577**	**(160)**	(8,942)	8,775	(167)
	JPY	**(228)**	**228**	**-**	(231)	231	-
	RMB	**(9,808)**	**9,806**	**(2)**	(6,505)	6,502	(3)
	USD	**(1,577)**	**801**	**(776)**	(2,012)	445	(1,567)
	Others	**(3)**	**-**	**(3)**	-	-	-
Total net open positions for the Group	EUR			**7**			6
	GBP			**373**			183
	JPY			**1**			1
	RMB			**203**			9
	USD			**2,651**			835
	Others			**-**			1
				3,235			1,035

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, financial liabilities at fair value through profit or loss, borrowings and accounts payable and other liabilities.

(ii) Equity and commodity price risk

Nature of risk

The Group is exposed to equity price risk from collective investment schemes held as part of the External Portfolio. The movements of fair value of base 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.

50. 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 investment in collective investment schemes. The Group selects fund managers after an extensive assessment of the underlying funds, their strategy and the overall quality of the fund managers, and the performance of the funds is monitored on a monthly basis.

(iii) Interest rate risk

Nature of risk

There are two types of interest rate risk:

- Fair value interest rate risk - the risk that the value of a financial instrument will fluctuate because of changes in market interest rates; and
- Cash flow interest rate risk - the risk that the future cash flows of a financial instrument will fluctuate because of changes in market interest rates.

The Group is exposed to both fair value and cash flow interest rate risks as the Group has significant assets and liabilities (including borrowings) which are interest-bearing.

Risk management

The Group manages its interest rate risks by setting limits on the residual maturity of the investments and on the fixed and floating rate mismatches of its assets and liabilities.

Exposure

The following tables present the carrying value and highest and lowest contractual interest rates of the financial assets held by the Group (excluding collective investment schemes and bank deposits held at savings and current accounts) at 31 December:

	Fixed rate financial assets		**Floating rate financial assets**	
	At 31 Dec 2018	At 31 Dec 2017	**At 31 Dec 2018**	At 31 Dec 2017
Carrying value ($m)	**72,229**	70,863	**60,724**	94,365
Highest contractual interest rates	**5.90%**	3.80%	**3.25%**	1.93%
Lowest contractual interest rates[1]	**0.69%**	0.00%	**-1.00%**	-4.00%

[1] The contractual interest rates for certain reverse repurchase investments denominated in Euro held by LME Clear were below 0 per cent.

The contractual interest rates of the borrowings are disclosed in note 35 to the consolidated financial statements.

50. Financial Risk Management (continued)

(a) Market risk (continued)

(iv) Sensitivity analysis

Investments other than collective investment schemes

The Group uses Value-at-Risk (VaR) and portfolio stress testing to identify, measure, monitor and control foreign exchange risk and interest rate risks of the Group's investments other than collective investment schemes.

VaR measures the expected maximum loss over a given time interval (a holding period of 10 trading days is used by the Group) at a given confidence level (95 per cent confidence interval is adopted by the Group) based on historical data (one year is used by the Group). VaR is monitored on a weekly basis and the Board sets a limit on total VaR for the Group.

VaR is a statistical measure of risks and has limitations associated with the assumptions employed. The calculation is based on historical simulation and therefore vulnerable to sudden changes in market behaviour. The use of a 10-day holding period may be insufficient at times of severe illiquidity. Also, VaR does not necessarily reflect all aspects of risks that affect the price of financial instruments and may underestimate real market risk exposure. In addition, VaR does not factor in the possibility of catastrophic risks but the use of stress testing for abnormal market conditions can mitigate this limitation.

The VaR for each risk factor and the total VaR of the investments other than collective investment schemes and related hedges of the Group at 31 December were as follows:

	At 31 Dec 2018 $m	At 31 Dec 2017 $m
Foreign exchange risk	**16**	10
Interest rate risk	**17**	7
Total VaR	**24**	12

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.

50. 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 2018 $m**	At 31 Dec 2017 $m
Public Equities	**2,021**	2,225
Absolute Return	**1,312**	1,245
Multi-Sector Fixed Income	**2,108**	1,922
US Government Bonds and Mortgage-backed Securities	**1,648**	1,251
Total	**7,089**	6,643
Number of Funds	**18**	15

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 2018, the simplified 1-year VaR calculated at a 95 per cent confidence level was 1.7 per cent (31 December 2017: 0.2 per cent), implying that the market value of the Group's Funds during the year ended 31 December 2018 could potentially change by approximately $121 million (2017: $13 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 (2017: 36 months), and their corresponding portfolio weights, assuming monthly rebalancing to the intended portfolio weights of the respective Funds;
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 level, 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.

50. Financial Risk Management (continued)

(b) Liquidity risk

Nature of risk

Liquidity risk is the risk that an entity will encounter difficulty in meeting obligations associated with financial liabilities that are settled by delivering cash or another financial asset, and it results from amount and maturity mismatches of assets and liabilities.

Risk management

The Group employs projected cash flow analysis to manage liquidity risk by forecasting the amount of cash required and monitoring the working capital of the Group to ensure that all liabilities due and known funding requirements could be met.

Investments are kept sufficiently liquid to meet operational needs and regulatory requirements, and possible liquidity requirements of the Clearing House Funds and Margin Funds. The Group sets minimum levels of highly liquid assets for Corporate Funds, Clearing House Funds and Margin Funds. In particular, Corporate Funds solely used for supporting the Skin-in-the Game and default fund credits of Clearing House Funds are invested in overnight deposits and monitored on a daily basis.

Apart from the borrowings used to fund the acquisition of the LME Group, banking facilities have been put in place for contingency purposes. At 31 December 2018, the Group's total available banking facilities for its daily operations amounted to $20,024 million (31 December 2017: $18,963 million), which included $13,523 million (31 December 2017: $11,954 million) of committed banking facilities and $6,500 million (31 December 2017: $7,000 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 2018, the total amount of such facilities was RMB21,500 million (HK$24,501 million) (31 December 2017: RMB21,500 million (HK$25,809 million)).

In addition, the Group has arranged contingency banking facilities amounting to RMB13,000 million (HK$14,815 million) (31 December 2017: RMB13,000 million (HK$15,606 million)) for settling payment obligations to ChinaClear should there be events that disrupt normal settlement arrangements for Stock Connect.

50. Financial Risk Management (continued)

(b) Liquidity risk (continued)

Exposure

The Group is not exposed to liquidity risk on the outstanding base 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; and
- other financial assets are allocated based on their contractual maturity dates or the expected dates of disposal.

	At 31 Dec 2018					
	Up to 1 month $m	**>1 month to 3 months $m**	**>3 months to 1 year $m**	**>1 year to 5 years $m**	**>5 years $m**	**Total $m**
Cash and cash equivalents	**121,196**	**-**	**-**	**-**	**-**	**121,196**
Financial assets measured at fair value through profit or loss	**5,646**	**861**	**582**	**-**	**-**	**7,089**
Financial assets measured at fair value through other comprehensive income	**3,755**	**-**	**-**	**-**	**-**	**3,755**
Financial assets measured at amortised cost	**31,788**	**-**	**3**	**19**	**75**	**31,885**
Accounts receivable and deposits[1]	**18,213**	**32**	**1**	**-**	**-**	**18,246**
	180,598	**893**	**586**	**19**	**75**	**182,171**

	At 31 Dec 2017					
	Up to 1 month $m	>1 month to 3 months $m	>3 months to 1 year $m	>1 year to 5 years $m	>5 years $m	Total $m
Cash and cash equivalents	155,660	-	-	-	-	155,660
Financial assets measured at fair value through profit or loss	9,047	334	321	-	-	9,702
Financial assets measured at amortised cost	30,757	-	-	9	51	30,817
Accounts receivable and deposits[1]	16,420	32	29	-	-	16,481
	211,884	366	350	9	51	212,660

[1] Amounts excluded prepayments of $116 million (31 December 2017: $104 million).

50. 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 2018				
	Up to 1 month $m	**>1 month to 3 months $m**	**>3 months to 1 year $m**	**>1 year to 5 years $m**	**Total $m**
Margin deposits, Mainland security and settlement deposits, and cash collateral from Clearing Participants	**123,728**	**-**	**-**	**-**	**123,728**
Accounts payable, accruals and other liabilities[2]	**18,190**	**15**	**111**	**-**	**18,316**
Other financial liabilities:					
Other financial liabilities of Clearing House Funds	**38**	**1**	**-**	**-**	**39**
Other financial liabilities of Corporate Funds:					
Financial guarantee contract (maximum amount guaranteed) (note 45(b))	**128**	**-**	**-**	**-**	**128**
Participants' contributions to Clearing House Funds	**14,270**	**465**	**52**	**-**	**14,787**
Borrowings:					
Notes	**754**	**-**	**-**	**-**	**754**
Written put options to non-controlling interests	**-**	**-**	**252**	**181**	**433**
Total	**157,108**	**481**	**415**	**181**	**158,185**

	At 31 Dec 2017				
	Up to 1 month $m	>1 month to 3 months $m	>3 months to 1 year $m	>1 year to 5 years $m	Total $m
Margin deposits, Mainland security and settlement deposits, and cash collateral from Clearing Participants	157,814	-	-	-	157,814
Accounts payable, accruals and other liabilities[2]	16,037	11	111	-	16,159
Other financial liabilities:					
Other financial liabilities of Clearing House Funds	38	-	-	-	38
Other financial liabilities of Corporate Funds:					
Financial guarantee contract (maximum amount guaranteed) (note 45(b))	124	-	-	-	124
Participants' contributions to Clearing House Funds	16,122	453	51	-	16,626
Borrowings:					
Notes	11	-	813	753	1,577
Written put options to non-controlling interests	-	-	252	88	340
Total	190,146	464	1,227	841	192,678

[2] Amounts excluded non-financial liabilities of $53 million (31 December 2017: $51 million).

50. 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 21 and 22.

The Group is also exposed to clearing and settlement risk, as the clearing houses of the Group act as the counterparties to eligible trades concluded on the Stock Exchange, the Futures Exchange, the over-the-counter market and the LME through the novation of the obligations of the buyers and sellers. HKSCC is also responsible for the good title to the securities deposited and accepted in the CCASS depository. As a result, the Group has considerable market risk and credit risk since the Participants' ability to honour their obligations in respect of their trades and securities deposited may be adversely impacted by economic conditions. If the Participants default on their obligations on settlement or there are defects in the title of securities deposited and accepted in the CCASS depository, the Group could be exposed to potential risks not otherwise accounted for in these consolidated financial statements.

Risk management - Investment and accounts receivable risk

The Group limits its exposure to credit risk by rigorously selecting the counterparties (ie, deposit-takers, bond issuers, debtors and fund managers) and by diversification. All investments (excluding those held by the collective investment schemes) were governed by the Group Credit Limit for Settlement and Investments framework. Under the framework, specific limits are set on an investment portfolio level and on single counterparty level. The investment portfolio is subject to a maximum portfolio expected loss limit, each investment counterparty is subject to a minimum investment grade rating, and each investment is also subject to maximum concentration limit per counterparty. Fund managers of the collective investment schemes are financially strong and stable and their selections are approved by the Investment Advisory Committee as delegated by the Board.

At 31 December 2018, the investments in debt securities held by the Group (excluding those held by the collective investment schemes) were of investment grade and had a weighted average credit rating of Aa1 (Moody) (31 December 2017: Aaa (Moody)). Deposits are placed only with the investment grade banks (licensed banks and restricted licence banks regulated by the Hong Kong Monetary Authority, and banks regulated by local banking regulators in the countries where the Group's subsidiaries operate). The LME Group invests a significant portion of cash in reverse repurchase investments, where high quality assets are held against such investments as collateral.

The Group mitigates its exposure to risks relating to accounts receivable from its Participants by requiring the Participants to meet the Group's established financial requirements and criteria for admission as Participants.

50. 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 HKSCC Margining 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. Effective from 1 June 2018, each HKCC Clearing Participant is granted a Dynamic Contribution Credit of HKCC Reserve Fund of $1 million. If an HKSCC or HKCC Clearing Participant defaults and any loss arises, HKSCC will absorb the default loss up to the Margin Credit and Dynamic Contribution Credit utilised by the defaulting HKSCC Clearing Participant, after deducting its collateral and Guarantee Fund contribution maintained with HKSCC, and HKCC will absorb the default loss up to the Dynamic Contribution Credit utilised by the defaulting HKCC Clearing Participant, after deducting its collateral and Reserve Fund contribution maintained with HKCC. After the initial losses, HKSCC is required to absorb further losses after the HKSCC Guarantee Fund reserve and the Guarantee Fund contribution (excluding the Dynamic Contribution portion) of non-defaulting HKSCC Clearing Participants are depleted, and HKCC is required to absorb further losses after the HKCC Reserve Fund reserve and the Reserve Fund contribution (excluding the Dynamic Contribution portion) of non-defaulting HKCC Clearing Participants are depleted. The amount of losses borne by HKSCC and HKCC will be calculated on a pro rata basis with reference to the non-defaulting HKSCC and HKCC Clearing Participants' Dynamic Contributions and Dynamic Contribution Credits granted by HKSCC and HKCC respectively.

At 31 December 2018, HKSCC had 625 Clearing Participants (31 December 2017: 605) and the total amounts of Margin Credit and Dynamic Contribution Credit utilised by HKSCC Clearing Participants amounted to $790 million (31 December 2017: $1,017 million), while HKCC had 171 Clearing Participants and the total amount of Dynamic Contribution Credit utilised by Clearing Participants amounted to $53 million.

The HKSCC Margin Credit and Dynamic Contribution Credit and the HKCC Dynamic Contribution Credit are supported by the $4,000 million of shareholders' funds set aside by the HKEX Group for risk management purpose, of which $1,060 million and $830 million were injected into HKSCC and HKCC respectively in 2018.

50. 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 2018		At 31 Dec 2017	
	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 45(b))	**(20)**	**128**	(20)	124

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 2018		At 31 Dec 2017	
	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]	**18,246**	**5,997**	16,481	3,424
Fair value of base and precious metals futures and options contracts cleared through LME Clear	**53,915**	**53,915**	85,335	85,335
Reverse repurchase investments	**57,373**	**57,373**	90,608	90,608

[1] Amounts excluded prepayments of $116 million (31 December 2017: $104 million).

50. 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 2018 and 31 December 2017, 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.

	At 31 Dec 2018			At 31 Dec 2017		
Recurring fair value measurements:	**Level 1 $m**	**Level 2 $m**	**Total $m**	Level 1 $m	Level 2 $m	Total $m
Financial assets						
Financial assets measured at fair value through profit or loss:						
- collective investment schemes	**1,987**	**5,102**	**7,089**	1,841	4,802	6,643
- debt securities	**-**	**-**	**-**	3,059	-	3,059
- base and precious metals futures and options contracts cleared through LME Clear	**-**	**53,915**	**53,915**	-	85,335	85,335
Financial assets measured at fair value through other comprehensive income:						
- debt securities	**3,054**	**701**	**3,755**	-	-	-
	5,041	**59,718**	**64,759**	4,900	90,137	95,037
Financial liabilities						
Financial liabilities at fair value through profit or loss:						
- base and precious metals futures and options contracts cleared through LME Clear	**-**	**53,915**	**53,915**	-	85,335	85,335
	-	**53,915**	**53,915**	-	85,335	85,335

50. Financial Risk Management (continued)

(d) Fair values of financial assets and financial liabilities (continued)

(i) Financial assets and financial liabilities carried at fair value (continued)

During 2018 and 2017, there were no transfers of instruments between Level 1 and Level 2.

Level 2 fair values of debt securities, base and precious metals futures and options contracts and collective investment schemes 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.

(ii) Fair values of financial assets and financial liabilities not reported at fair values

Summarised in the following table are the carrying amounts and fair values of financial assets and financial liabilities not presented in the consolidated statement of financial position at their fair values. These assets and liabilities were classified under Level 2 in the fair value hierarchy.

	At 31 Dec 2018		At 31 Dec 2017	
	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]	**301**	**301**	-	-
- other financial assets maturing over one year[2]	**97**	**74**	60	54
Liabilities				
Borrowings:				
- notes[3]	**753**	**753**	1,533	1,537
- written put options to non-controlling interests[3]	**413**	**416**	327	329
Financial guarantee to the Collector of Stamp Revenue[4]	**20**	**46**	20	47

1 The fair values are provided by the custodian of the investments, a reputable independent third party custodian bank, or by the banks from whom the investments were purchased.

2 The fair values are based on cash flows discounted using Hong Kong Government bond rates of a tenor similar to the contractual maturity of the respective assets, adjusted by an estimated credit spread. The discount rates used ranged from 2.59 per cent to 2.74 per cent at 31 December 2018 (31 December 2017: 1.84 per cent to 2.56 per cent).

3 The fair values are based on cash flows discounted using the prevailing market interest rates for loans with similar credit rating and similar tenor of the respective loans. The discount rates used ranged from 3.03 per cent to 3.15 per cent at 31 December 2018 (31 December 2017: 2.26 per cent to 2.75 per cent).

4 The fair values are based on the fees charged by financial institutions for granting such guarantees discounted to perpetuity using a ten-year Hong Kong Government bond rate, adjusted by an estimated credit spread, but capped at the maximum exposure of the financial guarantee. The discount rate used was 3.51 per cent at 31 December 2018 (31 December 2017: 3.30 per cent).

50. Financial Risk Management (continued)

(d) Fair values of financial assets and financial liabilities (continued)

(ii) Fair values of financial assets and financial liabilities not reported at fair values (continued)

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.

(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 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.

50. 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

	At 31 Dec 2018					
				Related amounts not offset in the consolidated statement of financial position		
Type of financial instruments	Gross amount $m	Gross amount offset in the consolidated statement of financial position $m	Net amount presented in the consolidated statement of financial position[3] $m	Amounts subject to master netting arrangements $m	Cash collateral $m	Net amount $m
Financial assets:						
CNS money obligations receivable[1]	172,937	(159,466)	13,471	(3,412)	(4,399)	5,660
Base and precious metals futures and options contracts cleared through LME Clear[2]	1,288,531	(1,234,616)	53,915	(26,992)	(26,923)	-
Other accounts receivable from Participants, ChinaClear, information vendors and hosting services customers, net of provision for impairment losses	3,533	-	3,533	(2,541)	(89)	903
Total	1,465,001	(1,394,082)	70,919	(32,945)	(31,411)	6,563
Financial liabilities:						
CNS money obligations payable[1]	175,745	(159,466)	16,279	(5,953)	-	10,326
Base and precious metals futures and options contracts cleared through LME Clear[2]	1,288,531	(1,234,616)	53,915	(26,992)	-	26,923
Total	1,464,276	(1,394,082)	70,194	(32,945)	-	37,249

50. 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)

	At 31 Dec 2017					
				Related amounts not offset in the consolidated statement of financial position		
Type of financial instruments	Gross amount $m	Gross amount offset in the consolidated statement of financial position $m	Net amount presented in the consolidated statement of financial position[3] $m	Amounts subject to master netting arrangements $m	Cash collateral $m	Net amount $m
Financial assets:						
CNS money obligations receivable[1]	141,775	(129,260)	12,515	(2,042)	(3,006)	7,467
Base and precious metals futures and options contracts cleared through LME Clear[2]	1,572,390	(1,487,055)	85,335	(43,037)	(42,298)	-
Other accounts receivable from Participants, ChinaClear, information vendors and hosting services customers, net of provision for impairment losses	2,888	-	2,888	(171)	(203)	2,514
Total	1,717,053	(1,616,315)	100,738	(45,250)	(45,507)	9,981
Financial liabilities:						
CNS money obligations payable[1]	143,464	(129,260)	14,204	(2,213)	-	11,991
Base and precious metals futures and options contracts cleared through LME Clear[2]	1,572,390	(1,487,055)	85,335	(43,037)	-	42,298
Total	1,715,854	(1,616,315)	99,539	(45,250)	-	54,289

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 and precious metals futures and options contracts (ie, after set-off) and other accounts receivable due from customers, they do not meet the criteria for offsetting in the consolidated statement of financial position since the right of set-off of the recognised amounts is only enforceable following an event of default of the customers. In addition, the Group does not intend to settle the balances on a net basis.

50. Financial Risk Management (continued)

(e) Offsetting financial assets and financial liabilities (continued)

(ii) The tables below reconcile the "net amounts of financial assets and financial liabilities presented in the consolidated statement of financial position", as set out above, to the "accounts receivable, prepayments and deposits", "accounts payable, accruals and other liabilities", "financial assets measured at fair value through profit or loss" and "financial liabilities at fair value through profit or loss" presented in the consolidated statement of financial position.

	Accounts receivable, prepayments and deposits		**Financial assets measured at fair value through profit or loss**	
	At 31 Dec 2018 $m	At 31 Dec 2017 $m	**At 31 Dec 2018 $m**	At 31 Dec 2017 $m
Net amount of financial assets after offsetting as stated above:				
- CNS money obligations receivable	**13,471**	12,515	**-**	-
- Other accounts receivable from Participants, ChinaClear, information vendors and hosting services customers, net of provision for impairment losses	**3,533**	2,888	**-**	-
- Base and precious metals futures and options contracts cleared through LME Clear	**-**	-	**53,915**	85,335
Financial assets not in scope of offsetting disclosures	**1,242**	1,078	**7,089**	9,702
Prepayments	**116**	104	**-**	-
Amounts presented in the consolidated statement of financial position	**18,362**	16,585	**61,004**	95,037

	Accounts payable, accruals and other liabilities		**Financial liabilities at fair value through profit or loss**	
	At 31 Dec 2018 $m	At 31 Dec 2017 $m	**At 31 Dec 2018 $m**	At 31 Dec 2017 $m
Net amount of financial liabilities after offsetting as stated above:				
- CNS money obligations payable	**16,279**	14,204	**-**	-
- Base and precious metals futures and options contracts cleared through LME Clear	**-**	-	**53,915**	85,335
Financial liabilities not in scope of offsetting disclosures	**2,037**	1,955	**-**	-
Non-financial liabilities	**53**	51	**-**	-
Amounts presented in the consolidated statement of financial position	**18,369**	16,210	**53,915**	85,335

51. Events Occurring after the Reporting Period

On 20 February 2019, the Group signed a letter of intent to acquire a 51 per cent stake in Shenzhen Ronghui Tongjin Technology Co. Ltd., a subsidiary of Shenzhen Kingdom Sci-Tech Co. Ltd., which is a technology services provider that specialises in financial exchanges, regulation technologies and data applications. The transaction is subject to the signing of binding agreements and is expected to complete in the second quarter of 2019.

52. 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.

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

Statement of Financial Position of HKEX

	At 31 Dec 2018			At 31 Dec 2017		
	Current $m	Non-current $m	Total $m	Current $m	Non-current $m	Total $m
ASSETS						
Cash and cash equivalents	3,530	-	3,530	5,715	-	5,715
Financial assets measured at fair value through profit or loss	7,089	-	7,089	6,643	-	6,643
Financial assets measured at amortised cost	2,216	303	2,519	1	1	2
Accounts receivable, prepayments and deposits	428	21	449	45	21	66
Amounts due from subsidiaries	948	11,700	12,648	1,123	12,908	14,031
Interests in joint ventures	-	114	114	-	114	114
Intangible assets	-	181	181	-	129	129
Fixed assets	-	436	436	-	250	250
Investments in subsidiaries	-	14,766	14,766	-	12,115	12,115
Total assets	14,211	27,521	41,732	13,527	25,538	39,065
LIABILITIES AND EQUITY						
Liabilities						
Financial liabilities at fair value through profit or loss	327	-	327	278	-	278
Accounts payable, accruals and other liabilities	513	-	513	389	-	389
Amounts due to subsidiaries	284	-	284	422	-	422
Taxation payable	78	-	78	5	-	5
Other financial liabilities	11	-	11	11	-	11
Borrowings	753	-	753	782	751	1,533
Provisions	74	1	75	67	1	68
Deferred tax liabilities	-	41	41	-	18	18
Total liabilities	2,040	42	2,082	1,954	770	2,724
Equity						
Share capital			27,750			25,141
Shares held for Share Award Scheme			(682)			(606)
Employee share-based compensation reserve			218			222
Merger reserve			694			694
Retained earnings			11,670			10,890
Equity attributable to shareholders of HKEX			39,650			36,341
Total liabilities and equity			41,732			39,065
Net current assets			12,171			11,573

Approved by the Board of Directors on 27 February 2019

Laura M CHA
Director

LI Xiaojia, Charles
Director

52. 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 2017	226	694	9,249
Profit attributable to shareholders	-	-	7,255
2016 final dividend at $2.04 per share	-	-	(2,491)
2017 first interim dividend at $2.55 per share	-	-	(3,133)
Unclaimed HKEX dividends forfeited	-	-	26
Vesting of shares of Share Award Scheme	(224)	-	(16)
Employee share-based compensation benefits	220	-	-
At 31 Dec 2017	222	694	10,890
At 1 Jan 2018	**222**	**694**	**10,890**
Profit attributable to shareholders	**-**	**-**	**8,825**
2017 final dividend at $2.85 per share	**-**	**-**	**(3,525)**
2018 first interim dividend at $3.64 per share	**-**	**-**	**(4,527)**
Unclaimed HKEX dividends forfeited	**-**	**-**	**23**
Vesting of shares of Share Award Scheme	**(230)**	**-**	**(16)**
Employee share-based compensation benefits	**226**	**-**	**-**
At 31 Dec 2018	**218**	**694**	**11,670**