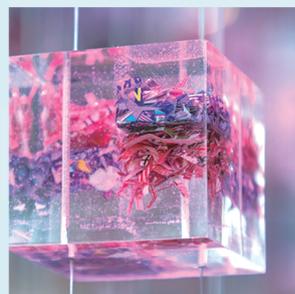




HONG KONG MONETARY AUTHORITY
香港金融管理局



2018 Annual Report



Contents

2	Chief Executive's Statement
8	HKMA at a Glance
10	Highlights of 2018
12	Calendar of Events 2018
20	About the HKMA
24	Advisory Committees
40	Chief Executive's Committee
44	HKMA Organisation Chart
46	Economic and Financial Environment
56	Monetary Stability
70	Banking Stability
110	International Financial Centre
134	Reserves Management
140	Corporate Functions
161	The Exchange Fund
274	Annex and Tables
297	Abbreviations used in this Report
298	Reference Resources

The chapter on Banking Stability in this Annual Report is the report on the working of the Banking Ordinance and the activities of the office of the Monetary Authority during 2018 submitted by the Monetary Authority to the Financial Secretary in accordance with section 9 of the Banking Ordinance.

Cover design: "Chanting Notes", an artistic Bauhinia tree installed at the HKMA Information Centre

The full text of this Report is available on the HKMA website.

Chief Executive's Statement



The year 2018 marked the 10th anniversary of the Global Financial Crisis (GFC). In the past decade, the global political and economic landscape has undergone profound changes. We have seen episodes that are beyond the imagination of the best screenwriters. I noted in last year's Annual Report that the financial markets had performed much better than expected in 2017, but cautioned about uncertainties and risks in the outlook. With the benefit of hindsight, it may be fair to describe 2018 as a year that started well but ended off-colour. Shortly after major stock indexes around the world spiked to their record highs in January, the bullish sentiment was dampened by the US-China trade tensions. Coupled with factors such as the Brexit impasse, a deteriorating geopolitical environment and four rate hikes by the US Federal Reserve, market optimism took a sharp turn and asset prices plunged. The MSCI World Index fell 20.3% from peak to trough and ended the year with a 10% drop, making 2018 the worst year since the outbreak of the GFC. The Hang Seng Index also recorded a peak-to-trough decline of 26.7%, and lost 13.6% for the whole year — the largest decline in seven years.

Robust LERS an anchor of confidence

Despite the volatile and unpredictable external environment last year, Hong Kong's financial system remained sound and the money market continued to operate smoothly. The Linked Exchange Rate System (LERS), which has been in place for 35 years, withstood the test of an outflow of funds from the Hong Kong dollar (HKD). Since the outbreak of the GFC, funds equivalent to some HK\$1 trillion have flowed into the HKD. Last year, the rising US interest rates resulted in a continued widening of interest rate spreads between the US dollar (USD) and the HKD. This attracted increased interest carry trade activities involving the selling of HKD in exchange for USD, weakening the HKD exchange rate against the greenback since early last year. The weak-side Convertibility Undertaking (CU), introduced in 2005, was first triggered in April, followed by another 26 triggers during the year. In accordance with the established mechanism, the HKMA bought HKD under the weak-side CU, totalling HK\$103.5 billion, from the market in an orderly and transparent manner. As a result of the outflow of funds, the

Chief Executive's Statement

one-month Hong Kong Interbank Offered Rate recorded a cumulative increase of 105 basis points in 2018. Banks also raised their best lending rates following the US rate hike in September. To facilitate the public's understanding that the outflow of funds from the HKD is, by design, a necessary process for the normalisation of HKD interest rates under the LERS, the HKMA proactively communicated to the public the working of the mechanism through various channels. The International Monetary Fund reaffirmed its support for the LERS at the end of last year. The HKSAR Government also emphasised that the LERS is the cornerstone of Hong Kong's monetary stability. All these efforts helped anchor public confidence in the LERS.

A sound banking system with stronger resilience

The 2008 GFC revealed the many shortcomings and vulnerabilities in the global financial system. In the past decade, thanks to the concerted efforts of the international community, a series of reforms were introduced to the financial markets and financial institutions. These included strengthening banking supervision to enhance corporate governance and risk management. The HKMA takes a two-pronged approach on banking supervision, namely prudential supervision (which focuses on the balance sheet risk of banks) and conduct supervision. As a member of the Basel Committee on Banking Supervision and the Financial Stability Board (FSB) under G20, the HKMA implements international regulatory standards to ensure that banks in Hong Kong conduct their business in a sound and prudent manner. As at end-2018, the capital adequacy ratio of local banks was 20.3%, well above the international minimum requirement of 8% and significantly higher than the level of 14.7% recorded during the GFC. The average liquidity

coverage ratio of large banks was also well above the minimum statutory requirement of 90%, reaching 167.6% in the fourth quarter of 2018. To avoid the recurrence of the situation during the 2008 GFC in which public money was used to bail out financial institutions that were "too big to fail", the FSB has developed a set of international standards that aim to resolve failing financial institutions in an orderly manner. Hong Kong is among the few jurisdictions in the region that have put in place a resolution regime that is fully compliant with these standards. The HKMA's Resolution Office is working on the operational details of the regime and is requiring banks to implement structural changes to enable effective implementation of their resolution plans when necessary. Following the promulgation of loss-absorbing capacity rules last year, the HKMA will continue to roll out rules relating to the regime in the future.

In view of rising property prices, the HKMA has taken pre-emptive actions and introduced eight rounds of countercyclical measures between 2009 and 2017 that aim to strengthen the resilience of Hong Kong's banking system to a possible downturn in the local property market. These measures have been effective. The average loan-to-value ratio of new residential mortgage loans fell to 46% at end-2018 from 64% in 2009. The average debt servicing ratio also decreased to 34% at end-2018 from 41% in 2010. Total bank loans recorded a moderate growth of 4.4% during the year and maintained good asset quality, with the classified loan ratio of retail banks declining further to 0.5% at end-2018, well below international and local historical average levels. The profitability of banks continued to grow in 2018, with overall return on equity rising for two consecutive years to 13%. The Hong Kong operation of many international banking groups performed well and was a major source of group earnings.

Chief Executive's Statement

A good banking culture at all levels

On conduct supervision, the HKMA established the Banking Conduct Department in 2010 to promote fair treatment of bank customers and to strengthen consumer protection. To drive more fundamental changes, we complement our regulatory requirements on banks' conduct and business practices with bank culture reform. The culture reform encourages banks to foster a sound culture within their institutions through three pillars: governance, incentive systems, and assessment and feedback mechanisms. We expect banks to adopt a "tone from the top" approach in implementing the reform, which should help enhance customers' trust and respect. To facilitate the effective implementation of the three pillars by banks, the HKMA provided specific guidance to banks in 2017 and further introduced supervisory measures at end-2018, including requiring banks to conduct self-assessment on their implementation of culture enhancement measures.

Notwithstanding the global trend towards internet and mobile financial services, the HKMA continued to promote financial inclusion to meet the needs of those who may be unable to make use of the new technology. For example, the HKMA worked with the Hong Kong Association of Banks to introduce a scheme via Electronic Payment Services for the elderly to withdraw cash at convenience stores without the need to make purchases, and the number of convenience stores offering this service has expanded to more than 300. We also worked with the Hongkong Post to offer a cash withdrawal service for the elderly in seven post offices, mainly on outlying islands and in the New Territories. In response to the HKMA's recommendation, the banking industry has taken proactive steps in increasing barrier-free facilities to enhance the accessibility of banking services. For instance, the number of voice navigation ATMs increased by more than 10 times to over 700 during the year. With our encouragement, it is also expected that more physical and mobile bank branches will be launched in remote areas in the coming future to provide more convenience to the public.

Brand new experience in the era of Smart Banking

The HKMA worked closely with the banking and information technology industries to implement the initiatives announced in September 2017 under the banner of "New Era of Smart Banking". By promoting fintech development and innovation in Hong Kong, we hope to offer a brand new experience in payment and banking services to the public. Undoubtedly, the highlight of 2018 must be the launch of the Faster Payment System (FPS) in September. The FPS is a unique retail payment platform that allows full connectivity between the various e-wallets and bank accounts, providing an instant, round-the-clock fund transfer service in HKD and renminbi. To supplement the FPS, the HKMA also introduced the world's first common QR code standard for retail payments in Hong Kong as well as a related mobile application tool. The app facilitates merchants' use of a single QR code to accept payments from different payment schemes. The FPS has been very well-received by the public. In the short span of just six months since its launch, the FPS has recorded over 2.58 million registrations and processed a daily average of 60,000 transactions involving HK\$20,700 and RMB38,000 per transaction respectively.

In May 2018, the HKMA published a revised *Guideline on Authorization of Virtual Banks*, which soon attracted 33 applications for virtual bank licences. As of mid-April 2019, four licences had been granted, and it is expected that they will commence operation within this year. Virtual banks will not only help drive fintech and innovation, but also bring about brand new customer experiences for individuals and businesses, particularly small to medium-sized enterprises, which should help promote financial inclusion.

Chief Executive's Statement

In July, the HKMA published an Open Application Programming Interface (Open API) framework, setting the stage for banks to open up their products and services via Open API in four phases. This initiative helps create a more flexible and open fintech environment, and provides bank customers with greater convenience in integrating their accounts, obtaining information, and choosing services which best meet their needs. In 2018, a total of 42 pilot trials of new fintech products were conducted in our Fintech Supervisory Sandbox. Among these, 28 have been completed, with the relevant products and services already rolled out to the market.

With the HKMA's support, eTradeConnect — a distributed ledger technology (DLT)-based trade finance platform developed by a consortium of banks — was launched in October. This platform substantially enhances banks' efficiency in processing trade finance applications. We are also conducting a proof-of-concept on the connection of eTradeConnect with similar platforms in other jurisdictions to facilitate cross-border trade financing.

Fintech is widely applied in daily life. In recent years, its application has also extended to compliance and supervision. The HKMA encourages banks to adopt regulatory technology (Regtech) to assist in their daily operations, such as using surveillance technologies to detect suspicious transactions that may be linked to money laundering or the financing of terrorism. Meanwhile, we are also studying the potential of using supervisory technology (Suptech) to further enhance the efficiency and effectiveness of our supervisory work.

IFC from strength to strength

Increasingly, international financial centres are competing on soft power. To create new growth areas for Hong Kong's financial sector, we have to keep pace with economic, social and technological developments and seize new opportunities ahead of us. Green finance provides promising prospects for Hong Kong, particularly in the bond and project finance markets. The HKMA has been working with the Government in developing the green finance market in Hong Kong. Apart from preparing for the launch of the HK\$100 billion Government Green Bond Programme, the HKMA also held a number of major green finance events last year, including two large-scale international conferences. These efforts helped promote market awareness and understanding of, and participation in, green finance, while encouraging issuing institutions to take part in the Green Bond Grant Scheme and the Green Finance Certification Scheme introduced last year. Our efforts are bearing fruit. Green bond issuances in Hong Kong reached over US\$11 billion in 2018, more than triple that of 2017.

In recent years, investment in infrastructure projects has been gaining traction. Since its inception in 2016, the HKMA Infrastructure Financing Facilitation Office (IFFO) has more than doubled its number of partners to 95 today. IFFO has established itself as an important platform for infrastructure financing in the region. Last year, the HKMA co-hosted a high-level roundtable with the China State-owned Assets Supervision and Administration Commission to discuss Hong Kong's unique role in helping Central State-owned Enterprises (CSoEs) to go global. The roundtable paved the way for further co-operation between CSoEs and the financial and professional services sector in Hong Kong to capture emerging opportunities.

Chief Executive's Statement

Hong Kong has maintained its role as the leading global offshore renminbi business hub. The average daily turnover of Hong Kong's renminbi Real-Time Gross Settlement system reached a record high of over RMB1,000 billion in 2018, compared with a mere RMB0.6 billion a decade ago. Such stellar growth reflects the steady development of offshore renminbi business in Hong Kong and the robustness of our financial infrastructure, which provides the requisite support for an increasingly sophisticated offshore market. During the year, new progress was made on the offshore renminbi bond business. The HKMA's Central Moneymarkets Unit assisted the People's Bank of China in the issuance of the latter's first offshore renminbi bills in Hong Kong, further extending the yield curve of renminbi bonds in Hong Kong. Enhancement measures were also introduced for the Bond Connect scheme, including the full implementation of real-time delivery-versus-payment settlement and tax exemption measures, further facilitating international investors' access to the Mainland bond market via Hong Kong.

The Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area (GBA), announced in February 2019, reaffirms and further supports Hong Kong's position as an international financial centre, a global offshore renminbi business hub, an international asset management centre and a risk management centre. The HKMA has been working closely with Mainland authorities to explore further financial facilitation measures for the GBA. These measures include simplifying onshore bank account opening procedures for Hong Kong residents, extending the usage of Hong Kong e-wallets to the Mainland, and granting mutual access of wealth management products. Through the facilitation of the HKMA and Mainland authorities, a number of Hong Kong

e-wallet and retail payment system operators have already introduced cross-border payment services which enable payment at Mainland retail outlets with Hong Kong e-wallets. Recently, a Hong Kong-based bank has also launched remote on-boarding service which enables Hong Kong residents to open Mainland bank accounts through its branches in Hong Kong. As for corporates, the HKMA will continue to work closely with Mainland authorities to expand the policy headroom, including increasing the two-way usage of renminbi liquidity pool, facilitating businesses' cross-border operations, and promoting cross-border investment and financing activities. The HKMA will fully support the policy objectives of the Outline Development Plan and contribute to the development of the GBA into a world-class city cluster.

Talent is crucial to the sustainable development of an international financial centre. Capacity building for Hong Kong's financial sector has been one of our work priorities in recent years. Preparatory work for the establishment of an Academy of Finance (AoF) is proceeding at full steam. Serving as a centre of excellence in promoting financial leadership development and enhancing applied research in the monetary and financial fields, the AoF will be formally established in mid-2019. Meanwhile, the HKMA keeps up its work in implementing the Enhanced Competency Framework (ECF) for Banking Practitioners. Since 2016, we have launched ECF modules covering anti-money laundering and counter-financing of terrorism, cybersecurity, treasury management, and retail wealth management. In consultation with the banking industry, we launched a new module on credit risk management in March 2019, and will soon be working on a new module on risk management and compliance.

Chief Executive's Statement

Staying the course, investing for the future

Global financial markets experienced a turbulent year in 2018, with equities, bonds and non-US dollar assets all declining, and most investment funds suffering losses to varying degrees. Despite the difficult environment, the Exchange Fund managed to record an investment gain of HK\$10.9 billion last year, representing an overall rate of return of 0.3%. The HKMA has been striving to achieve a relatively stable income in the medium and long term through diversified investments of the Exchange Fund. A notable example is our diversification into alternative assets such as private equity and real estate through the Long-Term Growth Portfolio (LTGP) since 2009. Over the last decade, the LTGP has achieved an annualised internal rate of return of 12.9%, contributing steady and decent returns to the Exchange Fund. We will continue to adhere to the principle of ensuring "Capital Preservation First, Long-Term Growth Next" to safeguard and grow the wealth of Hong Kong people.

Don't let history repeat itself

As the saying goes, "water can float a boat and sink it as well". The GFC in 2008 exposed the vulnerabilities of the global financial system, low levels of risk awareness and unethical practices of some practitioners. The hardest lesson was the use of taxpayers' money to bail out failing financial institutions. Subsequent actions by major central banks, such as pursuing zero interest rates and introducing quantitative easing which aimed to prop up the market and invigorate the economy, resulted in excessive global liquidity, asset price distortions and a widening wealth gap. While Hong Kong's financial system has survived the GFC largely unscathed, the ensuing ripple effect does sound an alarm that we should stay vigilant to any emerging risks and get ourselves well prepared. History has told us that it is difficult to predict when a financial crisis will hit and how it will unfold. With this in mind, the HKMA has done a great deal of work over the past decade in enhancing the resilience of Hong Kong's financial sector, especially the banking sector, to help Hong Kong withstand any shocks that may come our way and recover quickly from such shocks.

Financial stability and development are two sides of the same coin. Stability is the bedrock that supports sustained development. In the past decade, the HKMA has diligently pursued our mandates of maintaining stability and promoting development. Working together with the various stakeholders, we have achieved a great deal: the offshore renminbi business in Hong Kong has prospered; our position as an international banking hub has been further enhanced; asset management and wealth management businesses have grown substantially; connectivity between Hong Kong and the Mainland's financial markets has been further broadened and deepened; and fintech has got off to a speedy start. Hong Kong is now in a much stronger position as Asia's premier international financial centre, and the best is yet to come.



Norman T.L. Chan
Chief Executive

HKMA at a Glance

The Hong Kong Monetary Authority (HKMA) is the government authority in Hong Kong responsible for maintaining monetary and banking stability.

The HKMA's policy objectives are

- to maintain currency stability within the framework of the Linked Exchange Rate System;
- to promote the stability and integrity of the financial system, including the banking system;
- to help maintain Hong Kong's status as an international financial centre, including the maintenance and development of Hong Kong's financial infrastructure; and
- to manage the Exchange Fund.

The HKMA is an integral part of the Hong Kong Special Administrative Region Government but operates with a high degree of autonomy, complemented by a high degree of accountability and transparency. The HKMA is accountable to the people of Hong Kong through the Financial Secretary and through the laws passed by the Legislative Council that set out the Monetary Authority's powers and responsibilities. In his control of the Exchange Fund, the Financial Secretary is advised by the Exchange Fund Advisory Committee.

The HKMA's offices are at

55/F, Two International Finance Centre

8 Finance Street, Central, Hong Kong

Telephone : (852) 2878 8196

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E-mail : hkma@hkma.gov.hk

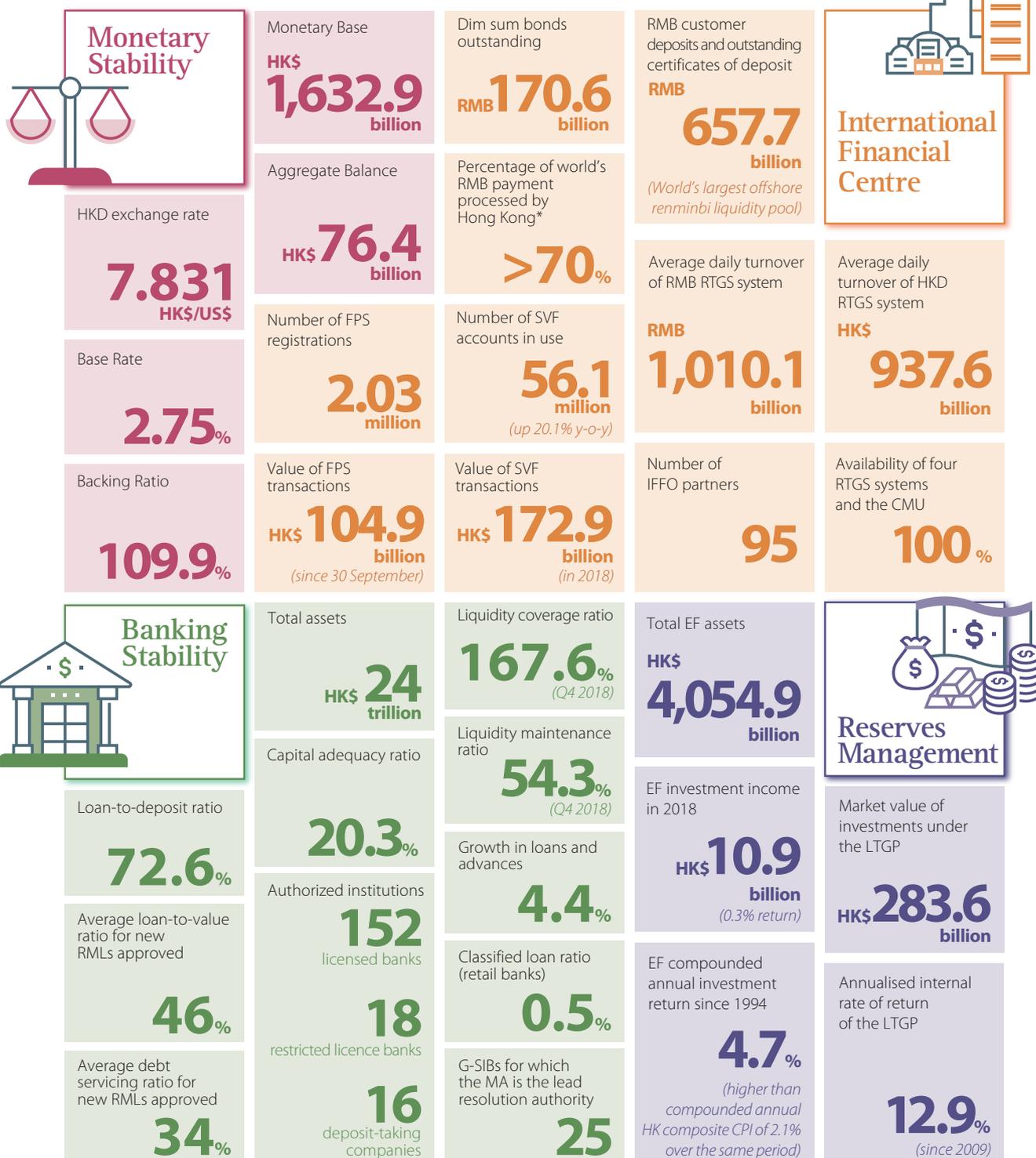


The HKMA Information Centre is located at 55/F, Two International Finance Centre, 8 Finance Street, Central, Hong Kong and is open from 10:00 a.m. to 6:00 p.m. Monday to Friday and 10:00 a.m. to 1:00 p.m. on Saturday (except public holidays). The Centre consists of an exhibition area and a library containing materials on Hong Kong's monetary, banking and financial affairs and central banking topics.

The HKMA's bilingual website (www.hkma.gov.hk) provides comprehensive information about the HKMA including its main publications and many other materials.

HKMA at a Glance

KEY FIGURES FOR 2018



Figures in this section refer to positions as at end-2018, unless otherwise stated.

* According to SWIFT Survey

CMU - Central Moneymarkets Unit
CPI - Consumer Price Index
EF - Exchange Fund
FPS - Faster Payment System

G-SIBs - Global systemically important banks
IFFO - Infrastructure Financing Facilitation Office
LTGP - Long-Term Growth Portfolio
MA - Monetary Authority

RMB - Renminbi
RMLs - Residential mortgage loans
RTGS - Real Time Gross Settlement
SVF - Stored value facility

Highlights of 2018

Economic and Financial Environment



Economic growth in Hong Kong softens amid tighter financial conditions and heightened uncertainty due to rising US-China trade tensions. The local stock market ends the year lower, and the residential property market moderates in the second half of the year.

The Hong Kong banking sector remains resilient. The capital and liquidity positions of the banking sector are strong and asset quality remains good. Moreover, profitability keeps on improving.

Monetary Stability



The Hong Kong dollar eases against the US dollar, and the weak-side Convertibility Undertaking is triggered multiple times during the year. Nevertheless, the Hong Kong dollar exchange market continues to function in an orderly manner and market confidence in the Linked Exchange Rate System remains strong.

The Hong Kong dollar interest rates broadly pick up. The Base Rate in Hong Kong is adjusted upwards by a total of 100 basis points to 2.75%, in tandem with the increase in the target range for the US federal funds rate.

Banking Stability



The HKMA continues to focus its supervisory efforts on reviewing the effectiveness of banks' liquidity and credit risk management systems, steps up the supervision of banks' technology and operational risk management, and strengthens the resilience of banks' anti-money laundering and counter-financing of terrorism systems through harnessing new technology and risk-based approaches. A revised *Guideline on Authorization of Virtual Banks* is published to facilitate the establishment of virtual banks in Hong Kong.

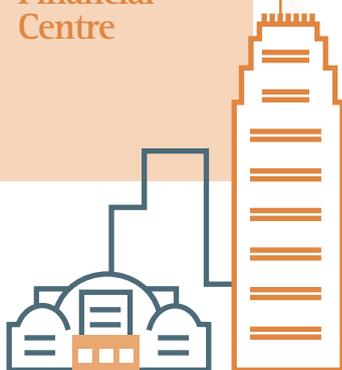
On conduct supervision, the HKMA takes further steps to enhance the supervision of banks' sales practices for investment and insurance products, facilitate access to barrier-free banking services to customers with disabilities, and promote a customer-centric corporate culture.

On the prudential policy side, substantial progress is made on the local implementation of international regulatory standards.

On operationalising the resolution regime, significant progress is made in resolution standard-setting, resolution planning, and building up the HKMA's operational capability as a resolution authority.

Highlights of 2018

International Financial Centre



Good progress is made on the seven initiatives that are aimed at facilitating the development and use of fintech in the banking and payment industries, including the successful launch of the Faster Payment System. Hong Kong maintains its leading position in offshore renminbi business, with major enhancements made to the mutual market access schemes with Mainland China.

Enormous effort is put on opening up new opportunities to further enhance the competitiveness of Hong Kong's financial platforms, including investment fund regimes, infrastructure financing, corporate treasury centres and green bond market.

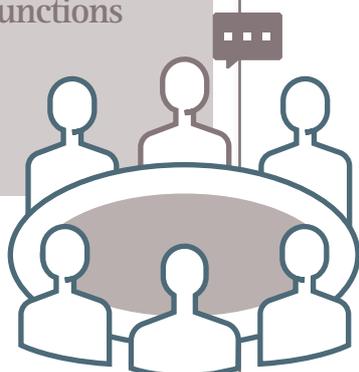
Reserves Management



Despite the challenging investment environment, the Exchange Fund records an investment income of HK\$10.9 billion in 2018.

Efforts on investment diversification continue, especially through the Long-Term Growth Portfolio (LTGP). The LTGP has recorded an annualised internal rate of return of 12.9% since its inception in 2009.

Corporate Functions



The HKMA maintains effective communication with the community and the market through the media, website, public education programmes and other various channels to facilitate public understanding about its policies and operations.

The HKMA continues to improve corporate governance by supporting professional development of staff, instituting rigorous financial discipline and enhancing IT security to cope with challenges arising from the implementation of new initiatives and the increasing complexity of work.

Calendar of Events 2018

MONETARY STABILITY

12
APR

The HKMA's weak-side Convertibility Undertaking (CU) of HK\$7.85 against the USD is triggered during London trading hours. This is the first triggering of the weak-side CU since the introduction of three refinements to the operation of the Linked Exchange Rate System in 2005 by the HKMA. In 2018, the weak-side CU has been triggered 27 times in total.

24
JUL

The HKMA and the three note-issuing banks announce the issue of the 2018 new series Hong Kong banknotes.



26
OCT

The HKMA announces the designation of nine authorized institutions (AIs) as Primary Liquidity Providers for offshore renminbi market in Hong Kong.

BANKING

10
JAN

The HKMA announces that the countercyclical capital buffer for Hong Kong will increase to 2.5% from 1.875% with effect from 1 January 2019.

2
FEB

The Anti-Money Laundering and Counter-Terrorist Financing (Financial Institutions) (Amendment) Ordinance 2018 is gazetted.

28
FEB

The Financial Stability Board publishes the peer review report of Hong Kong, recognising the good progress made in recent years in over-the-counter derivative market reforms and the establishment of the framework for resolution of financial institutions.

23
MAR

The HKMA facilitates the Hong Kong Association of Banks' issuance of the *Practical Guideline on Barrier-free Banking Services*.

Calendar of Events 2018

BANKING

4
MAY

The Banking (Disclosure) (Amendment) Rules 2018 and the Banking (Specification of Multilateral Development Bank) (Amendment) Notice 2018 are gazetted.

18
MAY

The Banking (Amendment) Ordinance 2018 (Commencement) Notice 2018 and the Banking (Exposure Limits) Rules are gazetted.

30
MAY

The HKMA publishes a revised *Guideline on Authorization of Virtual Banks* following the completion of a public consultation.

3
OCT

The HKMA hosts the second Annual Conference for Independent Non-Executive Directors in Hong Kong.



19
OCT

The Financial Institutions (Resolution) (Loss-absorbing Capacity Requirements — Banking Sector) Rules (“LAC Rules”) and the related Inland Revenue (Amendment) (No. 6) Bill 2018 are gazetted.

26
OCT

The HKMA and the Monetary Authority of Macao sign a Memorandum of Understanding (MoU) to jointly promote mutually recognised professional training and certifications under the Enhanced Competency Framework for Banking Practitioners.

16
NOV

The Banking (Amendment) Ordinance 2018 (Commencement) (No. 2) Notice 2018, the Banking (Exposure Limits) Rules, the Banking (Capital) (Amendment) Rules 2018, and the Banking (Disclosure) (Amendment) (No. 2) Rules 2018 are gazetted.

14
DEC

LAC Rules come into operation.

19
DEC

The HKMA announces new supervisory measures for bank culture (namely, self-assessment, focused reviews and culture dialogues) to gauge the progress of Bank Culture Reform in Hong Kong.

21
DEC

The HKMA announces its latest list of AIs designated as Domestic Systemically Important Banks.

Calendar of Events 2018

INTERNATIONAL FINANCIAL CENTRE

23
JAN

The HKMA signs an MoU with the Swiss Federal Department of Finance to strengthen financial market cooperation, including in the areas of renminbi internationalisation, wealth management, infrastructure financing and international financial matters, between the two economies. The HKMA and the Swiss Financial Market Supervisory Authority (FINMA) exchange an MoU to facilitate financial innovation in the two places.



31
JAN

The HKMA launches an upgraded version of the Fintech Career Accelerator Scheme ("FCAS 2.0"), which aims to enhance the fintech talent pool in Hong Kong to meet the growing demands from the industry.

9
MAR

The HKMA and the Polish Financial Supervision Authority exchange an MoU to enhance fintech collaboration between the two authorities.



27-28
MAR

The HKMA Infrastructure Financing Facilitation Office (IFFO) hosts a two-day executive workshop, co-organised by the International Finance Corporation and Multilateral Investment Guarantee Agency.



1
MAY

The daily quotas of Stock Connects quadrupled.

15
MAY

IFFO and the Hong Kong Association of Banks jointly organise a seminar on "Building a Sustainable Belt and Road — Hong Kong's Pivotal Role to Play".

29
MAY

The HKMA and Invest Hong Kong jointly host a seminar on "Guangdong-Hong Kong-Macao Bay Area — New Opportunities Arising from Overseas Corporate Treasury Management" in Guangzhou.

Calendar of Events 2018

INTERNATIONAL FINANCIAL CENTRE

14
JUN

The HKMA and the International Capital Market Association co-host the 2018 Green and Social Bond Principles Annual General Meeting and Conference in Hong Kong.



15
JUN

The HKMA and the Research Bureau of the People's Bank of China (PBoC) jointly host a seminar on "Mainland and Hong Kong Green Finance Opportunities" in Hong Kong.



25
JUN

The HKMA and the Office of Financial Development Service, the People's Government of Shenzhen Municipality, launch the first Shenzhen Fintech Summer Internship Programme designed for students from Hong Kong tertiary education institutions.



26
JUN

The HKMA and the Financial Services Regulatory Authority of the Abu Dhabi Global Market sign a Co-operation Agreement to enhance fintech collaboration between the two authorities.

27
JUN

The HKMA and the Securities and Futures Commission publish conclusions to a joint consultation on further enhancements to the over-the-counter derivatives regulatory regime.

Calendar of Events 2018

INTERNATIONAL FINANCIAL CENTRE

28
JUN

IFFO hosts a panel discussion on “Risk Mitigation in Infrastructure Financing” in the third Belt and Road Summit.



3
JUL

Bond Connect celebrates first anniversary.



18
JUL

The HKMA publishes the Open Application Programming Interface (Open API) Framework for the Hong Kong banking sector.

7
AUG

The HKMA, in collaboration with 11 financial regulators and related organisations, announces the initiative of the Global Financial Innovation Network.

15-16
AUG

The HKMA and the State-owned Assets Supervision and Administration Commission of the State Council co-organise the “Connecting Belt & Road, Capturing Opportunities Together” High-level Roundtable in Hong Kong.



24
AUG

Delivery versus Payment (DvP) settlement is fully implemented in Bond Connect.

31
AUG

Two retail payment systems are designated by the HKMA under the Payment Systems and Stored Value Facilities Ordinance (Cap. 584).

Calendar of Events 2018

INTERNATIONAL FINANCIAL CENTRE

9
SEP

The HKMA and the Central Bank of Brazil sign a Co-operation Agreement to enhance collaboration between the two central banks involving fintech issues.

17
SEP

The HKMA announces the launch of the Faster Payment System (FPS). The FPS commences full operation on 30 September.



20
SEP

The HKMA and the PBoC sign a Memorandum of Co-operation on Using Central Moneymarkets Unit for Issuance of PBoC Bills.

21
SEP

The Treasury Markets Summit 2018, jointly organised by the HKMA and the Treasury Markets Association, is held in Hong Kong.



25-26
OCT

IFFO holds the second Investors and Debt Financing Roundtables. IFFO also announces that five new institutions have joined as partners, bringing the total number of IFFO partners to 95.



Calendar of Events 2018

INTERNATIONAL FINANCIAL CENTRE

31
OCT

The HKMA announces the official launch of eTradeConnect, a blockchain-based trade finance platform developed by a consortium of 12 major banks in Hong Kong.

The HKMA witnesses the signing of an MoU between the operators of eTradeConnect and we.trade to conduct a proof-of-concept on connecting the two platforms.



31
OCT-
15
NOV

The HKMA hosts the field visit of Hong Kong's mutual evaluation, which assesses the effectiveness of Hong Kong's anti-money laundering and counter-financing of terrorism regime, jointly conducted by the Financial Action Task Force and the Asia/Pacific Group on Money Laundering.

1
NOV

The HKMA leads a seminar in Tokyo to promote Hong Kong's leading platform as an international financial centre and gateway of Mainland China.



9
NOV

The PBoC issues renminbi bills of RMB20 billion in Hong Kong for the first time.

12
DEC

The International Monetary Fund issues the Concluding Statement for the 2018 Article IV Consultation with the Hong Kong Special Administrative Region, noting that many years of prudent macroeconomic policies have endowed Hong Kong with ample buffers for navigating through challenges, commending Hong Kong for maintaining robust financial regulation and supervision and reaffirming its support for the Linked Exchange Rate System.

Calendar of Events 2018

RESERVES MANAGEMENT

1
Aug

The HKMA sets up the Exchange Fund Investment Office to house its investment and related risk management functions.

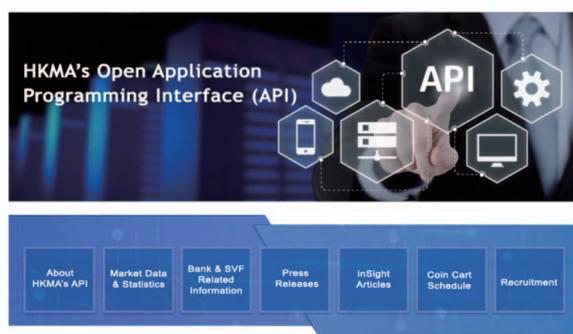
CORPORATE FUNCTIONS

20
Jul

The HKMA launches its Facebook page, with a view to strengthening its communications with the public through the social media.

23
Jul

The HKMA launches Open API on its official website to provide convenient access by the public.



16
Aug

The Currency Section of the HKMA Information Centre is reopened to the public after undergoing a complete revamp.



About the HKMA

The Hong Kong Monetary Authority is Hong Kong's central banking institution. The HKMA has four main functions: maintaining currency stability within the framework of the Linked Exchange Rate System; promoting the stability and integrity of the financial system, including the banking system; helping to maintain Hong Kong's status as an international financial centre, including the maintenance and development of Hong Kong's financial infrastructure; and managing the Exchange Fund.

THE HKMA'S LEGAL MANDATE

The HKMA was established on 1 April 1993 after the Legislative Council passed amendments to the Exchange Fund Ordinance in 1992 empowering the Financial Secretary to appoint a Monetary Authority.

The powers, functions and responsibilities of the Monetary Authority are set out in the Exchange Fund Ordinance, the Banking Ordinance, the Financial Institutions (Resolution) Ordinance, the Deposit Protection Scheme Ordinance, the Payment Systems and Stored Value Facilities Ordinance, and other relevant Ordinances. The division of functions and responsibilities in monetary and financial affairs between the Financial Secretary and the Monetary Authority is set out in an exchange of letters dated 25 June 2003. The exchange of letters discloses delegations made by the Financial Secretary to the Monetary Authority. The letters are public documents and can be found on the HKMA website.

The Exchange Fund Ordinance establishes the Exchange Fund under the control of the Financial Secretary. According to the Ordinance, the Fund shall be used primarily for affecting the exchange value of the Hong Kong dollar. It may also be used for maintaining the stability and integrity of the monetary and financial systems of Hong Kong, with a view to maintaining Hong Kong as an international financial centre.

The Monetary Authority is appointed under the Exchange Fund Ordinance to assist the Financial Secretary in performing his functions under the Exchange Fund Ordinance and to perform such other functions as are assigned by other Ordinances or by the Financial Secretary. The office of the Monetary Authority is known as the HKMA, and the Monetary Authority is the Chief Executive of the HKMA.

The Banking Ordinance provides the Monetary Authority with the responsibility and powers for regulating and supervising banking business and the business of taking deposits. Under the Ordinance, the Monetary Authority is responsible for the authorization of licensed banks, restricted licence banks and deposit-taking companies in Hong Kong.

The Financial Institutions (Resolution) Ordinance designates the Monetary Authority as the resolution authority for banking sector entities. Under the Ordinance, the Monetary Authority is vested with a range of powers to effect their orderly resolution with a view to mitigating the risks posed by their non-viability to the stability and effective working of the financial system of Hong Kong.

The Securities and Futures Ordinance and the Mandatory Provident Fund Schemes Ordinance provide certain powers to the Monetary Authority regarding banks' securities and mandatory provident fund businesses.

The Insurance Ordinance provides that the Monetary Authority may be delegated inspection and investigation powers in respect of insurance activities of banks.

The Anti-Money Laundering and Counter-Terrorist Financing Ordinance empowers the Monetary Authority to supervise banks' compliance with the requirements under the Ordinance.

The Deposit Protection Scheme Ordinance confers responsibility on the Monetary Authority to assist in the operation of the Deposit Protection Scheme and to trigger payment of compensation from the Deposit Protection Scheme Fund to depositors of a failed bank.

About the HKMA

The Payment Systems and Stored Value Facilities Ordinance provides a statutory regime for the Monetary Authority to designate and oversee clearing and settlement systems that are material to the monetary or financial stability of Hong Kong or to the functioning of Hong Kong as an international financial centre. It also empowers the Monetary Authority to administer a licensing regime for stored value facilities, and to designate retail payment systems and oversee their operations are safe and efficient.

THE HKMA AND THE HONG KONG SPECIAL ADMINISTRATIVE REGION GOVERNMENT

The HKMA is an integral part of the Hong Kong Special Administrative Region Government, but is able to employ staff on terms different from those of the civil service in order to attract personnel of the right experience and expertise. The Chief Executive of the HKMA and his staff are public officers. In its day-to-day work the HKMA operates with a high degree of autonomy within the relevant statutory powers conferred upon, or delegated to, the Monetary Authority.

The Financial Secretary is responsible for determining the monetary policy objective and the structure of the monetary system of Hong Kong: a letter from the Financial Secretary to the Monetary Authority dated 25 June 2003 specifies that these should be currency stability defined as a stable exchange value at around HK\$7.80 to one US dollar maintained by Currency Board arrangements. The Monetary Authority is on his own responsible for achieving the monetary policy objective, including determining the strategy, instruments and operational means for doing so. He is also responsible for maintaining the stability and integrity of the monetary system of Hong Kong.

The Financial Secretary, assisted by the Secretary for Financial Services and the Treasury, has responsibility for policies for maintaining the stability and integrity of Hong Kong's financial system and the status of Hong Kong as an international financial centre. In support of these policies, the Monetary Authority's responsibilities include:

- promoting the general stability and effective working of the banking system
- promoting the development of the debt market, in co-operation with other relevant bodies
- matters relating to the issuance and circulation of legal tender notes and coins
- promoting the safety and efficiency of the financial infrastructure through the development of payment, clearing and settlement systems and, where appropriate, the operation of these systems
- seeking to promote, in co-operation with other relevant bodies, confidence in Hong Kong's monetary and financial systems, and market development initiatives to help strengthen the international competitiveness of Hong Kong's financial services.

The Exchange Fund is under the control of the Financial Secretary. The Monetary Authority, under delegation from the Financial Secretary, is responsible to the Financial Secretary for the use of the Exchange Fund, and for the investment management of the Fund.

ACCOUNTABILITY AND TRANSPARENCY

The autonomy given to the HKMA in its day-to-day operations, and in the methods it uses to pursue policy objectives determined by the Government, is complemented by a high degree of accountability and transparency.

The HKMA serves Hong Kong by promoting monetary and banking stability, by managing the official reserves effectively, and by developing and overseeing a robust and diverse financial infrastructure. These processes help to strengthen Hong Kong's role as an international financial centre and to foster Hong Kong's economic well-being.

About the HKMA

The HKMA must have the confidence of the community if it is to perform its duties well. The HKMA therefore takes seriously the duty of explaining its policies and work to the general public and makes every effort to address any concerns within the community relevant to the HKMA's responsibilities.

The HKMA is accountable to the people of Hong Kong through the Financial Secretary, who appoints the Monetary Authority, and through the laws passed by the Legislative Council that set out the Monetary Authority's powers and responsibilities. The HKMA also recognises a broader responsibility to promote a better understanding of its roles and objectives and to keep itself informed of community concerns. In its day-to-day operations and in its wider contacts with the community, the HKMA pursues a policy of transparency and accessibility. This policy has two main objectives:

- to keep the financial industry and the public as fully informed about the work of the HKMA as possible, subject to considerations of market sensitivity, commercial confidentiality and statutory restrictions on disclosure of confidential information;
- to ensure that the HKMA is in touch with, and responsive to, the community it serves.

The HKMA seeks to follow international best practices in its transparency arrangements. It maintains extensive relations with the mass media and produces a range of regular and special publications in both English and Chinese. The HKMA's bilingual website (www.hkma.gov.hk) carries a large number of HKMA publications, press releases, speeches and presentations, in addition to special sections on research, statistics, consumer information and other topics. Social media platforms are also used to communicate with the public more efficiently in the digital era. The HKMA maintains an Information Centre at its offices, consisting of a library and an exhibition area, which is open to the public six days a week. The HKMA also organises public education programmes to inform the public, and in particular students, about the work of the HKMA and enhance their financial literacy through seminars and guided tours at the Information Centre. Further information on the HKMA's media work, publications and public education programmes is contained in the chapter on *Corporate Functions*.

Over the years the HKMA has progressively increased the detail and frequency of its disclosure of information on the Exchange Fund and Currency Board Accounts. Since 1999 the HKMA has participated in the International Monetary Fund's Special Data Dissemination Standard project for central banks. The HKMA publishes records of meetings of the Currency Board Sub-Committee of the Exchange Fund Advisory Committee (EFAC) and the reports on Currency Board operations. The supervisory policies and guidelines on banking have been published on the website since 1996.

The relations between the HKMA and the Legislative Council play an important part in promoting accountability and transparency. There is a formal commitment from the Chief Executive of the HKMA to appear before the Panel on Financial Affairs of the Legislative Council three times a year to brief Members and to answer questions on the HKMA's work. Representatives from the HKMA attend Legislative Council panel and committee meetings from time to time to explain and discuss particular issues and to assist Members in their scrutiny of draft legislation.

ADVISORY AND OTHER COMMITTEES

Exchange Fund Advisory Committee

In his control of the Exchange Fund, the Financial Secretary is advised by EFAC. EFAC is established under section 3(1) of the Exchange Fund Ordinance, which requires the Financial Secretary to consult the Committee in his exercise of control of the Exchange Fund. The Financial Secretary is ex officio Chairman of EFAC. Other members, including the Monetary Authority, are appointed in a personal capacity by the Financial Secretary under the delegated authority of the Chief Executive of the Hong Kong Special Administrative Region. Members of EFAC are appointed for the expertise and experience that they can bring to the Committee. Such expertise and experience include knowledge of monetary, financial and economic affairs and of investment issues, as well as of accounting, management, business and legal matters.

EFAC is assisted in its work by five Sub-Committees, which monitor specific areas of the HKMA's work and report and make recommendations to the Financial Secretary through EFAC. The Committee held five meetings in 2018 to discuss a full range of issues relating to the work of the HKMA, most of which had been previously discussed by the relevant Sub-Committees.

About the HKMA

The *Governance Sub-Committee* monitors the performance of the HKMA and makes recommendations on remuneration and human resources policies, and on budgetary, administrative and governance issues. The Sub-Committee met five times in 2018 to consider a range of subjects including the HKMA's expenditure budget, the HKMA's performance assessment, the annual pay review and strategic planning matters. The Sub-Committee also received regular reports on the work of the HKMA.

The *Audit Sub-Committee* reviews and reports on the HKMA's financial reporting process and the adequacy and effectiveness of the internal control systems of the HKMA. The Sub-Committee reviews the HKMA's financial statements, and the composition and accounting principles adopted in such statements. It also examines and reviews with both the external and internal auditors the scope and results of their audits. None of the members of the Sub-Committee performs any executive functions in the HKMA. The Sub-Committee met two times in 2018 and received reports on the work of the Risk Committee and the Internal Audit Division.

The *Currency Board Sub-Committee* monitors and reports on the Currency Board arrangements that underpin Hong Kong's Linked Exchange Rate System. It is responsible for ensuring that Currency Board operations are in accordance with established policy, recommending improvements to the Currency Board system, and ensuring a high degree of transparency in the operation of the system. Records of the Sub-Committee's meetings and the reports on Currency Board operations submitted to the Sub-Committee are published. In 2018, the Sub-Committee met four times.

The *Investment Sub-Committee* monitors the HKMA's investment management work and makes recommendations on the investment policy and strategy of the Exchange Fund and on risk management and other related matters. The Sub-Committee held five meetings during 2018.

The *Financial Infrastructure and Market Development Sub-Committee* makes recommendations on measures to further develop Hong Kong's status as an international financial centre and strengthen the international competitiveness of Hong Kong's financial services, including promoting the development, operational excellence, safety and efficiency of the financial infrastructure in Hong Kong; and promoting the development of Hong Kong as an offshore renminbi centre

and fostering the development of other enabling factors. It also makes recommendations on initiatives for the HKMA and monitors the work of the HKMA. In 2018, the Sub-Committee met four times.

Brief biographies of EFAC Members and the Code of Conduct for EFAC Members can be found on the HKMA website. A Register of Members' Interests, which contains the declarations of interests by Members, is available for public inspection during 10:00 a.m. to 6:00 p.m. Monday to Friday (except public holidays) at the HKMA offices.

Banking Advisory Committee

The Banking Advisory Committee is established under section 4(1) of the Banking Ordinance to advise the Chief Executive of the Hong Kong Special Administrative Region on matters relating to the Banking Ordinance, in particular matters relating to banks and the carrying on of banking business. The Committee consists of the Financial Secretary as the Chairman, the Monetary Authority, and other persons appointed by the Financial Secretary under the delegated authority of the Chief Executive of the Hong Kong Special Administrative Region.

Deposit-Taking Companies Advisory Committee

The Deposit-taking Companies Advisory Committee is established under section 5(1) of the Banking Ordinance to advise the Chief Executive of the Hong Kong Special Administrative Region on matters relating to the Banking Ordinance, in particular matters relating to deposit-taking companies and restricted licence banks and the carrying on of a business of taking deposits by them. The Committee consists of the Financial Secretary as the Chairman, the Monetary Authority, and other persons appointed by the Financial Secretary under the delegated authority of the Chief Executive of the Hong Kong Special Administrative Region.

Chief Executive's Committee

The Chief Executive's Committee comprises the Chief Executive of the HKMA, who chairs the Committee, the Deputy Chief Executives, the Senior Executive Director and the Executive Directors of the HKMA. The Committee meets regularly to report to the Chief Executive on the progress of major tasks being undertaken by the various departments of the HKMA and to advise him on policy matters relating to the operations of the HKMA.

Advisory Committees

THE EXCHANGE FUND ADVISORY COMMITTEE

Chairman

1 March 2019



The Honourable Paul CHAN Mo-po, GBM, GBS, MH, JP
The Financial Secretary

Members



Mr Norman T.L. CHAN, GBS, JP
The Monetary Authority



Professor Lawrence J. LAU, GBS, JP
Ralph and Claire Landau Professor of Economics
The Chinese University of Hong Kong



Mr Benjamin HUNG Pi-cheng, BBS, JP
Regional Chief Executive Officer, Greater China & North Asia
Chief Executive Officer, Retail Banking & Wealth Management
Standard Chartered Bank



Mr Peter WONG Tung-shun, JP
Deputy Chairman and Chief Executive
The Hongkong and Shanghai Banking Corporation Limited



Mr Carlson TONG, SBS, JP
Chairman
University Grants Committee



Dr David WONG Yau-kar, GBS, JP
Managing Director
United Overseas Investments Limited

Advisory Committees



Mr T. Brian STEVENSON, GBS, JP



Mr Nicky LO Kar-chun, SBS, JP



Mr Silas YANG Siu-shun, JP



Dr Anthony CHOW Wing-kin, SBS, JP
Consultant
Guantao & Chow Solicitors and Notaries



Dr the Honourable Moses CHENG Mo-chi, GBM, GBS, JP
Chairman
Insurance Authority



The Honourable Bernard Charnwut CHAN, GBS, JP
President
Asia Financial Holdings Limited



Mr LAU Ming-wai, GBS, JP
Chairman
Chinese Estates Holdings Limited



Ms Agnes CHAN Sui-kuen
Managing Partner, Hong Kong and Macau
Ernst & Young
(from 12 February 2018)

Advisory Committees



Mr GAO Yingxin
Vice Chairman & Chief Executive
Bank of China (Hong Kong) Limited
(from 20 February 2018)



Ms Irene LEE Yun-lien
Chairman
Hysan Development Company Limited
(from 1 May 2018)



The Honourable Rimsky YUEN Kwok-keung, GBM, SC, JP
Temple Chambers
(from 1 September 2018)



Mr Stephen YIU Kin-wah
(from 1 November 2018)



Dr LO Ka-shui, GBS, JP
Chairman and Managing Director
Great Eagle Holdings Limited
(until 31 January 2018)



Professor Stephen CHEUNG Yan-leung, BBS, JP
President
The Education University of Hong Kong
(until 31 August 2018)



Mrs Angelina LEE WONG Pui-ling, SBS, JP
Partner
Woo, Kwan, Lee & Lo
(until 31 August 2018)



Mr Philip TSAI Wing-chung, BBS, JP
Chairman
Deloitte China
(until 31 August 2018)

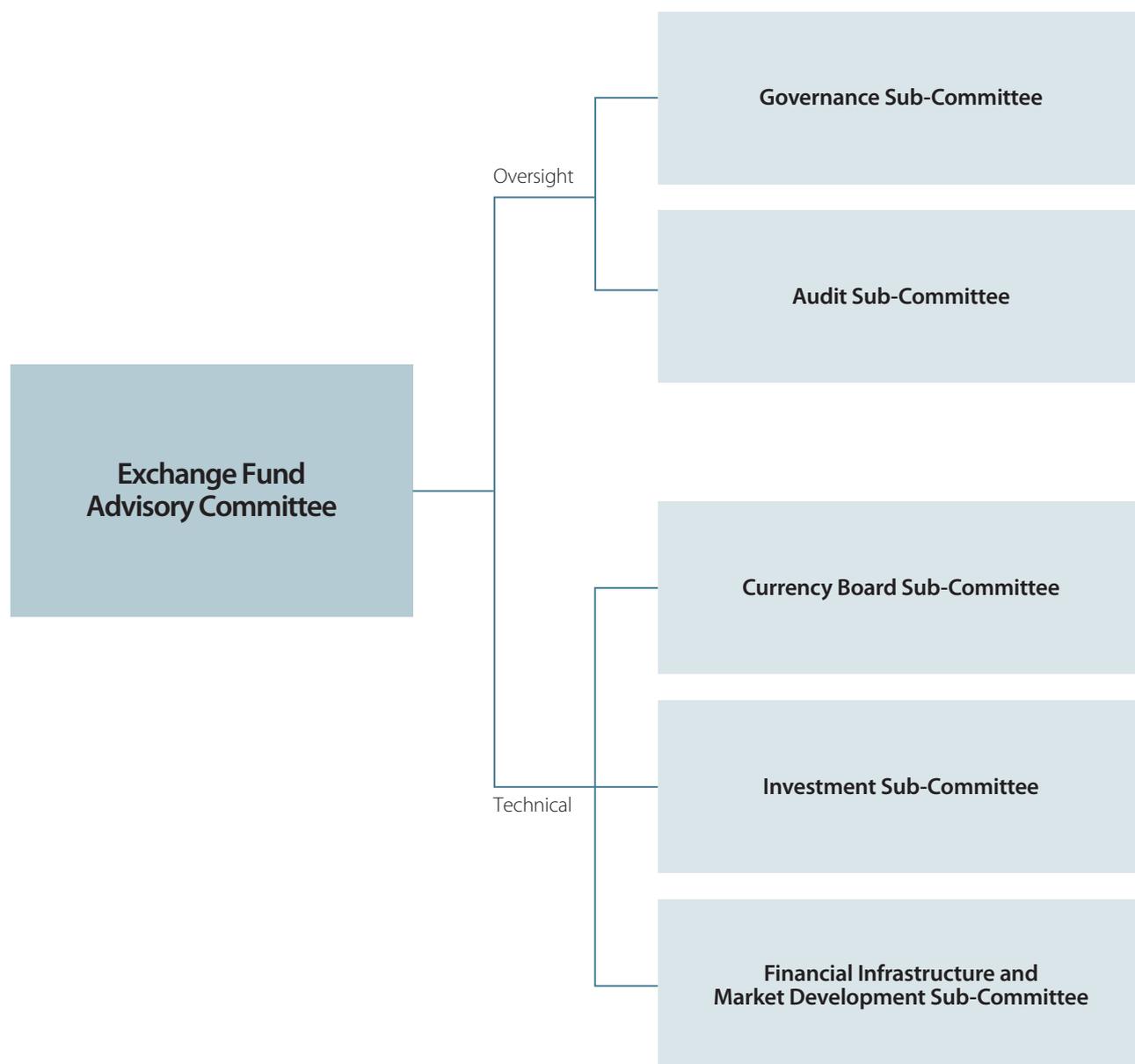
Secretary

Ms Carrie CHAN

Advisory Committees

THE EXCHANGE FUND ADVISORY COMMITTEE

SUB-COMMITTEE STRUCTURE



Advisory Committees

THE EXCHANGE FUND ADVISORY COMMITTEE

GOVERNANCE SUB-COMMITTEE

Chairman

Professor Lawrence J. LAU, GBS, JP
Ralph and Claire Landau Professor of Economics
The Chinese University of Hong Kong

Members

Dr David WONG Yau-kar, GBS, JP
Managing Director
United Overseas Investments Limited

Mr Nicky LO Kar-chun, SBS, JP

Dr the Honourable Moses CHENG Mo-chi, GBM, GBS, JP
Chairman
Insurance Authority

The Honourable Bernard Charnwut CHAN, GBS, JP
President
Asia Financial Holdings Limited

The Honourable Rimsky YUEN Kwok-keung, GBM, SC, JP
Temple Chambers
(from 1 September 2018)

Dr LO Ka-shui, GBS, JP
Chairman and Managing Director
Great Eagle Holdings Limited
(until 31 January 2018)

Mr Philip TSAI Wing-chung, BBS, JP
Chairman
Deloitte China
(until 31 August 2018)

Mr T. Brian STEVENSON, GBS, JP

Dr Anthony CHOW Wing-kin, SBS, JP
Consultant
Guantao & Chow Solicitors and Notaries

Mr LAU Ming-wai, GBS, JP
Chairman
Chinese Estates Holdings Limited

Ms Agnes CHAN Sui-ken
Managing Partner, Hong Kong and Macau
Ernst & Young
(from 12 February 2018)

Mr Stephen YIU Kin-wah
(from 1 November 2018)

Mrs Angelina LEE WONG Pui-ling, SBS, JP
Partner
Woo, Kwan, Lee & Lo
(until 31 August 2018)

Mr Carlson TONG, SBS, JP
Chairman
University Grants Committee
(until 21 February 2019)

Secretary

Ms Carrie CHAN

Advisory Committees

Terms of Reference

- (1) To monitor the performance of the HKMA in carrying out its functions and responsibilities and in its use of resources, and to formulate recommendations to the Financial Secretary through the Exchange Fund Advisory Committee on
 - (a) the remuneration and human resources policies of the HKMA;
 - (b) remuneration for HKMA staff, taking account of the Sub-Committee's assessment of the quality and effectiveness of the HKMA's work; and
 - (c) the use of resources of the HKMA, including its annual administrative budget.
- (2) To consider recommendations and provide advice to the Financial Secretary on the appointment and dismissal of staff at the level of Executive Director and above.
- (3) To keep under review the governance arrangements for the HKMA and to make recommendations to the Financial Secretary through the Exchange Fund Advisory Committee as appropriate.

Advisory Committees

THE EXCHANGE FUND ADVISORY COMMITTEE

AUDIT SUB-COMMITTEE

Chairman

Mr Stephen YIU Kin-wah

(from 22 February 2019)

Members

Mr Carlson TONG, SBS, JP

Chairman

University Grants Committee

(served as Chairman of Audit Sub-Committee until 21 February 2019)

Mr Silas YANG Siu-shun, JP

Mr T. Brian STEVENSON, GBS, JP

Mr LAU Ming-wai, GBS, JP

Chairman

Chinese Estates Holdings Limited

Ms Agnes CHAN Sui-ken

Managing Partner, Hong Kong and Macau

Ernst & Young

(from 12 February 2018)

Mr Philip TSAI Wing-chung, BBS, JP

Chairman

Deloitte China

(until 31 August 2018)

Mrs Angelina LEE WONG Pui-ling, SBS, JP

Partner

Woo, Kwan, Lee & Lo

(until 31 August 2018)

Secretary

Ms Carrie CHAN

Advisory Committees

Terms of Reference

(1) The objectives of the Audit Sub-Committee are as follows:

- (a) to help Members of the Exchange Fund Advisory Committee to discharge their responsibilities for ensuring the proper and smooth running of the HKMA operations and management of the Exchange Fund;
- (b) to consider any matters relating to the financial affairs of the HKMA and the internal and external audit of the HKMA's financial statements as the Sub-Committee may think necessary or desirable;
- (c) to encourage higher quality accounting and audit and provide more credible and objective financial reporting of the HKMA; and
- (d) to consider any other matters referred to it by the Exchange Fund Advisory Committee; and to report on all such matters to the Committee.

(2) The functions of the Sub-Committee include, but are not restricted to, the following:

- (a) reviewing the HKMA's financial statements, the composition and accounting principles adopted in such statements, whether these are intended to be audited or published or not;
- (b) advising on the form and content of the financial statements of the HKMA;
- (c) examining and reviewing with both the external and internal auditors the scope and results of their audits;

(d) reviewing the findings, recommendations or criticisms of the auditors, including their annual management letter and management's response;

(e) reviewing the HKMA's management procedures to ensure the effectiveness of internal systems of accounting and control, and management's efforts to correct deficiencies discovered in audits; and

(f) initiating investigations or audit reviews into any activities of the HKMA which may be of concern or interest to the Sub-Committee.

(3) Authority

The Sub-Committee shall be entitled to obtain any information it requires from any member or employee of the HKMA, and all such members and employees shall be instructed to assist the Sub-Committee to the fullest extent possible. The Sub-Committee may also take such independent legal or other professional advice as it considers necessary. The Sub-Committee shall have no executive powers as regards its findings and recommendations.

(4) Meetings

The Sub-Committee shall meet at least twice a year. The Secretary to the Exchange Fund Advisory Committee shall attend its meetings and take minutes, copies of which shall be circulated to the Committee. The Chief Executive of the HKMA shall be entitled to attend the Sub-Committee's meetings. In all other respects, the Sub-Committee shall decide its own procedures.

Advisory Committees

THE EXCHANGE FUND ADVISORY COMMITTEE

CURRENCY BOARD SUB-COMMITTEE

Chairman

Mr Norman T.L. CHAN, GBS, JP

The Monetary Authority

Members

Mr Eddie YUE, JP

Deputy Chief Executive
Hong Kong Monetary Authority

Mr Howard LEE, JP

Deputy Chief Executive
Hong Kong Monetary Authority

Professor Lawrence J. LAU, GBS, JP

Ralph and Claire Landau Professor of Economics
The Chinese University of Hong Kong

Dr PENG Wensheng

Global Chief Economist and Head of Research
Everbright Securities Limited

Professor LIN Chen

Chair of Finance and Stelux Professor in Finance
Faculty of Business and Economics
The University of Hong Kong

Ms Mary HUEN Wai-yi

Chairperson
The Hong Kong Association of Banks
(from 1 January 2019)

Mr Arthur YUEN, JP

Deputy Chief Executive
Hong Kong Monetary Authority

Dr John GREENWOOD

Group Chief Economist
Invesco Asset Management Limited

Dr David WONG Yau-kar, GBS, JP

Managing Director
United Overseas Investments Limited

Professor CHEUNG Yin-wong

Hung Hing Ying Chair Professor of International Economics
Department of Economics and Finance
City University of Hong Kong

Mrs Helen CHAN, SBS, JP

(from 13 June 2018)

Ms Diana CESAR

Chairperson
The Hong Kong Association of Banks
(until 31 December 2018)

Secretary

Ms Carrie CHAN

Advisory Committees

Terms of Reference

- (1) To ensure that the operation of the Currency Board arrangements in Hong Kong is in accordance with the policies determined by the Financial Secretary in consultation with the Exchange Fund Advisory Committee.
- (2) To report to the Financial Secretary through the Exchange Fund Advisory Committee on the operation of the Currency Board arrangements in Hong Kong.
- (3) To recommend, where appropriate, to the Financial Secretary through the Exchange Fund Advisory Committee, measures to enhance the robustness and effectiveness of the Currency Board arrangements in Hong Kong.
- (4) To ensure a high degree of transparency in the operation of the Currency Board arrangements in Hong Kong through the publication of relevant information on the operation of such arrangements.
- (5) To promote a better understanding of the Currency Board arrangements in Hong Kong.

Advisory Committees

THE EXCHANGE FUND ADVISORY COMMITTEE

INVESTMENT SUB-COMMITTEE

Chairman

Mr Norman T.L. CHAN, GBS, JP
The Monetary Authority

Members

Mr Eddie YUE, JP
Deputy Chief Executive
Hong Kong Monetary Authority

Mr Silas YANG Siu-shun, JP

Dr David WONG Yau-kar, GBS, JP
Managing Director
United Overseas Investments Limited

Mr Stephen YIU Kin-wah
(from 1 November 2018)

Mrs Angelina LEE WONG Pui-ling, SBS, JP
Partner
Woo, Kwan, Lee & Lo
(until 31 August 2018)

Secretary

Ms Carrie CHAN

Mr T. Brian STEVENSON, GBS, JP

Professor Lawrence J. LAU, GBS, JP
Ralph and Claire Landau Professor of Economics
The Chinese University of Hong Kong

Mr Nicky LO Kar-chun, SBS, JP

Dr LO Ka-shui, GBS, JP
Chairman and Managing Director
Great Eagle Holdings Limited
(until 31 January 2018)

Mr Benjamin HUNG Pi-cheng, BBS, JP
Regional Chief Executive Officer, Greater China & North Asia
Chief Executive Officer, Retail Banking & Wealth Management
Standard Chartered Bank
(until 31 December 2018)

Advisory Committees

Terms of Reference

- (1) To monitor the investment management work of the HKMA.
 - (a) the investment benchmark for the Exchange Fund;
 - (b) the investment policy and risk management of the Fund;
 - (c) the investment strategy for the Fund; and
 - (d) any other matters referred to the Sub-Committee in connection with the investment management of the Exchange Fund.
- (2) To make recommendations to the Financial Secretary, through the Exchange Fund Advisory Committee, on

Advisory Committees

THE EXCHANGE FUND ADVISORY COMMITTEE

FINANCIAL INFRASTRUCTURE AND MARKET DEVELOPMENT SUB-COMMITTEE

Chairman

Mr Norman T.L. CHAN, GBS, JP
The Monetary Authority

Members

Mr Eddie YUE, JP
Deputy Chief Executive
Hong Kong Monetary Authority

Mr Howard LEE, JP
Deputy Chief Executive
Hong Kong Monetary Authority

Mrs Ayesha MACPHERSON LAU, JP
Managing Partner, Hong Kong
KPMG

Ms DING Chen
Chief Executive Officer
CSOP Asset Management Limited

Mr Joseph NGAI, JP
Senior Partner and Managing Partner, Greater China
McKinsey & Company, Inc. Hong Kong

Ms Jacqueline LEUNG
President & Managing Director
Leighton Textiles Co., Ltd.
Leighton Investments Ltd.

Mr Ericson CHAN
Chief Executive Officer
Ping An Technology

Ms Mary HUEN Wai-yi
Executive Director and Chief Executive Officer
Standard Chartered Bank (Hong Kong) Limited

Ms Miranda KWOK Pui-fong
President and Executive Director
China Construction Bank (Asia) Corporation Limited

Mr Arthur YUEN, JP
Deputy Chief Executive
Hong Kong Monetary Authority

Mr Jack CHEUNG Tai-keung
Chief Executive Officer
Treasury Markets Association

Mr Vincent CHUI Yik-chiu
Chief Executive
Morgan Stanley Asia International Limited

Mr Harold WONG Tsu-hing
Managing Director and Chief Executive
Dah Sing Bank, Limited

Professor Kalok CHAN
Dean, CUHK Business School
Wei Lun Professor of Finance
The Chinese University of Hong Kong

The Honourable Bernard Charnwut CHAN, GBS, JP
President
Asia Financial Holdings Limited

Mr Leong CHEUNG
Executive Director, Charities and Community
The Hong Kong Jockey Club

Mrs Ann KUNG YEUNG Yun-chi
Deputy Chief Executive
Bank of China (Hong Kong) Limited

Ms Amy LO Choi-wan
Group Managing Director
Country Head & Chief Executive, Hong Kong
UBS

Advisory Committees

Ms Helen WONG Pik-kuen, JP

Group General Manager
Chief Executive, Greater China
The Hongkong and Shanghai Banking Corporation Limited

Mr Dennis CHOW Chi-in

Managing Partner
Deloitte China Southern Region
(from 11 June 2018)

The Honourable Rimsky YUEN Kwok-keung, GBM, SC, JP

Temple Chambers
(from 1 September 2018)

Secretary

Ms Carrie CHAN

Terms of Reference

- (1) To recommend to the Financial Secretary through the Exchange Fund Advisory Committee measures to further develop Hong Kong's status as an international financial centre and strengthen the international competitiveness of Hong Kong's financial services, including –
 - (a) measures to promote the development, operational excellence, safety and efficiency of the financial infrastructure in Hong Kong, particularly payment and settlement arrangements;
 - (b) measures to promote the development of Hong Kong as an offshore renminbi centre;
 - (c) measures to foster the development of other enabling factors that would help enhance the competitiveness of Hong Kong's financial services; and
 - (d) initiatives for the HKMA, in discharging its responsibilities for maintaining the stability and integrity of the monetary and financial systems of Hong Kong, to promote the development of the financial infrastructure and financial markets in Hong Kong under (a) to (c) above.
- (2) To monitor the work of the HKMA in relation to the initiatives identified in (1) above.

Advisory Committees

THE BANKING ADVISORY COMMITTEE

Chairman

The Honourable Paul CHAN Mo-po, GBM, GBS, MH, JP
The Financial Secretary

Ex Officio Member

Mr Norman T.L. CHAN, GBS, JP
The Monetary Authority

Members

The Honourable James H. LAU Jr., JP
Secretary for Financial Services and the Treasury

Ms Diana CESAR
Group General Manager
Chief Executive, Hong Kong
The Hongkong and Shanghai Banking Corporation Limited
Representing The Hongkong and Shanghai Banking Corporation Limited

Mr Tim LUI Tim-leung, SBS, JP
Chairman
Securities and Futures Commission
Representing Securities and Futures Commission
(from 20 October 2018)

Ms KWANG Kam-shing
Chief Executive Officer
Asia Private Bank
JPMorgan Chase Bank, N.A.

Mr Kenichi YAMATO
Executive Officer
Managing Director, Regional Head of Hong Kong
Head of Hong Kong Branch
MUFG Bank, Ltd
(from 1 December 2018)

Mr Peter LO Chi-wai
Chief Country Officer, Hong Kong
Deutsche Bank AG
(until 19 April 2018)

Secretary

Ms Jasmin FUNG

Mr GAO Yingxin
Vice Chairman and Chief Executive
Bank of China (Hong Kong) Limited
Representing Bank of China (Hong Kong) Limited

Ms Mary HUEN Wai-yi
Executive Director and Chief Executive Officer
Standard Chartered Bank (Hong Kong) Limited
Representing Standard Chartered Bank (Hong Kong) Limited

The Honourable CHAN Chun-ying
Member
Legislative Council

Mr Paul YANG
Head of Greater China and Chief Executive Officer Hong Kong
BNP Paribas
(from 1 December 2018)

Mr Carlson TONG, SBS, JP
Chairman
Securities and Futures Commission
Representing Securities and Futures Commission
(until 19 October 2018)

Mr Yusuke ONO
General Manager
Sumitomo Mitsui Banking Corporation
Hong Kong Branch
(until 10 April 2018)

Advisory Committees

THE DEPOSIT-TAKING COMPANIES ADVISORY COMMITTEE

Chairman

The Honourable Paul CHAN Mo-po, GBM, GBS, MH, JP
The Financial Secretary

Ex Officio Member

Mr Norman T.L. CHAN, GBS, JP
The Monetary Authority

Members

The Honourable James H. LAU Jr., JP
Secretary for Financial Services and the Treasury

Mr LEE Huat-oon

Acting Chairman
The DTC Association (The Hong Kong Association of
Restricted Licence Banks and Deposit-taking Companies)
Representing The DTC Association

Ms Gilly WONG Fung-han

Chief Executive
Consumer Council
Representing the Consumer Council

Dr the Honourable Elizabeth QUAT, BBS, JP

Member
Legislative Council

Mr Vincent CHUI Yik-chiu

Chief Executive
Morgan Stanley Asia International Limited

Mr Andy POON Shiu-chung

Chief Executive
Scotiabank (Hong Kong) Limited

Mr Jack CHAN Hoi

Managing Partner, Financial Services
Greater China
EY

Secretary

Ms Jasmin FUNG

Chief Executive's Committee

1 March 2019



Norman T.L. CHAN, GBS, JP
Chief Executive



Eddie YUE, JP
Deputy Chief Executive



Arthur YUEN, JP
Deputy Chief Executive



Howard LEE, JP
Deputy Chief Executive



Raymond LI, JP
Senior Executive Director
Chief Executive Officer
Hong Kong Mortgage Corporation

Chief Executive's Committee



Stefan GANNON, JP
Commissioner, Resolution Office



Francis CHU, JP
Chief Operating Officer
(Exchange Fund Investment Office)



Karen KEMP, JP
General Counsel



Carmen CHU, JP
Executive Director (Enforcement and AML)



Vincent LEE, JP
Executive Director (External)



Darryl CHAN, JP
Executive Director (Corporate Services)

Chief Executive's Committee



Grace LAU, JP
Executive Director (Risk and Compliance)
Chief Risk Officer
(Exchange Fund Investment Office)



Lillian CHEUNG, JP
Executive Director (Research)



Raymond CHAN, JP
Executive Director (Banking Supervision)



Daryl HO, JP
Executive Director (Banking Policy)



Alan AU, JP
Executive Director (Banking Conduct)



Clement LAU
Executive Director (Monetary Management)
(from 27 June 2018)

Chief Executive's Committee



Colin POU

Executive Director (Financial Infrastructure)
(from 29 October 2018)



Henry CHENG, JP

Executive Director (Monetary Management)
(until 26 June 2018)

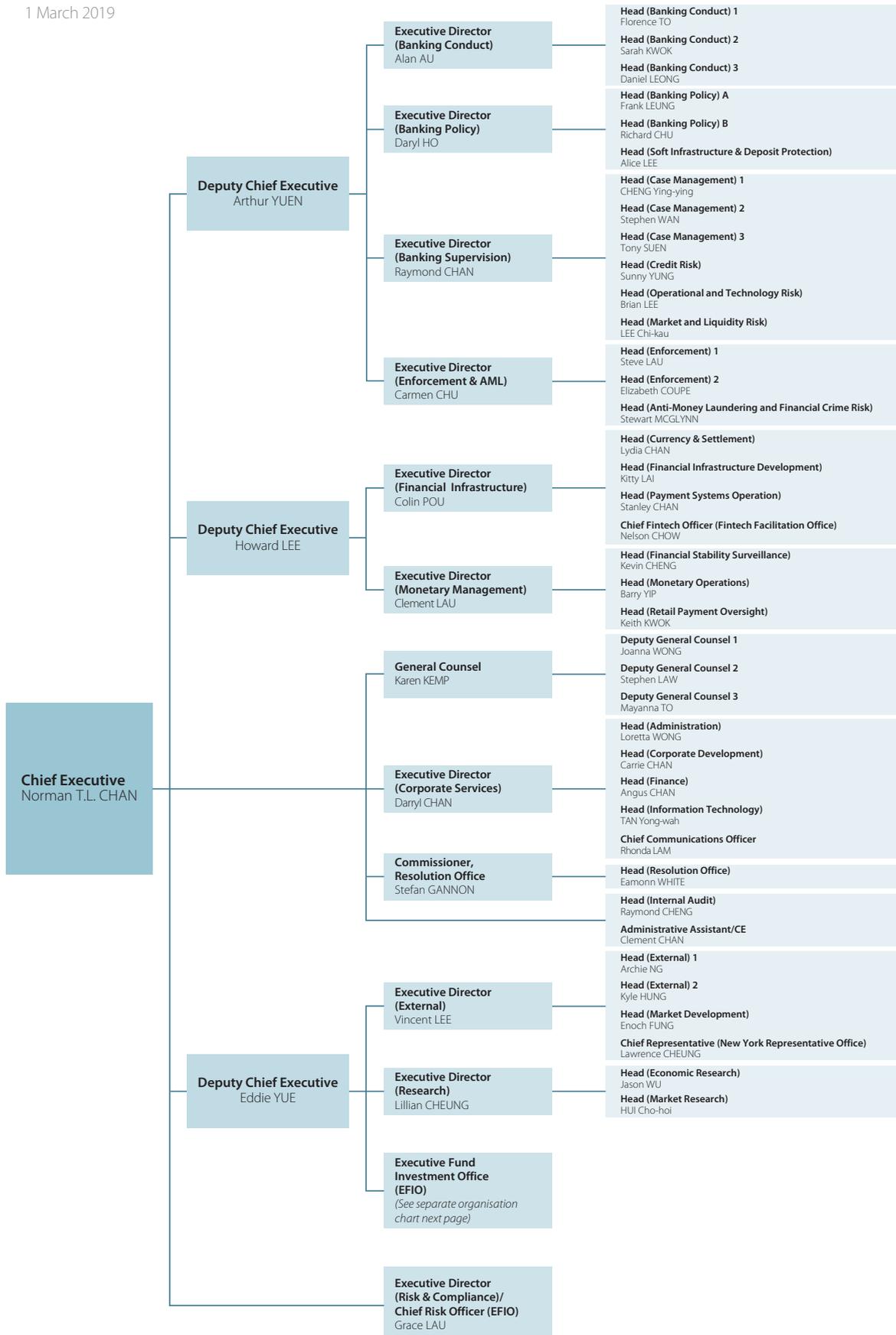


LI Shu-pui, JP

Executive Director (Financial Infrastructure)
(until 28 October 2018)

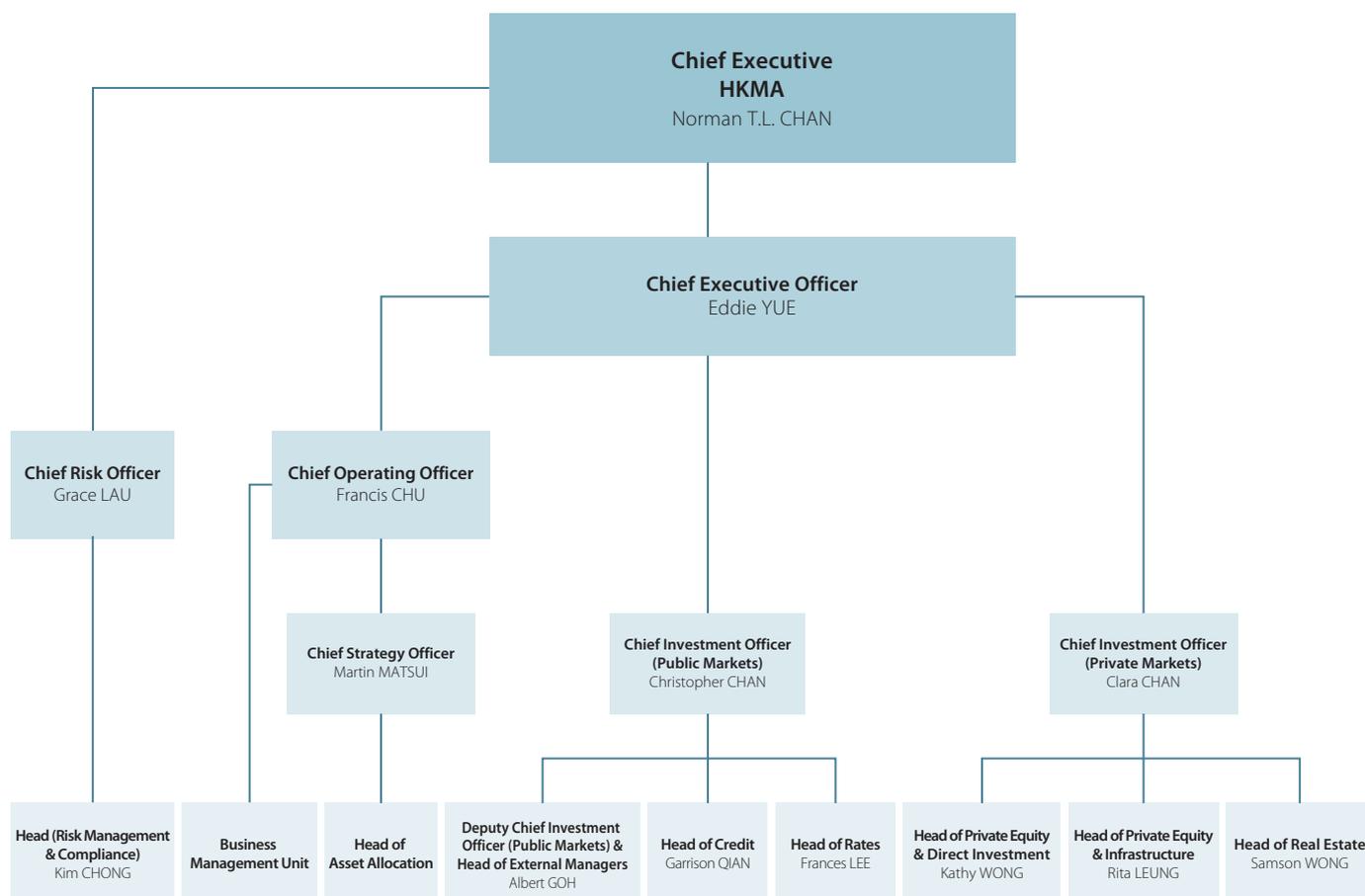
HKMA Organisation Chart

1 March 2019



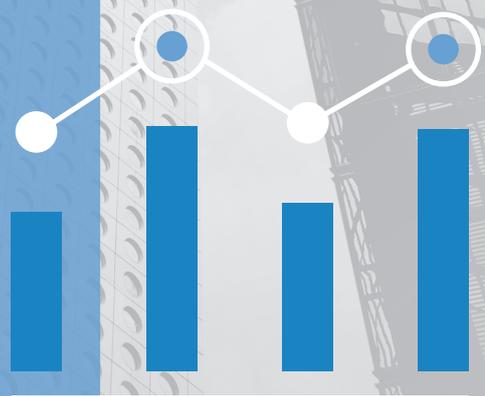
HKMA Exchange Fund Investment Office (EFIO) Organisation Chart

1 March 2019



Economic and Financial Environment

Hong Kong's economic expansion continued in 2018 but its momentum softened during the year amid tighter financial conditions and heightened uncertainty due to rising trade protectionism. Economic growth for 2019 is expected to moderate along with weakening global economic expansion.



THE ECONOMY IN REVIEW

Real activities

The Hong Kong economy expanded further in 2018 but its year-on-year growth rate moderated successively from 4.6% in the first quarter to 1.3% in the final quarter (Table 1). This dragged the full-year growth rate down to 3.0%, compared with 3.8% in 2017. The weakening economic expansion reflected slower domestic demand growth and a continued drag from net exports (Chart 1). Domestically, private consumption increased strongly in the first quarter, but then lost steam, in part reflecting heightened uncertainty due to rising trade protectionism and some negative wealth effects

associated with local asset price corrections. Overall investment spending also grew at a slower pace amid fragile business confidence. Externally, exports of goods broadly held up in the first three quarters but performance worsened visibly in the fourth quarter as the US-China trade tensions escalated. Imports of goods also slackened on weaker export-induced demand. In comparison, exports of services recorded faster annual growth partly driven by vibrant inbound tourism, and imports of services broadly maintained their growth momentum due to rises in transport, business and other services. On a net basis, net trade turned from a surplus in 2017 to a small deficit in 2018, making a negative contribution to Gross Domestic Product (GDP) growth.

Table 1 Real GDP growth by expenditure component (period-over-period)

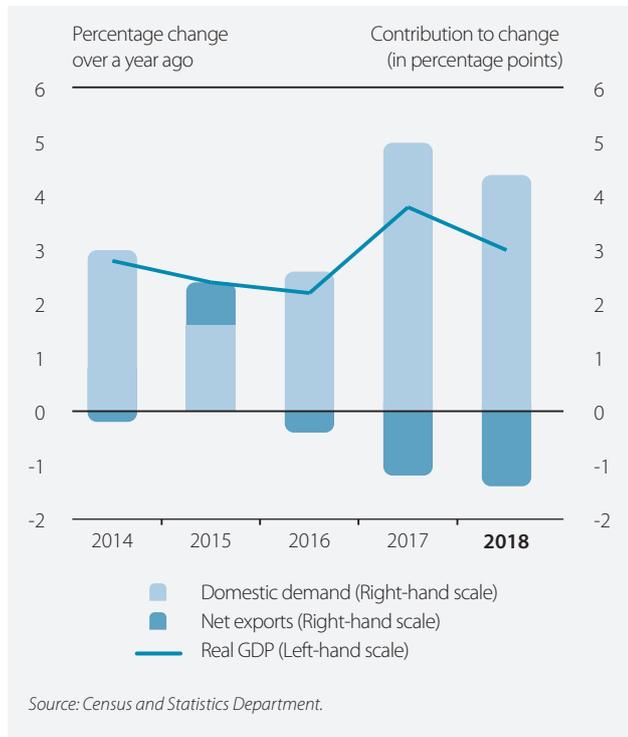
(%Period-over-period, unless otherwise specified)	2018					2017				
	Q1	Q2	Q3	Q4	2018	Q1	Q2	Q3	Q4	2017
Gross Domestic Product	1.9	(0.3)	0.1	(0.3)	3.0	0.8	0.8	0.8	1.1	3.8
(year-on-year growth)	4.6	3.5	2.8	1.3		4.4	4.0	3.6	3.5	
Private consumption expenditure	3.2	(0.9)	0.6	0.2	5.6	0.7	1.9	1.8	1.8	5.5
Government consumption expenditure	1.8	1.0	0.7	1.4	4.2	0.3	1.2	1.6	(0.3)	2.8
Gross domestic fixed capital formation	–	–	–	–	2.2	–	–	–	–	2.9
Exports										
Exports of goods	1.8	(0.4)	1.2	(2.7)	3.5	1.5	(0.1)	1.0	2.2	6.5
Exports of services	5.3	(3.6)	0.5	0.7	4.9	1.1	(1.7)	2.7	1.3	2.9
Imports										
Imports of goods	1.6	(0.2)	3.1	(5.0)	4.9	1.0	0.2	1.8	2.9	7.3
Imports of services	3.8	(2.5)	0.7	0.1	2.2	0.5	1.4	(1.7)	0.7	2.1

Note: The seasonally-adjusted quarter-on-quarter rates of change in the gross domestic fixed capital formation are not available.

Source: Census and Statistics Department.

Economic and Financial Environment

Chart 1 Real GDP growth by contribution



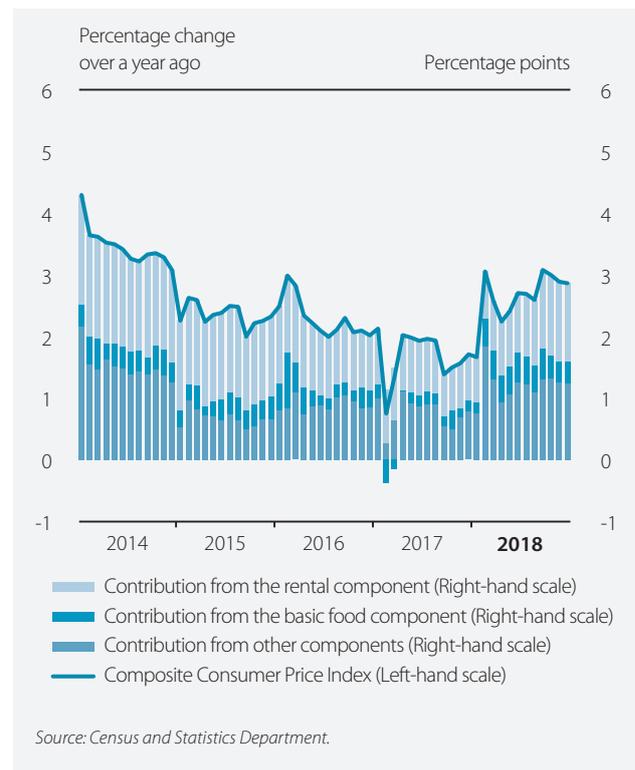
Monetary conditions

The Hong Kong dollar exchange rate generally eased against the US dollar during 2018, driven primarily by interest carry trade activities amid the negative Hong Kong dollar-US dollar interest rate differentials. In particular, the weak-side Convertibility Undertaking was triggered in April, May and August, prompting the HKMA to purchase Hong Kong dollars from, and sell US dollars to, banks at the rate of HK\$7.85/US\$1, as stipulated by the Linked Exchange Rate System (LERS). As a result, the Hong Kong dollar Monetary Base shrank in accordance with the design of the LERS, signalling reduced interbank liquidity. This, coupled with market expectations of US interest rate hikes, led to a general pick-up in the Hong Kong dollar interbank interest rates. As the funding cost of the banking system increased, banks raised their Best Lending Rates by 12.5–25 basis points following the increase in the target range for the US Federal Funds Rate in late September. For credit growth, total bank loans increased at a notably slower pace of 4.4% in 2018, compared with 16.1% in 2017, due in part to softening domestic economic growth and weaker external trade performance.

Inflation

Inflationary pressures increased mildly in 2018. Netting out the effects of the Government's one-off relief measures, the underlying inflation rate edged up to a still-moderate level of 2.6% in 2018, from a low of 1.7% in 2017. In particular, the housing component of the price index increased faster, reflecting the pass-through of the earlier rises in fresh-letting private residential rentals (Chart 2). More broadly, domestic cost pressures turned more visible due to modestly faster growth in nominal labour costs and commercial rentals. Import price inflation also climbed along with higher inflation in some of Hong Kong's major import sources.

Chart 2 Underlying consumer price inflation

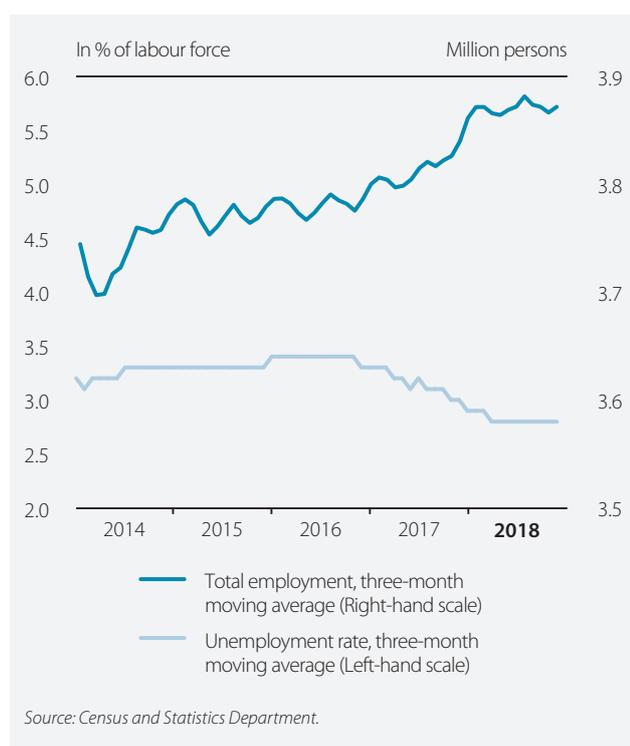


Economic and Financial Environment

Labour market

Labour market conditions remained robust in 2018 (Chart 3). For the year as a whole, the unemployment rate edged down from 3.1% in 2017 to 2.8% in 2018, the lowest level since 1997. In particular, the unemployment rates in most of the major service sectors, especially the accommodation and food services sector, moderated. Overall labour demand continued to strengthen as total employment and the number of private-sector vacancies grew further, and the labour force participation rate inched up. Amid a tight labour market, real wage and earnings posted further gains.

Chart 3 Labour market conditions



Stock market

The local stock market experienced a drastic turnaround in 2018. Following the strong upward momentum in 2017, the Hang Seng Index rose to a historical high of 33,484 in January 2018 (Chart 4). However, the bullish sentiments reversed sharply afterwards amid concerns about monetary policy tightening by major central banks, the escalation of US-China trade tensions, and the weakening domestic economy. The Hang Seng Index fell to a low of 24,586 in October and closed the year at 25,846, down by 13.6% from a year earlier. Despite the decline, the average daily turnover expanded to HK\$107.4 billion in 2018 from HK\$88.2 billion in 2017, and funds raised through initial public offerings soared due to the listings of several companies from emerging and innovative sectors.

Chart 4 Asset prices



Economic and Financial Environment

Property market

The residential property market remained buoyant in the first half of 2018, but cooled down in the second half amid the escalating US-China trade tensions, global stock market corrections and higher local prime rates. The overall housing prices decreased by 9% from the peak in July through December, though still recorded a gain of 2% for the whole year (Chart 4). Transaction volume in 2018 also fell by 7% from a year earlier to 57,247 units, as trading activities in both primary and secondary markets declined notably in the second half of the year. Housing affordability remained stretched, with the price-to-income ratio and the income-gearing ratio staying high at 17.0 and 75.7 respectively, far above their long-term averages.¹ On the other hand, non-residential property prices increased overall in 2018, though it also showed some cool-off towards the end of the year. For the year as a whole, prices and rentals recorded further gains and rental yields continued to stay at low levels.

OUTLOOK FOR THE ECONOMY

Economic environment

Economic growth for 2019 is expected to moderate as the global economic expansion wanes. In particular, Hong Kong's export performance is expected to continue to struggle in a challenging external environment. Domestically, low unemployment rate and rising household income will continue to support private consumption, but its pace of growth is anticipated to ease partly owing to weaker consumer confidence and the negative wealth effects from earlier asset price corrections. For fixed capital formation, the outlook may become more uncertain. While building and construction activities should progress steadily on the back of increasing housing supply, firms may become more cautious about making capital investments amid the heightened economic uncertainty. The Government forecasts real GDP growth for 2019 in the range of 2–3%, while the latest growth forecasts by private-sector analysts averaged 2.3%.

Inflation and the labour market

Inflationary pressures are expected to remain moderate in 2019 as weaker global growth, including that of Hong Kong, may keep external price and local cost pressures in check. The recent moderation in fresh-letting residential rentals would also have a dampening effect on inflation. Market consensus forecasts a headline inflation rate of 2.2% in 2019, and the Government projects the underlying inflation rate at 2.5%. Sustained economic growth and still-robust inbound tourism are expected to keep the labour market tight. Private sector analysts expect the unemployment rate to stay at about 3% in 2019.

Uncertainties and risks

The economic outlook for 2019 is subject to a number of uncertainties and risks, including those stemming from the trade tensions, the future direction of the US monetary policy, Mainland's economic performance, as well as Brexit and other geopolitical concerns. Should these uncertainties intensify and persist into the longer term, they could significantly dampen financial market sentiments and business confidence, thereby posing downward pressures on the local asset markets and domestic real activities.

On the property front, a host of external and domestic factors make the outlook for the local housing market uncertain. Externally, the uncertainty over US-China trade tensions will continue to cloud Hong Kong's property market outlook possibly through changes in market sentiments, economic prospects and financial conditions. Domestically, economic growth is softening but employment conditions and income growth have remained largely stable which could provide some support for property demand. The trajectory for domestic interest rates partly hinges on the future path of the US policy rate, which in itself is uncertain. Over the longer term, the supply-demand gap is expected to narrow given increased flat completions during the past few years and the Government's efforts to increase land and housing supply.

¹ The price-to-income ratio measures the average price of a typical 50 square-metre flat relative to the median annual income of households living in private housing, from a potential home buyer's perspective. The income-gearing ratio compares the amount of mortgage payment for a typical flat of 50 square metres (under a 20-year mortgage scheme with a 70% loan-to-value ratio) to the median income of households living in private housing, from a potential home buyer's perspective. The income-gearing ratio is not the same as a borrower's actual debt-servicing ratio, which is subject to a maximum cap by the HKMA's prudential measures.

Economic and Financial Environment

PERFORMANCE OF THE BANKING SECTOR

The Hong Kong banking sector remained resilient in 2018 notwithstanding external headwinds and heightened financial market volatility stemming from the US-China trade conflict, Brexit and interest rate normalisation. The capital and liquidity positions of the banking sector were strong and asset quality remained good. Profitability increased significantly, underpinned by widening interest rate margins amid an environment of rising interest rates.

Balance sheet trends

The banking sector continued to show stable growth, with the balance sheet expanding by 5.9% in 2018. Amid the lingering economic uncertainties, such as trade conflicts among major economies and interest rate hikes, corporations became more conservative in obtaining new loans. Total loan growth moderated to 4.4% during the year, compared with an increase of 16.1% in 2017. The growth was driven by increases in loans for use in Hong Kong (+6.5%) and loans for use outside Hong Kong (+2%). On the other hand, trade finance registered a decline of 7.6%, given the uncertainties in the global trade environment. The growth in Mainland-related lending also slowed to 1.4% in 2018, from 17.5% in 2017.

Debt securities holdings continued to account for 22% of total assets at the end of 2018, on par with that of 2017. The credit risk of these holdings remained low, as most of them were investment-grade debt securities issued by sovereigns and banks.

On the liabilities side, total deposits increased by 5% in 2018, a slower pace than 2017 (+8.7%). In anticipation of continued US interest rate hikes, some banks offered higher time deposit rates to lock up funding, enticing depositors to shift their current and saving account (CASA) deposits to time deposits. The ratio of CASA deposits to total deposits declined to 51.4% at the end of 2018 from 57.4% a year ago, leading to a higher funding cost. As total deposits increased at a faster pace than total loans, the overall loan-to-deposit ratio edged down to 72.6% at the end of 2018 from 73% a year ago (Chart 5).

Chart 5 Loans and deposits of the banking sector

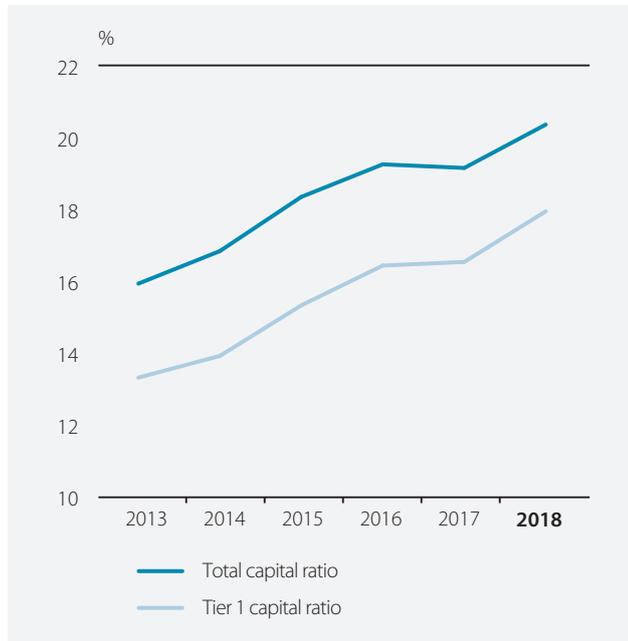


Economic and Financial Environment

Capital adequacy

The banking sector was highly capitalised, indicating its strong buffer to withstand potential shocks. Capital ratios reached historical high levels since the implementation of Basel III. The consolidated total capital ratio of locally incorporated authorized institutions (AIs) increased to 20.3% at the end of 2018 from 19.1% at the end of 2017 (Chart 6).

Chart 6 Consolidated capital ratios of locally incorporated AIs



The Basel III leverage ratio, a non-risk based requirement aiming to restrict the build-up of excessive leverage in the banking sector, took effect on 1 January 2018. The leverage ratio stood at 8.0% at the end of 2018, well above the statutory minimum requirement of 3% (Chart 7).

Chart 7 Consolidated leverage ratio of locally incorporated AIs

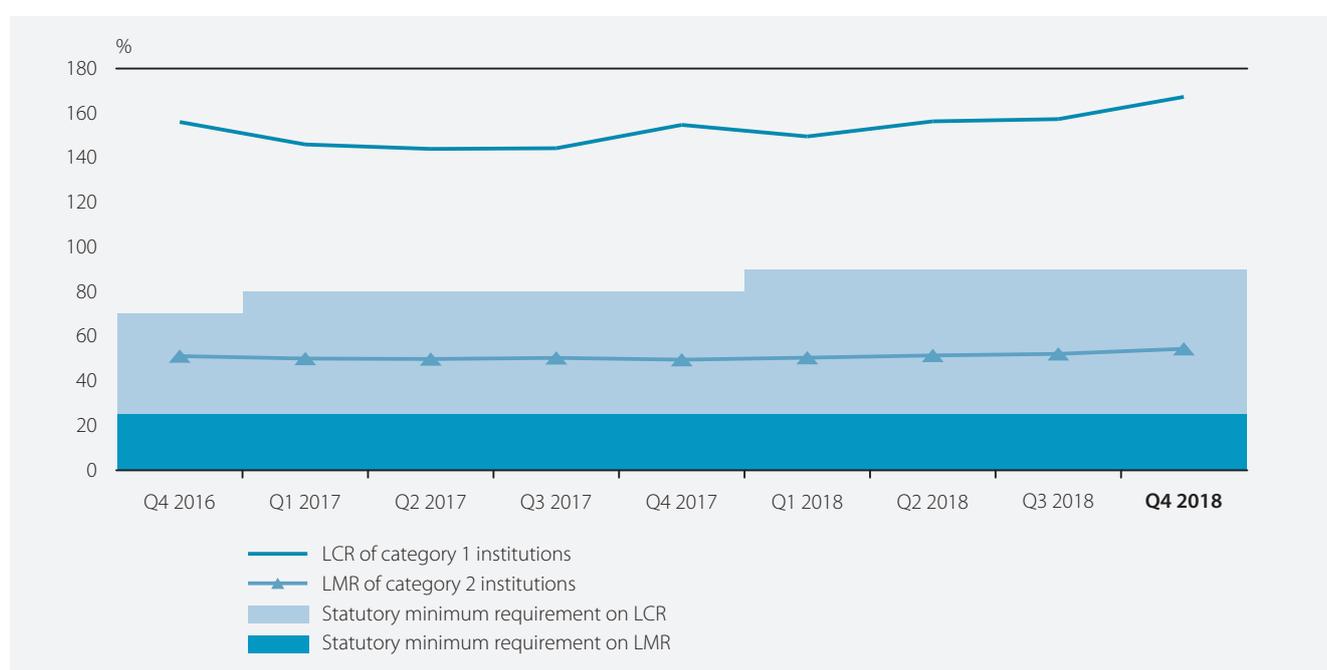


Economic and Financial Environment

Liquidity

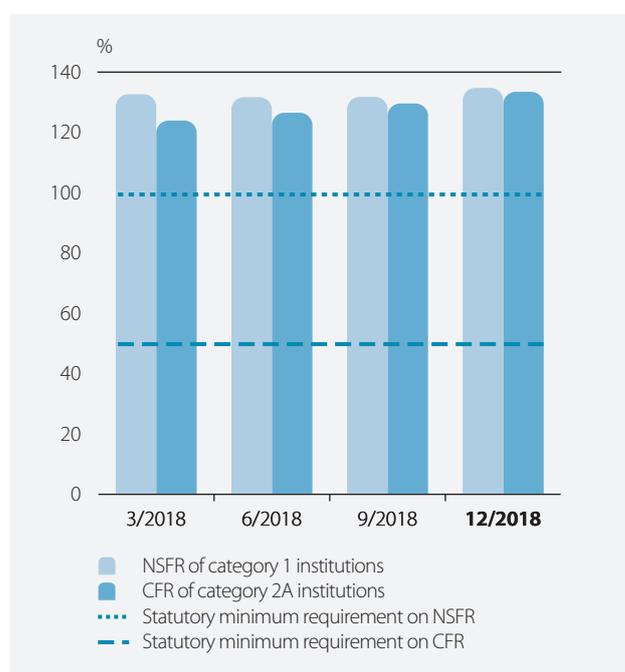
The liquidity position of the banking sector remained sound, reflecting its strong ability to absorb shocks arising from potential financial and economic stress. On short-term liquidity (covering one month), the average Liquidity Coverage Ratio (LCR) of category 1 institutions was 167.6% in the fourth quarter, well above the statutory minimum requirement of 90% applicable for the year. The average Liquidity Maintenance Ratio (LMR) of category 2 institutions was 54.3%, also well above the statutory minimum requirement of 25% (Chart 8).

Chart 8 Liquidity ratios (quarterly averages) of designated AIs



To ensure that banks have sufficient stable funding sources to support their activities over a longer horizon, the Basel III Net Stable Funding Ratio (NSFR) and local Core Funding Ratio (CFR) were implemented in Hong Kong with effect from 1 January 2018. The NSFR of category 1 institutions was 135.6% at end-2018, well above the statutory minimum requirement of 100%. The CFR of category 2A institutions was 134.3%, also well above the statutory minimum requirement of 50% applicable for 2018 (Chart 9). The strong liquidity and stable funding positions of banks suggested that the banking sector was able to withstand a variety of potential liquidity shocks.

Chart 9 Funding ratios of designated AIs



Economic and Financial Environment

Asset quality

The loan quality of the banking sector remained good, notwithstanding heightened global economic and political uncertainties. The classified loan ratio decreased to 0.55% in 2018 from 0.68% a year earlier. The overdue and rescheduled loan ratio also decreased to 0.36% from 0.52% (Chart 10). Similarly, the classified loan ratio of Mainland-related lending decreased to 0.54% at the end of 2018 from 0.67% a year earlier. The delinquency ratios of residential mortgage lending and credit card lending remained low at 0.02% and 0.21% respectively (Chart 11).

Chart 10 Asset quality of the banking sector

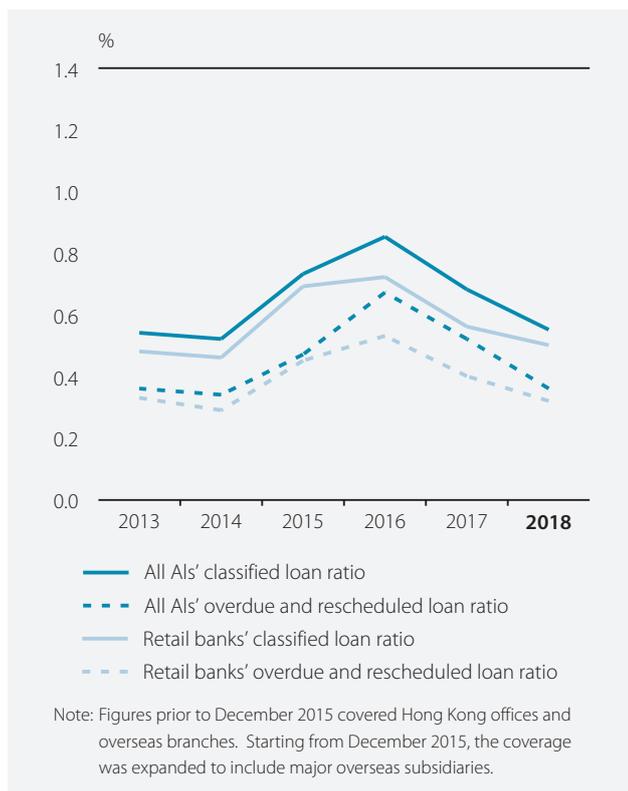
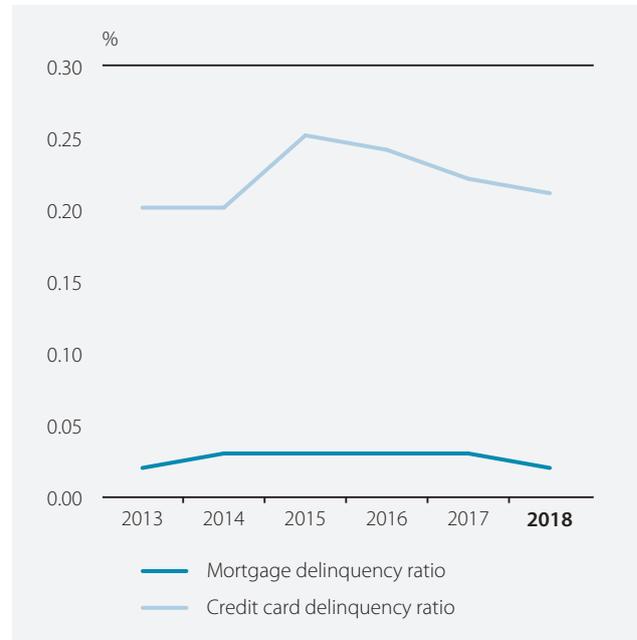


Chart 11 Delinquency ratios of residential mortgages and credit card lending



Economic and Financial Environment

Profitability trends

The profitability of banks continued to grow, strengthening banks' loss absorption capacity. The aggregate pre-tax operating profit of retail banks increased by 19.4% in 2018, mainly driven by an increase in net interest income (+21.8%), which was in turn the result of a widening net interest margin to 1.62% in 2018, compared to 1.45% in 2017 (Charts 12 and 13). On the other hand, the upsurge in income from foreign exchange and derivatives operations (+29.4%) also contributed to the profitability improvement.

Retail banks have generally become more efficient. Their cost-to-income ratio was lowered to 38.7% in 2018 from 41.9% in 2017 (Chart 14).

Chart 12 Retail banks' performance



Chart 13 Retail banks' net interest margin

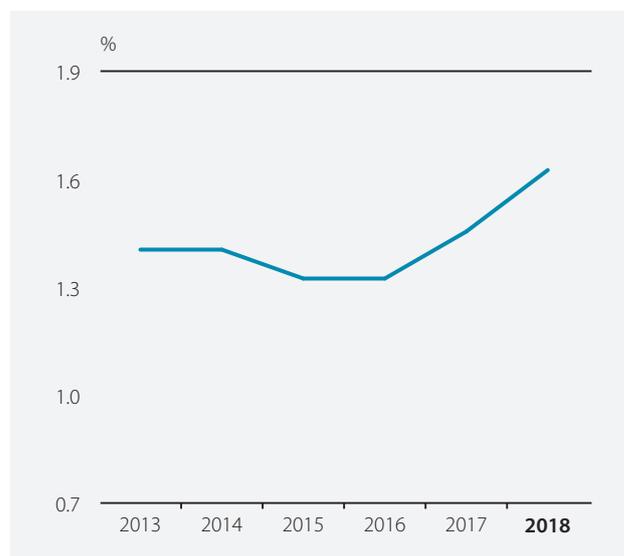
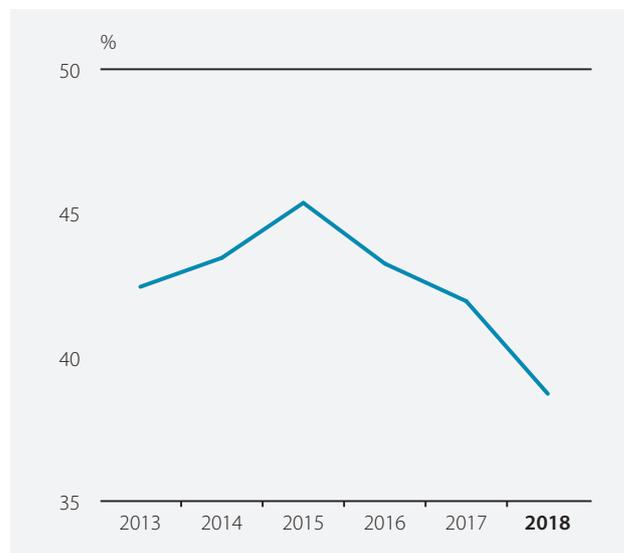


Chart 14 Retail banks' cost-to-income ratio



Monetary Stability

The Hong Kong dollar interest rates broadly picked up during 2018, while the Hong Kong dollar spot exchange rate eased and stayed close to the weak-side Convertibility Undertaking. Nevertheless, the Hong Kong dollar exchange and money markets functioned in a smooth and orderly manner. The Linked Exchange Rate System has been the cornerstone of Hong Kong's monetary and financial stability and has shown to be resilient to various shocks.



OBJECTIVES

The overriding objective of Hong Kong's monetary policy is currency stability. This is defined as a stable external exchange value of Hong Kong's currency, in terms of its exchange rate in the foreign-exchange market against the US dollar, within a band of HK\$7.75–7.85 to US\$1. The structure of the monetary system is characterised by Currency Board arrangements, requiring the Monetary Base to be at least 100% backed by US dollar reserves held in the Exchange Fund, and changes in the Monetary Base to be 100% matched by corresponding changes in US dollar reserves.

The Monetary Base (Table 1) comprises:

- Certificates of Indebtedness, which provide full backing to the banknotes issued by the three note-issuing banks
- Government-issued notes and coins in circulation
- the Aggregate Balance, which is the sum of banks' clearing account balances kept with the HKMA
- Exchange Fund Bills and Notes (EFBNs) issued by the HKMA on behalf of the Government.

Table 1 Monetary Base

HK\$ million	31 December 2018	31 December 2017
Certificates of Indebtedness ¹	483,845	455,715
Government-issued currency notes and coins in circulation ¹	12,592	12,186
Balance of the banking system	78,584	179,790
EFBNs issued ²	1,059,801	1,047,244
Total	1,634,822	1,694,935

1. The Certificates of Indebtedness and the government-issued currency notes and coins in circulation shown here are stated at Hong Kong dollar face values. The corresponding items shown in the balance sheet of the Exchange Fund in this Annual Report are in Hong Kong dollars equivalent to the US dollar amounts required for their redemption at the prevailing exchange rates on the balance sheet date. This arrangement is in accordance with the accounting principles generally accepted in Hong Kong.
2. The amount of EFBNs shown here refers to their fair value. In accordance with the accounting principles generally accepted in Hong Kong, the EFBNs held by the HKMA on behalf of the Exchange Fund in relation to its trading of the EFBNs in the secondary market are offset against the EFBNs issued, and the net amount is recorded in the balance sheet. The EFBNs allotted on tender dates but not yet settled are included in the balance sheet but excluded from the Monetary Base. Therefore, the amount of EFBNs shown here is different from that in the balance sheet of the Exchange Fund in this Annual Report.

The stability of the Hong Kong dollar exchange rate is maintained through an automatic interest rate adjustment mechanism and the firm commitment by the HKMA to honour the Convertibility Undertakings (CUs). When the demand for Hong Kong dollars is greater than the supply and the market exchange rate strengthens to the strong-side CU of HK\$7.75 to one US dollar, the HKMA stands ready to sell Hong Kong dollars to banks for US dollars. The Aggregate Balance will then expand to push down Hong Kong dollar

interest rates, creating monetary conditions that move the Hong Kong dollar away from the strong-side limit to within the Convertibility Zone of 7.75 to 7.85. Conversely, if the supply of Hong Kong dollars is greater than the demand and the market exchange rate weakens to the weak-side CU of HK\$7.85 to one US dollar, the HKMA stands ready to buy Hong Kong dollars from banks. The Aggregate Balance will then contract to drive Hong Kong dollar interest rates up, pushing the Hong Kong dollar away from the weak-side limit to stay within the Convertibility Zone.

Monetary Stability

REVIEW OF 2018

Exchange rate stability

Driven mainly by interest carry trade activities amid widened negative Hong Kong dollar-US dollar interest rate spreads, the Hong Kong dollar had been easing gradually against the US dollar since the beginning of the year. On 12 April, the weak-side CU was triggered for the first time since it was set at the 7.85 level in 2005. Overall, the weak-side CU was triggered 27 times in 2018, with 13 times in April, six times in May and eight times in August. Nonetheless, the Hong

Kong dollar remained trading in a smooth and orderly manner near the weak-side CU rate of 7.85 between mid-April and mid-September (Chart 1). Thereafter, the Hong Kong dollar exchange rate regained some strength. This in part reflected some squaring of interest carry trade positions amid a tightening of interbank liquidity as the holiday periods, quarter-end, and year-end approached. The Hong Kong dollar to some extent was also underpinned by the improved stock market sentiment in early November. Overall, the Hong Kong dollar exchange market functioned normally throughout 2018.

Chart 1 Market exchange rate in 2018



Monetary Stability

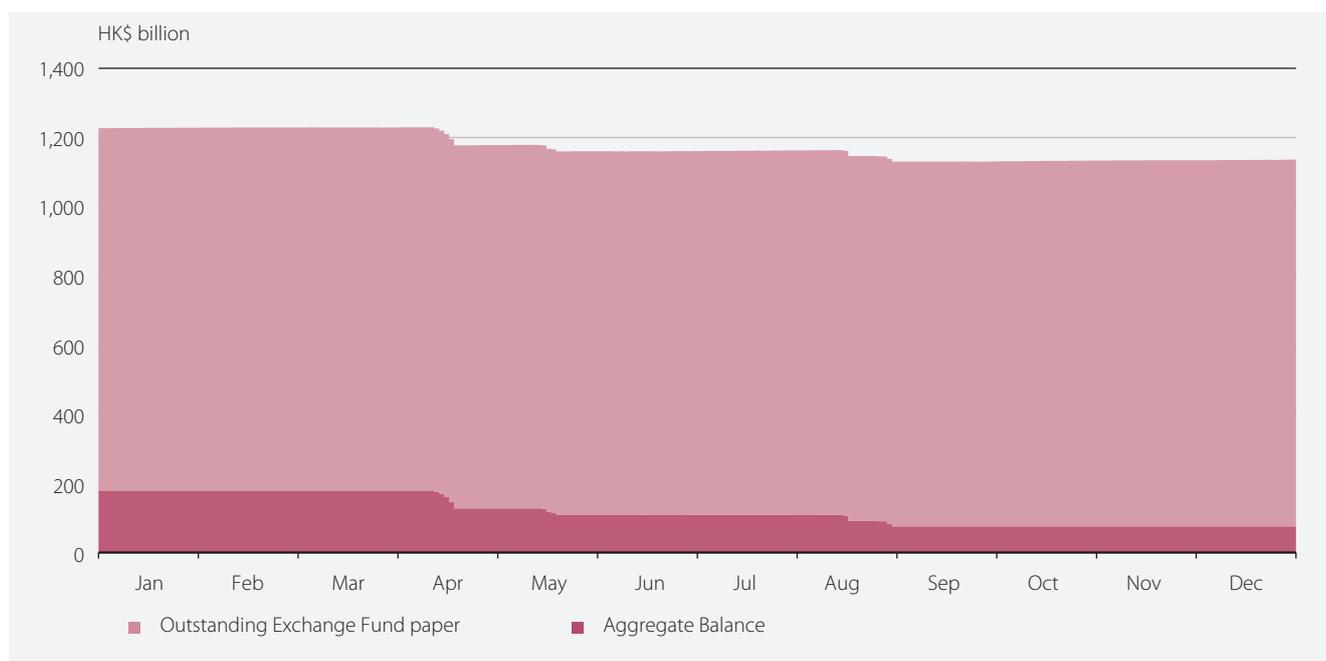
Due to the triggering of the weak-side CU, the sum of the Aggregate Balance and outstanding EFBNs decreased from HK\$1,226.8 billion at the end of 2017 to HK\$1,136.2 billion at the end of 2018 (Chart 2). During the year, the HKMA purchased a total of HK\$103.5 billion at the request of banks at the weak-side CU of 7.85 in accordance with the design of

the Linked Exchange Rate System (LERS), leading to a contraction of the Aggregate Balance from HK\$179.8 billion at the end of 2017 to HK\$76.4 billion at the end of 2018. The outstanding EFBNs stayed little changed during the year. The Monetary Base as a whole remained fully backed by foreign exchange reserves.

Total Aggregate Balance and outstanding Exchange Fund Bills and Notes at **HK\$1,136.2 billion** at end-2018.



Chart 2 Aggregate Balance and outstanding Exchange Fund papers in 2018



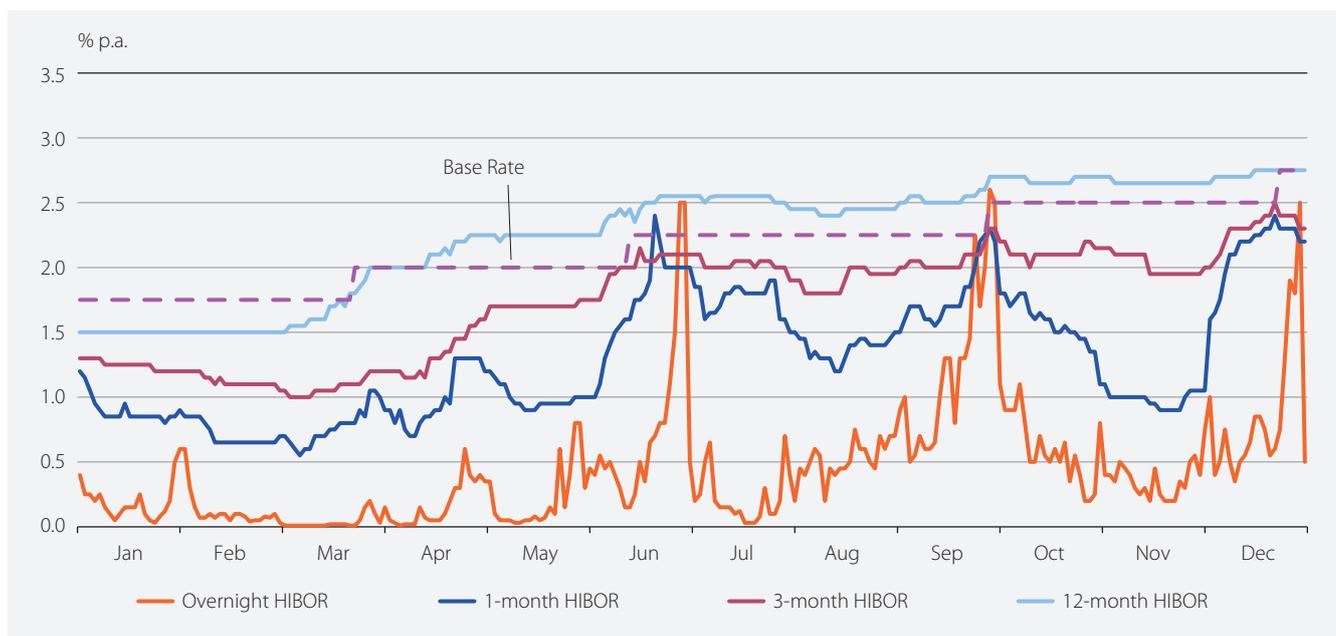
Monetary Stability

Money market

Due to the reduced interbank liquidity following the triggering of the weak-side CU as well as market expectations of US interest rate hikes, the Hong Kong dollar interbank interest rates generally picked up throughout 2018. In particular, the short-term interbank rates witnessed more fluctuations amid increased initial public offering-related funding demand and seasonal liquidity needs (Chart 3). Overall, short-dated interbank rates mostly traded below the Base Rate in 2018. As the funding cost of the banking system increased, banks raised their Best Lending Rates by 12.5–25 basis points following the increase in the target range for the US federal funds rate in late September.

The Base Rate was adjusted upwards on 22 March, 14 June, 27 September and 20 December by a total of 100 basis points, from 1.75% at the end of 2017 to 2.75% at the end of 2018, as the target range for the US federal funds rate moved upwards four times by a total of 100 basis points, from 1.25–1.50% to 2.25–2.50% during the year. The adjustment of the Base Rate was in accordance with the revised formula announced on 26 March 2009, which sets the Base Rate at either 50 basis points above the lower bound of the prevailing target range for the US federal funds rate or the average of the five-day moving averages of the overnight and one-month Hong Kong Interbank Offered Rates (HIBORs), whichever is higher.

Chart 3 Hong Kong dollar interbank interest rates in 2018



Monetary Stability

Roughly tracking the movements of the Hong Kong dollar-US dollar interest rate spreads, the discounts of the Hong Kong dollar forward points widened during the first four months, with the 12-month Hong Kong dollar forward points reaching about -620 pips in mid-April (Chart 4). The discounts of the Hong Kong dollar forward points then

narrowed slightly along with the narrowing of the negative Hong Kong dollar-US dollar interest rate spreads, before widening again in the fourth quarter. Overall, Hong Kong's money markets continued to function normally. Discount Window borrowing increased to HK\$40.2 billion in 2018 from HK\$10.3 billion in 2017.

Chart 4 Hong Kong dollar forward points in 2018



Monetary Stability

The Linked Exchange Rate System



The LERS has been the cornerstone of Hong Kong's monetary and financial stability since its establishment in 1983, and has proved to be highly resilient in a series of regional and global financial crises. As part of the design of the LERS, the 7.85 weak-side CU was repeatedly triggered in April, May and August amid easing of the Hong Kong dollar. The outflow of funds from the Hong Kong dollar was a normal and inevitable process for Hong Kong dollar interest rate normalisation under the LERS. In order to promote better understanding of such operations as well as the mechanism of the LERS, the HKMA relentlessly explained the technical details of the LERS to the public and highlighted the robustness of Hong Kong's financial system against shocks.¹ The Government is also firmly committed to the LERS. Public confidence in the Government's commitment and the use of the Hong Kong dollar as a means of payment and storage of value were further reinforced by the stability in the foreign exchange and money markets. In its 2018 Article IV consultation with Hong Kong, the International Monetary Fund reaffirmed its support for the LERS, commenting that the LERS remained the appropriate exchange rate arrangement for Hong Kong and had served as an anchor of stability, assisting in ensuring sustained growth, competitiveness, and the smooth functioning of the extensive financial services industry.

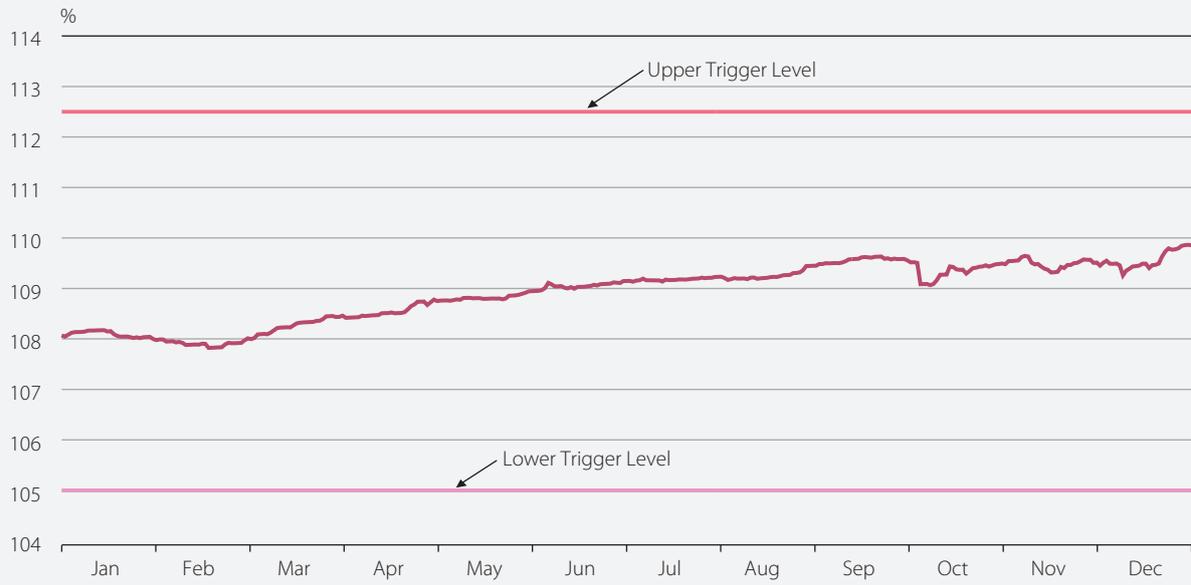
As a sound banking system is crucial to the normal functioning of the LERS, the HKMA continued to monitor closely banks' management of credit, liquidity and interest rate risks and stress-test results, and maintained its supervisory efforts on corporate, property-related and Mainland-related lending to ensure the resilience of the banking sector. The banking sector is holding a vast amount of Exchange Fund papers, which can be used by banks to obtain Hong Kong dollar liquidity via the Discount Window, serving as an effective cushion against any excessive volatility in interest rates. The HKMA stands ready to calibrate the issuance of Exchange Fund papers to release liquidity in order to deal with a possible sharp outflow from the Hong Kong dollar. The HKMA also reminded the public to manage market and interest rate risks prudently and be well prepared for market volatilities.

To improve the transparency of the Currency Board Account, a specific portion of Exchange Fund assets has been allocated to back the Monetary Base since October 1998. The Backing Ratio, defined as the Backing Assets divided by the Monetary Base, moved within a range of 107.8–109.9% during 2018, without touching the Upper or Lower Trigger Level. The ratio closed at 109.9% on 31 December (Chart 5). Under the LERS, while specific Exchange Fund assets have been designated for the Backing Portfolio, all Exchange Fund assets are available to support the Hong Kong dollar exchange rate. In the event of abrupt shocks, the sizeable amount of financial resources of the Exchange Fund will provide a powerful backstop in protecting Hong Kong's monetary and financial stability.

¹ See, for example, the inSight articles "Stay Calm on the Weakening of the Hong Kong Dollar" published on 8 March, "The Linked Exchange Rate System Staying Robust with Local Interest Rates Gradually on the Rise" published on 24 April, and "Hong Kong Dollar Fund Flows" published on 24 May.

Monetary Stability

Chart 5 Daily movement of the Backing Ratio in 2018



Monetary Stability

Currency Board Sub-Committee

The Currency Board Sub-Committee (CBC) of the Exchange Fund Advisory Committee monitors and reviews issues relevant to monetary and financial stability in Hong Kong. In 2018, the CBC considered issues including the potential impact of joint unwinding of unconventional monetary policies on the US dollar loans of foreign banks in Hong Kong, the interest rate sensitivity of Hong Kong dollar money demand, and the mechanism and theory of the LERS operations since the three refinements. Records of the CBC's discussions on these issues and the reports on Currency Board operations submitted to the CBC are published on the HKMA website.

Research

The Hong Kong Institute for Monetary Research (HKIMR) continued to sponsor research in the fields of monetary policy, banking and finance. Over the past four years, the HKIMR has been re-orienting its activities to have a stronger policy focus. This is reflected, in particular, in its conference activities and visiting fellowship programmes. The HKIMR has been collaborating with major central banks and policy institutions to jointly organise more policy-focused conferences. Meanwhile, the thematic research fellowship programme introduced in 2016 has been supporting more research projects related to policy issues that are of importance to the HKMA.

In 2018, the HKIMR hosted 16 research fellows and published 25 working papers. It also organised four international conferences and workshop during the year:

- The Ninth Annual International Conference on the Chinese Economy in January, under the title "China's Real Estate Market and Implications for Economic and Financial Stability". It was jointly organised by the HKIMR, Institute of Market Economy of the Development Research Centre of the State Council, and Financial Research Institute of the People's Bank of China, to discuss issues and risks related to Mainland's real estate market.
- The joint conference organised by the HKMA and the Bank for International Settlements (BIS), titled "Exchange Rates and Monetary Policy Frameworks", in October. This conference is part of the celebration of the 20th anniversary of the BIS Asia Pacific Office in Hong Kong, to discuss the role of the exchange rate in the monetary policy framework.
- The 2018 Annual Central Bank Conference on the Microstructure of Financial Markets in November. The conference discussed theoretical work, empirical findings and policy implications related to recent developments in the microstructure of financial markets.
- The China Expert Network (CEN) Workshop on "The Chinese Economy in the New Era" in November, jointly sponsored by the HKMA, the European Central Bank, and the Federal Reserve Board of Governors. It discussed the foremost questions confronting the Mainland economy and their implications for the global economy, with a special interest in policy-related topics of relevance to central bank policymakers. This was the first time that a CEN workshop was held outside of Europe.

Besides, the HKIMR held 19 public seminars during the year covering a broad range of economic, monetary and financial issues.

Monetary Stability

Notes and coins



At the end of 2018, the total value of banknotes (notes issued by note-issuing banks) in circulation was HK\$483.8 billion, an increase of 6.2% from a year earlier (Charts 6, 7 and 8).

The total value of government-issued notes and coins in circulation amounted to HK\$12.4 billion, up 3.4% (Charts 9 and 10). Among the government-issued notes and coins, the value of HK\$10 notes in circulation amounted to HK\$4.5 billion, 85% of which were polymer notes.

Chart 6 Banknotes in circulation by note-issuing banks at the end of 2018

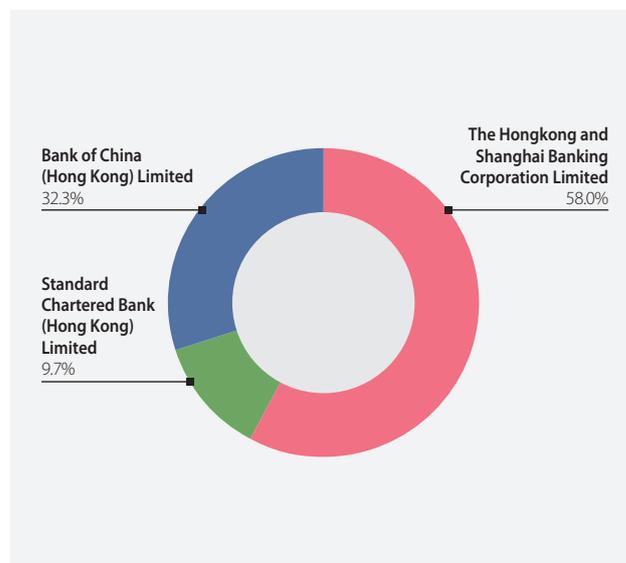
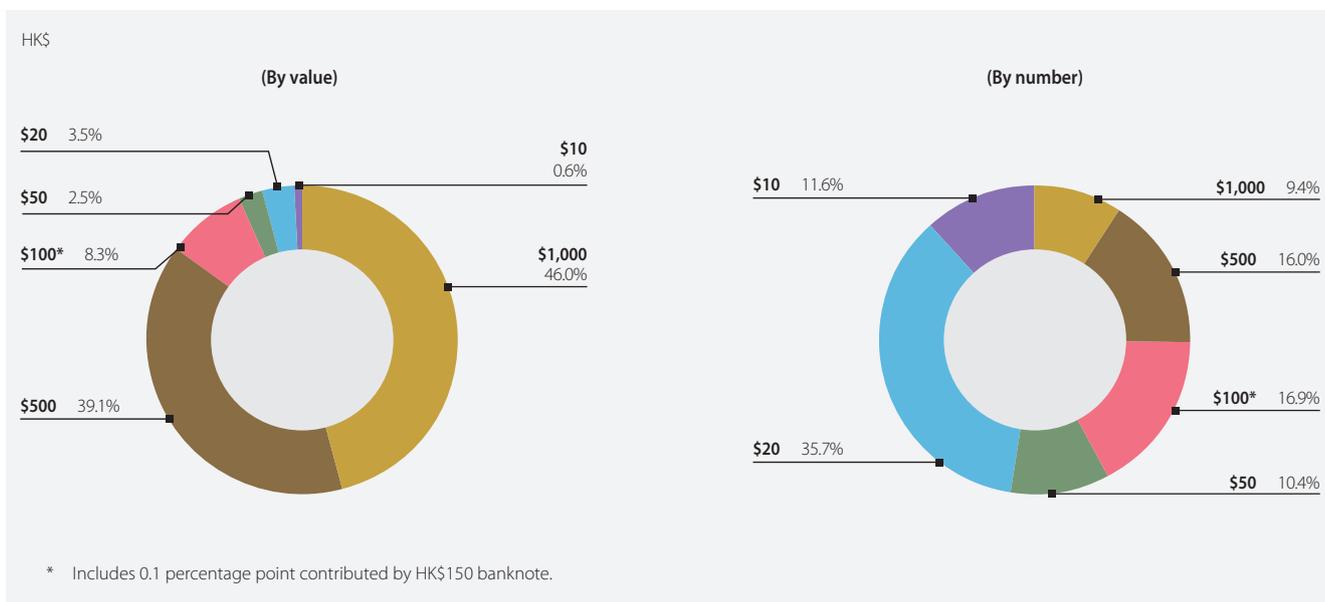


Chart 7 Distribution of banknotes in circulation at the end of 2018



Monetary Stability

Chart 8 Banknotes in circulation at the end of 2018

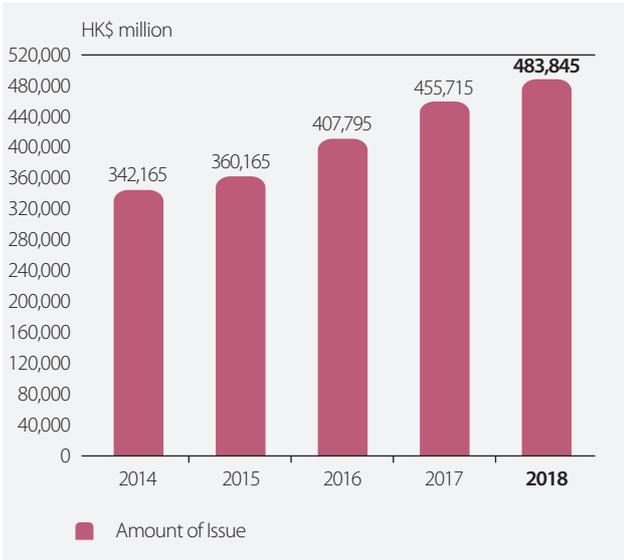


Chart 9 Government-issued notes and coins in circulation at the end of 2018

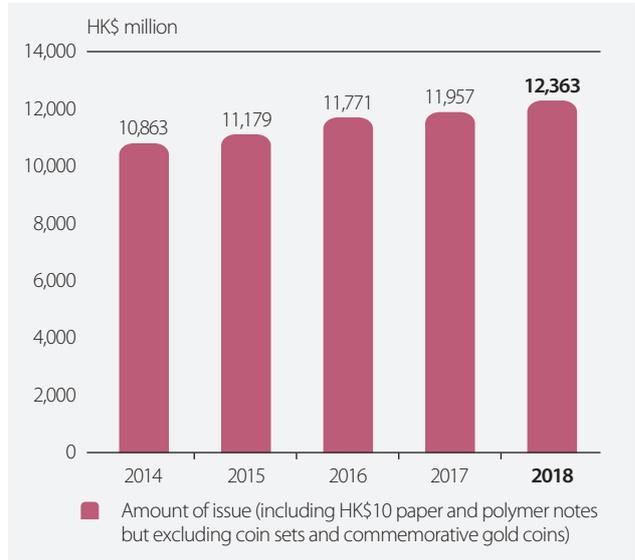
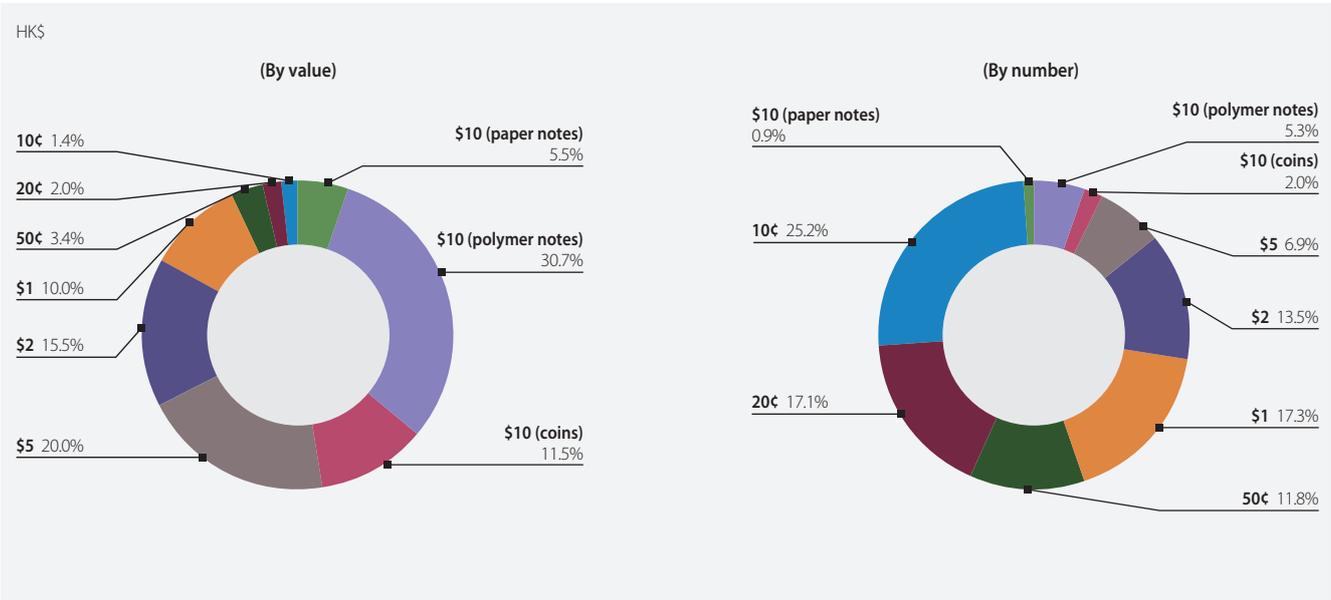


Chart 10 Government-issued notes and coins in circulation at the end of 2018



Monetary Stability

New series of Hong Kong banknotes

The HKMA and the three note-issuing banks announced in July the issue of a new series of banknotes. The new HK\$1,000 banknotes entered circulation in December and the other four denominations, (i.e. HK\$500, HK\$100, HK\$50 and HK\$20 banknotes) will go into circulation between 2019 and 2020.

It is the first time that the thematic subjects on the reverse side of Hong Kong banknotes are standardised for each denomination, which facilitates easy recognition by the public. The selected thematic subjects represent different aspects of Hong Kong as an international metropolis, featuring its rhythm of life, recreation and entertainment, as well as its rich natural and cultural heritage. The five denominations depict respectively the position of Hong Kong as an international financial centre (HK\$1,000), the spectacular Hong Kong UNESCO Global Geopark (HK\$500), Cantonese opera as the city's art and cultural legacy (HK\$100), butterflies that inhabit Hong Kong (HK\$50), and the popular dim sum and tea culture (HK\$20). For the purposes of aesthetic presentation of the thematic subjects and easy distinction from previous series, the reverse side of the banknotes is designed in vertical orientation instead of the traditional horizontal layout.

The new banknotes carry advanced security features to ensure that they are resilient to imitation and easy to recognise. These include the dynamic shimmering pattern and windowed metallic thread, which match each other in respect of the colour and provide similar dynamic visual effect.

For people with visual impairment, in addition to the accessibility features on the new banknotes, such as braille and tactile lines, they can also use a new mobile application "HK\$ Reader", which was developed by the Hong Kong Society for the Blind and sponsored by the HKMA, to identify the denominations of Hong Kong banknotes using their smartphones.



The thematic designs of 2018 New Series Hong Kong Banknotes are introduced at the HKMA Information Centre.



Financial Secretary, Mr Paul Chan (middle), and HKMA Chief Executive, Mr Norman Chan (left), watch a demonstration on identifying the denomination of Hong Kong banknotes by the mobile application "HK\$ Reader".

Public education

During the year, the HKMA provided 36 seminars for over 4,000 bank tellers, retailers and students to raise their awareness of Hong Kong banknotes. The HKMA also launched a publicity campaign for the new series of banknotes, including roving exhibitions in six districts, an educational mobile application, and the deployment of student ambassadors to shopping centres to distribute publicity leaflets.

Monetary Stability

Coin Collection Programme

The Coin Collection Programme, launched in October 2014, continued to be well received by the public. It is the world's first structured coin collection scheme, with two mobile trucks, known as Coin Carts, visiting the public across all 18 districts of Hong Kong on a rotational basis. Each Coin Cart is equipped with two high-speed coin counting machines. The public may choose to exchange their coins for banknotes, top up their stored value facilities such as Octopus cards or e-wallets, or donate the coins to the Community Chest box on board. Collaborating with the Hong Kong Council of Social Service, the Coin Carts collected coins on flag days for non-governmental organisations. The Coin Carts also visited schools to raise students' awareness of the programme.

Up to end-2018, the two Coin Carts have served about 528,000 people and collected 436 million coins with a total face value of HK\$608 million since inception. Details of the programme and its up-to-date information, including the service schedule, are available on a designated page of the HKMA website (coincollection.hkma.gov.hk).

Exchange Fund Bills and Notes

The EFBN Programme continued to operate smoothly. At the end of 2018, the nominal amount of outstanding Exchange Fund papers stood at HK\$1,062.7 billion (Table 2).

Table 2 Outstanding issues of EFBNs

HK\$ million	2018	2017
Exchange Fund Bills (by original maturity)		
28 days	800	2,200
91 days	624,015	605,779
182 days	354,000	351,000
364 days	51,700	51,700
Sub-total	1,030,515	1,010,679
Exchange Fund Notes (by remaining tenor)		
1 year or below	10,400	10,400
Over 1 year and up to 3 years	8,000	12,000
Over 3 years and up to 5 years	5,000	3,800
Over 5 years and up to 10 years	7,600	9,200
Over 10 years	1,200	2,400
Sub-total	32,200	37,800
Total	1,062,715	1,048,479

The Coin Carts have collected **436 million** pieces of coins with a total face value of **HK\$608 million** since inception.



Monetary Stability

PLANS FOR 2019 AND BEYOND



Developments in the global financial environment will likely be more challenging in 2019. Uncertainties arising from the developments of the US-China trade conflict and the Brexit negotiation will inevitably linger stepping into 2019. These, together with a global economic slowdown and evolving geopolitical risks, will weigh on investment and business sentiment across the globe. Against this backdrop, Hong Kong may see heightened volatility in asset markets, which will pose more downside risks to the domestic economy.

Given heightened uncertainties, the HKMA will continue to closely monitor risks and vulnerabilities in the domestic and external environments and stand ready to deploy appropriate measures where necessary to maintain Hong Kong's monetary and financial stability. Research programmes in 2019 will study issues affecting the Hong Kong economy and assess their potential risks. The CBC will continue to examine issues relevant to Hong Kong's monetary and financial stability, review the technical aspects of the Currency Board arrangements and, where appropriate, recommend measures to strengthen them.

Banking Stability

The Hong Kong banking system remained sound in 2018, notwithstanding increased uncertainties in the global economy and the financial markets. During the year, the HKMA continued to focus its supervisory efforts on reviewing the effectiveness of authorized institutions' liquidity and credit risk management systems. In view of growing cybersecurity threats and increasing adoption of fintech in the banking industry, the HKMA stepped up the supervision of authorized institutions' technology risk management and operational resilience. The HKMA also published a revised *Guideline on Authorization of Virtual Banks* in May, and began to process applications for authorization as virtual banks. On conduct supervision, the HKMA took further steps to enhance the supervision of authorized institutions' sales practices for investment and insurance products, facilitate access to barrier-free banking services to customers with disabilities, and promote a customer-centric corporate culture.

As financial crime has become more sophisticated and globalised, the HKMA continues to strengthen the resilience of Hong Kong's anti-money laundering and counter-financing of terrorism regime through harnessing new technology and risk-based approaches. Substantial progress was made on the local implementation of international regulatory standards, including capital adequacy standards, disclosure standards, liquidity standards and large exposure limits. The HKMA's interface with the banking industry was enhanced to ensure an appropriate balance between supervisory effectiveness and market development.

Meanwhile, the HKMA continued its work to ensure there is a credible resolution regime for authorized institutions, including introducing rules on minimum loss-absorbing capacity requirements to address a significant impediment to authorized institutions' resolvability.



OBJECTIVES

The HKMA has a general objective to promote the safety and stability of the banking system. Achieving this objective is contingent upon the financial system being highly resilient and capable of providing the critical financial services the Hong Kong economy needs.

Banks can affect the stability of the system through the way they carry out their business and, in extremis, by failing in a disorderly manner. The Monetary Authority, as a supervisory authority, plays a key role in safeguarding financial stability by ensuring banks are resilient to shocks and are able to recover their positions in response to crises, which ultimately helps prevent failures. The Monetary Authority is responsible for the prudential supervision of banks in Hong Kong. It is tasked with the authorization of licensed banks, restricted licence banks and deposit-taking companies in Hong Kong, which are collectively known as authorized institutions (AIs). The Monetary Authority is also responsible for the designation and oversight of certain financial market infrastructures (FMIs).

However, the Monetary Authority cannot ensure, nor is the Hong Kong prudential regulatory framework designed to ensure, a zero risk financial system. Instead, the Monetary Authority, as a resolution authority, seeks to ensure that, in the event of an AI becoming non-viable, its failure can be managed in an orderly manner. To this end, a resolution regime for financial institutions in Hong Kong has been established, under which the Monetary Authority is the resolution authority for AIs, amongst others. To ensure that the resolution regime in Hong Kong is operational, it is important to put in place resolution legislation and policy standards, undertake resolution planning to remove impediments to AIs' resolvability and develop the HKMA's operational capability to resolve a failing AI. In order to carry out these tasks effectively, the HKMA needs to adopt an internationally harmonised and co-ordinated approach.

REVIEW OF 2018

Overview of supervisory activities

In 2018, 187 off-site reviews were conducted covering a broad range of issues, including CAMEL ratings¹, corporate governance, business operations and risk management of AIs, as well as their business strategies in response to fintech development. As part of the HKMA's continued efforts to promote stronger risk governance, 27 meetings were held with the boards of directors or board-level committees of AIs. The HKMA also followed up AIs' progress in adopting its guidance on corporate governance. Twenty-eight tripartite meetings among the HKMA, AIs and their external auditors were held.

Apart from off-site activities, the HKMA continued to conduct regular on-site examinations supplemented with thematic reviews on areas assessed to be of higher risk. A total of 392 on-site examinations and thematic reviews were conducted during the year. Credit risk management remained a key focus of these examinations and reviews. Other major focuses were technology risk and operational risk management, as well as anti-money laundering and counter-financing of terrorism (AML/CFT) controls. The HKMA also increased the number of on-site examinations and thematic reviews targeted at liquidity and market risk management and at the implementation of the Basel capital adequacy framework. On-site examinations of AIs' activities in securities, investment products, insurance and Mandatory Provident Fund (MPF)-related businesses were also conducted by specialist teams.

¹ Comprising the **C**apital adequacy, **A**sset quality, **M**anagement, **E**arnings and **L**iquidity components.

Banking Stability

Table 1 contains an overall summary of the HKMA's supervisory activities in 2018.

Table 1 Summary of supervisory activities

	2018	2017
1 Off-site reviews and prudential interviews	187	192
2 Meetings with boards of directors or board-level committees of AIs	27	30
3 Tripartite meetings	28	27
4 On-site examinations	100	121
Credit risk management and controls	0	8
Technology risk and operational risk management	23	21
AML/CFT controls	20	20
Liquidity risk management	2	12
Implementation of Basel capital adequacy framework	8	5
Capital planning	3	3
Market risk, counterparty credit risk and treasury activities	8	8
Securities, investment products, insurance and MPF-related businesses	18	18
Deposit Protection Scheme-related representation	12	12
Overseas examinations	6	14
5 Thematic reviews	292	280
Credit risk management and controls	91	84
Technology risk and operational risk management	70	61
AML/CFT controls	44	55
Implementation of Basel capital adequacy framework	5	5
Sale of investment products	9	3
Consumer protection	42	60
Liquidity risk	21	8
Market risk	10	4
Total	634	650

Supervision of credit risk

Credit growth and asset quality

Credit growth moderated in 2018. Total loans grew by 4.4% in 2018, compared with a growth of 16.1% in 2017 (Table 2). Trade finance recorded a decline of 7.6% in 2018. The slowdown in loan growth was mainly due to a reduction in credit demand given the increasingly uncertain global economic and trade environment.

Table 2 Growth in loans and advances

% change	2018	2017
Total loans and advances	4.4	16.1
Of which:		
– for use in Hong Kong	6.5	16.1
– trade finance	-7.6	8.7
– for use outside Hong Kong	2.0	17.5

Mainland-related lending grew by 1.4% to HK\$4,249 billion at the end of 2018. The growth was slower than that in 2017 (Table 3).

Table 3 Growth in Mainland-related lending

% change	2018	2017
Total Mainland-related lending	1.4	17.5
Of which:		
– Mainland-related lending (excluding trade finance)	2.7	17.9
– trade finance	-14.9	13.5

The asset quality of AIs remained healthy in 2018. Retail banks' classified loan ratio edged down from 0.56% at the end of 2017 to 0.50% at the end of 2018, well below the long-run historical average of 2.1% since 2000. For the banking industry as a whole, the classified loan ratio decreased from 0.68% to 0.55%. As for Mainland-related lending, retail banks' classified loan ratio of such lending edged down to 0.63% in 2018 from 0.75%. For the banking industry as a whole, the ratio decreased to 0.54% from 0.67% a year ago.

Banking Stability

Retail banks' classified loan ratio

All loans: **0.50%**

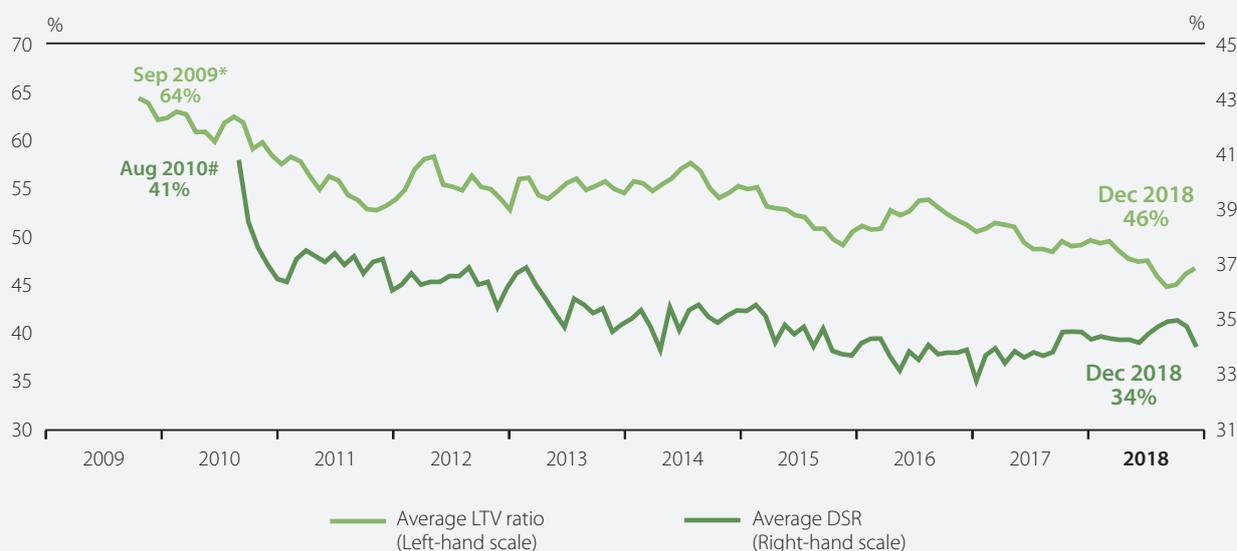
Mainland-related lending: **0.63%**

During the year, the HKMA stepped up its supervisory efforts to ensure that AIs continued to adopt prudent credit risk management standards. In particular, the HKMA strengthened the surveillance framework for corporate credit risk by taking a more proactive approach in understanding the background and structure of large corporates. Targeted thematic examinations were conducted, focusing on key credit risk management controls such as new loan underwriting and risk management for lending to large corporates, the loan classification and provisioning system, the credit risk governance framework, risk management for lending to property developers, asset-backed financing, and insurance premium financing.

Property mortgage lending

Residential property prices reached a historical peak in July 2018, but showed signs of moderation in the second half of the year. The eight rounds of countercyclical macro-prudential measures, introduced by the HKMA since October 2009, have strengthened the resilience of the Hong Kong banking sector to cope with a possible downturn in the local property market. The average loan-to-value (LTV) ratio of new residential mortgage loans fell to 46% in December 2018 from 64% in September 2009, before the countercyclical measures were first introduced. The average debt servicing ratio (DSR) also decreased to 34% in December 2018 from 41% in August 2010, when a cap on DSR was first introduced (Chart 1).

Chart 1 Average LTV ratio and DSR of new residential mortgage loans



* Before the introduction of the first round of the HKMA's countercyclical measures on property lending

Introduction of a cap on DSR

Banking Stability

Supervision of operational and technology risk

Technology risk in the banking industry remained elevated. The HKMA rolled out the Cyber Resilience Assessment Framework (C-RAF) in 2016. Thirty AIs covered in the first phase of the implementation, including all major banks, completed the three stages of the assessment, namely the Inherent Risk Assessment, the Maturity Assessment, and, where appropriate, the intelligence-led Cyber Attack Simulation Testing (iCAST). The exercise assisted AIs in identifying areas of operation that require enhancement and taking remediation actions to strengthen their cyber defence. Meanwhile, the HKMA formulated a timeline for the second and third phases of the implementation to cover the remaining AIs. During the year, the HKMA conducted on-site examinations focusing on AIs' cybersecurity controls, outsourcing arrangements, and information technology governance.

Smart Banking

The HKMA continued to work with the banking industry on the seven Smart Banking initiatives, unveiled in September 2017, to promote fintech development in Hong Kong. On the supervisory front, a revised *Guideline on Authorization of Virtual Banks* was published in May. Under the Banking Made Easy initiative, the HKMA streamlined regulatory requirements in relation to remote onboarding, online finance, and online wealth management. These enhancements have made it easier for banks to offer better user experience in the online banking environment. The scope of the Banking Made Easy initiative was expanded in September to facilitate the adoption of regulatory technology (Regtech) by banks. Three new workstreams focusing on surveillance technologies for AML/CFT, Regtech for prudential risk management and compliance, and machine-readable regulations were created.



HKMA Deputy Chief Executive, Mr Arthur Yuen, speaks at the HKIB Annual Banking Conference 2018 on Regtech in the Smart Banking Era.

Supervision of liquidity and market risks

Amid the continued normalisation of US monetary policy, the HKMA stepped up its supervisory efforts to ensure that AIs managed their liquidity risk prudently and effectively. A round of thematic reviews was conducted to assess AIs' preparedness for a possible tightening of US dollar liquidity and their internal liquidity stress testing capability. The HKMA also monitored AIs' compliance with the new Net Stable Funding Ratio (NSFR) requirement, which came into effect in January.

In addition, the HKMA reviewed AIs' market risk management for their debt securities portfolios. Thematic on-site examinations were undertaken to evaluate AIs' compliance with new international standards on treasury activities, including the Foreign Exchange Global Code, and the margining and risk mitigation standards on non-centrally cleared over-the-counter (OTC) derivatives.

Banking Stability

Combating money laundering and terrorist financing (ML/TF)

Like other international financial centres, the banking sector of Hong Kong faces high ML threats that reflect the increased globalisation and sophistication of financial services, as highlighted in the *Hong Kong Money Laundering and Terrorist Financing Risk Assessment Report* published by the Government in April. Threats arise from domestic activities and, to a greater extent, external activities. These external activities include illicit funds from external corruption, fraud perpetrated by transnational syndicates, tax evasion, and sanctions-related risks arising from Hong Kong's status as a payment and trading hub. With the HKMA's contribution, the Government's AML/CFT policy statement sets out the response to these threats with the objective being to increase the resilience of the AML/CFT regime while also attracting and facilitating bona fide businesses.

The Anti-Money Laundering and Counter-Terrorist Financing (Financial Institutions) (Amendment) Ordinance 2018 came into operation on 1 March. It introduced amendments for AIs, such as flexibility in measures permitted to verify a customer's identity, which are important in the light of technological development in the methods used by AIs for customer onboarding. The new legislation also extends AML/CFT obligations to solicitors, accountants, estate agents and trust or company service providers, which will strengthen the overall AML/CFT regime. These legislative amendments, together with amendments made to the Companies Ordinance to enhance transparency of corporate beneficial ownership, assist AIs in their AML/CFT work.

To consolidate and further enhance communication on the HKMA's overall policy and supervisory approach to AML/CFT, the HKMA published a Supervisory Policy Manual (SPM) "Supervisory Approach on Anti-Money Laundering and Counter-Financing of Terrorism" and an updated *Guideline on Anti-Money Laundering and Counter-Financing of Terrorism (for Authorized Institutions)* in October to align with changes made in the legislation, support better implementation of the risk-based approach and reduce barriers to the use of technology in AIs' AML/CFT systems.

Information sharing played an increasingly important role in the AML/CFT system through the active participation of the banking sector, supported by the HKMA and the Hong Kong Association of Banks (HKAB), in the Fraud and Money Laundering Intelligence Taskforce (FMLIT), which has already shown concrete results². A review of the FMLIT pilot initiative commenced in late 2018 and will be concluded in early 2019.

During the year, the HKMA further stepped up its supervisory efforts over AIs' AML/CFT systems. In particular, the surveillance of AIs' ML/TF risks was enhanced through a crime data return introduced in April, which feeds into the overall assessment of AIs' ML/TF risks. In 2018, 20 on-site examinations and 44 off-site reviews were conducted. Among them, targeted thematic reviews were conducted on private banking, as well as sanctions screening using an international technology firm specialising in the testing of the effectiveness and efficiency of automated screening systems. The experience and observations drawn from the latter thematic review were shared with the industry through circulars and seminars in April.

Internationally, the HKMA continues to participate actively in AML/CFT forums. It has played a major role in working with relevant government bureaux and departments and law enforcement agencies in providing input to the assessment of the effectiveness of Hong Kong's AML/CFT regime by the Financial Action Task Force (FATF) and Asia/Pacific Group on Money Laundering (APG) as part of the fourth round of mutual evaluations, the field visit for which took place in November.

² Since launch, up to end-August, FMLIT has delivered intelligence-led suspicious transaction reports, leading to 96 arrests, HK\$22 million restrained and HK\$33 million in losses prevented.

Banking Stability

Supervision of wealth management and MPF-related businesses

The HKMA co-operated closely with other financial regulators in Hong Kong to provide guidance and supervise Als' sales practices of securities, investment products, insurance products and MPF schemes. The HKMA also maintained regular dialogue with other regulators through bilateral and multilateral meetings, as well as under the auspices of the Council of Financial Regulators, to ensure co-ordinated and effective supervisory actions. During the year, the HKMA conducted 18 on-site examinations, nine thematic reviews and 13 analyses of surveys and returns of Als, covering the sale of investment products, settlement of securities transactions, safe custody of client securities, and the sale of non-investment-linked long-term insurance (NLI) products and MPF products.

To minimise regulatory friction in customers' digital experience under the Banking Made Easy initiative, the HKMA worked with the Securities and Futures Commission (SFC) to provide guidance to the industry on online and offline distribution and advisory platforms for investment products; remote investment account opening; and use of instant messaging applications to receive customers' investment instructions. The HKMA also introduced a half-yearly survey to collect information about online platforms for investment products provided by registered institutions (RIs) to facilitate its prioritisation of supervisory resources and focus.

With the increased market volatility in 2018, the HKMA continued to focus on complex and high-risk investment products. The HKMA shared with Als key observations and good practices in relation to the distribution of fixed income and structured products with special features and risks, such as bonds listed under Chapter 37 of the Main Board Listing Rules and accumulators. The HKMA also provided guidance to Als to enhance investor protection measures on the sale and distribution of debt instruments with loss-absorption features and related products, as such instruments and products are inherently complex and high-risk, and are generally not suitable for retail investors.

In respect of wealth management, the HKMA provided guidance to Als to enhance disclosure of benefits received; to facilitate compliance with the suitability requirement; and to prevent and manage misconduct risks in selling of investment funds.

As part of the Balanced and Responsive Supervision initiative, the HKMA conducted a holistic review of the HKMA's investor protection measures and consulted the banking industry on the proposed refinements to streamline the investor protection measures. Guidance will be provided to the industry with an objective to enhance customers' experience while providing consumer protection.

Following discussion with the Insurance Authority (IA), the HKMA issued a circular in May to Als to expand the types of life insurance products that are eligible for exemption from financial needs analysis under the digital distribution channel without recommendation. The HKMA also issued a circular in June requiring Als to put in place additional customer protection measures in selling annuity insurance products at retail level. Meanwhile, the HKMA continued to co-operate closely with the IA on the implementation of a new statutory regime under the Insurance Ordinance to regulate insurance intermediaries, including a collaboration framework for the inspection and investigation of Als' insurance intermediary activities, and the formulation of rules, codes, and guidelines for supervision under the new regime.

The HKMA also instituted a mystery shopping programme (MSP) to check Als' selling practices in respect of investment and insurance products. The HKMA will share the key observations and good practices with the industry.

During the year, the HKMA processed two RI applications. It granted consent to 147 executive officers responsible for supervising the securities activities of RIs, and conducted background checks on 10,839 individuals whose information was submitted by RIs for inclusion in the register maintained by the HKMA.

Banking Stability

Other supervisory activities

The Banking Supervision Review Committee considered five cases concerning the approval of money brokers and the capital position of an overseas-incorporated AI in 2018 (see Table 4 for details).

During the year, the HKMA commissioned 17 reports under section 59(2) of the Banking Ordinance (BO). The AIs were required to appoint external professional firms to report on the effectiveness of their controls over specified areas of operation. Eight of the reports covered credit risk management, another four covered AML/CFT controls, and the remaining reports were related to areas such as compliance with the BO and the distribution of financial products.

In 2018, no AIs breached the requirements of the BO relating to capital adequacy or liquidity ratio. There were 52 breaches of other provisions of the BO, mostly related to AIs' reporting obligations under the ordinance. These breaches had not affected the interests of depositors and were rectified by the AIs promptly.

During the year, the CAMEL Approval Committee completed a review of the CAMEL ratings of all the 187 AIs. No AIs appealed against the Committee's decision.

Table 4 Summary of other supervisory activities

	2018	2017
1 Cases considered by the Banking Supervision Review Committee	5	6
2 Reports commissioned under section 59(2) of the BO	17	9
3 Approval of applications to become controllers, directors, chief executives or alternate chief executives of AIs	181	203

International co-operation

Co-operation with overseas supervisors

The HKMA participated in 32 college-of-supervisors meetings organised by the home supervisors of 24 banking groups with significant operations in Hong Kong. The HKMA is also a member of 12 crisis management groups (CMGs) and other Resolution Colleges. A broad range of issues were discussed at these meetings, covering areas such as financial soundness, corporate governance, recovery and resolution planning, and risk management controls.

Bilateral meetings were held during the year with banking supervisors from Australia, Brazil, Brunei, the European Union, India, Japan, Liechtenstein, Macao, Mainland China, Malaysia, Singapore, South Africa, Switzerland, Taiwan, Thailand, the UK and the US. There were also regular exchanges with overseas authorities on institution-specific issues and developments in financial markets.



The HKMA organises and hosts a regional college-of-supervisors meeting in Hong Kong.

Banking Stability

Participation in international and regional forums

The HKMA continued to participate in a range of international and regional forums for banking supervisors. It is a member of the Basel Committee on Banking Supervision (“Basel Committee”) and its governing body, the Group of Governors and Heads of Supervision, and is represented on various Basel Committee working groups, including the Policy Development Group (PDG), the Macroprudential Supervision Group, the Supervision and Implementation Group (SIG), and the Anti-Money Laundering Expert Group. The HKMA assumed the role of chair at the SIG in October. It is also a member of several sub-groups under (i) the PDG, including the Working Group on Capital, the Working Group on Liquidity, the Working Group on Disclosure, the Credit Risk Group, the Market Risk Group, the Operational Resilience Working Group and the Large Exposures Group; and (ii) the SIG, including the Stress Testing Network, the Task Force on Financial Technology and the Colleges Monitoring Network. In addition, the HKMA chairs the Risk Data Network under the SIG to monitor the implementation progress of the Basel Committee’s *Principles for Effective Risk Data Aggregation and Risk Reporting* by global systemically important banks (G-SIBs). The HKMA also participates in the joint Working Group on Margin Requirements formed by the Basel Committee and the International Organization of Securities Commissions (IOSCO).

As regards participation in the Financial Stability Board (FSB), the Chief Executive of the HKMA chairs the Standing Committee on Supervisory and Regulatory Co-operation. In addition to serving as a member of the Plenary Meeting and Standing Committee on Assessment of Vulnerabilities, the HKMA also participates in several FSB working groups, including the OTC Derivatives Working Group, the Compensation Monitoring Contact Group, the Official Sector Steering Group on Financial Benchmarks, and the Working Group on Non-Bank Financial Intermediation. In the area of resolution, and in addressing the problem of “Too Big To Fail”, the HKMA is a member of the FSB Resolution Steering Group (ReSG) and Cross-Border Crisis Management (CBCM) Working Group for banks.

At the regional level, the HKMA is a member of the Executives’ Meeting of East Asia-Pacific Central Banks (EMEAP)³, the South East Asia, New Zealand and Australia Forum of Banking Supervisors, and the South-East Asian Central Banks group. As part of its work in the EMEAP Working Group on Banking Supervision (WGBS), the HKMA is the champion of the Interest Group on Liquidity (IGL). During the year, the IGL exchanged views and shared experiences regarding the implementation of Basel III liquidity standards in the EMEAP jurisdictions. The HKMA is also the chair and serves as the secretariat of the newly established Focused Meeting on Resolution (FMR) under the WGBS. The establishment of the FMR reflects agreement by EMEAP that a dedicated forum for bank resolution would bring the appropriate strategic focus to bank resolution. See *“The HKMA’s engagement with the industry and regional authorities”* on page 88 for more details.

³ EMEAP is a co-operative organisation of central banks and monetary authorities in the East Asia and Pacific region.

Banking Stability

Implementation of Basel Standards in Hong Kong

Exposure limits

The Banking (Amendment) Ordinance 2018 was enacted by the Legislative Council (LegCo) in January to, among other things, repeal obsolete provisions pertaining to exposure limits in Part XV of the BO, and empower the Monetary Authority to make rules to prescribe limits on the exposures of AIs. In this connection, a set of Banking (Exposure Limits) Rules (BELR) took effect on 13 July 2018 to modernise the equity exposure limit in section 87 of the BO so as to keep pace with market developments and contemporary risk management practices. This was followed by a set of new BELR scheduled for implementation from 1 July 2019 to replace the former set of BELR, update the rest of the exposure limits in the BO, and implement the 2014 Basel Committee standard on the *Supervisory Framework for Measuring and Controlling Large Exposures* ("Large Exposure Framework").

Capital standards

On 10 January 2018, the HKMA announced an increase in the jurisdictional Countercyclical Capital Buffer rate for Hong Kong from 1.875% to 2.5% (reflecting the Basel III phase-in provisions), effective from 1 January 2019. In line with the Basel Committee's framework for dealing with domestic systemically important banks (D-SIBs), the HKMA announced in December an updated list of D-SIBs for 2019 and their corresponding higher loss absorbency capital requirements.

The Banking (Capital) (Amendment) Rules 2018 (BCAR 2018) were made to implement (a) the 2016 Basel Committee's standard on *TLAC Holdings*; (b) a capital treatment on sovereign concentration risk designed to complement the implementation of the Basel Committee's Large Exposure Framework; and (c) the "internal assessment approach" as part of the securitisation framework set out in Basel Committee's 2014 Basel III Document on *Revisions to the Securitisation Framework*. The BCAR 2018 also specified the HKMC Insurance Limited and the HKMC Annuity Limited as domestic public sector entities for preferential capital treatment under the Banking (Capital) Rules (BCR) to cater for the business restructuring of the Hong Kong Mortgage Corporation Limited. The amendments

contained in BCAR 2018 took effect on 11 January 2019, except for those in relation to TLAC holdings and sovereign concentration risk, which would take effect from 1 April and 1 July 2019 respectively.

Furthermore, the Banking (Specification of Multilateral Development Bank) (Amendment) Notice 2018 took effect on 30 June 2018 to implement the Basel Committee's decision in October 2017 to allow banks to apply a 0% risk-weight to claims on the Asian Infrastructure Investment Bank as a multilateral development bank under the standardised approach for credit risk.

In the meantime, the HKMA continued its preparatory work for the implementation of three capital standards of the Basel Committee, viz. *The Standardised Approach for Measuring Counterparty Credit Risk Exposures* ("SA-CCR"), *Capital Requirements for Bank Exposures to Central Counterparties* ("CCP standard") and *Capital Requirements for Banks' Equity Investments in Funds*. The local implementation of these capital standards has been deferred from the original target date of 1 January 2017 to follow more closely the implementation schedules of other major markets. The current plan of the HKMA is to implement these standards within 2020. In this connection, the HKMA issued in August a set of proposed provisions for implementing the SA-CCR and the CCP standard for industry consultation. The consultation closed on 9 November.

Interest rate risk in the banking book (IRRBB)

In December, the HKMA issued its updated local framework on IRRBB, providing for a more sophisticated and comprehensive set of measures to identify banks with significant IRRBB exposures. Issued in the form of an SPM module "Interest Rate Risk in the Banking Book", the framework implements the corresponding Basel Committee's standards by specifying a standardised approach for quantifying IRRBB while continuing to follow the concept of an outlier-based Pillar 2 approach, i.e. only AIs with high levels of IRRBB exposure will be subject to additional capital requirements. The standards will be implemented on 1 July 2019.

Banking Stability

Disclosure standards

Further to the implementation in 2017 of the first phase of revised Pillar 3 disclosure requirements, which were promulgated by the Basel Committee in 2015, the Banking (Disclosure) (Amendment) Rules 2018 took effect from 30 June 2018 to implement the second phase of the revised requirements as set out in the *Pillar 3 Disclosure Requirements – Consolidated and Enhanced Framework*, promulgated by the Basel Committee in March 2017. These revised requirements were designed to promote market discipline through enhanced disclosure of banks in terms of user relevance, consistency and comparability of disclosed information.

Liquidity standards

Following the implementation of the Liquidity Coverage Ratio (LCR) under the Basel III framework from 1 January 2015, the other Basel III liquidity standard, viz. the NSFR, came into operation from 1 January 2018. AIs designated as “category 1 institutions” under the Banking (Liquidity) Rules are required to observe the LCR and NSFR requirements. All other AIs are regarded as “category 2 institutions” and are required to observe a Liquidity Maintenance Ratio (LMR), which consists of similar elements as the LCR but with a less granular structure. Some category 2 institutions are designated further as “category 2A institutions” and are required to observe a local Core Funding Ratio (CFR), which is a modified version of the NSFR.

Improving Supervisory Policy Framework

Regulation of over-the-counter derivatives transactions

The HKMA introduced the global margin and risk mitigation standards in 2017 for AIs involved in non-centrally cleared OTC derivatives transactions. Phases 1 and 2 initial margin requirements were implemented on 1 March 2017 and 1 September 2017 respectively. The Phase 3 initial margin requirements commenced on 1 September 2018, expanding the scope of covered entities. The HKMA will continue to assess industry readiness for implementation of the remaining phases and co-ordinate with other member jurisdictions of the Basel Committee and IOSCO Working Group on Margin Requirements on the implementation and market developments.

Revised securitisation framework

To assist locally incorporated AIs in complying with the revised securitisation framework set out in the BCR, which came into operation on 1 January 2018 through the Banking (Capital) (Amendment) Rules 2017, the HKMA issued in March a set of Q&As to provide supplementary guidance on how certain provisions of the BCR should be applied, particularly in relation to those relevant in the determination of significant credit risk transfer in securitisation transactions under the framework.

Updating other supervisory policies and risk management guidelines

The HKMA issued in May a revised SPM module on “Validating Risk Rating Systems under the IRB Approach” to reflect the prevailing regulatory capital requirements applicable to the use of the internal ratings-based (IRB) approach for credit risk under the BCR.

Furthermore, the HKMA finalised and issued the revised SPM module on “Counterparty Credit Risk Management” in July. The revision primarily aims to bring the SPM module in line with the prevailing capital treatment of, and the best practices in managing, counterparty credit risk arising from derivatives contracts and securities financing transactions.

In response to the local implementation of the IRRBB framework in July 2019, the SPM module on the subject was updated and retitled “Interest Rate Risk in the Banking Book” in December 2018.

Banking Stability

Compliance with regulatory regime for over-the-counter derivatives market

The HKMA continued to closely monitor the compliance of AIs and approved money brokers (AMBs) with the mandatory reporting, clearing and related record keeping requirements on OTC derivatives transactions stipulated in the Securities and Futures Ordinance. Close dialogue was maintained with AIs, AMBs and other industry participants on various reporting issues to facilitate their compliance with the relevant requirements arising from OTC derivatives market developments and evolving international standards.

Balanced and responsive supervision

The HKMA launched the Balanced and Responsive Supervision Programme in September 2017 to collect feedback from the banking industry regularly to optimise supervisory policies and processes. In 2018, the HKMA reached out to banks through constructive dialogue at roundtable meetings. The discussions focused on addressing challenges that banks faced in the implementation of regulatory requirements and guidance under a risk-based approach, with due consideration given to emerging risks, market trends and customer experience.

The industry feedback provided useful input for the HKMA's reviews of investor protection measures and AML/CFT guidance. In addition, the HKMA improved the supervisory workflow and communication process, enabling banks to achieve higher compliance efficiency. The HKMA is also exploring a better use of technology to streamline regulatory compliance.

Accounting standards

In response to the implementation of International Financial Reporting Standard 9 (IFRS 9) *Financial Instruments* in 2018, the HKMA issued, after consulting the industry, the interim regulatory capital treatment of IFRS 9 provisions in the first quarter of 2018. The interim treatment sets out the approach by which expected credit loss provisions made by AIs under IFRS 9 are to be categorised as general or specific provisions for the purposes of adhering to the regulatory capital framework, and the circumstances under which AIs are required to continue to maintain a regulatory reserve on top of the provisions they have made in accordance with the accounting standards.

The HKMA carried out follow-up surveys during the year to assess AIs' progress in adopting the new IFRS 9 requirements as well as the impact of IFRS 9 on AIs' key financial figures and regulatory capital ratios. Discussions were also held with auditors on AIs' implementation of IFRS 9. Based on the survey results as well as the feedback from AIs' auditors, the application of the interim regulatory capital treatment of IFRS 9 accounting provisions should not result in any significant impact on AIs' regulatory capital positions.

Meanwhile, the HKMA also continued its regular dialogue with the Banking Regulatory Advisory Panel of the Hong Kong Institute of Certified Public Accountants on topics of common interest. These included international and domestic developments in relation to new or revised accounting, auditing and financial reporting standards and their implications for banks, as well as major international and domestic banking regulatory developments.

Banking Stability

Resolution

In 2018, significant progress was made by the HKMA in advancing its objectives on resolution policy, resolution planning and resolution execution capability. Table 5 below provides a high-level overview of the progress to date in establishing and operationalising the resolution regime for AIs in Hong Kong.

Table 5 HKMA's progress in developing an operational resolution regime for AIs¹

	2016 & before	2017	2018	2019 & beyond
Resolution Framework	Conducted consultation and stakeholder engagement on establishing resolution regime	<ul style="list-style-type: none"> FIRO came into effect Protected Arrangements Regulation came into effect Published CoP chapter RA-1 Designated lead resolution authority for cross-sectoral G-SIB groups in Hong Kong 		Review and update of FIRO as appropriate
Resolution Standards for AIs	Consulted on CoP chapter CI-1 and involved in FSB resolution policy development	<ul style="list-style-type: none"> Published CoP chapters RA-2 and CI-1 Contributed to FSB resolution policy development through membership at the FSB ReSG and CBCM group for banks; as well as chairing the FSB Legal Experts Group and co-chairing the FSB CBCM Internal Total Loss-Absorbing Capacity Workstream 	<ul style="list-style-type: none"> Developed and finalised LAC Rules Developed and consulted on CoP chapter LAC-1 Updated CHATS scheme rules to support continuity of access to FMI for AIs in resolution Continued contribution to FSB resolution work, including chairing FSB thematic peer review on bank resolution planning 	Ensure standards are in place to address impediments to resolvability
Resolution Planning	Carried out resolution planning for priority D-SIBs and cross-border work at CMGs	<ul style="list-style-type: none"> Undertook bilateral resolution planning programmes for priority D-SIBs Led regional resolution planning Carried out cross-border resolution planning at 12 CMGs and other resolution colleges 	<ul style="list-style-type: none"> Established and advanced programmes for all D-SIBs Determined preferred resolution strategies and indicative LAC requirements for D-SIBs Worked with an AI to set up new clean holding company and service company in Hong Kong Promoted and adopted a coordinated approach to cross-border LAC pre-positioning 	Ensure priority AIs are resolvable by their compliance with resolution standards
HKMA's Execution Capability		<ul style="list-style-type: none"> Established new HKMA Resolution Office Developed Watchlist Framework Conducted drills and simulations Developed cross-departmental bank crisis coordination framework 	<ul style="list-style-type: none"> Established CMCG Advanced setup of resolution advisory framework Conducted crisis simulation exercises Promoted the setup, and appointed as Chair, of EMEAP's new FMR 	Establish operational capability to execute an orderly resolution

1. See <https://www.hkma.gov.hk/eng/key-functions/banking-stability/resolution/> for details of the FIRO CoP chapters mentioned in the table.

AIs — Authorized Institutions

CBCM — Cross-Border Crisis Management

CHATS — Clearing House Automated Transfer System

CMGs — Crisis management groups

CMCG — Crisis Management Coordination Group

CoP — Code of Practice

D-SIBs — Domestic systemically important banks

EMEAP — Executives' Meeting of East Asia-Pacific Central Banks

FIRO — Financial Institutions (Resolution) Ordinance

FMR — Focused Meeting on Resolution

FSB — Financial Stability Board

G-SIBs — Global systemically important banks

LAC — Loss-absorbing capacity

LAC Rules — Financial Institutions (Resolution) (Loss-absorbing Capacity Requirements — Banking Sector) Rules

ReSG — Resolution Steering Group

Banking Stability

Resolution standards, policy and guidance

The HKMA continued to develop resolution standards for AIs to address impediments to resolvability in line with international policy development. In the FSB's 2018 *Resolution Report: "Keeping the Pressure Up"*, its seventh report on the implementation of resolution reforms, the FSB emphasises that authorities and banks must do more to ensure bank failure can be managed in an orderly manner. This report provides an update on the progress to date made by member jurisdictions in implementing the agreed FSB resolution standards, and acknowledges the good progress made by Hong Kong, including in the development and implementation of loss-absorbing capacity (LAC) policy locally.

Insufficient LAC resources is an important potential impediment to the resolvability of AIs. Therefore, a major policy focus of the HKMA in 2018 was the making of rules prescribing minimum LAC requirements for AIs ("LAC Rules"). Following a process of extensive engagement with industry, including two rounds of consultation, draft LAC Rules were tabled at LegCo on 24 October 2018 for negative vetting. Subsequent to the active engagement of LegCo members, the LAC Rules came into operation on 14 December 2018.

The HKMA has also published a Code of Practice (CoP) chapter under the Financial Institutions (Resolution) Ordinance (FIRO) in relation to the LAC Rules (LAC-1), which provides guidance on how the Monetary Authority, as the resolution authority for banking sector entities including all AIs, intends to exercise certain discretionary powers under the LAC Rules and on the operation of certain provisions of the LAC Rules. The LAC-1 was issued on 20 March 2019⁴. See *"Which Authorized Institutions will be Subject to Loss-absorbing Capacity Requirements under the LAC Rules?"* on page 84 for more details on the HKMA's LAC policy.

⁴ https://www.hkma.gov.hk/media/eng/doc/key-functions/banking-stability/resolutions/LAC-1_Resolution_Planning-LAC_Requirements_ENG.pdf

Banking Stability

Which Authorized Institutions will be Subject to Loss-absorbing Capacity Requirements under the LAC Rules?

Under the FIRO, the Monetary Authority is the resolution authority for banking sector entities, which include all AIs. The Monetary Authority can initiate resolution in respect of a failing AI only where the non-viability of the AI would pose risks to the stability and effective working of the financial system of Hong Kong.

Where the Monetary Authority does initiate resolution, it is likely that additional financial resources will be required to facilitate an orderly resolution that meets the resolution objectives set out in the FIRO, which include protecting public money. The primary purpose of imposing LAC requirements on an AI is to ensure that, should the AI become non-viable, it has sufficient financial resources to allow its failure to be managed in an orderly way.

It follows from the above that it is only where the failure of an AI is likely to pose risks to the financial stability and effective working of the financial system that the AI should be considered for the imposition of LAC requirements.

The Monetary Authority's view is that, should a locally incorporated AI with total consolidated assets above HK\$150 billion reach the point of non-viability, it is unlikely that its failure could be managed through insolvency without posing risks to the stability and effective working of the financial system of Hong Kong. But it does not follow that all AIs above this threshold should necessarily be subject to LAC requirements. In considering which AIs should be so subject, the HKMA has taken into account a range of factors, including the resolution objectives under the FIRO and the cost implications for AIs. The HKMA's planning assumption is that any locally incorporated AI with total consolidated assets above HK\$300 billion should be subject to LAC requirements, and that any locally incorporated AI with total consolidated assets between HK\$150 billion and HK\$300 billion should be prioritised for resolution planning, but without the imposition of LAC requirements.

The HKMA intends to adopt a phased approach to resolution planning and the imposition of LAC requirements, starting with D-SIBs. Under this approach, the intention is that D-SIBs will be subject to LAC requirements no earlier than 1 January 2022,⁵ and that non-D-SIBs above the HK\$300 billion threshold will be subject to LAC requirements no earlier than 1 January 2023.

This approach is summarised in the table below and set out in more detail in LAC-1.

Nature of AI	Monetary Authority's approach to LAC requirements and resolution planning
Locally incorporated AIs with total consolidated assets above HK\$300 billion (including all D-SIBs)	Prioritised for resolution planning; will be subject to LAC requirements no earlier than 1 January 2022 for D-SIBs (subject to footnote 5), and no earlier than 1 January 2023 for non-D-SIBs
Locally incorporated AIs with total consolidated assets between HK\$150 billion and HK\$300 billion	Resolution planning will be required; will not be subject to LAC requirements
All other AIs	Not prioritised for resolution planning; will not be subject to LAC requirements

⁵ Note, however, that in accordance with international standards developed by the FSB, D-SIBs that are part of G-SIBs which are not headquartered in emerging market economies will need to start meeting LAC requirements from 2019.

Banking Stability

With respect to other impediments to resolvability, the HKMA has taken further steps to ensure the orderly management of an AI's failure. For example, consistent with the *FSB Guidance on Continuity of Access to Financial Market Infrastructures for a Firm in Resolution*, the HKMA worked with relevant stakeholders during 2018 to update scheme rules for Hong Kong dollar, US dollar, euro and renminbi Clearing House Automated Transfer System (CHATS) to reflect the restrictions imposed by the FIRO on the termination or suspension of

access to clearing and settlement services in respect of an AI that enters resolution.

At an international level, the HKMA has also been actively involved in the formulation of many of the international resolution standards through its membership at the FSB – see “*HKMA's Contribution to International Resolution Policy Work in 2018*” below for more details.

HKMA's Contribution to International Resolution Policy Work in 2018

At an international level, effective resolution requires internationally harmonised resolution policies and standards, given the cross-border nature of many large financial institutions. This is particularly important for Hong Kong as a major host of all G-SIBs and some regionally active banking groups.

To ensure that Hong Kong's unique position is reflected, both as a key host jurisdiction of G-SIBs and internationally active banking groups and as the home of the resolution entities of some of these banking groups, the HKMA participates actively in the formulation and implementation of international resolution policy standards. The HKMA has been contributing through its membership at the FSB ReSG and the FSB CBCM Group for Banks.

The HKMA was a member of the CBCM workstreams on Bail-in Execution and Funding in Resolution. These workstreams were responsible respectively for finalising the *FSB Principles on Bail-in Execution* and *FSB Guidance on Funding Strategy Elements of an Implementable Resolution Plan*, which were both published in June 2018. The HKMA is also a member of the CBCM workstream on Public Disclosure on Resolution Planning and Resolvability.

As the focus of the FSB's work moves from policy design to implementation, one important aspect is to promote implementation consistency through monitoring and peer review assessments. To this end, the HKMA chairs the FSB's thematic peer review on bank resolution planning.

The HKMA participated in ten international meetings and workshops for the aforesaid FSB groups in 2018, with some of these events organised by the HKMA in Hong Kong.

Banking Stability

Resolution planning for authorized institutions

A range of milestones were achieved in resolution planning in 2018, with structured bilateral resolution planning programmes established and advanced for each of the six D-SIBs. These programmes focus on identifying and working with AIs on the changes required to remove impediments to resolvability, including AIs' LAC issuance strategies. The HKMA collected the first submissions of core information for resolution planning from all the D-SIBs and determined the preferred resolution strategies for them. Resolvability assessments for the D-SIBs were conducted to identify impediments to their resolvability, and the indicative LAC requirements were communicated to these AIs to facilitate their planning and necessary actions on LAC resources.

In order to lead the regional resolution planning efforts for a G-SIB which has its Asia Pacific headquarters in Hong Kong, the HKMA organised the annual Asia CMG meeting for the relevant home and host authorities, and oversaw a number of major steps in enhancing resolvability. These include the replacement of a chain of overseas holding companies with a clean holding company in Hong Kong, and the establishment of a dedicated Hong Kong service company to support operational continuity in resolution.

The HKMA participated actively in the cross-border resolution planning of 12 G-SIBs through its membership at CMGs, critically assessing the progress made by the G-SIBs in addressing impediments to resolvability and ensuring key local specificities were taken into account. A key focus in 2018 was discussions with overseas resolution authorities on the scaling of internal LAC pre-positioning requirements, to which the HKMA promoted and adopted a co-ordinated approach, with a view to maximising opportunities for home-host co-operation, which is a necessary precondition to the orderly resolution of cross-border banking groups.

HKMA's operational capability as a resolution authority

Considerable progress has been made in different areas to strengthen the operational capability of the HKMA as a resolution authority.

To strengthen the institutional framework and arrangements, a new HKMA-wide Crisis Management Framework (CMF) and Crisis Management Coordination Group (CMCG) were established in 2018, providing the basis for enhanced co-operation and co-ordination across relevant departments involved in bank crisis preparedness and management. See "*HKMA Crisis Management Framework and Crisis Management Coordination Group*" on page 89 for more details on the CMF and the CMCG.

The design of liquidity facilities needed to operationalise the resolution funding arrangements under the FIRO was taken further as part of wider work on the HKMA's liquidity facilities framework. See "*Resolution and Backstop Liquidity Support*" on page 87 for more details.

Banking Stability

Resolution and Backstop Liquidity Support

An important element of orderly resolution is to ensure that, should a bank get into financial difficulties and become non-viable, it has sufficient financial resources of its own to absorb losses and be recapitalised, thereby restoring itself to viability. In this way, creditors, not the public purse, bear the cost involved. The recently introduced LAC Rules are designed to ensure a relevant AI has resources in place such that, should it become non-viable, its failure can be managed by the HKMA in an orderly manner, while minimising risk to public money.

However, recapitalisation of a bank alone may not be sufficient to ensure an orderly resolution. A bank in resolution may be temporarily unable to refinance its liabilities as they become due. In the period following the commencement of a resolution process, even a recapitalised bank is likely to experience heightened liquidity needs generated by market volatility and by an asymmetry of information regarding the bank's viability. In such a scenario, the bank will be expected to first turn to all its private sources of funding. However, if access to private markets is not possible, credible public-sector backstop mechanisms must be in place to enable the temporary funding needs of the bank to be met to the extent necessary to maintain the continuity of its critical functions during the resolution process. In the context of liquidity support, this means that credible public-sector sources of temporary collateralised lending must be available.

The HKMA is the backstop provider of liquidity to solvent banks in Hong Kong. The HKMA's liquidity assistance framework comprises short-term liquidity assistance facilities to address banks' settlement needs, and longer-term facilities that are designed to respond to idiosyncratic or market-wide stress.

Following the commencement of operation of the FIRO, which sets out specific arrangements for funding in resolution, the HKMA began an internal review in 2018 to identify changes that might need to be made to its existing framework in order to effectively deliver liquidity support in a resolution context.

While it is expected that new facilities will be introduced to the framework to support resolution in Hong Kong, the rest of the framework remains relevant. For this reason, the current review encompasses the whole framework with a view to ensuring that this important toolkit continues to evolve as required to reflect domestic and international policy developments and the demands of responding to a systemic banking crisis.

Banking Stability

HKMA Crisis Management Framework and Crisis Management Coordination Group

Developed in 2017 and formally established in 2018, the HKMA’s new CMF and CMCG provide the basis for co-operation and co-ordination across relevant departments with different responsibilities for bank crisis preparedness and management.

The CMF provides an overview of the statutory powers available to the Monetary Authority in handling a crisis involving a failing AI and how these powers might be exercised at different stages of an AI’s life cycle, from business-as-usual to non-viability. The CMF also sets out the roles and responsibilities of individual departments in facilitating the execution of those powers as well as the decision making processes and preferred approach in managing at-risk AIs experiencing liquidity and/or solvency stress.

The CMCG is a senior management body with two key roles. First, it is responsible for overseeing the development of cross-departmental crisis management capabilities in business-as-usual times. Second, where an at-risk AI is identified and its status escalated, it ensures that a comprehensive analysis of co-ordinated options is

provided to the Monetary Authority to support the effective handling of the AI and the exercise of statutory powers as needed. The inter-departmental role performed by the CMCG is designed to both maximise the AI’s chances of recovery and ensure that the HKMA can manage the orderly failure of the AI if its recovery plan does not succeed.

The standing members of the CMCG include the two Deputy Chief Executives responsible for banking function and monetary management function, the Commissioner of Resolution Office and the General Counsel. The CMCG meets regularly with participation from the Executive Director for Banking Supervision and the Executive Director for Monetary Management to consider matters in relation to preparedness for bank crises in business-as-usual times, such as (i) the development of institutional capabilities and readiness across the key HKMA functions (namely banking supervision, resolution and monetary management) which are responsible for crisis management; (ii) the setting of preferred resolution strategies and removal of barriers to resolvability for AIs; and (iii) the development of policy related to crisis management.

High-level summary of the HKMA Crisis Management Framework

Stylised example of the life-cycle of an AI:

	Entry into Watchlist	Likely to become non-viable
	Business-as-usual	At risk of failure (Watchlist Stages 1 and 2)
		Resolution or Liquidation
Banking Supervision	Ongoing supervision	Intensified supervision Supervisory intervention AI recovery plan implementation
Resolution	Resolution planning	Contingency planning for resolution execution
Monetary Management		Provision of collateralised liquidity to solvent AIs as appropriate
Other departments (examples)		Payments team: facilitate continuity of access to FMI’s Licensing team: facilitate authorization of AI post resolution
Deposit Protection		Preparation for possible payout of non-systemic AI which is a member of the Deposit Protection Scheme

* For illustrative purpose only. All actions are to be considered on an as-needed basis based on the facts and circumstances at the time.

Banking Stability

Crisis Simulation Exercise (CSE)

A full-scale interactive CSE was conducted in November for the departments concerned within the HKMA to practise communication and co-ordination, the execution of contingency measures and the use of statutory powers under the BO, FIRO and other applicable ordinances in dealing with a banking crisis. More than 60 staff members participated in the CSE, including the senior executives and the relevant staff members of seven departments. The objectives of the CSE were accomplished within the planned timeframe. The exercise provided an opportunity for the participants not only to interact actively and apply their knowledge and skills in dealing with the simulated crisis situations, but also to identify potential areas for enhancement in the existing CMF.

As a prelude to the full-scale CSE, a “table-top” simulation exercise was conducted earlier in June for participants at the management level to articulate and evaluate potential responses to specific crisis scenarios.

Bank consumer protection

Code of Banking Practice

The industry’s overall compliance with the Code of Banking Practice (“the Code”) remains satisfactory. The industry has completed a self-assessment exercise covering the period from 1 January to 31 December 2017, which was the second self-assessment conducted by AIs since the revised edition of the Code became effective on 6 February 2015. AIs’ subsidiaries and affiliated companies controlled by them, which are not AIs and are not licensed, regulated or supervised by any financial regulators in Hong Kong, should also observe the revised Code when providing banking services in Hong Kong, where applicable. According to the self-assessment results, all AIs as well as their subsidiaries and affiliated companies reported full or nearly full compliance⁶, while a few AIs have taken prompt remedial action to rectify areas of non-compliance.

On 19 October, the Competition Commission (CC) published its decision on the banking industry’s application submitted in December 2017 in relation to the Code. While the CC decided that the Code was not excluded from the application of the First Conduct Rule by or as a result of “legal requirements exclusion” under the Competition Ordinance, the CC confirmed that it recognised the consumer protection objectives of the Code and the benefits to consumers, and it had no current intention to investigate or pursue enforcement action. On the same day of the issuance of the CC’s decision, the HKMA issued a circular, which had been agreed with the CC, to clarify and reiterate that, as part of the Monetary Authority’s requirements under the BO concerning proper standards of conduct and sound and prudent business practices, all AIs were required to comply fully with all provisions in the Code. Hence, compliance with the Code actually stems from the Monetary Authority’s requirements. As a result, the protection measures for consumers under the Code will remain intact.

To enhance the handling of the mis-transfer of funds to wrong recipients by bank customers and their requests for assistance to their AIs to recover the mis-transferred funds, HKAB, in consultation with the HKMA, has worked out a set of standardised procedures. In relation to this, the HKMA issued a circular in January 2019 to remind AIs to set up a proper process that will ensure the aforementioned procedures are duly adopted, and to conduct customer education.

⁶ With five or fewer instances of non-compliance.

Banking Stability

Financial inclusion

The HKMA has been promoting financial inclusion and encouraging retail banks to pay special attention to customers in need. The HKMA worked with the industry to further enhance the accessibility of banking services to customers with disabilities, and facilitated HKAB's issuance of the *Practical Guideline on Barrier-free Banking Services* ("Practical Guideline") in March in consultation with the disabled community. The Practical Guideline sets out the good practices recommended for the industry with respect to all service channels, including bank branches, ATMs, online banking and telephone banking, to facilitate access by customers with physical disabilities, visual impairment or hearing impairment. The HKMA issued a circular stating its supervisory expectation for all banks to implement the measures in the Practical Guideline and to provide proper training and guidance to frontline staff members to address the needs of customers with disabilities. The industry was committed to implementing the recommendations of the Practical Guideline, and the number of voice navigation ATMs, which allow customers with visual impairment to access ATM services more easily and independently, increased by more than 10 times to over 700 by the end of the year.

During the year, the industry worked with EPS Company to introduce a cash withdrawal service for the elderly that dispenses with the need to make purchases to enhance their access to the service. A pilot scheme was launched in March at 34 outlets of a convenience store chain and the service was further expanded to over 300 outlets across Hong Kong in July. Since April, the Hongkong Post has also launched a similar service in seven Post Offices, mainly on outlying islands and in the New Territories.



HKMA Chief Executive, Mr Norman Chan, tries out the voice navigation ATM.

- Voice navigation ATMs: **over 700**
- Cash withdrawal service for the elderly
 - outlets of convenience store chain: **over 300**
 - Hongkong Post Offices: **7**
- Mobile branch locations served by three retail banks: **24**

Banking Stability

Opening and Maintaining Bank Accounts

In recent years, as a result of the progressive tightening of international standards to combat ML/TF, financial institutions round the world, including banks in Hong Kong, have generally strengthened the related controls, including undertaking more comprehensive due diligence and on-going monitoring of customers. It is important that banks' AML/CFT controls operate effectively and efficiently, and do not pose an unreasonable barrier to bona fide businesses and ordinary residents who are seeking access to banking services.

Against this backdrop, the HKMA continued to work closely with the banking industry and the business community on the important issue of account opening and maintenance. As part of its efforts to foster communication among banks, the business community and other stakeholders, the HKMA organised sharing sessions in June and September, targeting the communities of technology business and money service operators. These sessions provided a useful platform for business sectors and banks to share perspectives and exchange views on account opening and maintenance. Through the HKMA's dedicated email account and hotline, useful feedback and comments from the public, business community as well as other stakeholders were also collected and followed up by a dedicated team of the HKMA.

The HKMA engaged a service provider to undertake a MSP during the year, focusing on the customer interface aspect of the account opening processes of AIs for small and medium-sized enterprises (SMEs) and ethnic minority customers, to complement its supervisory activities in assessing the effectiveness of AIs' improvement measures and practices on the ground. The fieldwork of the MSP has been completed. The HKMA has started following up with the concerned AIs on the issues observed in the MSP while working on a circular to share the MSP observations with the industry in 2019. Besides, the HKMA has also conducted a round of thematic reviews on AIs' application of AML/CFT requirements during the customer onboarding process of the SME segment. Issues identified and good practices noted from the reviews will be shared with the industry in 2019.

The HKMA continued to encourage the banking industry to utilise technologies to enhance account opening efficiency and improve customer experience. To this end, relevant amendments were made to the *Guideline on Anti-Money Laundering and Counter-Financing of Terrorism (for Authorized Institutions)* and put into effect in March and November. Some banks are using technologies to facilitate remote customer onboarding on mobile devices. The HKMA continued to maintain close dialogue with banks and financial technology companies on new initiatives through the Fintech Supervisory Sandbox and Chatroom. The HKMA also worked closely with HKAB to explore the use of know-your-customer utilities with a view to further enhancing the efficiency of the customer due diligence (CDD) process and reducing any unnecessary compliance burden, thereby assisting banks in managing risks and improving customer experience.

With the joint effort of the HKMA and the banking industry, improvements in account opening processes and customer experience have been made.

The retail banking sector opens on average about **10,000** new business accounts per month, of which some **60% to 70%** are for SMEs and start-up companies. Of the successful cases, on average some **50% to 60%** were able to open accounts within **two weeks**, and that some accounts could even be opened as quickly as within a few days.

The actual timeframe would depend on the complexity of individual cases and the availability of the necessary information required of the applicants.

The average unsuccessful rate of account opening applications for the year is around **5%**, representing a substantive improvement from around 10% in early 2016.

The HKMA will continue to work with the banking industry, business community and relevant stakeholders to deal with this global and complex issue. The HKMA's aim is to maintain a robust AML/CFT regime in Hong Kong that does not undermine access by bona fide businesses and ordinary residents to basic banking services.

Banking Stability

Bank Culture

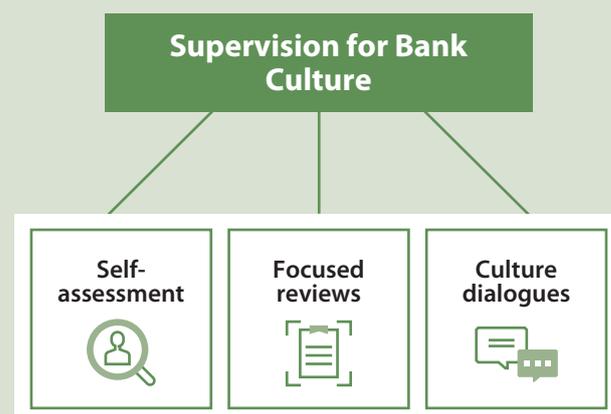
The HKMA announced its supervisory measures for bank culture in December to gauge the progress of bank culture reform in Hong Kong, following consultation with the banking industry and drawing upon the experience of overseas practices.

First, Als will be required to conduct self-assessment, reviewing and reporting on their governance arrangements as well as policies and procedures in relation to corporate culture and the implementation of enhancement measures in fostering a sound bank culture with respect to the bank culture reform circular issued by the HKMA in March 2017. Apart from specific questions posed in the review of governance arrangements and policies and procedures, the self-assessment will include “Culture Questions to the Board”, which are a set of high-level questions aiming to serve as an opportunity for the Als’ board to reflect on any insights, lessons learnt and issues encountered in the implementation of enhancement measures, instead of a check-box type of compliance exercise.

Secondly, the HKMA is planning to conduct focused reviews to assess and benchmark Als’ practices with respect to key areas of bank culture.

Thirdly, the HKMA will conduct culture dialogues with senior management and/or board members of Als responsible for bank culture to gather insights and lessons learnt.

Furthermore, in pursuing the culture initiative, the HKMA aims to draw on the valuable and relevant experience of overseas practices and has reminded Als of the importance of keeping an eye on any major conduct incidents that occur in different parts of the world and considering the relevance of the findings in the context of Hong Kong, in particular assessing whether there are any potential similar issues in their own Als.



Banking Stability

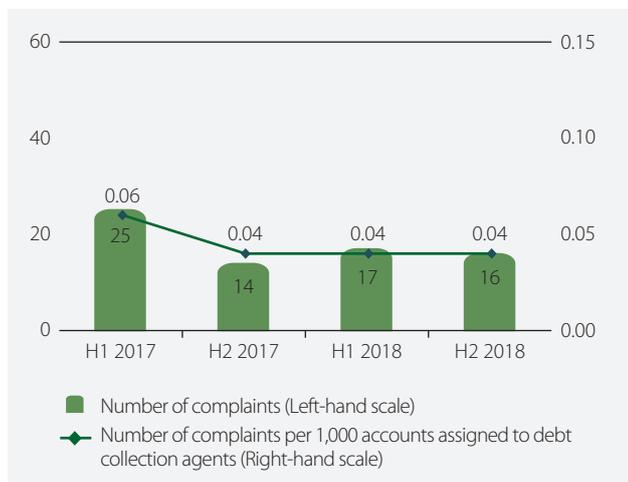
Engagement of intermediaries by authorized institutions

Various measures were introduced to help further protect the interests of bank customers and reduce the potential risks to the reputation of the banking industry arising from possible malpractices by fraudulent lending intermediaries. In particular, following the HKMA's reminders to the public to stay alert to bogus phone calls, retail banks' hotlines have been widely and effectively used by the public to verify callers' identities, with a total of about 3,400 to 4,300 enquiries received each quarter.

Customer complaints relating to debt collection agents employed by authorized institutions

The number of complaints received by AIs about their debt collection agents decreased to 33 from 39 in 2017 (Chart 2). The HKMA will continue to monitor AIs' engagement with debt collection agents.

Chart 2 Complaints received by AIs about their debt collection agents



Credit data sharing

TransUnion, an organisation providing consumer credit reference services, notified the Office of the Privacy Commissioner for Personal Data (PCPD) on 28 November of a suspected data breach due to possible security loopholes in the application procedures for credit reports maintained by the company, with some personal data on the TransUnion database allegedly accessed by an unauthorised party. Given that the incident involved the security of personal credit information provided to TransUnion by AIs for credit reference purposes, the HKMA together with HKAB liaised closely with TransUnion following the incident. Specifically, TransUnion has been requested to conduct a full and immediate investigation into the incident and to suspend online enquiry services on personal credit reports until the completion of the investigation, a comprehensive upgrading of the information security system and an independent review on the enhanced security controls. At the same time, the HKMA also liaised closely with the PCPD.

Deposit protection

The Deposit Protection Scheme (DPS) continued to provide protection to each depositor up to a limit of HK\$500,000 per bank.

A two-year payout system modernisation project, which improved the resilience and efficiency of the payout system and reduced maintenance cost, was completed by the Hong Kong Deposit Protection Board. A study was conducted to confirm the feasibility of developing electronic payment channels to supplement paper cheques in paying out DPS compensation. To reinforce public awareness and understanding of DPS protection, a multimedia publicity campaign and various community education activities were launched. The role of the DPS as the "Guardian of Deposits" was promoted through an announcement of survey results on Hong Kong people's saving habits and sense of security in savings.

Banking Stability

Licensing

At the end of 2018, Hong Kong had 152 licensed banks, 18 restricted licence banks, 16 deposit-taking companies and 24 AMBs. During the year, the HKMA granted money broker approvals to six foreign and two local inter-dealer brokers and trading platform operators, as well as approval for the transfer of a banking licence. Three licensed banks, one restricted licence bank and one deposit-taking company had their authorizations revoked.



Following the announcement of the virtual banking initiative in September 2017 and with the revision of the *Guideline on Authorization of Virtual Banks* after public consultation in May 2018, the HKMA met with a large number of parties which were interested in establishing virtual banks in Hong Kong to explain the authorization criteria. The HKMA had received 33 applications for virtual bank licences by August. About one-third of these applicants were found not to have submitted sufficient information on certain critical aspects of the authorization criteria after careful scrutiny of the completeness of these applications, and therefore they were not further processed. As for the remaining applications, the HKMA has shortlisted eight of them for the next stage of assessment following a rigorous process. The HKMA is continuing the intensive due diligence process for the shortlisted applications to assess whether they can fully meet the authorization requirements.

Enforcement

Banking complaints

The HKMA received 1,948 complaints against AIs and their staff members in 2018, a 9% increase from the previous year. Notwithstanding the rising complaint trend, the HKMA completed the handling of 1,990 cases in 2018, a 6% increase year on year. As a result, the total number of outstanding cases declined by 9% over a year ago to 414 as at end-2018 (Table 6).

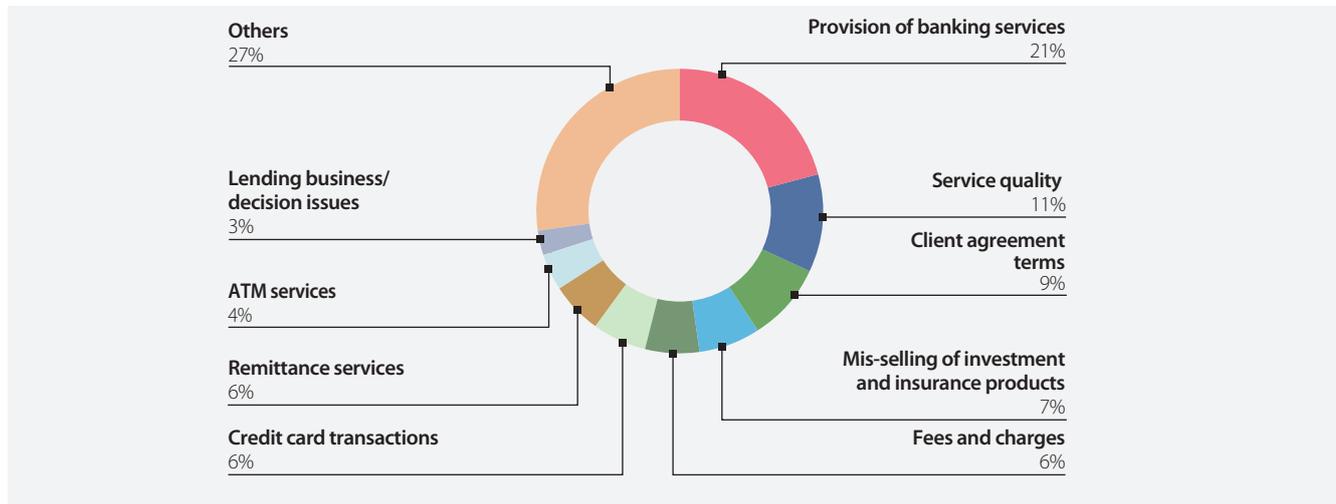
Table 6 Banking complaints received by the HKMA

	2018			2017
	Conduct-related issues	General banking services	Total	Total
In progress on 1 January	100	356	456	555
Received during the year	213	1,735	1,948	1,786
Completed during the year	(216)	(1,774)	(1,990)	(1,885)
In progress on 31 December	97	317	414	456

Complaints concerning the provision of banking services increased by 39% over the year to 417 cases in 2018. The majority of complaints, comprising 88% in this category, concerned the freezing and closure of accounts, and the facts of these cases indicated that relevant CDD information or documents were not provided for the banks to obtain a reasonable understanding of customer background and account transactions involved, and that suspicious transactions were identified during banks' ongoing CDD process. There were also cases where the accounts were subsequently maintained after relevant information was provided by customers to address banks' risk concerns (Chart 3).

Banking Stability

Chart 3 Types of services and products involved in banking complaints received by the HKMA in 2018



Enforcement

Following consultation with the industry, the HKMA issued the *Guideline on Exercising Power to Order a Pecuniary Penalty* in April to set out the manner in which the power to order a pecuniary penalty under the Payment Systems and Stored Value Facilities Ordinance (PSSVFO) is to be exercised. The *Guideline on Exercising Power to Impose Pecuniary Penalty*⁷ was also revised in April to reflect the latest amendments to the Anti-Money Laundering and Counter-Terrorist Financing Ordinance (AMLO).

In August, the HKMA issued the *Guidance Note on Cooperation with the HKMA in Investigations and Enforcement Proceedings* to provide an overview of how the HKMA considers and recognises co-operation in its investigations and enforcement proceedings, as well as to highlight the benefits of co-operation. The HKMA encourages and recognises co-operation because it facilitates the early detection, efficient investigation and prompt rectification of statutory and regulatory breaches and misconduct and fosters a culture of responsibility and self-improvement in the industry. Co-operation will generally also result in significant savings in

time, costs and resources for both the HKMA and the institution or individual concerned.

The HKMA continued to enforce CDD and record keeping requirements under the AMLO and to take disciplinary action in respect of material contraventions. In August, the HKMA issued a public reprimand and imposed a pecuniary penalty of HK\$5 million on a bank after an investigation which found deficiencies in the bank's AML/CFT systems and controls for continuously monitoring business relationships and failures when carrying out CDD measures in respect of certain customers. In December, the HKMA issued a public reprimand and imposed a pecuniary penalty of HK\$12.5 million on another bank. The disciplinary action followed an investigation which found deficiencies in the bank's AML/CFT systems and controls across several key control areas, including CDD, continuous monitoring of business relationships and wire transfers. Both banks were also ordered to submit a report by an independent external adviser regarding the sufficiency and effectiveness of the remedial measures implemented by them.

⁷ This guideline was first published by the HKMA on 29 June 2012 under section 23(1) of the AMLO. It sets out the factors that the Monetary Authority will consider, where applicable, in determining whether to impose a pecuniary penalty and the amount of the pecuniary penalty if there has been a contravention of a specified provision as defined by section 5(11) of the AMLO. The revised version of the guideline was published on 27 April 2018.

Banking Stability

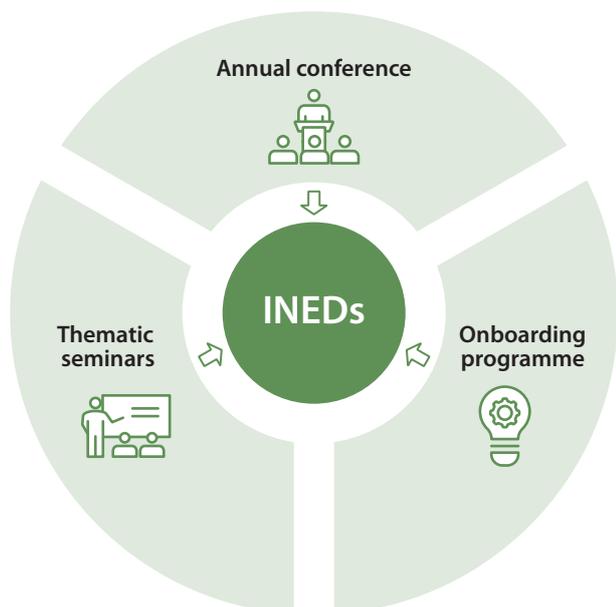
The HKMA also continued to collaborate closely with other financial regulators to investigate or otherwise follow up on issues arising from banks’ self-reporting, banking complaints or supervisory examinations that raised possible concerns regarding whether the issue complied with laws and regulations and was fit and proper. After referrals of relevant information by the HKMA, the SFC imposed disciplinary sanctions, ranging from suspension to a life ban, on three former relevant individuals concerning the transfer of clients’ data and assets. Moreover, the HKMA’s enforcement work resulted in the referral of 22 cases during the year to the relevant financial regulators for appropriate action. The HKMA also issued 84 compliance advice letters to AIs and their staff members who were found not to have acted in full compliance with the relevant regulatory requirements.

Complaints Watch

As a continuing initiative to promote proper standards of conduct and prudent business practices among AIs, two issues of *Complaints Watch* were published in 2018, drawing AIs’ attention to trends in banking complaints and emerging topical issues. The topics included frequent subscription and redemption of investment funds, annuity insurance products, suitability assessment for joint accounts, and double charging on credit and debit cards.

Capacity building in the banking sector

Director empowerment



In April, the HKMA published a knowledge kit on essential banking and regulatory knowledge to help newly appointed independent non-executive directors (INEDs) take up their roles and responsibilities.

Riding on the success of the inaugural conference in 2017, the HKMA hosted the second conference for INEDs in October. Nearly 80% of INEDs in the banking industry attended the conference. Distinguished supervisors and market experts shared their insights on the implementation and assessment of bank culture, short-termism, and the impact of fintech on financial services.



HKMA Deputy Chief Executive, Mr Arthur Yuen (right), and Member of the Board of Directors of Dubai Financial Services Authority and former Superintendent of the Office of the Superintendent of Financial Institutions of Canada, Ms Julie Dickson, talk at the second conference for INEDs.

The HKMA organised thematic seminars regularly to keep INEDs updated on topical issues in the banking sector and to provide a channel for INEDs to exchange views with industry experts and the HKMA. Topics discussed during the seminars included the use of behavioural science and artificial intelligence technology in risk management, green finance, regulations, and the resolution regime.

Banking Stability

Talent development for banking practitioners

During the year, the HKMA continued to work closely with the banking industry and relevant professional bodies to develop new modules under the Enhanced Competency Framework (ECF) for capacity building and talent development purposes. Further to the launch of the core-level module of the ECF on AML/CFT in 2016 targeting entry-level practitioners, the HKMA rolled out the professional-level module in March for more experienced practitioners. The HKMA also conducted an industry consultation in October on a new ECF module on credit risk management.

Since the launch of the ECF modules, about 10,000 banking practitioners have obtained recognised certifications to meet ECF benchmarks in various professional areas by end-December 2018. This could help raise capacity in the banking industry and meet the growing demand for qualified banking practitioners.

In 2018, the HKMA conducted Regulator's Dialogue sessions to keep banking practitioners at all levels updated on supervisory requirements, key risk areas of AIs and the resolution regime.

This year also saw the graduation of the first batch of apprentices under an apprenticeship programme for private wealth management. The programme was a joint initiative of the HKMA and the Private Wealth Management Association to develop future talent for the industry. Following two rounds of successful intakes in 2017, another round of recruitment was conducted in November 2018.

Enhanced Competency Framework



2016	<input checked="" type="checkbox"/> Anti-Money Laundering and Counter-Financing of Terrorism (core level) <input checked="" type="checkbox"/> Cybersecurity
2017	<input checked="" type="checkbox"/> Treasury management <input checked="" type="checkbox"/> Retail wealth management
2018	<input checked="" type="checkbox"/> Anti-Money Laundering and Counter-Financing of Terrorism (professional level)
Upcoming	<input type="checkbox"/> Credit risk management <input type="checkbox"/> Risk management and compliance

Academy of Finance (AoF)

The HKMA was tasked by the Financial Secretary (FS) to study the idea of establishing an AoF in Hong Kong as announced in his 2018-19 Budget. Based on the advice of an Experts Group comprising Messrs Anthony Neoh, Carlson Tong, Moses Cheng and David Eldon, the HKMA made a recommendation to the FS to proceed with the establishment of the AoF. The AoF will serve as (i) a centre of excellence for promoting financial leadership development through the promotion of the global and inter-disciplinary perspectives of top-notch talents in the industry; and (ii) a centre for monetary and financial research, especially applied research in cross-sectoral areas. A Preparatory Committee was formed to work on the implementation details and to launch the AoF around mid-2019. The Preparatory Committee comprises representatives from all the financial regulators in Hong Kong, the Financial Services Development Council, the University Grants Committee, the Hong Kong Institute for Monetary Research, and the Experts Group.

Banking Stability

Consumer education

In 2018, the HKMA continued its Consumer Education Programme to educate the public to be smart and responsible financial consumers. Tied in with the launch of the Faster Payment System (FPS) in September, the HKMA arranged cross-media promotion on TV, radio, print, mobile applications, social media, and other digital and out-of-home platforms to highlight the key features and benefits of the FPS.



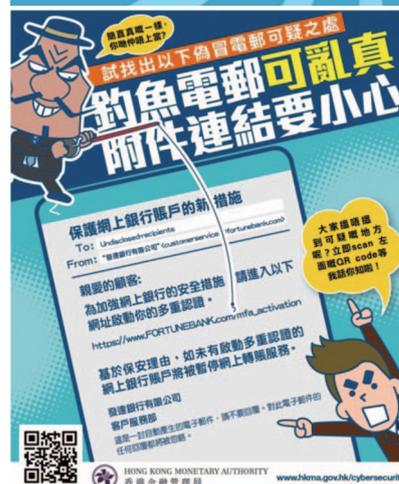
Cross-media promotion for the launch of the FPS.

In view of the overwhelming advertising on personal credit products in recent years, the HKMA rolled out an educational campaign on personal credit commencing in the third quarter of 2018. A feature series of three two-minute episodes, embedded in a popular infotainment TV programme, marked the prelude, followed by a collection of comics and infographics developed by a local popular illustrator, and an online video to advocate the appropriate attitude and highlight the implications of the improper use of personal credit products.

Noticing the surge in reported cases from banks on phishing emails and fraudulent website scams, the HKMA deployed an animation video on a dummy phishing email and sharing by an industry expert in a TV programme to demystify the common tricks used in this sort of scams and disseminate related security tips.



Video and comics with messages on personal credit are promoted.



An animation video demystifying the common tricks of phishing emails purportedly from banks.

Banking Stability

During the year, multimedia seasonal promotion was arranged to provide smart tips on various banking and financial services. The smart tips covered credit card chargeback protection, the use of credit cards and ATM cards during festive seasons, and the reliance on personal loans to settle tax payments.

The HKMA collaborated with an education institution to organise a cross-generation outreach educational programme targeting kindergarten pupils, parents, teachers and young adults. In the pilot programme, pupils from 20 kindergartens joined a kid's bank simulation game to experience working to earn money, spending, and using simple banking services such as opening an account, saving and withdrawing money at a bank mock-up, while parents attended talks to acquire updated knowledge about banking and financial services. Kindergarten teachers received training and a comprehensive education package to assist them in incorporating basic money management into the school curriculum. The programme reached out to over 2,500 people.



Comprehensive education packages are provided to kindergarten teachers to assist them in incorporating basic money management into the school curriculum.



Parents attend talks to acquire updated knowledge about banking and financial services.

To enhance secondary school students' knowledge of financial services and personal data protection in the digital era, the HKMA co-organised the "Hong Kong Liberal Studies Financial Literacy Championship" with various stakeholders again in 2018, attracting over 6,000 participants. Separately, the HKMA organised talks to promote responsible spending and the smart use of banking and related services among senior secondary school and university students.



Live competition and award ceremony of the Hong Kong Liberal Studies Financial Literacy Championship 2018.

The HKMA also continued to support the Investor Education Centre, renamed Investor and Financial Education Council on 17 January 2019, in promoting financial literacy in Hong Kong.

Banking Stability

Oversight of financial market infrastructures

The policy objectives of the HKMA in overseeing FMIs are to promote their general safety and efficiency, limit systemic risk and foster transparency. The aim is to make the FMIs more resilient to financial crises and protect the monetary and financial systems in Hong Kong from possible destabilising effects arising from disruption to the FMIs. The approach taken by the HKMA in overseeing the FMIs under its purview is set out in a policy statement published on the HKMA website.

The PSSVFO empowers the Monetary Authority to designate and oversee clearing and settlement systems that are material to the monetary and financial stability of Hong Kong, and to the functioning of Hong Kong as an international financial centre. The purposes of the PSSVFO include promoting the general safety and efficiency of the designated clearing and settlement systems: the Central Moneymarkets Unit (CMU), the Hong Kong dollar CHATS, the US dollar CHATS, the Euro CHATS, the renminbi CHATS, and the Continuous Linked Settlement (CLS) System.

The FPS was launched in September as an extension of the Hong Kong dollar CHATS and renminbi CHATS. Similar to the Hong Kong dollar CHATS and renminbi CHATS, the Hong Kong dollar FPS and renminbi FPS are subject to the HKMA's oversight under the PSSVFO. The PSSVFO also provides statutory backing to the finality of settlement for transactions made through the Hong Kong dollar FPS and renminbi FPS by protecting the settlement finality from insolvency laws or any other laws.

One of the functions of the Monetary Authority is to maintain the stability and integrity of the monetary and financial systems of Hong Kong, including the maintenance and development of Hong Kong's financial infrastructure. In this connection, the HKMA is responsible for overseeing the OTC Derivatives Trade Repository ("HKTR"). While the HKTR is not a clearing or settlement system and is thus not designated as such under the PSSVFO, the Monetary Authority shall ensure that the HKTR is operated in a safe and efficient manner. It is the policy intention of the HKMA to oversee the HKTR in the same way and to apply, where relevant, the same standards

as the other designated clearing and settlement systems under its purview. All the designated clearing and settlement systems and the HKTR are treated as FMIs in Hong Kong.

The HKMA adopts international standards in its oversight framework for FMIs, including the FPS. The Committee on Payments and Market Infrastructures (CPMI) of the Bank for International Settlements and the IOSCO Technical Committee published the *Principles for Financial Market Infrastructures* (PFMI) in 2012. The PFMI constitutes the latest international standards for the oversight of FMIs, including systemically important payment systems, central securities depositories, securities settlement systems, central counterparties, and trade repositories. The requirements under the PFMI are incorporated in the relevant guidelines on designated clearing and settlement systems and trade repositories issued by the HKMA.

The HKMA has completed the PFMI assessments on FMIs under its oversight. All the FMIs have published Disclosure Frameworks, which is a key requirement under the PFMI to improve transparency by disclosing system arrangements principle by principle. The PFMI assessment results and Disclosure Frameworks are available on the HKMA website.

In the light of heightened cybersecurity risks, the CPMI has published guidance on cyber resilience requirements in 2016 and a strategy to mitigate the risk of wholesale payments fraud related to endpoint security in 2018. The HKMA has been working closely with the FMIs with a view to complying with the relevant international standards and further strengthening their cybersecurity.

The HKMA oversees local FMIs under its purview through off-site reviews, continuous monitoring, on-site examinations, and meetings with management. Given the FPS' role as an important piece of FMI serving the retail segment with unique system features, the HKMA formulated a new framework in 2018 to oversee the FPS, comprising oversight requirements currently applied to CHATS, applicable international standards including the PFMI, and oversight measures drawing reference from relevant overseas experiences in overseeing faster payment systems. All the FMIs continued to comply with the relevant requirements.

Banking Stability

International participation

The HKMA is a member of the CPMI and participates in meetings, working groups and forums on FMI oversight matters. It also participates in the CPMI-IOSCO Implementation Monitoring Standing Group, which is responsible for monitoring and assessing the implementation of the PFMI by different jurisdictions.

In addition to participating in the monitoring and assessment of other jurisdictions in terms of implementation of the PFMI, the HKMA is also one of the parties being assessed. The assessment reports published by the CPMI-IOSCO confirmed that the HKMA had completed the process of adopting the legislation and other policies related to implementing the PFMI, and that the adopted measures were complete and consistent with the principles and responsibilities.

The HKMA is also a member of the Oversight Forum of the global message carrier SWIFT, which discusses relevant oversight matters and shares SWIFT-related information. Hong Kong's AIs and FMIs, commonly used SWIFT's services, may be exposed to risks in the event of any disruption to SWIFT's operations. During the year, the HKMA attended forum meetings and teleconferences to discuss matters of interest, in particular the customer security framework developed by SWIFT and cybersecurity issues.

The HKMA participates in the international co-operative oversight of the CLS System through the CLS Oversight Committee. The CLS System is a global clearing and settlement system operated by the CLS Bank for cross-border foreign exchange transactions. It enables foreign exchange transactions involving CLS-eligible currencies, including the Hong Kong dollar, to be settled on a payment-versus-payment (PvP) basis. During the year, the HKMA attended various meetings of the CLS Oversight Committee to discuss operational, development and oversight matters.

The HKMA has established co-operative oversight arrangements with the relevant authorities both at domestic and international levels to foster efficient and effective communication and consultation, in order to support one another in fulfilling their respective mandates with respect to FMIs. On the domestic front, the HKMA has signed a Memorandum of Understanding with the SFC. Internationally, the HKMA held discussions with the relevant

overseas authorities to further strengthen the co-operative oversight of links between the FMIs in Hong Kong and those overseas. In particular, the HKMA has established co-operative oversight arrangements with overseas regulators for the PvP links between the US dollar CHATS and the Malaysian ringgit, Indonesian rupiah and Thai baht Real Time Gross Settlement systems; and for the various cross-border links between the CMU and its overseas counterparts.

Independent tribunal and committee

An independent Payment Systems and Stored Value Facilities Appeals Tribunal has been established to hear appeals against decisions of the Monetary Authority on licensing and designation matters under the PSSVFO. There has been no appeal since the establishment of the tribunal. An independent Process Review Committee ("Committee"), whose members are appointed by the Chief Executive of the Hong Kong Special Administrative Region, reviews processes and procedures adopted by the HKMA in applying standards under the PSSVFO to systems in which the HKMA has a legal or beneficial interest. The Committee assesses whether the HKMA has applied the same procedures to all designated clearing and settlement systems. The Committee conducted a site visit to the Hong Kong Interbank Clearing Limited, held two meetings, and reviewed four regular reports and 36 accompanying oversight activities management reports in 2018. The Committee concluded that it was not aware of any case where the HKMA had not duly followed internal operational procedures, or where the HKMA had not been procedurally fair in carrying out its oversight activities. Under its terms of reference, the Committee submitted its annual report to the FS, and the report is available on the HKMA website.

Banking Stability

PLANS FOR 2019 AND BEYOND



Supervisory focus

Supervision of operational and technology risk

The HKMA will continue to step up its supervision of technology risk management in response to the increasingly challenging cyber threat landscape and the growing adoption of new technology by the banking industry. It will monitor the implementation of the C-RAF assessment by AIs covered in the second and third phases of implementation.

Smart Banking

The HKMA will process applications for authorization as a virtual bank, and observe the operations of virtual banks to be authorized and their impact on the workings and stability of the local banking system.

It is expected that some of the newly authorized virtual banks will commence business in the second half of 2019 or early 2020. The HKMA will subject these banks to the same supervisory standards as for conventional banks. The HKMA will continue to facilitate the adoption of Regtech by banks under the Banking Made Easy initiative. As banks implement the Open Application Programming Interface framework by phases in 2019, the HKMA will develop and implement suitable supervisory responses to ensure that the associated risks are managed properly.

Supervision of credit risk

In view of the challenges arising from the uncertain external economic and trade environment, the HKMA will continue to undertake thematic reviews and examinations focusing on the credit risk management of AIs, such as lending to large corporates, debt securities investments, interbank lending and loan classification and provisioning systems.

Supervision of liquidity and market risks

The HKMA will continue to focus on the supervision of liquidity and market risks in 2019. The financial markets and global fund flows may become increasingly volatile due to uncertainties connected with the pace of US interest rate normalisation and other geopolitical events. The HKMA will assess AIs' capability to cope with possible liquidity shocks by reviewing their internal liquidity stress testing programmes and contingency funding management.

As algorithmic trading is gaining popularity in the banking industry, the HKMA plans to conduct a round of thematic reviews to evaluate AIs' risk management practices in this area. The HKMA will also assess AIs' counterparty credit risk management for their derivatives trading activities against the new supervisory requirements promulgated in 2018.

Combating money laundering and terrorist financing

The fourth round of mutual evaluation by the FATF and APG will be completed with a report being published in mid-2019, in which there will be recommendations to enhance the effectiveness of Hong Kong's AML/CFT regime. The HKMA will work closely with the relevant government bureaux and departments and law enforcement agencies and contribute to initiatives to respond to the recommendations, including those on information sharing.

The HKMA will continue to place emphasis on the application of new technologies by the banking sector to enhance the effectiveness and efficiency of ML/TF risk management while improving customer experience during the CDD processes. Working closely with the banking industry, including both brick-and-mortar banks and virtual banks, the HKMA will build on the supervisory experience gained from the use cases of customer remote-onboarding initiatives to further explore and promote the greater use of technologies by banks.

The HKMA will further encourage and facilitate discussion with AIs, technology experts and other stakeholders on innovative regulatory technology solutions, including through its dedicated Fintech Supervisory Sandbox and Chatroom. It will also examine ways to enhance AML/CFT surveillance at the sectoral level by making greater use of existing and new data and information through the application of analytical tools such as artificial intelligence and machine learning in areas including transaction monitoring and screening.

Banking Stability

Supervision of wealth management and MPF-related businesses

The HKMA will continue to communicate closely with other regulators and the banking industry to provide guidance on regulatory standards in relation to the sale of investment and insurance products, and work with the industry to formulate regulatory requirements on conduct standards for trust services. Moreover, the HKMA will collaborate with the SFC on the supervision of financial groups consisting of RIs and licensed corporations, and co-operate with the IA on the

implementation of the new statutory regime for regulating insurance intermediaries.

The HKMA will carry out on-site examinations and off-site surveillance of AIs' conduct in the sale of securities, MPF and other investment and insurance products, including equity-linked products, accumulators, debt securities, investment funds and NLTI products, as well as AIs' compliance with new regulatory requirements.

Implementation of Basel Standards in Hong Kong

Capital standards

Following industry consultation in 2018, the HKMA will proceed to finalise the proposed provisions for implementing the SA-CCR and CCP standard into draft amendments to the BCR for statutory consultation as required under the BO in the second half of 2019. Regarding the implementation of the Basel Committee's standard on *Capital Requirements for Banks' Equity Investments in Funds*, the HKMA has also started conducting industry consultation on the proposed requirements by phases from early 2019.

To inform policy formulation for the implementation of the "*Basel III: Finalising Post-crisis Reforms*" published by the Basel Committee in December 2017 as the Final Basel III package, a local quantitative impact study (QIS) is currently being conducted. The first phase of the QIS covers the revised IRB approach, the revised standardised approach for credit risk, the revised operational risk framework and the output floor. This will be followed by a subsequent phase of the exercise covering other capital standards associated with the Final Basel III package.

On 14 January 2019, the Basel Committee issued a revised version of its minimum capital requirements for market risk, often referred to as the "FRTB" as they resulted from a "fundamental review of the trading book". The HKMA expects to consult the industry on its implementation proposal for Hong Kong in the second quarter of 2019. The local implementation of the new minimum capital requirements for market risk is planned for 1 January 2022, in accordance with the timeline set by the Basel Committee.

Leverage ratio

For the purpose of implementing the revised leverage ratio framework within the Final Basel III package, the Basel Committee has conducted public consultations on further policy proposals in respect of certain specific areas of the framework, viz. the treatment of client cleared derivatives for the purpose of leverage ratio calculation as well as revised disclosures to address potential window dressing behaviours of banks to elevate disclosed leverage ratios through temporary reductions of the volumes of certain short-term transactions. Pending finalisation of the policies by the Basel Committee, the HKMA will develop the relevant policy proposals for their implementation in consultation with the industry.

Banking Stability

Disclosure standards

The HKMA will, in consultation with the industry, revise the SPM module on “Guideline on the Application of the Banking (Disclosure) Rules” as well as the standard disclosure templates and tables to reflect the latest disclosure framework set out in the Banking (Disclosure) Rules, having regard to the relevant guidance from the Basel Committee.

In December 2018, the Basel Committee released the *Pillar 3 Disclosure Requirements – Updated Framework* (“2018 package”) to incorporate revisions to the Pillar 3 framework, mainly to reflect requirements arising from the Final Basel III package. These requirements constitute the third and final phase of the revised Pillar 3 disclosure framework. The HKMA will consider these requirements, taking into account local circumstances, and consult the industry on its proposed implementation approach in due course.

Liquidity standards

The HKMA is preparing to amend the Banking (Liquidity) Rules in order to include Basel III compliant triple-B rated debt securities and listed common equities as “level 2B” high quality liquid assets under the LCR. Taking this opportunity, a required stable funding charge of 5% on an AI’s total derivative liabilities will be introduced under the NSFR in order to implement the Basel Committee’s current guidance in this aspect. These amendments are targeted to take effect from 1 January 2020. Similar amendments will also be made for the LMR and CFR.

Exposure limits

A set of new BELR is scheduled to come into operation on 1 July 2019. The HKMA will issue a Banking (Exposure Limits) Code to provide technical clarifications to the rules. The HKMA is also updating the related SPM modules, including those on “Large Exposures and Risk Concentrations”, “Exposures to Connected Parties”, “Consolidated Supervision of Concentration Risks under Part XV: §79A”, “Exemption of Financial Exposures: §81(6)(b)(i)”, “Letters of Comfort: §81(6)(b)(ii)”, “Underwriting of Securities: §§81 and 87”, and “Major Acquisitions and Investments: §87A”. The industry will be consulted in the second quarter of 2019 on proposed revisions of these SPM modules and proposed changes to the reporting requirements of large exposures and connected party exposures incidental to the implementation of the BELR.

Banking Stability

Development of Supervisory Policies

Other supervisory policies and risk management guidelines

To reflect developments in related regulatory requirements and international standards, the HKMA plans to update certain SPM modules, including those on “Recovery Planning”, “Foreign Exchange Risk Management”, “Supervisory Review Process”, “Overview of Capital Adequacy Regime for Locally Incorporated Authorized Institutions”, “Guideline on a Sound Remuneration System”, and “Systemically Important Banks”.

Compliance with regulatory regime for over-the-counter derivatives market

The HKMA will continue to monitor AIs’ and AMBs’ compliance with the regulatory regime for the OTC derivatives market in accordance with the statutory requirements.

Balanced and responsive supervision

Based on the discussions with the industry on topics pivotal to technological developments and bank culture reform, the HKMA will take a proportionate approach in formulating and refining supervisory policies. The HKMA will also continue to collect feedback from the industry regularly on other issues with significant supervisory or business impact on the banking sector.

Accounting standards

In respect of IFRS 9, the Basel Committee continues to assess the longer-term implications of the required expected credit losses under the accounting standard on the regulatory capital framework. The HKMA will update its prudential framework for AIs as appropriate, taking into account the related standards and guidance issued by the Basel Committee. Meanwhile, the HKMA will continue to monitor the implementation of IFRS 9 by AIs in Hong Kong and maintain regular dialogue with their external auditors. The HKMA will also assess the implications of other impending accounting standards on the existing prudential requirements on AIs.

Banking Stability

Resolution Office

Whilst the HKMA has made substantial progress in 2018, the task of ensuring there is an operational resolution regime for AIs is a multi-year programme. For 2019, the HKMA will prioritise the following topics within its three core purposes (Table 7).

Table 7 HKMA's forward priorities on resolution in 2019

I. Resolution Standards	II. Resolution Planning	III. Resolution Authority Functions
<ul style="list-style-type: none"> ■ Formulate LAC disclosure templates and reporting returns, and begin the design of a non-pre-positioned LAC resources management policy framework ■ Consult on and finalise the CoP chapter on operational continuity in resolution ■ Consult on policy proposals for imposing contractual requirements regarding stays on early termination rights in financial contracts ■ Continue to contribute to international and FSB policy formulation ■ Publish arrangements on an AI resolution levy 	<ul style="list-style-type: none"> ■ Advance bilateral resolution planning programmes with D-SIBs, assessing resolvability and working with banks to address impediments to an orderly resolution ■ Implement LAC requirements under the LAC Rules for D-SIBs ■ Lead regional resolution planning for a G-SIB and participate in cross-border resolution planning via 12 CMGs and resolution colleges, including hosting meetings in Hong Kong ■ Roll out core information requirements to locally incorporated AIs other than D-SIBs with total consolidated assets above HK\$300 billion 	<ul style="list-style-type: none"> ■ Continue the development of the HKMA's resolution liquidity facilities framework ■ Develop an inter-agency CMF with other Hong Kong authorities ■ Chair and provide a secretariat function for the new EMEAP FMR ■ Continue to organise and refine the CMF and CMCG ■ Take forward the development of the HKMA's resolution mechanics, such as bail-in ■ Establish a resolution advisory panel for the appointment of external professional advisers

Bank consumer protection

The HKMA will continue to promote good banking practices through participating in, and providing advice to, the Code of Banking Practice Committee of HKAB. In particular, in the light of the increasing trend of digitalisation of financial services, the HKMA will review the requirements related to consumer protection, including provisions in the Code, and consider whether any revisions or new requirements are needed. It will continue to monitor AIs' compliance with the Code through various means, including via AIs' self-assessment and the handling of relevant complaints against AIs.

The HKMA will monitor the industry's implementation of measures recommended in the *Practical Guideline on Barrier-free Banking Services*.

On the supervision of bank culture, the HKMA will gather from AIs insights, lessons learnt and issues encountered through the supervisory measures announced in December and monitor the development of bank culture while exploring other supervisory measures, taking into account overseas experience.

Banking Stability

The HKMA will continue to work closely with HKAB in following up with TransUnion on the full investigation and enhancement to security controls being undertaken by TransUnion. Drawing insights from the incident, the HKMA will continue to discuss with the banking industry how to enhance credit referencing arrangements, including the benefits of having more than one credit reference agency for the banking industry in Hong Kong.

Opening and maintaining bank accounts

The HKMA will continue to work with the banking industry, business community and relevant stakeholders to further enhance customer experience in account opening and maintenance. The HKMA will take into account the observations from the MSP in respect of account opening by AIs in considering further follow-up actions, and will continue to monitor the effectiveness of measures adopted by AIs related to customer interfacing aspect of account opening processes. The HKMA will also continue to work closely with the banking industry to build on the feedback gleaned from the implementation of remote onboarding initiatives for customers, to explore further enhancement of the efficiency and effectiveness of CDD processes through greater use of technology.

Deposit protection

A payout rehearsal will be conducted to test the capability of the Hong Kong Deposit Protection Board and its network of service providers in using the new payout system and infrastructure to ensure payout readiness. Continued efforts will be made to improve payout efficiency, including the development of different payment channels. The compliance programme for monitoring DPS member banks' readiness in submitting the data and information in accordance with the Information System Guideline will continue. Annual self-assessments and on-site examinations will continue to be conducted to ensure that DPS member banks make appropriate representations to depositors in respect of the protection status of deposits. New "DPS Piggy Bank"-themed advertising and segment-focused consumer campaigns will be launched to deepen public understanding of the DPS.

Enforcement

The HKMA will continue to enforce requirements under various statutory regimes relevant to AIs and stored value facility licensees, including investigations under the AMLO, as well as conduct issues that prejudice customer interests. At the same time, the HKMA will also collaborate closely with the IA, which will become fully operational within 2019, in relation to the implementation and enforcement of requirements under the Insurance Ordinance and the exercise of such powers as may be delegated to the Monetary Authority under the Insurance Companies (Amendment) Ordinance 2015.

Capacity building in the banking sector

Director empowerment

With positive feedback received on the activities held so far to equip directors in the discharge of their roles and responsibilities, the HKMA will continue such activities to further empower directors. The HKMA will continue its long-term co-operation with the China Banking and Insurance Regulatory Commission and organise a high-level seminar for INEDs in 2019, giving them insights into the developments of Mainland China in areas such as the economy, financial regulations, technologies, and international relations.

The HKMA will also continue to foster dialogue with INEDs through the launch of a chatroom which will provide them with a direct line of communication with the HKMA.

Banking Stability

Talent development for banking practitioners

The HKMA will maintain close collaboration with the banking industry to review the effectiveness of the ECF in enhancing the professional development of banking practitioners. In the coming year, the HKMA will work with the banking industry and relevant professional bodies to launch the credit risk management module and develop a new module on risk management and compliance. Going forward, the HKMA will also continue with an ongoing review and enhancement of the ECF modules and explore other potential areas of talent development, having regard to the evolving needs of the banking industry.

The HKMA will also continue its efforts in the ongoing talent development of banking practitioners, such as organising Regulator's Dialogue sessions to keep them abreast of banking-sector developments.

Academy of Finance

In consultation with the Preparatory Committee, the HKMA will continue with the work for establishing the AoF by mid-2019.

Consumer education

Further publicity initiatives, including videos and other publicity materials, will be carried out to promote smart and responsible use of banking and other financial services under the HKMA's supervision. In the light of the positive feedback from the pilot programme, the HKMA plans to launch the second phase of the cross-generation outreach educational programme in 2019-20 to reach 30 kindergartens. In addition, the HKMA will explore further collaboration with different stakeholders to promote financial literacy and maximise the impact of consumer education.

Oversight of financial market infrastructures

The HKMA will continue to promote the safety and efficiency of the FMI under its oversight in accordance with the PSSVFO and the PFMI. In particular, the HKMA will keep in view the suitability and adequacy of the FPS oversight framework on an ongoing basis, taking into account system behaviours, feedback from stakeholders and overseas developments, and refine the framework as appropriate.

The HKMA will work with the FMIs on their observance of the PFMI. Assessments will be conducted and updated as required, and the HKMA will continue to participate in the CPMI-IOSCO PFMI implementation monitoring and assessment exercise. Where appropriate, oversight requirements will be strengthened to reflect international practices or in response to market developments. In particular, the HKMA will focus on the cyber resilience of FMIs under its purview. The HKMA will also continue to work with relevant authorities to further strengthen co-operative oversight arrangements where appropriate.

International Financial Centre

One of the key responsibilities of the HKMA is to maintain Hong Kong's status as an international financial centre. During the year, good progress was made on the seven initiatives that are aimed at facilitating the development and use of fintech in the banking and payment industries. The successful launch of the Faster Payment System was a case in point.

Hong Kong's unique role as the dominant gateway to Mainland China was further strengthened with the implementation of major enhancements to the mutual access schemes for the capital markets between Mainland China and Hong Kong, and the development of the Greater Bay Area. Hong Kong's status as the global offshore renminbi business hub was also firmly secured, as demonstrated by the vibrant renminbi financial activities taking place in Hong Kong.

At the same time, great effort had been put on opening up new opportunities to further enhance the competitiveness of Hong Kong's financial platform, including infrastructure financing, corporate treasury centres and green bond market. The HKMA's marketing campaign to promote Hong Kong's strengths to overseas and Mainland stakeholders had also been stepped up. At an international level, the HKMA is playing a leadership role in a number of regional and international committees, which is a clear recognition of Hong Kong's expertise and commitment to international work.



OVERVIEW

To strengthen Hong Kong's position as a fintech hub in Asia, the HKMA put great effort on implementing the seven initiatives that were announced in September 2017 and aimed at facilitating the development and use of fintech in the banking and payment industries. The key progress of these seven Smart Banking initiatives during the year included:

- successfully launching the Faster Payment System (FPS) to achieve full connectivity among banks and stored value facilities (SVFs), commonly known as e-wallets;
- publishing an Open Application Programming Interface (Open API) framework and facilitating the implementation of Open API in the banking sector;
- enhancing fintech research and talent development;
- stepping up cross-border collaboration in fintech;
- updating the *Guideline on Authorization of Virtual Banks* and processing virtual bank licence applications;
- operating the upgraded Fintech Supervisory Sandbox 2.0 (FSS 2.0) smoothly; and
- expanding the Banking Made Easy initiative to facilitate the adoption of regulatory technology (Regtech).

The HKMA Fintech Facilitation Office (FFO), together with the banking departments of the HKMA, has been playing a pivotal role in driving the implementation of these initiatives.

Hong Kong's unique role as the dominant gateway to Mainland China was further strengthened with the implementation of major enhancements to the mutual access schemes for the capital markets between Mainland China and Hong Kong. In particular, the introduction of real-time Delivery versus Payment (DvP) settlement and the State Council's announcement of tax waiver for overseas bond investors further enhanced the efficiency and appeal of the scheme. The HKMA also worked closely with Mainland authorities to develop and implement a series of financial facilitation measures for residents and corporates living, working and doing business in the Guangdong-Hong Kong-Macao Greater Bay Area (GBA). Offshore renminbi business in Hong Kong remained vibrant, with the size of the renminbi deposit pool up by 6% to RMB657.7 billion and the average daily turnover of the renminbi Real Time Gross Settlement (RTGS) system recording a high level of RMB1,010.1 billion.

Great effort had been put on opening up new opportunities to further enhance the competitiveness of Hong Kong's financial platform. To promote the development of bond market in Hong Kong, the HKMA launched the Pilot Bond Grant Scheme (PBGs), which is a Budget initiative offering a subsidy to attract first-time bond issuers to Hong Kong, and worked closely with the Government on legislative changes to expand the scope of tax exemptions on bond investment income under the Qualifying Debt Instrument scheme. The HKMA's marketing campaign to promote Hong Kong's strengths to overseas and Mainland stakeholders had also been stepped up. A number of large-scale events and targeted outreach activities were organised to promote Hong Kong as a hub for green finance, infrastructure financing and corporate treasury centres (CTCs).

At an international level, the HKMA is playing a leadership role in a number of regional and international committees. Currently, the HKMA is chairing the Standing Committee on Supervisory and Regulatory Cooperation (SRC) of the Financial Stability Board¹ (FSB), the Supervision and Implementation Group (SIG) of the Basel Committee on Banking Supervision ("Basel Committee")², and the Working Group on Financial Markets (WGFM) established under the Executives' Meeting of East Asia-Pacific Central Banks (EMEAP)³.

¹ The FSB was established in April 2009 as the successor to the Financial Stability Forum to address vulnerabilities in the global financial systems, and to develop and promote the implementation of effective regulatory, supervisory and other policies in the interest of financial stability. Its membership comprises senior representatives of national financial authorities (central banks, regulatory and supervisory authorities and ministries of finance), international financial institutions, standard-setting bodies, and committees of central bank experts.

² The Basel Committee is the primary global standard setter for the prudential regulation of banks and provides a forum for regular cooperation on banking supervisory matters. Its 45 members comprise central banks and bank supervisors from 28 jurisdictions.

³ The EMEAP is a co-operative forum of 11 central banks and monetary authorities in the East Asian and Pacific region, comprising the Reserve Bank of Australia, the People's Bank of China, the Hong Kong Monetary Authority, Bank Indonesia, the Bank of Japan, the Bank of Korea, Bank Negara Malaysia, the Reserve Bank of New Zealand, Bangko Sentral ng Pilipinas, the Monetary Authority of Singapore, and the Bank of Thailand.

International Financial Centre

The safe and efficient operation of Hong Kong's financial infrastructure lays a solid foundation for Hong Kong's role as an international financial centre. The four interbank RTGS systems, the Central Moneymarkets Unit (CMU) and the Hong Kong Trade Repository (HKTR) achieved 100% system availability in 2018, as compared to the target of 99.95%. Through its accounts set up with the two Mainland central securities depositories (CSDs), the CMU continued to facilitate the settlement of transactions under Bond Connect Northbound Trading and the holding of Mainland debt securities on behalf of relevant CMU members.

To promote the general safety and efficiency of the retail payment industry, the HKMA designated two more retail payment systems (RPSs) under the Payment Systems and Stored Value Facilities Ordinance (PSSVFO) in August to bring their operations under the HKMA's oversight. As a result, there are a total of six designated RPSs under the oversight of the HKMA. The HKMA has also been supervising 16 SVF licensees which actively launch new products and services that sought to offer customers more choices and better user experience. Meanwhile, the coverage of the e-Cheque and Electronic Bill Presentment and Payment service was further expanded to include cross-border payments between Hong Kong and the entire Guangdong Province.

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REVIEW OF 2018

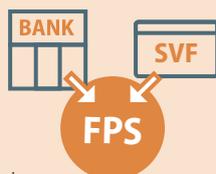
Hong Kong as a Fintech Hub in Asia

Smart Banking initiatives

The seven Smart Banking initiatives were announced by the HKMA in September 2017 with the aim to help the banking sector rise to a higher level and embrace the enormous opportunities brought about by the convergence of banking and technology. During the year, considerable progress was made in implementing these initiatives and transforming the financial ecosystem of Hong Kong.

■ *Faster Payment System*

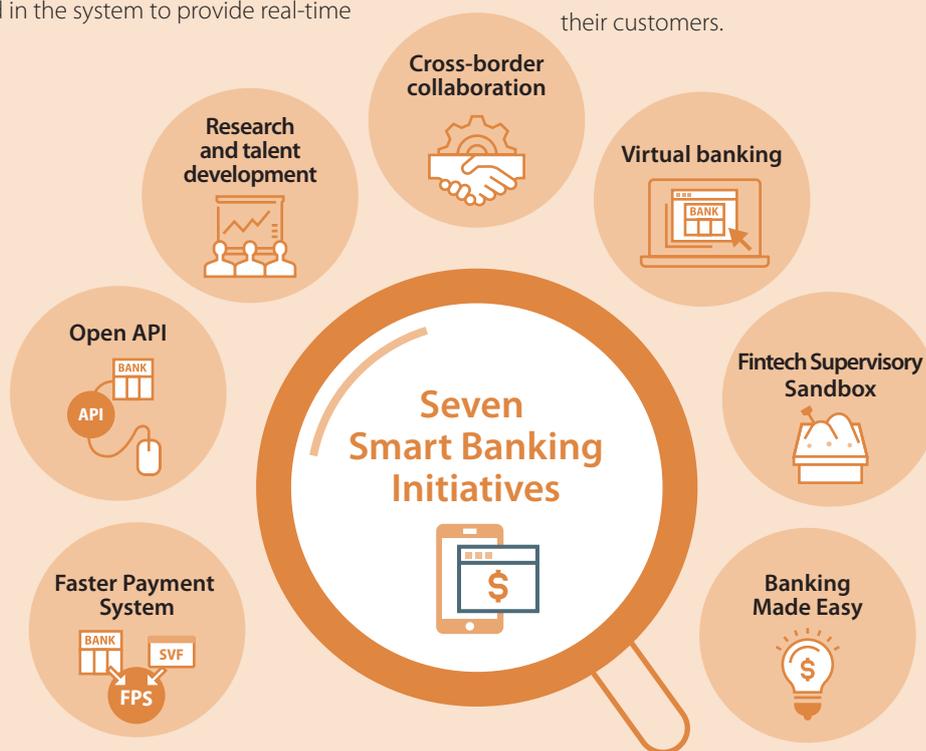
The FPS was successfully launched in September, enabling real-time fund transfers in the Hong Kong dollar and renminbi anytime and anywhere among users of banks and SVFs with the use of mobile phone numbers or email addresses as account proxy for receiving funds. A total of 21 banks, including most retail banks, and 10 SVF operators in Hong Kong have participated in the system to provide real-time



payment services and/or addressing service for their customers.

Within 3.5 months, FPS had received **over 2 million** registrations, representing a ratio of **27%** to total population size in Hong Kong. Since its launch, the FPS had processed **over 4.8 million** transactions involving an aggregate amount of **over HK\$104.9 billion** and **RMB2.75 billion**.

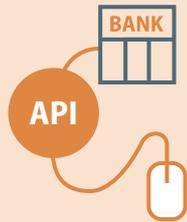
In the same month, the HKMA launched the Common QR Code Standard for Retail Payments in Hong Kong and a mobile application (“app”) tool “Hong Kong Common QR Code” (HKQR). The app is the world’s first mobile app for converting multiple QR codes into a single code. It facilitates merchants, especially small and medium-sized enterprises (SMEs), in using a single QR code to accept different payment schemes, instead of displaying multiple QR codes to their customers.



International Financial Centre

Open Application Programming Interface

Open API allows banks' data to be accessed by third-party service providers to facilitate better and easier integration of services offered by banks and other businesses. Users can therefore stay conveniently on one system to enjoy integrated services in a secure environment. To facilitate the development and adoption of Open API by the banking sector, the HKMA published an Open API Framework in July. The Framework adopts a risk-based principle and a four-phase approach to implement various Open API functions. Under Phase 1, 20 banks had opened up some 500 Open API endpoints in January 2019, covering information of over 1,000 products and services.



Research and talent development

Leveraging the trade finance proof-of-concept work led by the HKMA, a consortium of banks in Hong Kong launched eTradeConnect, a distributed ledger technology-based trade finance platform, in October. The platform aims to reduce error and risk of fraud by digitising paper-based documents and automating trade finance process. As of end-2018, 12 banks had joined as members of the consortium. In October, a Memorandum of Understanding (MoU) was signed between eTradeConnect and we.trade, a European digital trade finance platform, to conduct a proof-of-concept on connecting the two platforms. In parallel, the HKMA has been exploring opportunities to expand the connectivity of eTradeConnect with other regions, including working with the Monetary Authority of Singapore to implement the Global Trade Connectivity Network.



HKMA Chief Executive, Mr Norman Chan (left), at the launching ceremony of eTradeConnect.

In an effort to enlarge the talent pool in the fintech industry, the HKMA launched the Fintech Career Acceleration Scheme (FCAS) 2.0, an upgraded version of FCAS, in collaboration with the Hong Kong Applied Science and Technology Research Institute in January. FCAS 2.0 comprises four programmes targeting young talent at various stages of their career development. Over 200 students benefited from the programmes under FCAS 2.0.



HKMA Chief Executive, Mr Norman Chan (second from left), launches FCAS 2.0 with Chairman of Cybertport, Dr Lee George Lam (first from left), Chairman of Hong Kong Applied Science and Technology Research Institute, Mr Ming-yam Wong (second from right), and Chief Executive Officer of Hong Kong Science Park, Mr Albert Wong (first from right).

International Financial Centre

■ Cross-border collaboration



The HKMA continued to strengthen fintech collaboration with Shenzhen after signing an MoU with the Office of Financial Development Service (OFDS) of the People's Government of Shenzhen Municipality in 2017. In particular, the HKMA sponsored the Shenzhen Summer Internship Programme, which enabled 50 students to work in renowned firms in Shenzhen for six weeks to experience the fintech ecosystem there, and co-organised with OFDS the Shenzhen-Hong Kong Fintech Award for the second time.



HKMA Deputy Chief Executive, Mr Howard Lee (second from right), interacts with the first batch of Shenzhen fintech summer interns.

The HKMA also signed fintech co-operation agreements with four other jurisdictions in 2018, namely the Swiss Financial Market Supervisory Authority (FINMA), the Polish Financial Supervision Authority, the Financial Services Regulatory Authority of Abu Dhabi Global Market, and the Central Bank of Brazil, to facilitate fintech collaboration.

In collaboration with 11 financial regulators and related organisations, the HKMA announced in August the initiative of the Global Financial Innovation Network, which seeks to provide an efficient way for innovative firms to interact with regulators, and for co-operation among financial services regulators on innovation-related topics.

■ Virtual banking

The introduction of virtual banking will provide additional impetus to the application of fintech in Hong Kong and offer new customer experience in digital banking. Virtual banks will also help promote financial inclusion as they would target the retail segment, whether the clients are individuals or SMEs. The HKMA updated the *Guideline on Authorization* for this purpose after public consultation in May, and received around 30 applications by end-August.



■ Fintech Supervisory Sandbox



Usage of the FSS continued to increase steadily during the year. To help develop the Regtech ecosystem, the FSS was open to Regtech projects starting from September.

Up to end-2018, pilot trials of **42** fintech or technology products in the FSS had been allowed. Among these cases, **28** pilot trials were completed, and the products were rolled out to the market subsequently. The HKMA also received **220** requests to access the FSS Chatroom to seek regulatory feedback at the early stage of fintech projects. About **70%** of these requests were made by technology firms.

International Financial Centre

■ *Banking Made Easy initiative*

The Banking Made Easy initiative was launched to reduce regulatory friction to enable banks to provide better customer experience in the online banking environment. Under this initiative, the HKMA streamlined regulatory requirements in relation to remote onboarding, online finance, and online wealth management. The scope of the Banking Made Easy initiative was expanded in September to facilitate the adoption of Regtech by banks.



Focus areas of the Banking Made Easy initiative:

- Remote onboarding and account maintenance
- Online finance
- Online wealth management
- AML/CFT surveillance technologies
- Regtech for prudential risk management and compliance
- Study on machine-readable regulations

Industry liaison and outreach

Since its establishment in March 2016, the FFO has been playing a crucial role in reaching out to and liaising with fintech market players to facilitate the exchange of ideas among stakeholders. During the year, the FFO organised 15 events, including six panel discussions during the Hong Kong Fintech Week 2018, attracting over 9,600 participants. The FFO also spoke at 52 fintech-related events and held 169 meetings with other regulatory authorities, industry organisations, financial institutions, technology firms and startups, and handled 221 enquiries.



HKMA Chief Executive, Mr Norman Chan (first from left), moderates a panel discussion with (from left to right) Mr Stephen Bird, CEO, Global Consumer Banking, Citi, Mr Benjamin Hung, CEO, Greater China & North Asia, Standard Chartered Bank, Mr Eric Jing, CEO, Ant Financial, and Ms Jessica Tan, Co-CEO, Executive VP, CIO & COO, Ping An Group during the Hong Kong Fintech Week 2018.

International Financial Centre

HIDDEN FIGURES OF THE FASTER PAYMENT SYSTEM (FPS)

The HKMA has always been committed to building a world-class financial infrastructure for Hong Kong. While financial infrastructure is the backbone supporting various interbank payments and financial transactions, the public may not be aware of its existence even though they use many of the services supported by it. The work of the Financial Infrastructure Development Division (FID Division) of the HKMA might appear somewhat mysterious to the public. However, since the launch of the FPS in September 2018, the HKMA's work in financial infrastructure has been brought into the spotlight.

As the work of the FID Division gains more publicity, the secrets of the workplace are revealed. "Even though I had explained to my son about my work at the HKMA numerous times in the past 20 years, he just had some vague ideas of what I do," Mr Lee Kwok-hung, Chief Project Manager of the FID Division said. "However, with the launch of the FPS, he finally has a clearer picture of my job." Mr George Chou, Senior Manager of the FID Division, echoed Mr Lee's remarks, saying "It is the same with my family." The HKMA launched the Hong Kong dollar Real Time Gross Settlement (RTGS) system as long ago as 1996, offering banks an efficient, safe, and convenient platform to conduct interbank payments and settlement. The US dollar, euro and renminbi RTGS systems were introduced subsequently, making Hong Kong's RTGS systems the most advanced in Asia, and laying the cornerstone for Hong Kong's role as a global hub for offshore renminbi business. The RTGS systems are highly relevant to daily public life in handling day-to-day payments and transactions, such as cheque payments, equities trading, and ATM transfers. The financial infrastructure could be said to resemble the blood vessels of the human body, carrying nutrients to different organs and ensuring its overall health. While its presence generally goes unnoticed, if it malfunctions, the stability of the whole financial system can be threatened.

The FPS is a landmark piece of financial infrastructure, providing full connectivity among banks and stored value facilities (SVFs) (i.e. e-wallets). In order to raise public awareness of the new system, the HKMA named it "轉數快" in Chinese. It is catchy and apt, highlighting the unique features of the system in offering real-time transfers and payments. It is also a phrase that is commonly used locally in praising someone who is quick-witted.

On the eve of the FPS's planned launch ceremony on 17 September last year, Hurricane Signal No. 10 was issued as Super Typhoon Mangkhut approached Hong Kong. Ms Kitty Lai, Head of the FID Division, recalled that the biggest consideration then was whether the FPS launch should go ahead as planned, because that would mean many staff members of the HKMA, Hong Kong Interbank Clearing Limited (HKICL), banks and SVF operators would have to brave the strong winds and rain to report for duty. But the situation could get even more complicated if the launch was postponed. "Postponing the launch could in fact involve more people having to battle their way through the storms to get to work," Mr Lee said. He explained that the launch was not as simple as just pushing a button. For the launch to take place, all relevant parties had toiled hard to orchestrate the necessary procedures. Should the launch be postponed, all these planned procedures would have to be dismantled and put together anew at a later date.

Following much deliberation and weighing up of the different options, it was decided that the FPS should be launched as planned, while individual banks and SVF operators could choose whether their access to the FPS should go live on the same day. Eventually, all participating banks and SVF operators decided to stick to the original plan, thanks to the invaluable support and dedication of the many unsung heroes working hard behind the scenes. Accordingly, the scheduled launch ceremony in the morning was turned into a technical briefing so that the public could start

International Financial Centre

registration on the same day. The FPS commenced full operation on 30 September as planned, marking a new chapter in the development of payment systems in Hong Kong.

The FPS today is the world's only real-time retail payment system that offers full connectivity among banks and e-wallets, operates all year round, and supports the dual currencies of the Hong Kong dollar and the renminbi. A total of 21 banks and 10 SVF operators have participated in the FPS to date. In order to get first-hand user experience, colleagues at the FID Division downloaded almost all of the participating institutions' mobile apps and even opened new bank accounts or reactivated some long-dormant ones. The FID Division also tested out the Common QR Code which was launched together with the FPS. The Common QR Code allows merchants to use a single QR code to accept payment schemes of different e-wallets and banks. But as the tests would involve real cash, the choice of payee merchants for the trials presented a challenge. Ms Lai came up with the idea of making donations. Two local charities were selected for testing the actual operations of accepting donation payments with the use of the Common QR Code. So how much was donated in total? "We made numerous donation payments, but we did not actually record the total amount," Ms Lai said.

In just six months since its launch, the FPS had received over 2.58 million registrations as at end-March 2019, with an average transaction value of about HK\$1.2 billion per day. For a population of some seven million, the penetration rate is relatively high. While the FPS is mostly used for person-to-person payments for now, it is expected that more merchants will soon adopt this fast and convenient means to accept payments and enhance the efficiency of their business operations. The HKMA will also seek to expand the applications of the FPS, including exploring the possibility of

establishing cross-border system linkages, as it continues its journey to enhance and create new additions to Hong Kong's world-class financial infrastructure.



Head of FID Division, Ms Kitty Lai (front row, fourth from right), Chief Project Manager of FID Division, Mr Lee Kwok-hung (back row, centre) and Senior Manager of FID Division, Mr George Chou (back row, fifth from right) are pictured after the FPS launch with colleagues from other divisions involved in the preparation for the FPS. Many colleagues who participated in the process are not in the photo.



HKMA Chief Executive, Mr Norman Chan (second from right), HKMA Deputy Chief Executive, Mr Howard Lee (first from right) and Head of FID Division, Ms Kitty Lai (first from left) visit HKICL's demonstration booth during the launch ceremony of the FPS. Standing second from left is Chief Executive Officer of HKICL, Ms Haster Tang.

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Hong Kong as a Financing Hub for Infrastructure Investments



IFFO Partners

The HKMA Infrastructure Financing Facilitation Office (IFFO) continued to work with different key stakeholders in facilitating infrastructure investment and financing. The number of IFFO partners grew to **95**, from 41 at inception in July 2016. They included market leaders in the infrastructure field from Hong Kong, Mainland China, and overseas, such as multilateral financial agencies and development banks, institutional investors, banks, insurance companies, project developers and operators, professional service firms, and public-sector entities.

Table 1 List of IFFO Partners as at 31 December 2018 (in alphabetical order)

Actis	China Investment Corporation	King & Wood Mallesons
Agricultural Bank of China Limited Hong Kong Branch	China National Petroleum Corporation	KPMG
AIA Group Limited	China State Construction Engineering Corporation Limited	Legg Mason Global Asset Management
AIG Insurance Hong Kong Limited	China Three Gorges Corporation	Macquarie Group
Airport Authority Hong Kong	China-Africa Development Fund	Malayan Banking Berhad
Allen & Overy	China-Britain Business Council	Marsh (Hong Kong) Limited
Aon Hong Kong Limited	CITIC Capital	Mayer Brown
APG Asset Management	Citigroup	Mitsubishi Corporation (Hong Kong) Ltd.
Asian Academy of International Law	City of London Corporation	Mitsui & Co. (Hong Kong) Ltd.
Asian Development Bank	Clifford Chance	Mizuho Bank, Ltd.
Astana International Financial Centre	CLP Group	Morgan Stanley
Australia and New Zealand Banking Group Limited	CNIC Corporation Limited	MTR Corporation Limited
AustralianSuper	Crédit Agricole Corporate and Investment Bank	MUFG Bank, Ltd.
Bank of China (Hong Kong) Limited	CRRC Corporation Limited	Multilateral Investment Guarantee Agency, a member of the World Bank Group
Bank of China Limited	Currie & Brown	National Pension Service
Bank of Communications Co., Ltd.	Deloitte China	OMERS
Beijing Jingneng Clean Energy Corporation Limited	Eastspring Investments	Ontario Teachers' Pension Plan
BlackRock	Ernst & Young	Pinsent Masons
Blackstone Group	European Bank for Reconstruction and Development	PwC
Brookfield Asset Management	Export-Import Bank of China (The)	Silk Road Fund
Canada Pension Plan Investment Board	General Electric	Standard Chartered Bank
CGOC Group (Hong Kong) Co., Limited	Global Infrastructure Facility	Standard Chartered Bank (Hong Kong) Limited
China Communications Construction Company Limited	Global Infrastructure Hub	State Development & Investment Corp., Ltd.
China Construction Bank (Asia) Corporation Limited	Hong Kong Mortgage Corporation Limited (The)	State Grid Corporation of China
China Construction Bank Corporation	Hong Kong Trade Development Council	Sumitomo Mitsui Banking Corporation
China Datang Corporation Ltd.	Hongkong and Shanghai Banking Corporation Limited (The)	Taikang Asset Management Company Limited
China Development Bank Corporation	HSBC Holdings plc	Teachers Insurance and Annuity Association of America
China Energy Conservation and Environmental Protection Group	Industrial and Commercial Bank of China (Asia) Limited	TPG Capital
China Energy Engineering Corporation Limited	Industrial and Commercial Bank of China Limited	Willis Towers Watson
China Export & Credit Insurance Corporation	International Finance Corporation, a member of the World Bank Group	Xinjiang Goldwind Science & Technology Co., Ltd.
China Hua Neng Group Hong Kong Limited	Japan Bank for International Cooperation	Zurich Insurance Company Limited
China Huadian Hongkong Company Limited	Jardine Lloyd Thompson Limited	

International Financial Centre

IFFO organised a series of capacity building workshops, including the executive workshop on “Private Participation in Infrastructure Project Finance and Risk Mitigation” with International Finance Corporation and Multilateral Investment Guarantee Agency in March, a seminar on “Building a Sustainable Belt and Road — Hong Kong’s Pivotal Role to Play” with the Hong Kong Association of Banks (HKAB) in May, as well as a case study workshop on infrastructure finance led by Professor Akash Deep of Harvard Kennedy School in November.



HKMA Deputy Chief Executive and Director of IFFO, Mr Eddie Yue, gives welcome remarks at the workshop led by Professor Akash Deep of the Harvard Kennedy School.



The Investors' and Debt Financing Roundtables are attended by senior representatives from the key stakeholders in infrastructure financing and investment.



HKMA Executive Director (External) and Deputy Director, IFFO, Mr Vincent Lee (right), and Chairperson of HKAB and Chief Executive, Hong Kong, HSBC, Ms Diana Cesar, attend and speak at the seminar co-organised by IFFO and HKAB.



The HKMA co-organises the “Connecting Belt & Road, Capturing Opportunities Together” high-level roundtable in Hong Kong with SASAC.

IFFO also made good progress in market and product development and investment facilitation.

March	IFFO joined the Global Infrastructure Facility as an advisory partner, contributing to the World Bank Group's efforts to help make infrastructure projects more bankable.
August	The HKMA co-hosted, together with the State-owned Assets Supervision and Administration Commission of the State Council (SASAC), a roundtable between senior executives of 10 Central State-owned Enterprises (CSoEs) and a number of key international institutional investors, discussing on how Hong Kong could facilitate CSoEs' investment and expansion in Belt & Road Countries.
October	IFFO hosted the Investors' and Debt Financing Roundtables, attended by leading international institutional investors, debt financiers and project owners to discuss innovative ways of infrastructure financing and potential co-investment opportunities, and produced a <i>Reference Term Sheet for Non-Recourse Infrastructure Loans in Emerging Markets</i> aiming to narrow the gap between the expectations of financiers and project owners, thereby enhancing infrastructure projects' bankability.

International Financial Centre

Hong Kong as the dominant gateway to Mainland China and the global offshore renminbi business hub

Since its introduction, Bond Connect has become an important channel through which international investors gain exposure to the Mainland bond market while taking advantage of the market infrastructure and financial services in Hong Kong. As at end-2018, 503 investors had registered as eligible Bond Connect investors. Daily turnover averaged RMB3.6 billion in 2018, compared with RMB1.5 billion during its initial launch in July 2017.



Bond Connect

503 investors, with average **RMB3.6 billion** daily turnover.

In August, several major enhancements were made, including the full implementation of the real-time DvP settlement model, which substantially reduces settlement risk and enhances efficiency, and is critical in drawing major overseas institutional investors to Bond Connect. Other enhancements included the launch of block trade functionality and the State Council's announcement of tax waiver for overseas investors investing in the Mainland bond market. In November, an additional electronic trading platform was announced to be added to Bond Connect, offering more choices to investors. The convenience and flexibility offered by Bond Connect, coupled with the enhancements this year, prepared the ground for Mainland bonds to be included in major fixed income indices, thereby accelerating the allocation to renminbi assets by international investors.



HKMA Chief Executive, Mr Norman Chan (eighth from right), joins guests in the Bond Connect Anniversary Summit.

The daily quotas of Stock Connects quadrupled in May, paving the way for the inclusion of A-shares in the MSCI Emerging Markets Index in June and September.

To support the development of the GBA, the HKMA worked with Mainland authorities to develop and implement a series of financial facilitation measures for residents and corporates living, working and doing business in the GBA. Priority was given to address the financial services needs of Hong Kong residents in the Mainland part of the GBA, including payment, account opening and wealth management. Encouraging progress was made, particularly in the area of payment. With policy support from the relevant authorities, some e-wallet operators had launched cross-border payment services such that Hong Kong residents could make mobile payment in Mainland China.

International Financial Centre

Offshore renminbi business in Hong Kong maintained stable growth during the year. As at end-2018, renminbi customer deposits and outstanding certificates of deposit totalled RMB657.7 billion, up 6% compared with the beginning of the year. Renminbi trade settlement handled by Hong Kong banks increased to RMB4.21 trillion in 2018, up 7.5% compared with the year before. As for financing activities, offshore renminbi bond issuance regained momentum, increasing more than twofold to RMB41.9 billion in 2018, while renminbi lending fell by 27% to RMB105.6 billion as at end-2018. Daily average turnover of Hong Kong's renminbi RTGS system amounted to RMB1,010.1 billion, whilst SWIFT statistics showed that Hong Kong's share of global renminbi payments stood at some 70%. In November, the PBoC issued offshore bills of RMB20 billion for the first time in Hong Kong, expanding the spectrum of high-quality renminbi assets and improving the yield curve of renminbi bonds in Hong Kong. Together, these developments demonstrate Hong Kong's leading position as the global hub for offshore renminbi business.

- **RMB657.7 billion** RMB customer deposits and outstanding certificates of deposit
- **RMB4.21 trillion** RMB trade settlement handled by Hong Kong banks
- **RMB41.9 billion** offshore RMB bond issuance
- **RMB1,010.1 billion** daily average turnover of RMB RTGS system

The HKMA continued to expand and deepen its collaboration with other overseas economies in offshore renminbi business and other areas of financial services. In January, the HKMA signed an MoU on Cooperation in the Area of Financial Markets with the Swiss Federal Department of Finance with a view to promoting financial sector development in the two jurisdictions and capturing the opportunities arising from, among others, the further progress of renminbi internationalisation and opening up of the financial markets in Mainland China.

Closer Economic Partnership Arrangement (CEPA)

The HKMA continued to monitor the implementation of various CEPA measures closely and worked with the Government to explore room for further liberalisation and facilitation measures for Hong Kong's financial industry to enter the Mainland market.

Hong Kong as a hub for corporate treasury centres

To enhance the attractiveness of Hong Kong as a CTC hub, the Government further amended the Inland Revenue Ordinance in 2018 to extend the coverage of the half-rate concession to specified treasury services between qualifying CTCs and their onshore associated corporations. Meanwhile, the HKMA maintained its promotion efforts to attract Mainland and international corporates to set up CTCs in Hong Kong.

By the end of 2018, close to **60** corporations had reflected to the HKMA that they were actively planning to set up, or had set up, their CTC operations in Hong Kong.

Hong Kong as an asset management centre

The HKMA continued to support Hong Kong's development as an asset management hub through policies and outreach. According to statistics from the Hong Kong Securities and Futures Commission (SFC), Hong Kong's asset and wealth management business amounted to HK\$24,270 billion as at 31 December 2017. According to the Asian Venture Capital Journal, the total capital under management of private equity funds also increased by 12.3% to US\$159.1 billion in 2018.

International Financial Centre

The HKMA worked closely with the Government and industry to provide a more favourable tax and regulatory environment for fund domiciliation. In particular, the Inland Revenue (Profits Tax Exemption for Funds) (Amendment) Bill 2018 was introduced into the Legislative Council in December to broaden the eligibility of investment funds to enjoy profits tax exemption. The HKMA also worked closely with the Government to study the establishment of a limited partnership regime for private equity funds, to make it commercially viable for private equity fund domiciliation and attracting more businesses of this kind to Hong Kong.

Hong Kong's bond market development

In May, the HKMA launched the PBGS, offering a subsidy to attract first-time bond issuers to Hong Kong. The response has been positive. The HKMA also worked closely with the Government on the legislative changes to expand the scope of tax exemptions on bond investment income under the Qualifying Debt Instrument scheme. In addition, large-scale events and targeted outreach activities were organised, including two events in June on green bonds in collaboration with the International Capital Market Association and PBoC respectively, which drew participation from a total of 1,300 industry professionals and policymakers. The HKMA also continued to support the Government in implementing the HK\$100 billion Government Green Bond Programme.



Government Bond Programme

During the year, the HKMA arranged eight tenders of institutional government bonds amounting to HK\$16.6 billion. By the end of 2018, the total amount of outstanding institutional bonds was HK\$87.1 billion.

Following the announcement of the Government's 2018-19 Budget, the HKMA arranged in December the third issuance of a HK\$3 billion three-year Silver Bond to Hong Kong senior residents aged 65 or above. It attracted more than 45,000 applications with investment monies over HK\$6.2 billion. The amount of retail bonds outstanding at the end of the year was HK\$18.8 billion.

Marketing campaign

During the year, a pitchbook on *Hong Kong as an International Financial Centre and Gateway to China* was developed to showcase Hong Kong's advantages and business opportunities, and to facilitate the HKMA's promotion and outreach effort. The pitchbook was widely distributed and presented to key stakeholders from the public and private sectors.

International and regional co-operation

International Monetary Fund's (IMF) Article IV Consultation

The HKMA rendered full support to the IMF Mission's work in the annual Article IV Consultation exercise, which was concluded in November. Whilst noting that the downside risks to Hong Kong's economy had increased, the IMF commended Hong Kong for its many years of prudent macroeconomic policies, which had endowed Hong Kong with strong buffers to navigate challenges and ensure continued stability. Among other things, the IMF continued to affirm the Linked Exchange Rate System as the appropriate exchange rate arrangement for Hong Kong, acting as an anchor of stability. The IMF also noted that Hong Kong had been considered one of the most competitive economies in the world for many years and was rightly taking steps to maintain competitiveness, including further development of the bond market, the introduction of various green finance initiatives, and development in innovation and technology as attested by the launch of eTradeConnect and the FPS. The Mission considered that the development of the GBA would create opportunities for Hong Kong over the medium term, given Hong Kong's unique position as the gateway to Mainland China and as a global financial centre with renowned professional services.

International Financial Centre

Participation in international financial community

As a reflection of the HKMA's contribution to global financial stability, the Chief Executive of the HKMA was appointed Chair of the Standing Committee on Supervisory and Regulatory Cooperation of the FSB for a two-year term beginning on 1 April 2017. The SRC is charged with developing supervisory and regulatory policies to address financial stability issues; facilitating co-ordination among supervisors and regulators on issues that have cross-sectoral implications; and promoting consistent adherence to international regulatory standards. The HKMA chaired two SRC meetings in 2018. Key issues discussed included fintech, cybersecurity, asset management activities, global systemically important financial institutions, and external audit. On cybersecurity in particular, the HKMA helped drive and deliver the Cyber Lexicon at the G20 as a member of the Cyber Lexicon Working Group, and promoted cross-border cybersecurity information sharing by establishing a bilateral framework with the Monetary Authority of Singapore.

Separately, the HKMA assumed the chairmanship of the SIG of the Basel Committee in October. The SIG has two primary objectives: (i) to foster the timely, consistent and effective implementation of the Basel Committee's standards and guidelines; and (ii) to advance improvements in banking supervision, particularly across Basel Committee members. The SIG is also responsible for monitoring the implementation of the Basel III framework among its member jurisdictions.

Regional co-operation

The HKMA maintained its commitment to regional co-operative initiatives to promote financial stability in Asia and to harness the region's collective voice in international financial affairs.

The HKMA assumed the chairmanship of the EMEAP WGFM in August. The WGFM makes policy recommendations on central bank services and developments in the foreign exchange, money and bond markets, and has been promoting regional bond market development through the Asian Bond Fund initiative. As part of the WGFM chairmanship, the HKMA initiated work to study the implications of financial benchmark reforms on the EMEAP region. The HKMA also chaired the Focused Meeting on Resolution, established under the EMEAP Working Group on Banking Supervision in September. In addition, the HKMA

continued to prepare the Monetary and Financial Stability Committee's half-yearly Macro-Monitoring Report to assess the region's risks and vulnerabilities and the policy implications.

The HKMA continued to co-operate closely with the ASEAN+3⁴ authorities to strengthen the operations of the ASEAN+3 Macroeconomic Research Office, to monitor and analyse regional economies and support decision-making and refinement of the Chiang Mai Initiative Multilateralisation (CMIM)⁵.

Training

The HKMA continued to provide training for staff members from Mainland authorities including the PBoC, the State Administration of Foreign Exchange, and the China Banking and Insurance Regulatory Commission, as well as senior representatives of member banks of the China Banking Association, to foster knowledge and experience sharing. Topics covered in these training seminars included central banking, offshore renminbi businesses, consumer protection, bank culture reform, risk analysis and management, on-site examination practices, as well as the resolution regime for the banking sector.

Hong Kong's credit ratings

The HKMA maintained close dialogue with international credit rating agencies to present a balanced and objective assessment of Hong Kong's credit strength and discuss their concerns over the rating outlook. During the year, S&P and Fitch affirmed Hong Kong's rating at AA+ while Moody's also kept Hong Kong's rating unchanged at Aa2, highlighting the stable credit outlook for Hong Kong.

⁴ ASEAN+3 comprises 10 ASEAN member countries (Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam), together with Mainland China, Japan and South Korea.

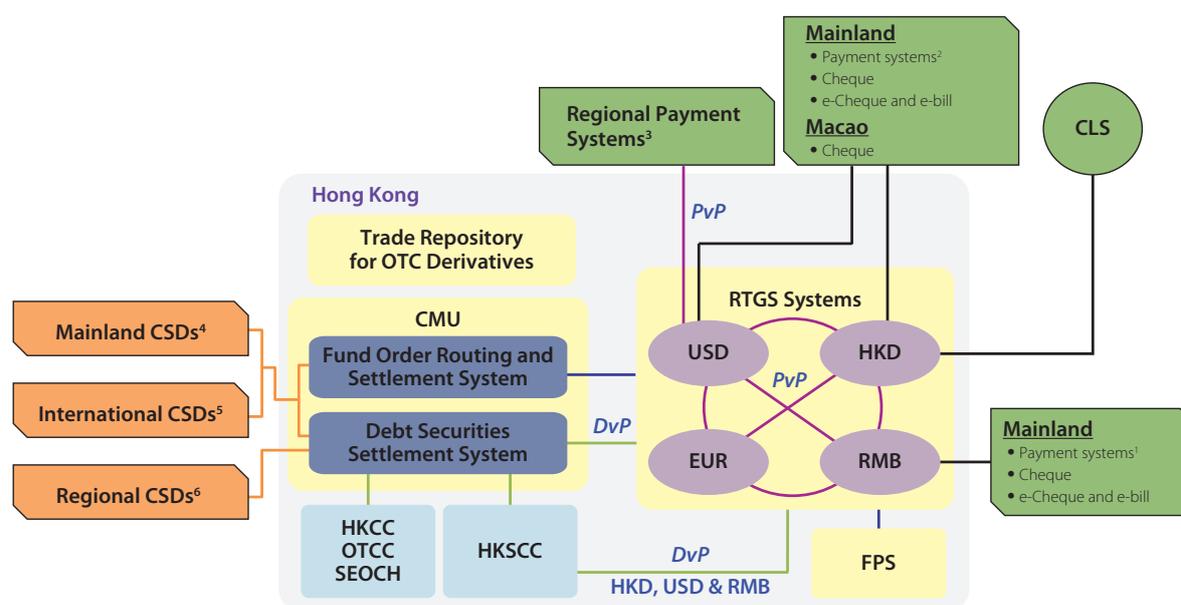
⁵ Effective March 2010, the CMIM has become a regional mechanism that provides short-term US dollar support to participants facing liquidity shortages. In May 2012, the facility was enhanced by doubling the access fund to US\$240 billion and introducing a crisis prevention facility.

International Financial Centre

Hong Kong's financial infrastructure

The HKMA continued to enhance its multi-currency and multi-dimensional payment and settlement platform with extensive domestic and overseas system linkages, to maintain Hong Kong as a regional hub for the payment and settlement of funds and securities (Chart 1).

Chart 1 Hong Kong's multi-currency financial infrastructure



1. CNAPS, CIPS and SZFSS

2. CDFPCS, RTGS links with Shenzhen and Guangdong

3. PvP links with Malaysia, Thailand and Indonesia

4. Cross-border links with CCDC and SHCH (Bond Connect) and CSDC (Mutual Recognition of Funds)

5. Cross-border links with Clearstream and Euroclear

6. Cross-border links with Austraclear (Australia), KSD (South Korea) and TDCC (Taiwan)

CCDC – China Central Depository & Clearing Co., Ltd. (settlement system for fixed income securities in China)

CSDC – China Securities Depository and Clearing Corporation Limited

CDFPCS – China's Domestic Foreign Currency Payment System (RTGS system for foreign currency payment in China)

CIPS – Cross-Border Inter-Bank Payments System in China

CLS – Continuous Linked Settlement (global multicurrency cash settlement system)

CMU – Central Money Markets Unit (settlement system for debt securities)

CNAPS – China National Advanced Payment System (RMB RTGS system in China)

FPS – Faster Payment System

HKCC – HKFE Clearing Corp Ltd (central counterparty providing clearing and settlement for futures)

HKSCC – HK Securities Clearing Co Ltd (operator of the clearing and settlement system for shares)

KSD – Korean Securities Depository (Korea's central securities depository)

OTCC – OTC Clearing Hong Kong Limited (central counterparty providing clearing and settlement for OTC derivatives)

SEOCH – SEHK Options Clearing House Ltd (central counterparty providing clearing and settlement for options)

SHCH – Shanghai Clearing House (settlement system for fixed income securities in China)

SZFSS – Shenzhen Financial Settlement System

TDCC – Taiwan Depository and Clearing Corporation (Taiwan's securities settlement system)

DvP – Delivery-versus-Payment

PvP – Payment-versus-Payment

Hong Kong dollar RTGS system

The Hong Kong dollar Clearing House Automated Transfer System (CHATS), which operates on an RTGS basis, is responsible for clearing Hong Kong dollar interbank payments. It continued to run smoothly and efficiently in 2018, with a daily average transaction value of HK\$937.6 billion (36,357 items), compared with HK\$731.7 billion (31,868 items) in 2017.

In addition to settling large-value payments, CHATS also handles daily bulk clearings and the settlement of stock market transactions, Mandatory Provident Fund schemes' switching transactions, credit card transactions, cheques, small-value bulk electronic payment items (EPS, auto-credit and auto-debit transactions) and automatic teller machine transfers (Chart 2).

International Financial Centre

To further enhance the efficiency of retail payment services, Hong Kong dollar FPS was launched in September as an extension of Hong Kong dollar CHATS to enable the public to make instant retail fund transfers and payments across different banks or SVFs on a round-the-clock basis. It has operated smoothly since inception, with a daily average transaction value of HK\$1.4 billion (57,751 items).

Foreign currency RTGS systems in Hong Kong

The US dollar, euro and renminbi RTGS systems all operated smoothly during the period. The cut-off time of the renminbi RTGS system has been extended in phases since

June 2012 from 6:30 p.m. to 5:00 a.m. the next day (Hong Kong time), providing a total of 20.5 hours for same-day value payments. The extension provides financial institutions around the world a much longer operating window to settle offshore and cross-border renminbi payments through Hong Kong's infrastructure. The average daily value of Mainland-Hong Kong cross-border renminbi payments amounted to around RMB149 billion in 2018, accounting for 15% of the total turnover.

The average daily turnover and other details of the foreign currency RTGS systems are set out in Charts 3–5 and Table 2.

Chart 2 Hong Kong dollar RTGS system average daily turnover

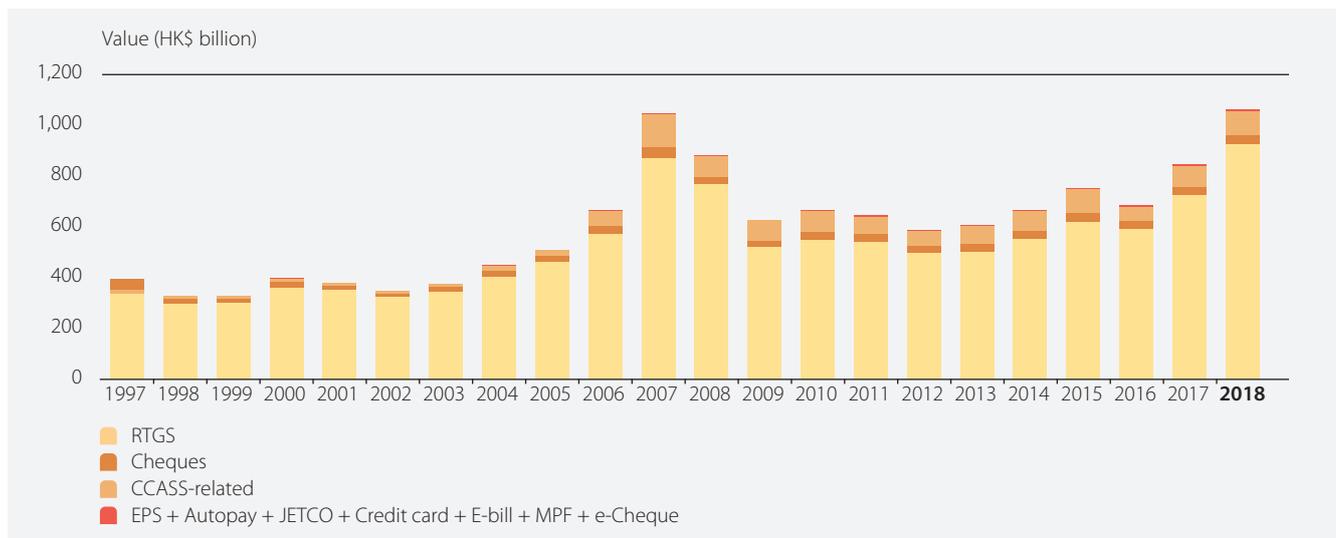
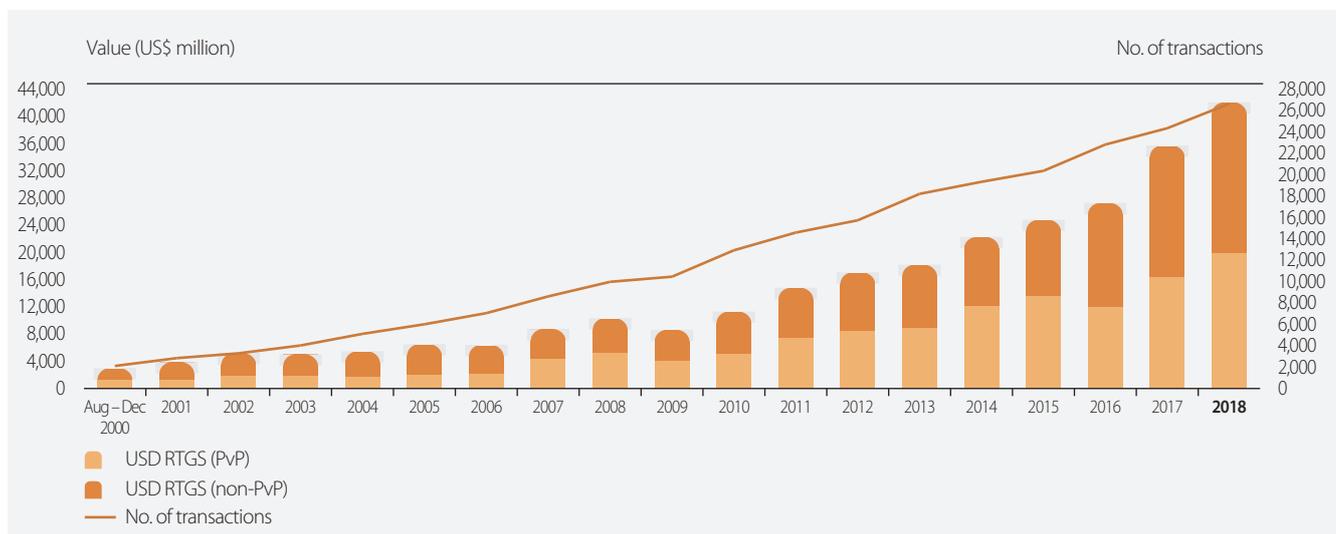


Chart 3 US dollar RTGS system average daily turnover



International Financial Centre

Chart 4 Euro RTGS system average daily turnover

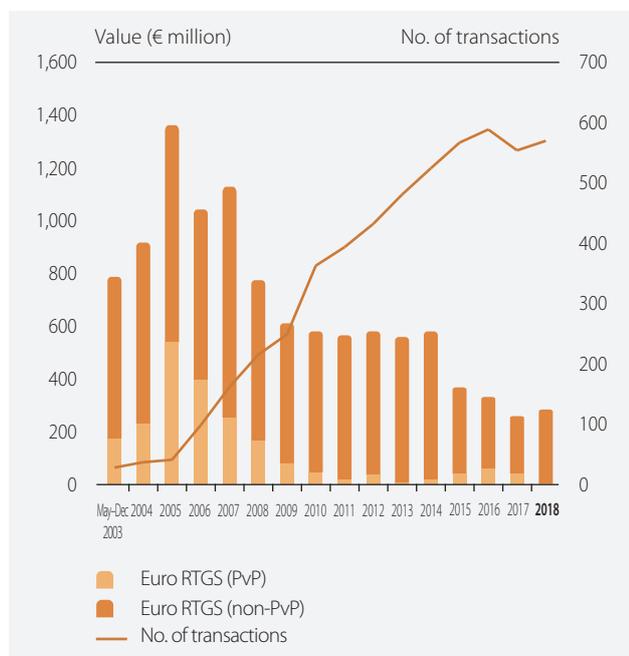


Chart 5 Renminbi RTGS system average daily turnover

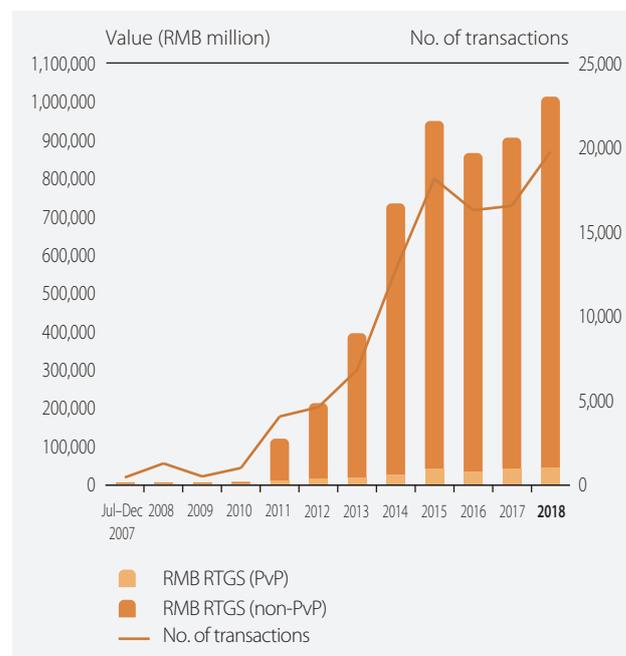


Table 2 Foreign currency RTGS systems

RTGS systems	Launch date	Settlement institution or Clearing Bank	Number of participants at the end of 2018	Average daily turnover in 2018	Average daily transactions in 2018
US dollar RTGS system	August 2000	The Hongkong and Shanghai Banking Corporation Limited	Direct: 103 Indirect: 107	US\$42.0 billion	26,656
Euro RTGS system	April 2003	Standard Chartered Bank (Hong Kong) Limited	Direct: 36 Indirect: 17	€286 million	575
Renminbi RTGS system	June 2007	Bank of China (Hong Kong) Limited	Direct: 202	RMB1,010.1 billion	19,693

Like Hong Kong dollar FPS, renminbi FPS as an extension of renminbi CHATS has operated smoothly since inception in September, with a daily average transaction value of RMB29.8 million (723 items).

Payment-versus-payment (PvP)

PvP is a mechanism for settling a foreign exchange transaction to ensure payments involving two currencies are settled simultaneously. In Hong Kong, six cross-currency PvP links have been established among the Hong Kong dollar, US dollar, euro and renminbi RTGS systems.

Hong Kong's US dollar RTGS system has also established three cross-border PvP links, with Malaysia's ringgit RTGS system in 2006, Indonesia's rupiah RTGS system in 2010 and Thailand's baht RTGS system in 2014. PvP greatly improves settlement efficiency and eliminates settlement risk arising from time lags in settlements and time-zone differences, known as Herstatt risk. In 2018, the transaction values of Hong Kong dollar, US dollar, euro and renminbi-related PvP transactions amounted to approximately HK\$15,359 billion, US\$4,651 billion, €0.5 billion and RMB10,608 billion respectively.

International Financial Centre

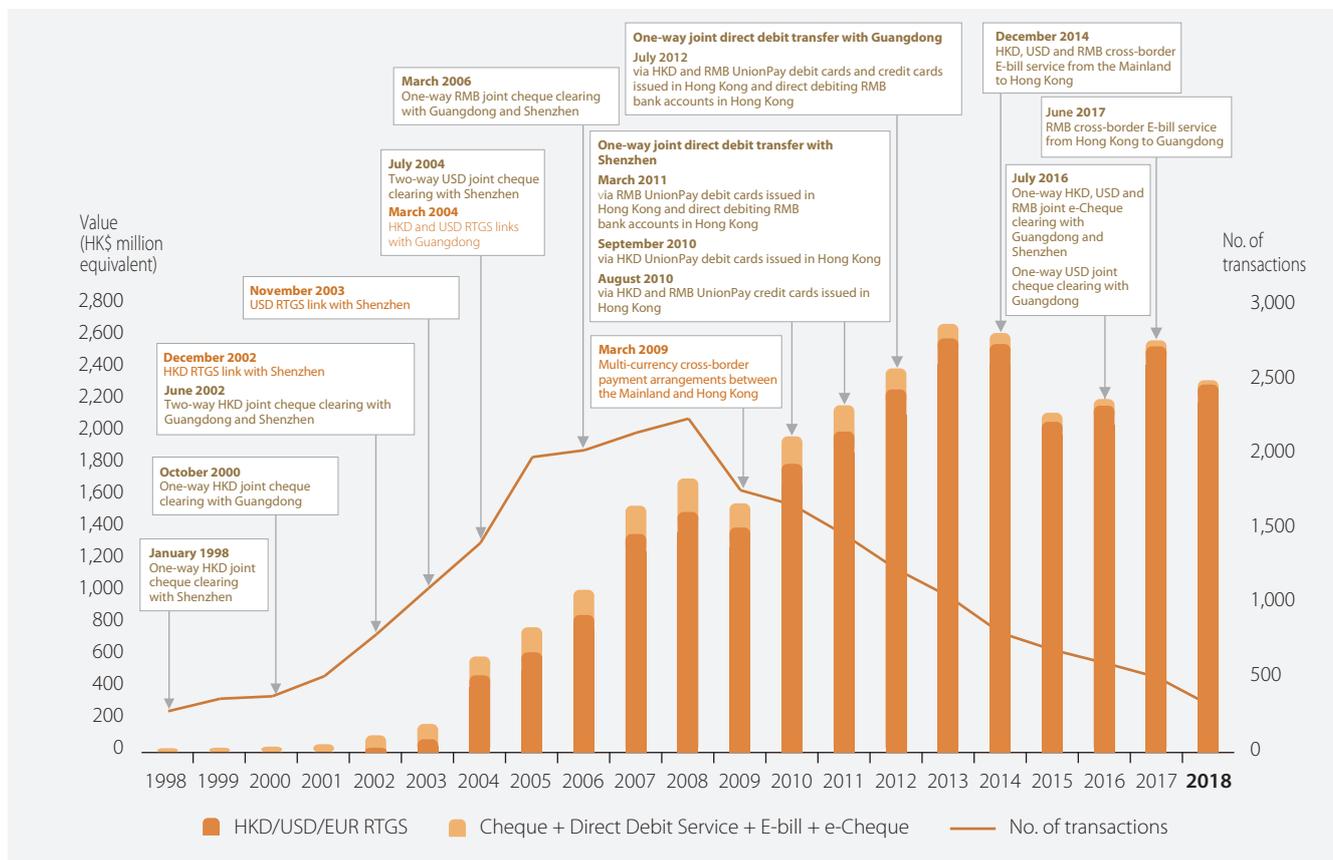
Payment links with Mainland China

The HKMA continued to work closely with Mainland authorities to provide efficient cross-border payment links (Chart 6) to meet growing demand. In 2018, the average daily turnover of various system links, including RTGS cross-border links with Mainland's Domestic Foreign Currency Payment Systems, exceeded a total value equivalent to HK\$2 billion. The Hong Kong dollar and US dollar RTGS

system links with Shenzhen and Guangdong handled more than 11,000 transactions during the year, with a total value equivalent to HK\$523.3 billion.

The joint cheque-clearing facilities provided a clearing service for cheques drawn on banks in Hong Kong and presented in Shenzhen and Guangdong. In 2018, such facilities processed about 55,000 Hong Kong dollar, US dollar and renminbi cheques, with a value equivalent to around HK\$6 billion.

Chart 6 Average daily turnover in cross-border arrangements with the Mainland



International Financial Centre

Payment links with Macao

The one-way joint clearing facility for Hong Kong dollar and US dollar cheques between Hong Kong and Macao was launched in 2007 and 2008 respectively. In 2018, Hong Kong dollar cheques with a total value of about HK\$17 billion and US dollar cheques with a total value of about US\$71 million were cleared.

Debt settlement systems

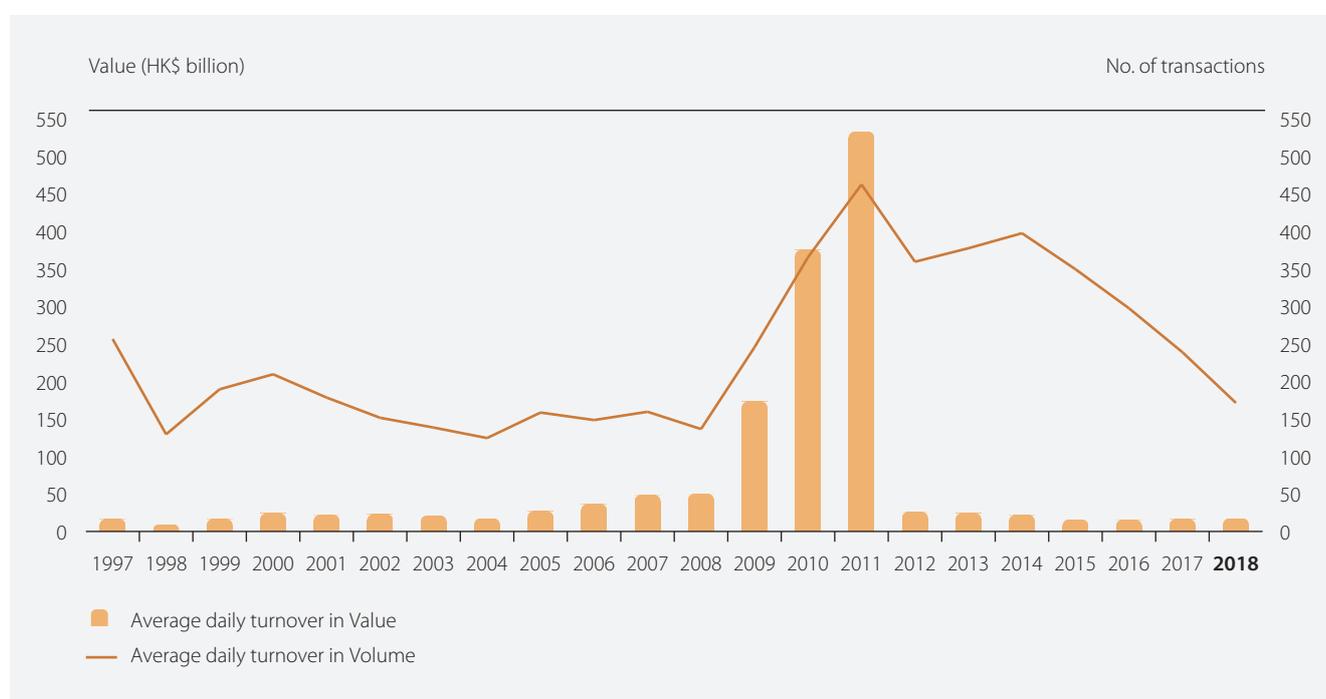
The CMU provides an efficient, one-stop clearing, settlement and depository service for Hong Kong dollar and foreign currency-denominated debt securities issued in Hong Kong. Through the linkages between the CMU and international/regional CSDs, investors outside Hong Kong can hold and settle securities lodged with the CMU, while Hong Kong investors can hold and settle foreign securities held with CSDs outside Hong Kong. In 2018, the CMU processed an average daily value of HK\$17.2 billion (171 transactions) in secondary market transactions (Chart 7). Among the debt securities

lodged with the CMU at the end of the year, the outstanding amount of Exchange Fund Bills and Notes stood at HK\$1,062.7 billion and the total amount of other debt securities was equivalent to HK\$893.8 billion, of which renminbi debt securities amounted to RMB164.2 billion.

Trade Repository for over-the-counter (OTC) derivatives

The HKTR implemented the second phase of mandatory reporting in July 2017, covering the reporting of all five asset classes of derivative transactions and the reporting of the valuation information of transactions. By the end of 2018, the HKTR system had recorded a total of 2,550,510 outstanding transactions, compared with 1,832,287 in 2017. Separately, the HKMA participated in a number of international discussions and working groups on reporting standards for trade repositories to keep abreast of relevant developments and ensure the local trade repository continued to meet international standards and best practices.

Chart 7 CMU secondary market turnover



International Financial Centre

Hong Kong's retail payment industry

Stored value facilities (such as e-wallets, prepaid cards)

The HKMA continued to promote the safety and efficiency of the retail payment industry through the implementation of the regulatory regime for SVFs and RPSs in accordance with the PSSVFO. Under the PSSVFO, the HKMA is empowered to license SVF issuers, designate important RPSs and conduct relevant supervisory and enforcement functions.



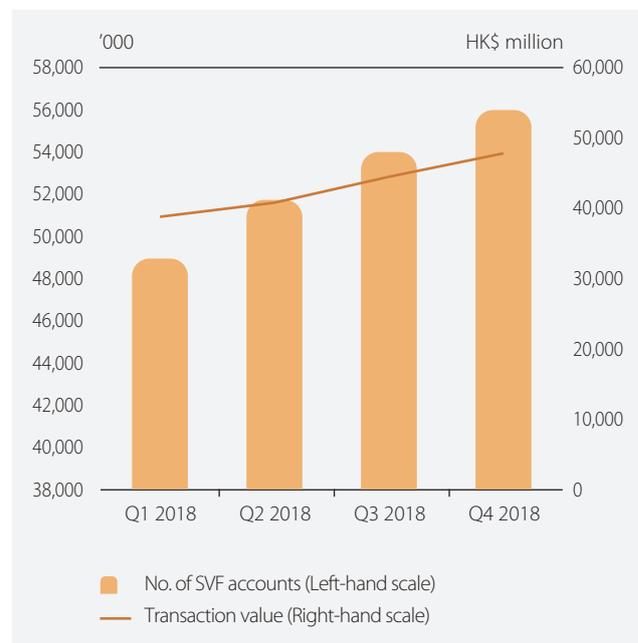
Since the commencement of the licensing regime, the HKMA had granted licences to a total of 16 SVF operators by the end of 2018 (Table 3). The licensees provided services ranging from mobile and internet payments to prepaid card payments to the public. They actively rolled out new services and expanded business networks over the past year to enhance user experience, and extended e-wallet usage across the border to facilitate Hong Kong people's making of retail payments in Mainland China. Furthermore, the launch of the FPS also benefited SVFs in terms of enhanced service offering. Meanwhile, the HKMA continues to receive and consider SVF licence applications on an on-going basis.

To supervise SVF licensees, the HKMA adopts a principle-and-risk-based supervisory approach. It focuses on areas of significant risk to the SVF industry and individual SVF operators, so that it is able to identify and respond swiftly to any serious threat to the safety and efficiency of the industry and licensees. The supervision is conducted through ongoing supervisory surveillance and on-site examinations. The HKMA keeps its supervisory approach under review and will introduce enhancement measures as necessary to ensure soundness of the SVF regime.

During the year, the SVF industry recorded continued growth in terms of the number of users, transaction number, as well as transaction value.

As at the end of 2018, the total number of SVF accounts stood at 56.1 million, and the transaction number and value for the fourth quarter of 2018 were 1.6 billion and HK\$48.1 billion respectively (Chart 8).

Chart 8 Growth trend of the SVF industry in 2018



International Financial Centre

Table 3 Register of SVF Licensees (in alphabetical order) (as at 31 December 2018)

SVF Licensees

33 Financial Services Limited
 Alipay Financial Services (HK) Limited
 Autotoll Limited
 ePaylinks Technology Co., Limited
 HKT Payment Limited
 K & R International Limited
 Octopus Cards Limited
 Optal Asia Limited
 PayPal Hong Kong limited
 TNG (Asia) Limited
 Transforex (Hong Kong) Investment Consulting Co., Limited
 UniCard Solution Limited
 WeChat Pay Hong Kong Limited

Licensed Banks (currently issuing SVFs)¹

Bank of Communications (Hong Kong) Limited
 Dah Sing Bank, Limited
 Hongkong and Shanghai Banking Corporation Limited (The)

1. Pursuant to Section 8G of the PSSVFO, a licensed bank is regarded as being granted a licence.

During the year, the HKMA also continued to promote public awareness of the SVF regulatory regime and issues associated with the use of SVFs through a series of public education programmes.

Retail payment systems

In August, the Monetary Authority designated the RPSs operated by Joint Electronic Teller Services Limited and EPS Company (Hong Kong) Limited for the processing of payment transactions involving participants in Hong Kong under the PSSVFO, on the grounds that proper functioning of the systems was of significant public interest. As a result, there are a total of six designated RPSs under the oversight of the HKMA (Table 4). The HKMA adopts a risk-based approach in the oversight of the designated RPSs, which are required under the PSSVFO to operate in a safe and efficient manner.



Table 4 System operators of the designated RPSs (in alphabetical order) (as at 31 December 2018)

American Express
 EPS Company (Hong Kong) Limited
 Joint Electronic Teller Services Limited
 Mastercard
 UnionPay International
 Visa

Electronic Cheque (e-Cheque)

The acceptance and coverage of the e-Cheque has continued to increase steadily since its launch in December 2015. To further promote a wider adoption of the e-Cheque, the Open API for e-Cheque Presentment Portal was launched on 15 October. It enables third-party service providers to develop innovative applications to help users such as SMEs streamline their operations in managing e-Cheques received.

International Financial Centre

Hong Kong's treasury markets

The HKMA organised its annual landmark event, the Treasury Markets Summit, jointly with the Treasury Markets Association (TMA) in September. The discussions focused on global economic developments, financial market co-operation within the GBA, and the potential impact of virtual banking and other fintech advancements on traditional treasury operations.

On the reforms of interest rate benchmarks, the HKMA monitored the international developments closely and worked closely with the TMA to prepare industry stakeholders for possible implications on their operations that may arise from such reforms.

To enhance the professionalism of Hong Kong treasury market participants, the HKMA continued to promote adherence to the Foreign Exchange Global Code among banks and other market participants.

Over-the-counter derivatives market

The HKMA worked closely with the SFC to develop detailed rules for implementing the regulatory regime for the OTC derivatives market in Hong Kong, which aims to reduce systemic risk and enhance transparency in the OTC derivatives market. Different aspects of the regulatory regime are implemented in phases. The first phase of mandatory clearing and the second phase of mandatory reporting took effect in September 2016 and July 2017, respectively. Following public consultation in June 2018, the subsidiary legislation to expand the mandatory clearing obligation was put in place.

In addition, the HKMA participated in several international forums, including the OTC Derivatives Working Group established under the FSB, and the OTC Derivatives Regulators' Forum, contributing to the relevant international initiatives and monitoring closely the international regulatory developments.

PLANS FOR 2019 AND BEYOND



The HKMA will continue to work closely with other central banks, government agencies and the private sector, both locally and internationally, to implement initiatives that enhance Hong Kong's position as an international financial centre.

Hong Kong as a fintech hub in Asia

To promote the development and use of fintech in the banking and payment industries, the HKMA will continue to implement the Smart Banking initiatives. In particular, the HKMA will monitor closely the rolling-out of virtual banks in 2019. At the same time, the HKMA will implement the Open API functions in phases, facilitate eTradeConnect's connection with other regions and enhance the fintech talent pool via FCAS 2.0. To explore the application of new technologies in financial services and facilitate financial innovation, the HKMA will maintain close collaboration with its strategic partners and key stakeholders.

Hong Kong as the dominant gateway to Mainland China and the global offshore renminbi business hub

International investors' allocation to renminbi assets is expected to continue to gain traction as major market indices add or increase the weightings of renminbi assets. A large part of the inflows will continue to take place through Hong Kong's mutual access channels to the Mainland capital markets. In order to capitalise on this trend, the HKMA will continue to work closely with Mainland authorities to enhance and expand the existing mutual market access schemes, such as Bond Connect. Taking advantage of the GBA as a pilot ground for implementation of capital account liberalisation and financial sector opening-up measures, the HKMA will collaborate with Mainland authorities to study and introduce measures to promote further financial collaboration with a view to expanding the growth headroom for the financial services sector and deepening Hong Kong's capital markets.

International Financial Centre

The HKMA will continue its outreach initiatives to promote Hong Kong as the global hub for offshore renminbi business, and step up its efforts in strengthening financial collaboration with overseas markets to seize opportunities arising from renminbi internationalisation and the continued opening up of the Mainland financial markets.

Hong Kong as a hub for corporate treasury centres, asset management and green finance

The HKMA will explore ways to further enhance the competitiveness of Hong Kong's financial sector, particularly in the development of Hong Kong as an international asset management hub and regional destination for CTCs and fund investment activities. It will also work with the Government to develop Hong Kong's onshore private equity platform. To promote the further development of the green finance market in Hong Kong, the HKMA will assist the Government in issuing a benchmark Government green bond and organise more events to raise market awareness of and Hong Kong's profile in green finance.

International and regional co-operation

The trade tensions and further tightening of financial conditions continue to pose challenges to the global financial system. Cross-border capital flows could remain volatile in the face of greater uncertainties about the pace of monetary policy normalisation in some advanced economies. Despite relatively strong fundamentals in Asia, its resilience may be tested in situations of abrupt capital outflows or sharp repricing of assets. Against this backdrop, there is a need to strengthen cross-border co-operation in market surveillance and enhance the resilience of financial systems. To this end, the HKMA will continue to participate actively in international and regional forums to promote financial stability.

Hong Kong's financial infrastructure

The HKMA will maintain smooth and reliable operation of the various financial infrastructures to strengthen their overall resilience and to meet international standards.

Hong Kong's retail payment industry

While maintaining ongoing supervision of SVF licensees and designated RPSs in accordance with the PSSVFO, the HKMA will work with the industry to promote the use of e-payment in a prudent and regulated manner with a view to better addressing the day-to-day payment needs of the public.

Hong Kong's treasury markets

Continued support will be provided to enhance the professionalism and competitiveness of Hong Kong's treasury markets, particularly in relation to financial benchmarks and the promotion of the Foreign Exchange Global Code.

Over-the-counter derivatives market

The HKMA will work closely with the SFC to develop detailed rules for implementing other aspects of the regulatory regime for the OTC derivatives market.

Reserves Management

2018 was a difficult year for investors as a number of risk factors overwhelmed the investment environment, which included a tightening in financial conditions triggered by the continued interest rate normalisation in the US, intensified trade tensions between the major economies, as well as rising populism and geopolitical risks in many parts of the world. Global equity markets declined across the board while US Treasury yields rose following four rate hikes engineered by the US Federal Reserve. The US dollar strengthened along with the rising US interest rates. Some emerging market currencies depreciated significantly as a result of severe domestic political and economic pressures. Despite the challenging environment, the Exchange Fund recorded an investment income of HK\$10.9 billion in 2018.



THE EXCHANGE FUND

The Exchange Fund's primary objective, as laid down in the Exchange Fund Ordinance, is to affect, either directly or indirectly, the exchange value of the currency of Hong Kong. The Fund may also be used to maintain the stability and integrity of Hong Kong's monetary and financial systems to help maintain Hong Kong as an international financial centre. The HKMA, under the delegated authority of the Financial Secretary (FS) and within the terms of the delegation, is responsible to the FS for the use and investment management of the Exchange Fund.

MANAGEMENT OF THE EXCHANGE FUND

Investment objectives and portfolio structure

The Exchange Fund Advisory Committee (EFAC) has set the following investment objectives for the Exchange Fund:

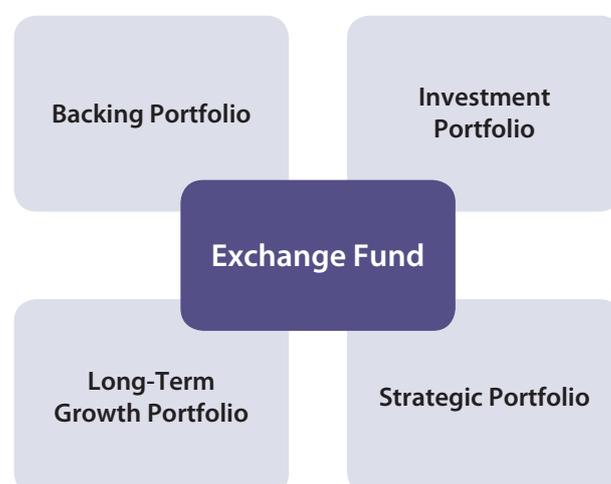
- (a) to preserve capital;
- (b) to ensure that the entire Monetary Base, at all times, is fully backed by highly liquid US dollar-denominated assets;
- (c) to ensure that sufficient liquidity is available for the purposes of maintaining monetary and financial stability; and
- (d) subject to (a)–(c), to achieve an investment return that will help preserve the long-term purchasing power of the Fund.

These objectives take full account of the statutory purposes of the Exchange Fund, and are incorporated into the portfolio structure and the target asset mix of the Fund.

Broadly speaking, the Exchange Fund has two major portfolios: the Backing Portfolio (BP) and the Investment Portfolio (IP). The BP holds highly liquid US dollar-denominated assets to provide full backing to the Monetary Base as required under the Currency Board arrangements. The IP invests primarily in the bond and equity markets of the member countries of the Organisation for Economic Co-operation and Development to preserve the value and long-term purchasing power of its assets.

To better manage risks and enhance returns in the medium and long term, the HKMA has been diversifying part of the Exchange Fund's investments, in a prudent and incremental manner, into a wider variety of asset classes. This includes emerging market and Mainland bonds and equities, private equity (including infrastructure), and real estate. Emerging market and Mainland bonds and equities are held under the IP, while private equity and real estate investments are held under the Long-Term Growth Portfolio (LTGP). The cap for the market value of investments under the LTGP is set at the aggregate of one-third of the accumulated surplus of the Exchange Fund and the portion of the Future Fund and placements by subsidiaries of the Exchange Fund linked to the LTGP.

The Strategic Portfolio, established in 2007 to hold shares in Hong Kong Exchanges and Clearing Limited that were acquired by the Government for the account of the Exchange Fund for strategic purposes, is not included in the assessment of the Fund's investment performance because of the unique nature of this Portfolio.



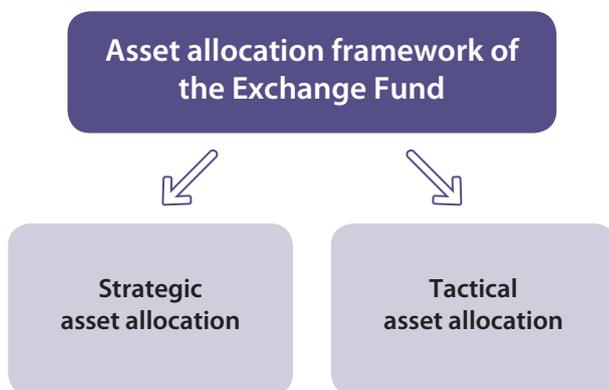
Reserves Management

Placements with the Exchange Fund

The Exchange Fund, from time to time, accepts placements by fiscal reserves, Government funds and statutory bodies. The interest rate is generally linked to the performance of the IP¹, with the major exception of the Future Fund, which links its interest rate to both the IP and the LTGP with reference to the portfolio mix. As at the end of 2018, the portfolio mix of the Future Fund between the IP and the LTGP was about 50:50.

The investment process

The investment process of the Exchange Fund is underpinned by decisions on two types of asset allocation: the strategic asset allocation and the tactical asset allocation. The strategic asset allocation, reflected in the investment benchmark, represents long-term asset allocation given the investment objectives of the Exchange Fund. Guided by the strategic allocation, assets are tactically allocated in an attempt to achieve an excess return over the benchmark. This means the actual allocation is often different from the benchmark, or strategic, allocation. The differences between the actual and benchmark allocations are known as “tactical deviations”. While the benchmark and tracking error² limit are determined by the FS in consultation with the EFAC, tactical decisions and allowable ranges for tactical deviations are made and set by the HKMA under delegated authority. Within the ranges allowed for tactical deviations, portfolio managers may assume positions to take advantage of short-term market movements.



¹ The rate is the average annual investment return of the IP for the past six years, or the average annual yield of three-year Government Bond for the previous year subject to a minimum of 0%, whichever is higher.

² “Tracking error” measures how closely a portfolio follows its benchmark.

Investment management

Direct investment

The HKMA set up the Exchange Fund Investment Office (EFIO) in August to house its investment and related risk management functions. Staff members in the EFIO directly manage about 72% of the investments of the Exchange Fund, comprising the entire BP and part of the IP. This part of the IP includes a set of portfolios invested in global fixed-income markets and various derivative overlay portfolios implementing macro risk management strategies for the Fund.

Use of external managers

In addition to managing assets internally, the HKMA employs external fund managers to manage about 28% of the Exchange Fund’s assets, including all of its listed equity portfolios and other specialised asset classes. The purpose of engaging external managers is to tap the best investment expertise available in the market to realise sustainable returns, draw on diverse and complementary investment styles, and gain their market insights and technical expertise in investment.

Expenditure relating to the use of external managers includes fund management and custodian fees, transaction costs, and withholding and other taxes. The expenditure is determined primarily by market factors and may fluctuate from year to year.

Risk management and compliance

The growing complexity of the investment environment has underlined the importance of risk management. Stringent controls and investment guidelines have been established for both internally and externally managed portfolios, and compliance with guidelines and regulations is closely monitored. Risk assessment has been strengthened to support the Exchange Fund’s increased level of investment diversification. Risk-control tools are deployed to assess market risks under both normal and adverse market conditions. Detailed performance attribution analyses are also conducted to identify sources of performance, enabling the HKMA to assess how to make the best use of the investment skills of both internal and external managers.

Reserves Management

Responsible investment

The HKMA is supportive of responsible investment. For instance, the HKMA has adopted the Principles of Responsible Ownership (PRO) issued by the Securities and Futures Commission, which help investors to determine how best to meet their ownership responsibilities in relation to their investments in Hong Kong-listed companies. For the management of the Exchange Fund, the HKMA has developed internal guidelines on environmental, social and governance (ESG) factors covering the process of selection, appointment and monitoring of external fund managers. The appointed external fund managers for the HKMA's Hong Kong equity active portfolio are required to adhere to the PRO in managing the investments. More generally, the HKMA has incorporated ESG factors into various internal procedures for conducting and monitoring investment activities. The HKMA will monitor the development of ESG standards closely and assess how these standards can be further integrated into its investment process. Additionally, in order to facilitate international collaboration on responsible investment, the HKMA has become a member of FCLTGlobal, which is a not-for-profit organisation that works to encourage a longer-term perspective in business and investment decision-making.

PERFORMANCE OF THE EXCHANGE FUND

The financial markets in 2018

In 2018, a number of risk factors which had been under-priced by the markets materialised one after another. These included the pace of interest rate normalisation in the US, the negative impact of the US government's foreign trade policy and protectionism on global trade, and geopolitical risks. They triggered adjustments and led to heightened volatilities in global financial markets.

Amid investor jitters about the escalating US-China trade disputes, equity markets in emerging market economies and Hong Kong had been on a downward trend since the end of January, with the Hang Seng Index losing as much as 27% from its January peak. Major stock markets in Europe and the US had also declined sharply since the fourth quarter, posting double-digit falls. For 2018 as a whole, global equities declined across the board in general, with the MSCI World Index (covering equity markets in developed economies) falling by 10.4% and the MSCI Emerging Markets Index by 16.6%.

In the bond markets, US Treasury yields generally rose in 2018 owing to US monetary policy normalisation. That said, the bond markets also experienced volatility in the year. For example, 10-year US Treasury yields rose from around 2.5% at the beginning of the year to a seven-year high of 3.2% in November before softening to 2.7% at year-end amid investor concerns on the US-China trade dispute and demand for safe haven assets.

In the currency markets, the US dollar strengthened in tandem with US rate hikes in the year. The US dollar index rose by 4.4% in the year, while major currencies such as the euro and renminbi fell by around 5% against the US dollar. In addition, some emerging market currencies suffered a further blow amidst domestic political and economic upheavals. For example, the Argentine peso and Turkish lira depreciated by around 50% and 30% respectively against the US dollar. In contrast, the yen strengthened by 2.7% against the US dollar, buoyed by safe-haven demand.

Reserves Management

The performance of major currency, bond and equity markets in 2018 is shown in Table 1.

Table 1 2018 market returns

Currencies	
Appreciation (+)/depreciation (–) against US dollar	
Euro	–4.8%
Yen	+2.7%
Bond Markets	
Relevant US Government Bond (1–30 years) Index	+0.8%
Equity Markets¹	
Standard & Poor's 500 Index	–6.2%
Hang Seng Index	–13.6%

1. Market performance on equities is based on index price changes during the year.

The Exchange Fund's performance

The Exchange Fund recorded an investment income of HK\$10.9 billion in 2018. This comprised gains on bonds of HK\$57.4 billion, losses on Hong Kong equities of HK\$20.7 billion, losses on other equities of HK\$38.7 billion, a negative currency translation effect of HK\$9.0 billion on non-Hong Kong dollar assets and gains of HK\$21.9 billion on other investments held by the investment holding subsidiaries of the Fund. Separately, the Strategic Portfolio recorded a valuation loss of HK\$0.5 billion.

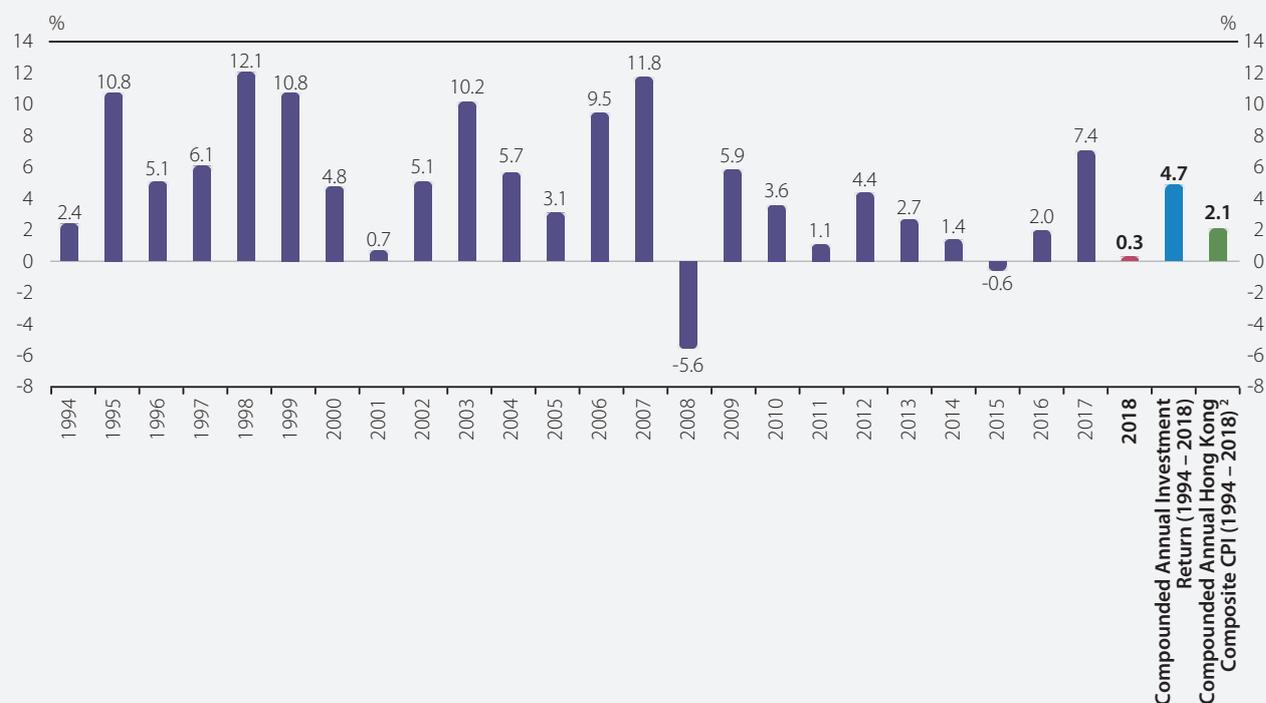
The total assets of the Exchange Fund reached HK\$4,054.9 billion at year-end. The market value of investments under the LTGP totalled HK\$283.6 billion, with private equity amounting to HK\$191.1 billion and real estate at HK\$92.5 billion. Outstanding investment commitments amounted to HK\$202.4 billion.

The investment return of the Exchange Fund in 2018, excluding the Strategic Portfolio, was 0.3%. Specifically, the IP recorded a negative rate of return of 2.4%, while the BP gained 2.1%. The LTGP has recorded an annualised internal rate of return of 12.9% since its inception in 2009.

The annual returns of the Fund from 1994 to 2018 are set out in Chart 1. Table 2 shows the 2018 investment return and the average investment returns of the Fund over several different time horizons. The average return was 3.2% over the past three years, 2.1% over the past five years, 2.8% over the past 10 years and 4.7% since 1994³. Table 3 shows the currency mix of the Fund's assets on 31 December 2018.

³ Averages over different time horizons are calculated on an annually compounded basis.

Reserves Management

Chart 1 Investment returns of the Exchange Fund (1994–2018)¹

- Investment return calculation excludes the holdings in the Strategic Portfolio.
- Composite CPI is calculated based on the 2014/2015-based series.

Table 2 Investment return of the Exchange Fund in Hong Kong dollar terms¹

	Investment return ^{2 & 3}
2018	0.3%
3-year average (2016–2018)	3.2%
5-year average (2014–2018)	2.1%
10-year average (2009–2018)	2.8%
Average since 1994	4.7%

- The investment returns for 2001 to 2003 are in US dollar terms.
- Investment return calculation excludes the holdings in the Strategic Portfolio.
- Averages over different time horizons are calculated on an annually compounded basis.

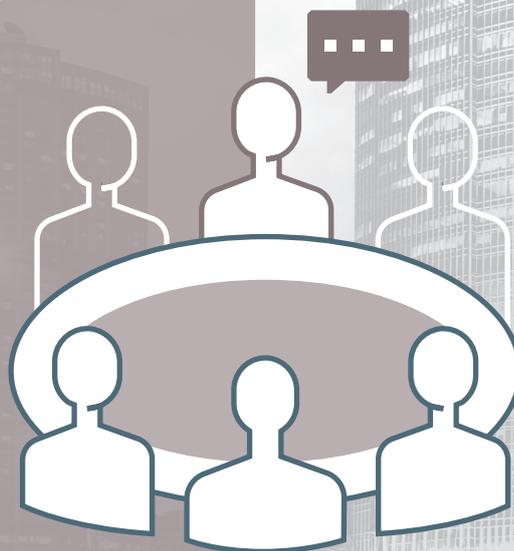
Table 3 Currency mix of the Exchange Fund's assets on 31 December 2018 (including forward transactions)

	HK\$ billion	%
US dollar	3,298.8	81.4
Hong Kong dollar	361.5	8.9
Others ¹	394.6	9.7
Total	4,054.9	100.0

- Other currencies included mainly euro, renminbi, pound sterling and Japanese yen.

Corporate Functions

The HKMA maintains effective communication with the community and the market through the media, website, public education programmes and other various channels to facilitate public understanding about its policies and operations. During the year, the HKMA continued to improve corporate governance by supporting professional development of staff, instituting rigorous financial discipline and enhancing IT security to cope with challenges arising from the implementation of new initiatives and the increasing complexity of work.



ENGAGING THE COMMUNITY

Media relations and social media

The HKMA works closely with the media to enhance transparency and promote public understanding about its policies and work. In 2018, 96 open press events were held, comprising 21 press conferences, 11 stand-up interviews and 64 other public functions. A further 39 media interviews were arranged. A total of 462 bilingual press releases were issued and a large number of media enquiries were handled every day.

To raise awareness of the HKMA’s key functions, in-depth media briefings and educational workshops were conducted for local and overseas media on a wide range of topics, such as the Linked Exchange Rate System (LERS), fintech development, green finance, and infrastructure financing. The HKMA further strengthened its capability in public communications through the use of social media by launching its official Facebook page in July while enhancing the content of the existing YouTube channel and LinkedIn page.



HKMA Chief Executive, Mr Norman Chan (left), and the Big Waster (mascot of the Environment Bureau) jointly promote the use of good-as-new banknotes for lai-sees through social media.

Public enquiries

The Public Enquiry Service provides an effective means for the public to better understand the key functions and operations of the HKMA. A total of 9,950 enquiries were handled in 2018, about half of which were related to banking policies and regulations, consumer banking issues as well as notes and coins. Notable examples included the Coin Collection Programme, banking products and services, banking-related guidelines and circulars, Faster Payment System (FPS), virtual banks, and the 2018 New Series Hong Kong Banknotes.

Chart 1 shows the number of public enquiries received since 2015 and Chart 2 provides a breakdown by enquiry nature in 2018.

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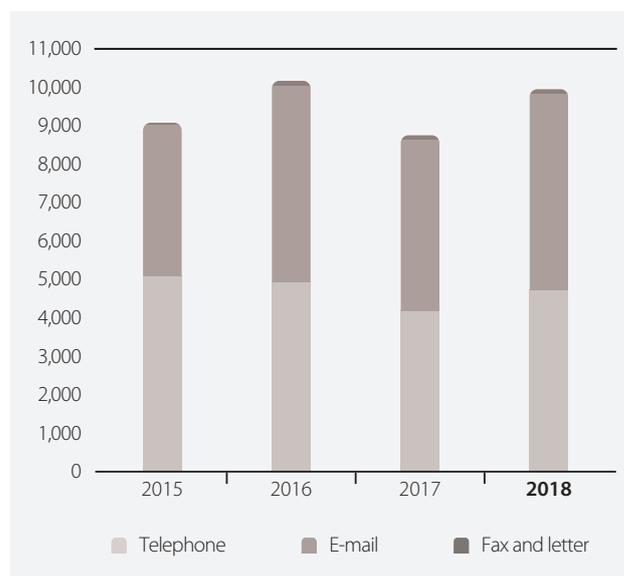
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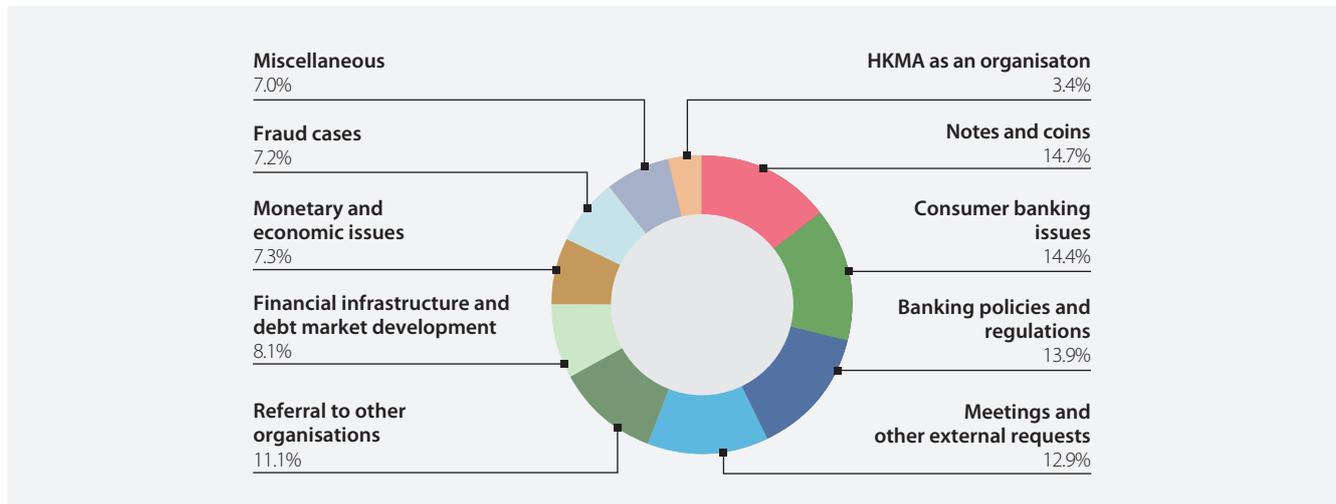


Chart 1 Total number of public enquiries



Corporate Functions

Chart 2 Nature of enquiries received in 2018



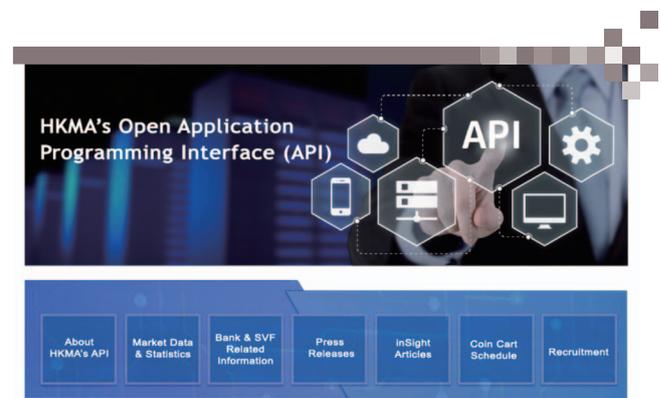
Publications

Apart from the *HKMA Annual Report*, in 2018 the HKMA published two issues of the *Half-Yearly Monetary and Financial Stability Report*, four issues of the *Quarterly Bulletin* and regular updates of the *Monthly Statistical Bulletin* to provide up-to-date and thematic information and analyses on monetary, banking and economic issues in Hong Kong. In addition, the HKMA published a total of 13 *inSight* articles, covering various topical issues related to its work.

HKMA website

The HKMA corporate website (www.hkma.gov.hk), with more than 60,000 pages in English and traditional and simplified Chinese, is the public access gateway to up-to-date information about the HKMA. It also contains the register of authorized institutions (AIs) and local representative offices and the register of securities staff of AIs, both maintained under section 20 of the Banking Ordinance, as well as the register of stored value facility (SVF) licensees under the Payment Systems and Stored Value Facilities Ordinance. Dedicated webpages and eye-catching short-cut links are designed to draw public attention to the new initiatives of the HKMA, such as the FPS, and important and timely information, such as reminders on the need to remain vigilant against bogus telephone calls and the location of Coin Carts under the Coin Collection Programme.

Setting an example for the adoption of Open Application Programming Interface (Open API) in the banking sector, the HKMA launched Open APIs on its corporate website in July to provide convenient access by the public to the HKMA's important information. The first batch of 50 sets of Open API were launched successfully in July, covering the information most frequently accessed by the public, such as statistics on the banking sector and the Exchange Fund, as well as press releases and Coin Cart Schedule. The remaining 80 sets will be developed and rolled out by phases by mid-2019. As a further step to facilitate the public to obtain the HKMA's latest news and information from the website more easily, the HKMA is overhauling the layout and content of its corporate website to make it more user-friendly. The newly designed website is expected to be launched in 2019.



The HKMA embraces the development and application of Open API.

Corporate Functions

Public Education Programme

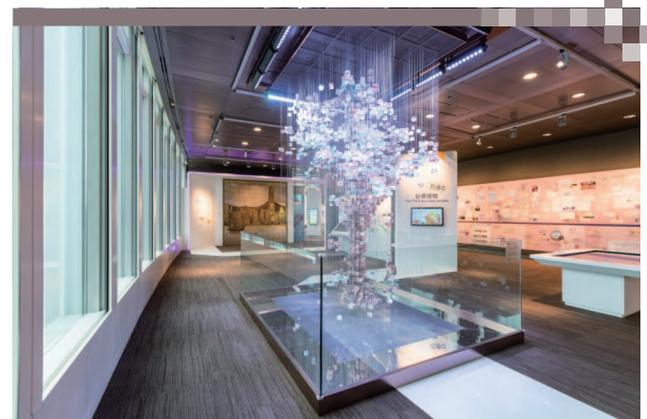
The HKMA Information Centre on the 55th floor of Two International Finance Centre is an important resource for introducing the work of the HKMA to the community and promoting public awareness of monetary and banking matters. It consists of an exhibition area and a library, and is open to the public six days a week. The exhibition area introduces the work of the HKMA and the development of money and banking in Hong Kong. It also contains reading materials and exhibits for the study of Hong Kong's monetary, banking and financial affairs.

In the first quarter of 2018, the Information Centre commenced a refurbishment of its currency section, which introduces the design, security features, production process and other fun facts about Hong Kong notes and coins. Various interactive elements, such as games that integrate playing into learning, were introduced to enhance the experience of visitors. In addition, an artistic Bauhinia tree made up of 2,018 pieces of see-through cubes filled with shredded currency notes that are no longer fit for circulation was installed alongside a mosaic artwork made of Hong Kong coins. The currency section, with its new look, was re-opened to the public on 16 August.

The Information Centre organises guided tours for visitors. During the year, it received more than 59,000 visitors and hosted over 580 guided tours for schools and other groups (Chart 3). More than 705,000 people have visited the Information Centre since it opened in December 2003. The library, situated next to the exhibition area, houses more than 26,000 books, journals and other publications for the study of Hong Kong's monetary, banking and financial affairs and central banking topics. It also maintains the register of AIs and local representative offices and the register of securities staff of AIs, as required by section 20 of the Banking Ordinance.



Interactive games are introduced to explain the production process of Hong Kong notes.



The artistic Bauhinia tree is suspended in mid-air, with lighting effects that feature its beauty in different seasons.



Guided tours of the Information Centre are organised for schools and other groups.

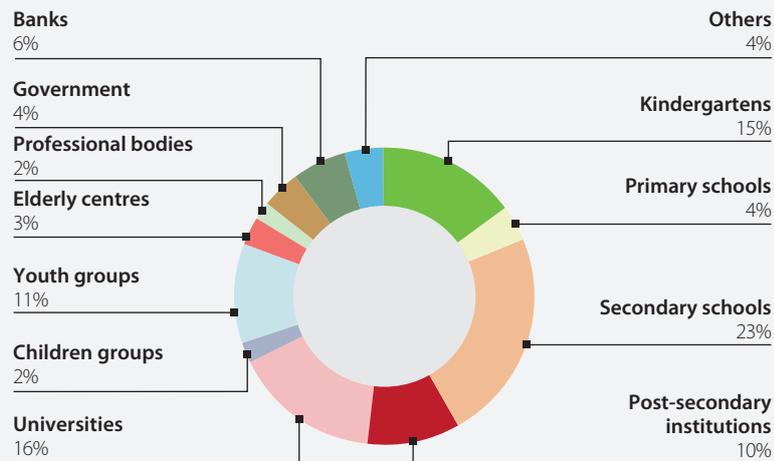
Corporate Functions



Secondary school students and teachers from different districts participate in the public education seminar.

To reach out to the community and raise public awareness of the HKMA's work, the HKMA organised three public education seminars for about 1,500 secondary school students and teachers in 2018. Topics covered in the seminars included the LERS, Hong Kong banknotes, banking stability, the Deposit Protection Scheme, FPS, SVFs, fintech, consumer protection and careers in the financial industry. Close to 60,000 teachers and students have participated in this public education programme since its launch in 1998.

Chart 3 Types of group visits to the Information Centre in 2018



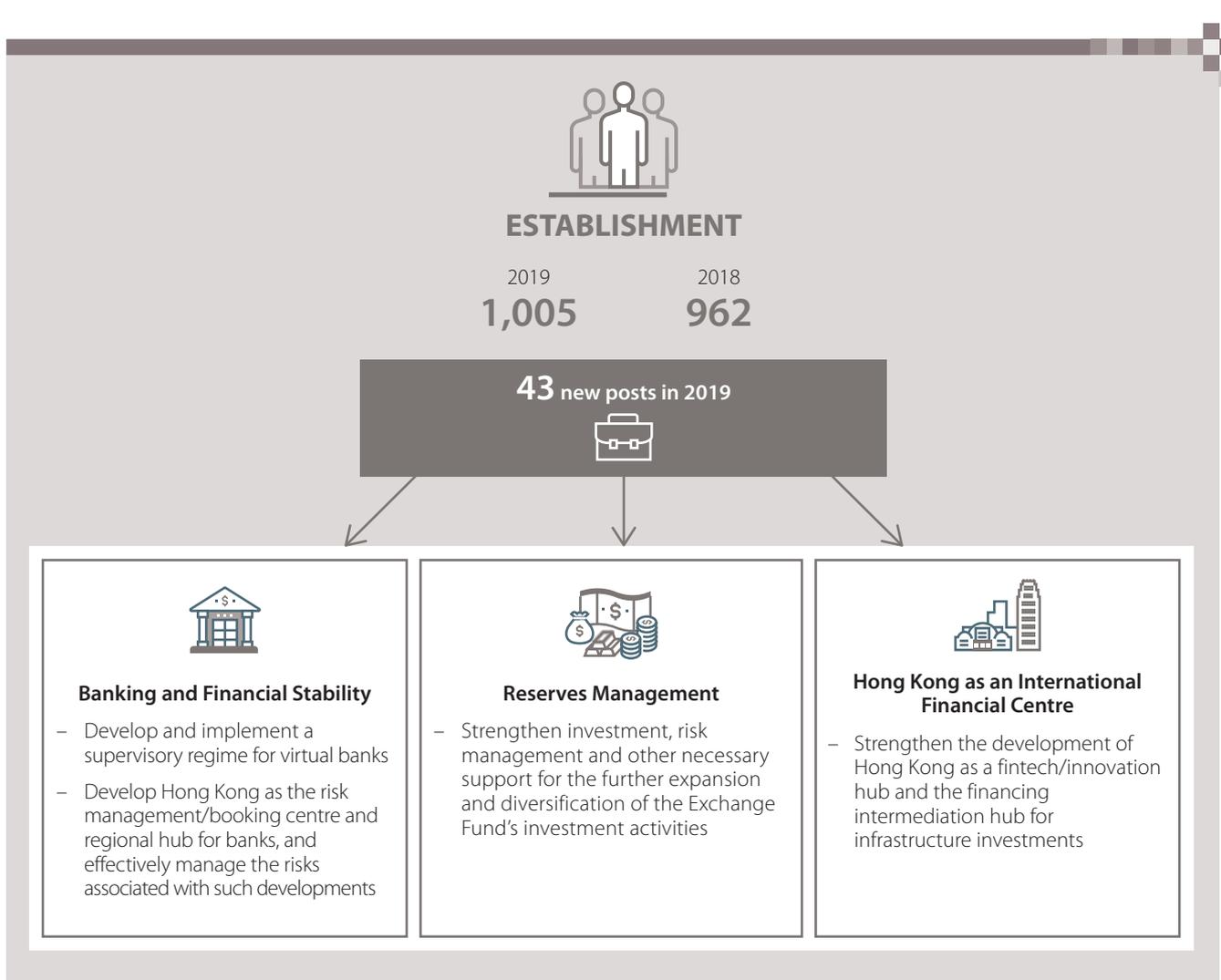
Corporate Functions

OUR PEOPLE

While the HKMA is an integral part of the Government, it employs staff on terms different from those of the civil service to attract people with the right experience and expertise. As a public organisation, the HKMA makes continuous efforts to streamline its work to improve efficiency and cost-effectiveness. The HKMA also aims to maintain a lean and flexible structure and, where possible, to redeploy staff resources to undertake new initiatives and meet the increasing workload.

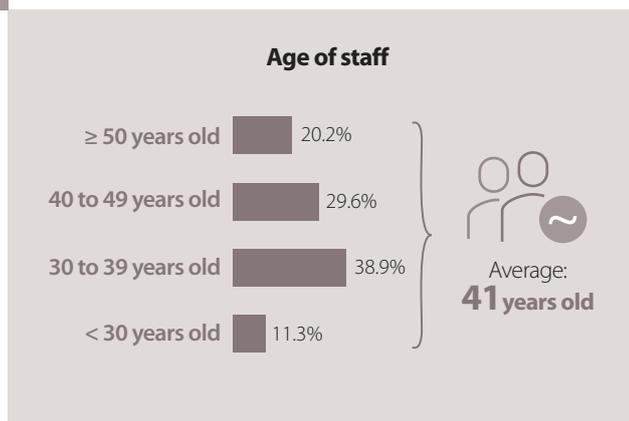
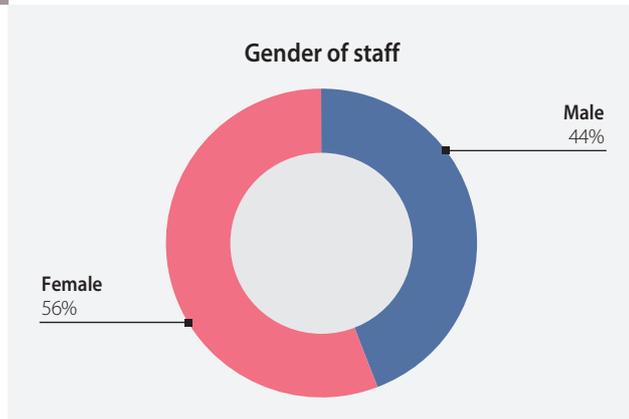
The HKMA is an equal opportunities employer. It ensures that everyone works in an environment free of discrimination. Its equal opportunities policy applies to employment, compensation and benefits, performance assessment, promotion, posting/training opportunities, and general conduct.

The HKMA recruits, develops and maintains a highly professional workforce to support its policy objectives and respond flexibly to changing work priorities. The HKMA is committed to maintaining a high degree of integrity and ethical standards among its staff. All staff members are expected at all times to observe an exemplary standard of personal conduct and integrity and to act in the best interests of the HKMA.



Corporate Functions

Human capital key statistics on 1 January 2019



Organisational changes in 2018

The Exchange Fund Investment Office (EFIO) was established on 1 August to house the investment and related risk management functions of the HKMA previously undertaken by the Reserves Management Department and the Risk & Compliance Department. The establishment of the EFIO creates a distinct identity for the HKMA's investment function, raises its institutional profile and makes it more agile and responsive to market changes. These are important to support the continued expansion and diversification of the Exchange Fund's investment activities.

Corporate Functions

Table 1 gives a breakdown of the establishment and strength of the HKMA.

Table 1 Establishment and strength of the HKMA on 1 January 2019

Department	Functions	Senior staff		Others	
		Establishment	Strength	Establishment	Strength
Senior Executives' Office	Top management of the HKMA	4	4	9	9
Banking Conduct	To take charge of payment systems oversight, licensing, and all supervisory and development functions relating to the business conduct of AIs	1	1	86	86
Banking Policy	To formulate supervisory policies for promoting the safety and soundness of the banking sector, enhance the capacity building of industry practitioners and consumer education, and take charge of the deposit protection function	1	1	47	47
Banking Supervision	To supervise operations of AIs	1	1	176	161
Enforcement and AML	To investigate and where appropriate take enforcement action under relevant Ordinances, supervise anti-money laundering and counter-terrorist financing systems and handle complaints	1	1	99	91
Exchange Fund Investment Office	To manage reserves in line with established guidelines to achieve investment returns and enhance the quality of returns by diversifying investments into different markets and asset types	1	1	105	83
Risk and Compliance*	To oversee all risk-generating activities, including investment risks and other non-investment related corporate risks of the HKMA	1	1	43	37
External	To help develop and promote Hong Kong as an international financial centre, foster regional monetary co-operation through participation in the international central banking and financial community, and promote the development of financial markets	1	1	59	54
Financial Infrastructure	To develop and enhance the financial market infrastructure for maintaining and strengthening Hong Kong's status as an international financial centre, take charge of the settlement function, and ensure an adequate supply of banknotes and coins	1	1	56	51
Monetary Management	To maintain financial and monetary stability through macro-financial surveillance and monitoring of market operations, license and supervise SVFs, and designate and oversee important Retail Payment Systems	1	1	52	51
Research	To conduct research and analyses on economic and financial market developments in Hong Kong and other economies	1	1	41	33
Office of the General Counsel	To provide in-house legal support and advice	1	1	28	21
Corporate Services	To provide support services in the form of administrative, finance, human resources, information technology and secretariat services, and handle media and community relations	1	1	168	161
Internal Audit Division	To provide audit services through assisting the management in controlling risks, monitoring compliance and improving the efficiency of internal control systems and procedures	0	0	10	10
Resolution Office	To establish resolution standards, contribute to international resolution policy development, undertake local and cross-border resolution planning, develop operational capabilities to implement resolution, and execute the orderly resolution of a failing AI or a cross-sectoral group if needed	0	0	10	9
Total		16	16	989	904

* Staff members overseeing investment risks are part of the Exchange Fund Investment Office set-up. For presentational reason they are grouped under Risk and Compliance Department.

Corporate Functions

Remuneration policies and pay review mechanism

The Financial Secretary (FS) determines the pay and conditions of service for HKMA staff on the advice of the Governance Sub-Committee (GSC) through the Exchange Fund Advisory Committee (EFAC), taking into account the prevailing market rates and practices. Remuneration comprises a total cash package and a provident fund scheme, with minimal benefits in kind. The cash package consists of monthly fixed pay (or basic pay) and variable pay, which may be awarded to individual staff members as a lump sum once a year, depending on performance.

Pay for HKMA staff is reviewed annually by the FS in the light of recommendations made to him by the GSC through the EFAC, taking into account the GSC's assessment of the performance of the HKMA in the preceding year, the pay-survey findings of the financial sector conducted by independent human resources consultants, and any other relevant factors. Special pay adjustments may be made from time to time for individual meritorious staff members to maintain their pay competitiveness.

Any approved annual adjustments to the fixed pay and any variable pay awards for the HKMA are distributed to individual staff members based on their performance. Investment staff members are subject to a variable pay system that seeks to strengthen the link between their investment performance and remuneration award. The pay adjustments and awards for individual staff members at the ranks of Executive Director and above are approved by the FS on the advice of the GSC. The staff members concerned are not present at the meetings when their pay is discussed. The pay adjustments and awards for individual staff members at the ranks of Division Head and below are determined by the Chief Executive of the HKMA under delegated authority from the FS and within the approved overall pay awards.

Remuneration of senior staff members

The remuneration packages of senior staff members in 2018 are shown in Table 2.

Table 2 Remuneration packages of HKMA senior staff members in 2018¹

HK\$'000	Deputy Chief Executive/Senior Executive Director		
	Chief Executive	Director (average)	Executive Director (average)
Number of staff ²	1	4	15
Annualised pay			
Fixed pay	7,238	6,116	3,904
Variable pay	2,600	1,887	1,107
Other benefits ³	1,138	803	471

1. Except for annual leave accrued, the actual remuneration received by staff members who did not serve out a full year is annualised for the purpose of calculating the average annual package for the rank.
2. The number of staff in this table includes staff members who did not serve out a full year. The HKMA senior staff members include the Chief Executive Officer of the Hong Kong Mortgage Corporation, the Commissioner of the Resolution Office, and the Chief Operating Officer of the Exchange Fund Investment Office.
3. Other benefits include provident funds or gratuity as the case may be, medical and life insurance, and annual leave accrued during the year. The provision of these benefits varies among senior staff members, depending on individual terms of service.

Corporate Functions

Staff development

The HKMA accords priority to capacity development of its staff members to cater for operational needs, staff's career development, and to increase staff's adaptiveness to new challenges. Considerable efforts are devoted to training staff's vertical (or job-specific) and horizontal (or general) skills in accordance with the identified individual and organisational needs. During the year, a number of training initiatives were launched to support various functional areas like banking supervision and investment management. Topical briefings on HKMA's work and new/emerging trends were also arranged so that staff were kept abreast of the latest developments in the financial areas. These included briefings on the LERS, fintech developments, new series of Hong Kong banknotes, big data, financial infrastructure, FPS, and bank culture. The training programmes were organised in-house or by the Government, other central banking institutions, local and overseas universities, consultants and training institutions.



A training session on new developments in banking supervision



Internal briefing on "New series of Hong Kong banknotes"



Group coaching and practice session on communications



Corporate Functions

The HKMA attaches great importance to the conduct and integrity of its staff. Continuous efforts are made to maintain staff's awareness on conduct-related rules and regulations on an ongoing basis. A Continuous Capacity Development Programme was introduced to encourage the culture of continuous learning and as a means to upkeep the competency level of HKMA staff. The HKMA also runs a training sponsorship scheme to support staff to pursue studies relevant to the work of the HKMA. Reimbursement of membership fees of relevant professional bodies is also provided.

To facilitate staff to gain exposure and promote cross-fertilisation of skills and experience, the HKMA encourages staff to rotate across different job areas and offers secondment opportunities to the HKMA's New York Office, HKMA-related organisations, other regulatory authorities, or the Government. Secondment to international and local organisations such as the International Monetary Fund (IMF) and the Financial Services Development Council is also arranged so that staff can assist in activities or policy initiatives in which Hong Kong or the HKMA plays a key role. Some staff members are deployed on a full-time or part-time basis to provide support to the Hong Kong Deposit Protection Board and the Treasury Markets Association.

Corporate Functions

Manager Trainee (MT) and Graduate Economist (GE) programmes

To develop a pool of young talents with sharp analytical mind, strong communication skills and good team spirit for a long-term career in central banking, the HKMA runs two trainee programmes: the MT programme and the GE programme. Each programme lasts for a period of two years.

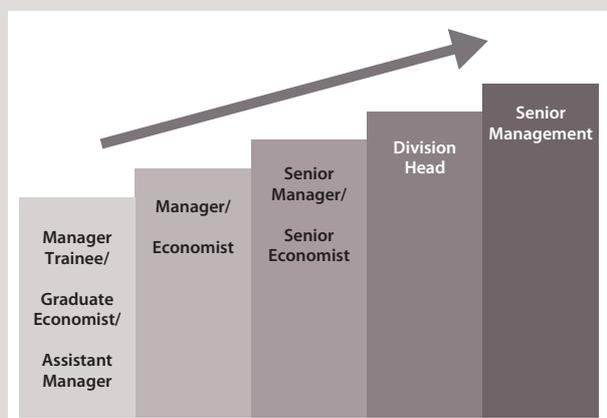
The MT programme prepares young graduates interested in central banking work to become the HKMA's future key management team and contribute to the financial stability and prosperity of Hong Kong. Each MT undergoes on-the-job training in two to three departments to acquire hands-on experience in the important functions of the HKMA. Under the GE programme, young graduates interested in economic research are offered the opportunity to harness their research skills in two or three departments to provide important input to the policy formulation process.

Both the MT and GE programmes provide an all-rounded career development environment for the trainees. Apart from on-the-job training, the MTs and GEs also attend structured foundation central banking courses, organised both in-house and by leading regional and international organisations. Upon successful completion of the respective programmes, MTs are offered appointments as Managers and GEs as Economists to further pursue a professional career in the organisation.



MTs and GEs attend the Macroeconomic Diagnostics Programme, which is hosted by the HKMA and co-organised by the IMF and the South-East Asian Central Banks.

Career Prospects



Corporate Functions

Assistant Managers (AMs)

AMs form an important backbone of the HKMA's professional staff. Most AMs work in the banking departments to promote the safety and stability of the banking system. A small number of AMs work in other functional areas, providing analytical and other forms of support. Young graduates with a keen interest in banking supervision and regulation would find the position of AM a good starting point for a fulfilling career.

Internship Programmes

The HKMA runs summer and winter internship programmes for undergraduates to equip them with practical work experience and insights about the roles of a central bank. Talks, training sessions and guided tours to the Information Centre are provided to interns to give them a better understanding of the functions and work of the HKMA.



Interns meet with the HKMA's management team in a gathering session.

Corporate Functions

CORPORATE SOCIAL RESPONSIBILITY

Work-life balance and staff's well-being

The HKMA promotes work-life balance and cares about staff's health and work safety. Regular talks on healthy lifestyles and workplace safety are organised and indoor air quality is monitored. Breakout areas and ergonomic furniture are included in the new office design. Annual on-site medical check-ups and flu vaccinations are arranged. The HKMA also sponsors a professional counselling service comprising experienced psychologists and social workers.

Throughout the year, different activities are organised to enhance staff's physical wellness, promote their sense of belonging, and foster cooperation and team spirit. Various interest classes are held for staff members and their families. Staff members have opportunities to mingle by participating in inter-organisational, cross-divisional activities such as basketball and football competitions with fellow regulators.



Supervisory Cup Basketball Competition



Supervisory Cup Football Competition

HKMA and the community

The HKMA supports community services through participation in volunteer and charitable activities. The HKMA also cares about the environment.

Volunteer and charitable activities

The Agency for Volunteer Service awarded the HKMA a Certificate of Appreciation for the Volunteer Team's devotion to volunteer services in the year 2017-18.



International Volunteer Day Recognition Ceremony 2018

Corporate Functions

In 2018, the HKMA Volunteer Team continued to participate in different charitable events.

“V-Run and Walk”

organised by the Agency for Volunteer Service



“Po Leung Kuk Charity Run”

organised by Po Leung Kuk



“McDull Charity Run 2018”

organised by the Samaritan Befrienders Hong Kong



“Running Oi Man”

organised by the Senior Citizen Home Safety Association



“Flag Day 2018”

organised by the Hong Kong Association for Cleft Lip and Palate



“Walk for Love: Towards Life’s Rainbow”

organised by the Little Life Warrior Society



“Tree Planting Day”

organised by the Conservancy Association



Home visits, to the elderly living in the Kwun Tong District, organised by the Senior Citizen Home Safety Association, and those living in the Sham Shui Po District, organised by the Neighbourhood Advice-Action Council



Corporate Functions



The HKMA Volunteer Team participates in "Running Oi Man"



Tree Planting Day

The HKMA Hiking Team participated in the "Challenging 12 Hours Charity Marathon" to support Sowers Action in promoting education aid in Mainland China. The team completed the 42km marathon in five hours and 59 minutes and won the second runner-up in the Corporate Cup.

HKMA staff members took part actively in the Blood Donation Day, MSF Day, Territory-Wide Flag Day, Community Chest's Green Day, Love Teeth Day, Skip Lunch Day and Dress Casual Day. They also participated in regular campaigns that collected clothes, toys and other reusable items for donation to charities.



Challenging 12 Hours Charity Marathon



Blood donation in the office

Corporate Functions

Caring Organisation

In recognition of its commitment in caring for the community, the HKMA was accredited with the “**10 Years Plus Caring Organisation Logo**” by the Hong Kong Council of Social Service.



Green measures

The HKMA has an established environmental policy to protect and preserve the environment. The policy and implementing measures are promulgated among its staff. Office green measures include:

Paper/Photocopying/Printing



- Using recycled paper/envelopes.
- Distributing electronic copies instead of hard copies of documents.
- Printing on both sides of the paper.
- Using colour printing/copying only when necessary.
- Avoiding using paper cups and reducing the use of paper hand towels.

Electricity



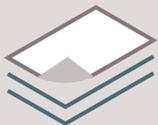
- Switching off PCs, printers, lights, audio-visual systems and other electrical appliances when they are not in use.
- Reactivating the pre-set power-saving mode installed in most equipment, for example, water dispensers, electric punching machines and shredders, after use outside their pre-set operating hours.
- Reviewing regularly the need for additional air-conditioning beyond normal business hours.

Recycling

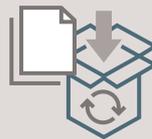


- Making good use of recycled bins for collecting different categories of waste including paper, cans, bottles, batteries, CDs and ink cartridges.

Green achievements in 2018



Reduced consumption of paper by **10.7%**



Increased collection of waste paper by **14.2%**

Corporate Functions

ADMINISTRATION

The HKMA regularly reviews its corporate resources, including space requirements, to ensure that its operational needs are met. To keep its workplaces well-equipped and occupationally safe, the HKMA carries out office repair and maintenance work from time to time.

Business continuity plans for the HKMA are reviewed constantly to ensure their effectiveness in a changing business and social environment. Drills on evacuation and the activation of back-up facilities are conducted every year to ensure the responsiveness and preparedness of staff in carrying out various business continuity measures. A dedicated team monitors influenza alerts and other relevant infectious diseases to ensure that necessary precautionary and contingency measures are taken in a timely manner.

FINANCE

Annual budget

In drawing up the annual budget, the HKMA takes into account its ongoing operations and strategic development, set out in its three-year plan approved by the FS on the advice of the EFAC. Departments are required to assess their needs for the coming year and to review whether savings in staffing and expenditure can be achieved. This requires departments to assess critically the value of existing services and the cost-effectiveness of delivery methods. The Finance Division scrutinises all budget requests in communication with individual departments before submitting a consolidated draft budget, including a headcount proposal, for further scrutiny by senior management. The GSC of the EFAC then deliberates on the proposed budget and recommends any changes it considers necessary, before putting it through the EFAC to the FS for approval.

All expenditure items are subject to stringent financial controls through detailed procurement rules and guidelines. Compliance with these guidelines is subject to internal audit and is reviewed by independent auditors during the annual audit of the Exchange Fund. Expenses are analysed and reported to senior management every month.

The administrative expenditure in 2018 and the budgeted expenditure for core activities in 2019 are shown in Table 3. The difference between the 2018 actual expenditure and the 2019 budget is mainly due to an increase in staff costs, including the full-year effect of staff changes and pay review in 2018, and a planned net increase of 43 posts in 2019.

Table 4 shows other expenses that are not related directly to the HKMA's own operations. Expenses related to the provision of financial support (including premises and administrative costs) to international organisations, whose presence in Hong Kong promotes the city's status as an international financial centre, are expected to remain broadly stable in 2019. Spending on financial infrastructure is related to the operation and continued development of payment and settlement systems to enable markets to function efficiently and securely. The HKMA also provides operational support to the Hong Kong Deposit Protection Board on a cost-recovery basis, as endorsed by the FS according to section 6 of the Deposit Protection Scheme Ordinance (Cap. 581).

Corporate Functions

Table 3 HKMA administrative expenditure

HK\$ million	2018 Budget	2018 Actual	2019 Budget
Staff costs	1,475		1,589
Salaries and other staff costs		1,243	
Retirement benefit costs		111	
Premises expenses			
Operating lease charges	31	31	31
Other premises expenses (including management fees and utility charges)	72	61	73
General operating costs			
Maintenance of office and computer equipment	133	122	121
Financial information and communication services (including trading, dealing terminals and data link charges)	69	56	79
External relations (including international meetings)	62	31	63
Public education and publicity	24	18	28
Professional and other services	98	54	114
Training	17	9	18
Others	14	11	16
Total administrative expenditure	1,995	1,747	2,132

Table 4 Additional expenses

HK\$ million	2018 Budget	2018 Actual	2019 Budget
Financial support to international financial organisations in Hong Kong	41	41	41
Subsidy to the Hong Kong Institute for Monetary Research	20	14	22
Service fees for financial infrastructure	189	94	200

Financial disclosure

The HKMA adopts international standards in financial disclosure insofar as these are applicable to central banking operations. These include the Hong Kong Financial Reporting Standards (HKFRSs) and other applicable reporting requirements, for example, the IMF's Special Data Dissemination Standard. Working with external auditors and other accounting professionals, the Finance Division prepares and presents the Exchange Fund's financial statements in accordance with the HKFRSs. To achieve a high level of transparency, the HKMA also provides detailed disclosure and thorough analyses of a wide range of expense items and budgetary information in its *Annual Report*.

INFORMATION TECHNOLOGY

The Information Technology (IT) Division maintains a reliable and secure IT operational environment that supports the smooth and efficient operation of the HKMA. In 2018, all time-critical systems of the HKMA maintained full operational uptime.

Corporate Functions

Cybersecurity continued to be a high-priority task of the IT Division. All emerging threats in cyber space are monitored closely and the IT security system is put under regular reviews. A business contingency plan is also in place and is updated from time to time to ensure continued operation of all critical systems. To ensure continued reliability of the HKMA's IT systems, ageing components of the IT infrastructure are being updated in batches. In addition, a project to revamp the existing Exchange Fund's portfolio investment systems was initiated in 2018 to update the system capabilities amid the sophisticated investment environment.

SETTLEMENT SERVICES

The Settlement Section provides efficient and robust settlement services and operational support to reserves management, monetary operations and other initiatives undertaken by the HKMA. In 2018, the Settlement Section enhanced the security of its processes against the risk of cyber-attacks through heightening operational and system controls. As the financial industry is developing rapidly through technological advancement and innovation, the Settlement Section will continue to respond swiftly to new changes. At the same time, it will stay vigilant towards cyber-risks to ensure accurate, efficient and safe transfers of funds and assets of the Exchange Fund.

OFFICE OF THE GENERAL COUNSEL

The Office of the General Counsel (OGC) is responsible for providing legal advice to the HKMA on all aspects of its functions.

In the course of providing legal support for the operation of each line department within the HKMA, the OGC assists in the planning and implementation of specific projects and initiatives involving complex issues of commercial, regulatory and administrative law. Examples in 2018 include:

- continued implementation of Basel Committee on Banking Supervision standards through the Banking (Exposure Limits) Rules, the Banking (Capital) (Amendment) Rules 2018 and the Banking (Disclosure) (Amendment) Rules 2018

- continued development of the resolution regime in Hong Kong for banking sector entities, including recovery and resolution planning for systemically important authorized institutions; establishing loss-absorbing capacity requirements through the Financial Institutions (Resolution) (Loss-absorbing Capacity Requirements — Banking Sector) Rules; and preparatory work for the issuance of subsidiary legislation on stays on contractual termination rights
- review of rules and other supporting documentation for the implementation of the FPS
- preparatory work for the fourth round of mutual evaluation of Hong Kong's compliance with Financial Action Task Force Recommendations.

The OGC also provides commentary to government bureaux on significant legislative proposals and responds to consultations on matters which may impact the functions or mandates of the HKMA.

OGC lawyers provide legal support for the HKMA's participation in various international working groups and attend seminars, meetings and conferences for legal experts, central bankers, financial regulators and the banking community to keep abreast of topical developments and to discuss and resolve issues of current legal concern.

INTERNAL AUDIT

The Internal Audit (IA) Division provides independent and objective assurance on the adequacy and effectiveness of the HKMA's control, risk management and governance processes. The IA Division reports directly to the Chief Executive of the HKMA and the Audit Sub-Committee (ASC) of the EFAC.

Adopting a risk-based approach, the IA Division conducts operational audits and system security reviews to cover all significant risk areas of the HKMA. It also advises on major system development projects and internal control issues in response to requests from senior executives and management. Risk updates are provided to the Risk

Corporate Functions

Committee regularly, while audit progress and key internal control matters are reported to the senior executives and the ASC on a quarterly basis.

RISK MANAGEMENT

One of the most important tasks of the HKMA is to manage risks to the monetary and banking systems. Risk management is undertaken both at a working level in the day-to-day operations of the HKMA and at a higher level through strategic planning. There are two high-level committees under the HKMA's risk management framework, namely the Macro Surveillance Committee and the Risk Committee. Both committees are chaired by the Chief Executive of the HKMA.

The terms of reference of the Macro Surveillance Committee are:

- to identify potential risks and threats to the monetary and financial system in Hong Kong and discuss possible measures to address such risks
- to review existing measures for managing risks in the monetary and financial system to identify possible gaps and ensure the adequacy of these measures
- to encourage cross-department sharing of relevant information on macro surveillance with a view to enhancing the macro surveillance capability of the HKMA.

The terms of reference of the Risk Committee are:

- to identify potential risks and threats to the organisation and devise strategies to reduce the impact of such events

- to review the existing system for managing risks across different departments to identify possible gaps and significant risks and ensure the adequacy of measures to address them
- to harmonise the criteria and methods of risk measurement and prioritise the resources management of risks identified
- to encourage a stronger risk management culture institutionally which promotes the proper levels of authorisation and controls.

Because of the growing complexity of activities the HKMA engaged in, and the increasing public expectations of the organisation's work, the operational risk management process was strengthened in 2012. The framework now covers organisational risks at two levels: entity-level and department-level. Entity-level risks refer mainly to those which concern the entire organisation in the medium term, or which might call for a cross-departmental response. Potential and emerging risks identified by the business units, and the adequacy of the control measures and mitigating strategies they devise, are reviewed and reported quarterly. This is supplemented by a top-down approach to manage entity-level risks, in which senior colleagues heading different business units actively identify risks of wider impact and propose mitigating measures. These assessments are discussed at the Risk Committee, which decides on appropriate follow-up actions.

EXTERNAL AUDITOR

In accordance with section 7 of the Exchange Fund Ordinance, the Audit Commission of the Government of the Hong Kong Special Administrative Region audits the financial statements of the Exchange Fund. The Commission does not charge for this service.

The Exchange Fund

- Report of the Director of Audit
- Exchange Fund Financial Statements

Report of the Director of Audit



Audit Commission
The Government of the Hong Kong Special Administrative Region

Independent Auditor's Report To the Financial Secretary

Opinion

I certify that I have audited the financial statements of the Exchange Fund and its subsidiaries ("the Group") set out on pages 167 to 273, which comprise the balance sheets of the Exchange Fund and of the Group as at 31 December 2018, and their income and expenditure accounts, statements of comprehensive income, statements of changes in equity and statements of cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In my opinion, the financial statements give a true and fair view of the financial position of the Fund and of the Group as at 31 December 2018, and of their financial performance and cash flows for the year then ended in accordance with Hong Kong Financial Reporting Standards ("HKFRSs") issued by the Hong Kong Institute of Certified Public Accountants ("HKICPA") and have been properly prepared in accordance with the directive of the Chief Executive made under section 7 of the Exchange Fund Ordinance (Cap. 66).

Basis for opinion

I conducted my audit in accordance with the directive of the Chief Executive made under section 7 of the Exchange Fund Ordinance and the Audit Commission auditing standards. My responsibilities under those standards are further described in the *Auditor's responsibilities for the audit of the financial statements* section of my report. I am independent of the Group in accordance with those standards, and I have fulfilled my other ethical responsibilities in accordance with those standards. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Key audit matters

Key audit matters are those matters that, in my professional judgment, were of most significance in my audit of the financial statements for the year ended 31 December 2018. These matters were addressed in the context of my audit of the financial statements as a whole, and in forming my opinion thereon, and I do not provide a separate opinion on these matters.

Report of the Director of Audit (continued)

Key audit matter	How the matter was addressed in my audit
<p>Valuation of financial assets and financial liabilities at fair value Refer to notes 2.5, 2.6 and 40.1 to the financial statements.</p>	
<p>As at 31 December 2018, the Group had financial assets totalling HK\$3,693,589 million and financial liabilities totalling HK\$1,133,829 million valued at fair value.</p> <p>For 93% of these financial assets and all these financial liabilities, their fair values were quoted prices in active markets for identical assets or liabilities (Level 1 inputs) or were estimated using valuation techniques with inputs based on observable market data (Level 2 inputs).</p> <p>For the remaining 7% of these financial assets, their fair values were estimated using valuation techniques with inputs not based on observable market data (Level 3 inputs). Such financial assets totalled HK\$275,631 million, including mainly unlisted investment funds.</p> <p>Given the substantial amount and the estimations involved, valuation of financial assets and financial liabilities at fair value was a key audit matter.</p>	<p>The audit procedures on valuation of financial assets and financial liabilities at fair value included:</p> <ul style="list-style-type: none"> – obtaining an understanding of the procedures, including relevant controls, for valuing different categories of financial assets and financial liabilities; – evaluating and testing the controls, including relevant application controls of the computer systems; – obtaining external confirmations on the valuation, existence, rights and obligations and completeness of the financial assets and financial liabilities; – where quoted market prices were used, verifying the prices to independent sources; – where valuation techniques with inputs based on observable market data were used, evaluating the appropriateness of the valuation methodologies and the reasonableness of the assumptions, and verifying the inputs to independent sources; and – where valuation techniques with inputs not based on observable market data were used, evaluating the appropriateness of the valuation methodologies and the reasonableness of the assumptions and inputs.
<p>Valuation of investment properties at fair value Refer to notes 2.12, 20 and 21 to the financial statements.</p>	
<p>The Group's investment properties were stated at their fair values, totalling HK\$25,321 million as at 31 December 2018. The Group also had interests in three associates and twenty joint ventures totalling HK\$44,336 million, whose principal activities were holding overseas investment properties. The fair values of these investment properties, whether held by the Group directly or by associates or joint ventures, were mainly determined based on valuations by independent professional valuers. Such valuations involved significant judgments and estimates, including the valuation methodologies and the assumptions used.</p>	<p>The audit procedures on valuation of investment properties at fair value included:</p> <ul style="list-style-type: none"> – obtaining and reviewing the valuation reports of investment properties held by the Group directly or by associates or joint ventures, and verifying that the fair values were based on the valuations stated in the valuation reports; – assessing the independence and qualifications of the valuers; and – evaluating the appropriateness of the valuation methodologies and the reasonableness of the assumptions and inputs.

Report of the Director of Audit (continued)

Other information

The Monetary Authority is responsible for the other information. The other information comprises all the information included in the 2018 Annual Report of the Hong Kong Monetary Authority, other than the financial statements and my auditor's report thereon.

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

In connection with my audit of the financial statements, my responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or my knowledge obtained in the audit or otherwise appears to be materially misstated. If, based on the work I have performed, I conclude that there is a material misstatement of this other information, I am required to report that fact. I have nothing to report in this regard.

Responsibilities of the Monetary Authority and the Audit Sub-Committee of the Exchange Fund Advisory Committee for the financial statements

The Monetary Authority is responsible for the preparation of the financial statements that give a true and fair view in accordance with HKFRSs issued by the HKICPA and the directive of the Chief Executive made under section 7 of the Exchange Fund Ordinance, and for such internal control as the Monetary Authority determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Monetary Authority is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting.

The Audit Sub-Committee of the Exchange Fund Advisory Committee is responsible for overseeing the Group's financial reporting process.

Auditor's responsibilities for the audit of the financial statements

My objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the Audit Commission auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with the Audit Commission auditing standards, I exercise professional judgment and maintain professional skepticism throughout the audit. I also:

- identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control;

Report of the Director of Audit (continued)

- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Monetary Authority;
- conclude on the appropriateness of the Monetary Authority's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern;
- evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation; and
- obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the financial statements. I am responsible for the direction, supervision and performance of the group audit. I remain solely responsible for my audit opinion.

I communicate with the Audit Sub-Committee of the Exchange Fund Advisory Committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

I also provide the Audit Sub-Committee of the Exchange Fund Advisory Committee with a statement that I have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on my independence, and where applicable, related safeguards.

From the matters communicated with the Audit Sub-Committee of the Exchange Fund Advisory Committee, I determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. I describe these matters in my auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, I determine that a matter should not be communicated in my report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

John Chu
Director of Audit

4 April 2019

Audit Commission
26th Floor
Immigration Tower
7 Gloucester Road
Wanchai, Hong Kong

Contents

	Page
INCOME AND EXPENDITURE ACCOUNT	167
STATEMENT OF COMPREHENSIVE INCOME	168
BALANCE SHEET	169
STATEMENT OF CHANGES IN EQUITY	171
STATEMENT OF CASH FLOWS	173
NOTES TO THE FINANCIAL STATEMENTS	175
1 PRINCIPAL ACTIVITIES	175
2 SIGNIFICANT ACCOUNTING POLICIES	175
3 CHANGES IN ACCOUNTING POLICIES	197
4 INCOME AND EXPENDITURE	202
5 REVENUE ACCOUNT FOR INSURANCE BUSINESS	206
6 INCOME TAX	206
7 CATEGORIES OF FINANCIAL ASSETS AND FINANCIAL LIABILITIES	209
8 CASH AND MONEY AT CALL	213
9 PLACEMENTS WITH BANKS AND OTHER FINANCIAL INSTITUTIONS	213
10 FINANCIAL ASSETS MEASURED AT FAIR VALUE THROUGH INCOME AND EXPENDITURE ACCOUNT (2017: FINANCIAL ASSETS DESIGNATED AT FAIR VALUE)	214
11 FINANCIAL ASSETS MEASURED AT FAIR VALUE THROUGH OTHER COMPREHENSIVE INCOME	215
12 AVAILABLE-FOR-SALE SECURITIES	215
13 DERIVATIVE FINANCIAL INSTRUMENTS	216
14 DEBT SECURITIES MEASURED AT AMORTISED COST	218
15 HELD-TO-MATURITY SECURITIES	219
16 LOAN PORTFOLIO	219
17 GOLD	219
18 OTHER ASSETS	220
19 INTERESTS IN SUBSIDIARIES	220
20 INTERESTS IN ASSOCIATES AND JOINT VENTURES	222
21 INVESTMENT PROPERTIES	224
22 PROPERTY, PLANT AND EQUIPMENT	226
23 CERTIFICATES OF INDEBTEDNESS, GOVERNMENT-ISSUED CURRENCY NOTES AND COINS IN CIRCULATION	228
24 BALANCE OF THE BANKING SYSTEM	228
25 PLACEMENTS BY BANKS AND OTHER FINANCIAL INSTITUTIONS	229
26 PLACEMENTS BY FISCAL RESERVES	229
27 PLACEMENTS BY HONG KONG SPECIAL ADMINISTRATIVE REGION GOVERNMENT FUNDS AND STATUTORY BODIES	230
28 PLACEMENTS BY SUBSIDIARIES	231
29 EXCHANGE FUND BILLS AND NOTES ISSUED	231
30 BANK LOANS	232
31 OTHER DEBT SECURITIES ISSUED	233
32 OTHER LIABILITIES	234
33 CASH AND CASH EQUIVALENTS AND OTHER CASH FLOW INFORMATION	235
34 OPERATING SEGMENT INFORMATION	237
35 PLEDGED ASSETS	240
36 COMMITMENTS	241
37 CONTINGENT LIABILITIES	242
38 MATERIAL RELATED PARTY TRANSACTIONS	243
39 FINANCIAL RISK MANAGEMENT	243
40 FAIR VALUE MEASUREMENT OF FINANCIAL INSTRUMENTS	267
41 POSSIBLE IMPACT OF AMENDMENTS, NEW STANDARDS AND INTERPRETATIONS ISSUED BUT NOT YET EFFECTIVE FOR THE YEAR ENDED 31 DECEMBER 2018	272
42 APPROVAL OF FINANCIAL STATEMENTS	273

Exchange Fund – Income and Expenditure Account

for the year ended 31 December 2018

(Expressed in millions of Hong Kong dollars)	Note	Group		Fund	
		2018	2017	2018	2017
INCOME					
Interest income		65,424	39,131	63,705	37,947
Dividend income		16,310	16,126	14,231	13,834
Income from investment properties		1,918	1,894	–	–
Net realised and unrealised (losses)/gains		(62,457)	137,221	(80,551)	125,828
Net exchange (loss)/gain		(8,961)	50,303	(8,947)	53,502
Investment income/(losses)	4(a)	12,234	244,675	(11,562)	231,111
Bank licence fees		125	125	125	125
Net premiums earned	5	3,015	211	–	–
Other income		451	380	69	84
TOTAL INCOME		15,825	245,391	(11,368)	231,320
EXPENDITURE					
Interest expense on placements by Fiscal Reserves, HKSAR Government funds and statutory bodies	4(b)	(74,019)	(54,802)	(74,019)	(54,802)
Other interest expense	4(c)	(14,104)	(5,919)	(13,184)	(5,140)
Operating expenses	4(d)	(5,553)	(5,471)	(4,513)	(4,379)
Note and coin expenses	4(e)	(379)	(372)	(379)	(372)
Charge for impairment allowances	4(f)	(15)	–	(1)	–
Net claims incurred, benefits paid and movement in policyholders' liabilities	5	(3,321)	–	–	–
TOTAL EXPENDITURE		(97,391)	(66,564)	(92,096)	(64,693)
(DEFICIT)/SURPLUS BEFORE SHARE OF PROFIT OF ASSOCIATES AND JOINT VENTURES					
		(81,566)	178,827	(103,464)	166,627
Share of profit of associates and joint ventures, net of tax		2,213	2,629	–	–
(DEFICIT)/SURPLUS BEFORE TAXATION					
		(79,353)	181,456	(103,464)	166,627
Income tax	6	(84)	(109)	–	–
(DEFICIT)/SURPLUS FOR THE YEAR					
		(79,437)	181,347	(103,464)	166,627
(DEFICIT)/SURPLUS FOR THE YEAR ATTRIBUTABLE TO:					
Owner of the Fund		(79,793)	180,985	(103,464)	166,627
Non-controlling interests		356	362	–	–
		(79,437)	181,347	(103,464)	166,627

The notes on pages 175 to 273 form part of these financial statements.

Exchange Fund – Statement of Comprehensive Income

for the year ended 31 December 2018

(Expressed in millions of Hong Kong dollars)	Group		Fund	
	2018	2017	2018	2017
(DEFICIT)/SURPLUS FOR THE YEAR	(79,437)	181,347	(103,464)	166,627
OTHER COMPREHENSIVE (LOSS)/INCOME				
Items that will not be reclassified to income and expenditure account				
Equity securities measured at fair value through other comprehensive income				
– fair value changes on revaluation	(4)	–	(4)	–
Items that may be reclassified subsequently to income and expenditure account				
Debt securities measured at fair value through other comprehensive income				
– fair value changes on revaluation	(7)	–	–	–
Available-for-sale securities				
– fair value changes on revaluation	–	14,643	–	–
– fair value changes on disposal reclassified to income and expenditure account	–	224	–	–
– impairment losses reclassified to income and expenditure account	–	6,561	–	–
– tax effect	–	18	–	–
Exchange difference on translation of financial statements of overseas subsidiaries, associates and joint ventures	(1,518)	2,679	–	–
OTHER COMPREHENSIVE (LOSS)/INCOME FOR THE YEAR, NET OF TAX	(1,529)	24,125	(4)	–
TOTAL COMPREHENSIVE (LOSS)/INCOME FOR THE YEAR	(80,966)	205,472	(103,468)	166,627
TOTAL COMPREHENSIVE (LOSS)/INCOME FOR THE YEAR ATTRIBUTABLE TO:				
Owner of the Fund	(81,288)	205,035	(103,468)	166,627
Non-controlling interests	322	437	–	–
	(80,966)	205,472	(103,468)	166,627

The notes on pages 175 to 273 form part of these financial statements.

Exchange Fund – Balance Sheet

as at 31 December 2018

(Expressed in millions of Hong Kong dollars)	Note	Group		Fund	
		2018	2017	2018	2017
ASSETS					
Cash and money at call	8	183,521	216,372	182,573	215,649
Placements with banks and other financial institutions	9	172,556	156,688	143,097	131,251
Financial assets measured at fair value through income and expenditure account	10	3,682,911	3,489,593	3,452,969	3,473,286
Financial assets measured at fair value through other comprehensive income	11	6,246	–	1,144	–
Available-for-sale securities	12	–	180,415	–	493
Derivative financial instruments	13(a)	4,432	2,403	4,270	2,069
Debt securities measured at amortised cost	14	11,547	–	–	–
Held-to-maturity securities	15	–	10,348	–	–
Loan portfolio	16	7,498	7,830	–	–
Gold	17	670	677	670	677
Other assets	18	99,945	52,574	97,638	51,419
Interests in subsidiaries	19	–	–	169,746	137,531
Interests in associates and joint ventures	20	44,336	35,747	–	–
Investment properties	21	25,321	26,242	–	–
Property, plant and equipment	22	3,046	3,138	2,792	2,882
TOTAL ASSETS		4,242,029	4,182,027	4,054,899	4,015,257
LIABILITIES AND EQUITY					
Certificates of Indebtedness	23	485,666	456,726	485,666	456,726
Government-issued currency notes and coins in circulation	23	12,639	12,213	12,639	12,213
Balance of the banking system	24	78,584	179,790	78,584	179,790
Placements by banks and other financial institutions	25	56,346	59,337	56,346	59,337
Placements by Fiscal Reserves	26	1,173,484	1,073,794	1,173,484	1,073,794
Placements by Hong Kong Special Administrative Region					
Government funds and statutory bodies	27	320,534	305,110	320,534	305,110
Placements by subsidiaries	28	–	–	7,710	–
Exchange Fund Bills and Notes issued	29	1,129,610	1,045,248	1,129,610	1,045,748
Derivative financial instruments	13(a)	4,075	5,562	3,755	5,293
Bank loans	30	12,795	13,250	–	–
Other debt securities issued	31	37,928	35,517	–	–
Other liabilities	32	187,255	171,914	176,247	164,106
Total liabilities		3,498,916	3,358,461	3,444,575	3,302,117

Exchange Fund – Balance Sheet (continued)

as at 31 December 2018

(Expressed in millions of Hong Kong dollars)	Note	Group		Fund	
		2018	2017	2018	2017
Accumulated surplus		742,852	788,465	609,673	713,140
Revaluation reserve		650	34,191	651	–
Translation reserve		(2,531)	(1,047)	–	–
Total equity attributable to owner of the Fund		740,971	821,609	610,324	713,140
Non-controlling interests		2,142	1,957	–	–
Total equity		743,113	823,566	610,324	713,140
TOTAL LIABILITIES AND EQUITY		4,242,029	4,182,027	4,054,899	4,015,257

Norman T. L. Chan

Monetary Authority

4 April 2019

The notes on pages 175 to 273 form part of these financial statements.

Exchange Fund – Statement of Changes in Equity

for the year ended 31 December 2018

(Expressed in millions of Hong Kong dollars)	Attributable to owner of the Fund			Total attributable to owner of the Fund	Non-controlling interests	Total
	Accumulated surplus	Revaluation reserve	Translation reserve			
Group						
At 1 January 2017	607,480	12,748	(3,654)	616,574	1,517	618,091
Surplus for the year	180,985	–	–	180,985	362	181,347
Other comprehensive income for the year						
Fair value changes on available-for-sale securities						
– revaluation	–	14,640	–	14,640	3	14,643
– reclassification on disposal	–	224	–	224	–	224
– reclassification as impairment losses	–	6,561	–	6,561	–	6,561
– tax effect	–	18	–	18	–	18
Exchange difference on translation of financial statements of overseas subsidiaries, associates and joint ventures	–	–	2,607	2,607	72	2,679
Total comprehensive income for the year	180,985	21,443	2,607	205,035	437	205,472
Capital injection by non-controlling interests	–	–	–	–	18	18
Dividends paid to non-controlling interests	–	–	–	–	(15)	(15)
At 31 December 2017	788,465	34,191	(1,047)	821,609	1,957	823,566
At 1 January 2018	788,465	34,191	(1,047)	821,609	1,957	823,566
Adjustments on initial application of HKFRS 9 (note 3.1.3)	34,180	(33,530)	–	650	–	650
At 1 January 2018, as adjusted	822,645	661	(1,047)	822,259	1,957	824,216
Deficit for the year	(79,793)	–	–	(79,793)	356	(79,437)
Other comprehensive loss for the year						
Fair value changes on financial assets measured at fair value through other comprehensive income						
– revaluation	–	(11)	–	(11)	–	(11)
Exchange difference on translation of financial statements of overseas subsidiaries, associates and joint ventures	–	–	(1,484)	(1,484)	(34)	(1,518)
Total comprehensive loss for the year	(79,793)	(11)	(1,484)	(81,288)	322	(80,966)
Capital distribution to non-controlling interests	–	–	–	–	(123)	(123)
Dividends paid to non-controlling interests	–	–	–	–	(14)	(14)
At 31 December 2018	742,852	650	(2,531)	740,971	2,142	743,113

Exchange Fund – Statement of Changes in Equity (continued)

for the year ended 31 December 2018

(Expressed in millions of Hong Kong dollars)	Attributable to owner of the Fund			Total attributable to owner of the Fund	Non-controlling interests	Total
	Accumulated surplus	Revaluation reserve	Translation reserve			
Fund						
At 1 January 2017	546,513	–	–	546,513	–	546,513
Surplus and total comprehensive income for the year	166,627	–	–	166,627	–	166,627
At 31 December 2017	713,140	–	–	713,140	–	713,140
At 1 January 2018	713,140	–	–	713,140	–	713,140
Adjustments on initial application of HKFRS 9 (note 3.1.3)	(3)	655	–	652	–	652
At 1 January 2018, as adjusted	713,137	655	–	713,792	–	713,792
Deficit for the year	(103,464)	–	–	(103,464)	–	(103,464)
Other comprehensive loss for the year						
Fair value changes on financial assets measured at fair value through other comprehensive income						
– revaluation	–	(4)	–	(4)	–	(4)
Total comprehensive loss for the year	(103,464)	(4)	–	(103,468)	–	(103,468)
At 31 December 2018	609,673	651	–	610,324	–	610,324

The notes on pages 175 to 273 form part of these financial statements.

Exchange Fund – Statement of Cash Flows

for the year ended 31 December 2018

(Expressed in millions of Hong Kong dollars)	Note	Group		Fund	
		2018	2017	2018	2017
Cash flows from operating activities					
(Deficit)/Surplus before taxation		(79,353)	181,456	(103,464)	166,627
Adjustments for:					
Interest income	4(a)	(65,424)	(39,131)	(63,705)	(37,947)
Dividend income	4(a)	(16,310)	(16,126)	(14,231)	(13,834)
Change in fair value of investment properties	4(a)	(408)	(582)	–	–
Net gains on disposal of available-for-sale securities	4(a)	–	(15,079)	–	–
Impairment losses on available-for-sale securities	4(a)	–	6,561	–	–
Interest expense	4(b) & 4(c)	88,123	60,721	87,203	59,942
Depreciation	4(d)	228	214	178	169
Charge for impairment allowances	4(f)	15	–	1	–
Share of profit of associates and joint ventures		(2,213)	(2,629)	–	–
Net loss on disposal of property, plant and equipment		–	1	–	–
Elimination of exchange differences and other non-cash items		7,668	(12,993)	6,070	(12,819)
Interest received		62,802	38,181	61,168	36,949
Interest paid		(67,969)	(35,802)	(67,166)	(35,071)
Dividends received		16,336	16,087	14,240	13,778
Income tax (paid)/refunded		(82)	10	–	–
		(56,587)	180,889	(79,706)	177,794
Change in fair value of derivatives and other debt securities issued		(3,856)	11,229	(3,752)	11,304
Change in carrying amount of:					
– placements with banks and other financial institutions		(7,618)	9,098	(3,155)	1,631
– financial assets measured at fair value through income and expenditure account		7,902	(487,499)	50,076	(485,794)
– loan portfolio		323	1,704	–	–
– gold		7	(77)	7	(77)
– other assets		(44,669)	5,101	(43,695)	4,743
– Certificates of Indebtedness, government-issued currency notes and coins in circulation		29,366	51,666	29,366	51,666
– balance of the banking system		(101,206)	(79,803)	(101,206)	(79,803)
– placements by banks and other financial institutions		(2,991)	3,201	(2,991)	3,201
– placements by Fiscal Reserves		99,690	159,196	99,690	159,196
– placements by Hong Kong Special Administrative Region Government funds and statutory bodies		15,424	2,625	15,424	2,625
– placements by subsidiaries		–	–	7,710	–
– Exchange Fund Bills and Notes issued		84,362	84,266	83,862	84,766
– other liabilities		(4,821)	(20,564)	(7,896)	(20,962)
Net cash from/(used in) operating activities		15,326	(78,968)	43,734	(89,710)

Exchange Fund – Statement of Cash Flows (continued)

for the year ended 31 December 2018

(Expressed in millions of Hong Kong dollars)	Note	Group		Fund	
		2018	2017	2018	2017
Cash flows from investing activities					
Investment in subsidiaries		–	–	(5,000)	–
Loans to subsidiaries		–	–	(27,215)	(16,417)
(Increase)/Decrease in interests in associates and joint ventures		(5,343)	95	–	–
Proceeds from sale or redemption of financial assets measured at fair value through other comprehensive income		1,193	–	–	–
Purchase of financial assets measured at fair value through other comprehensive income		(1,307)	–	–	–
Proceeds from sale or redemption of available-for-sale securities		–	34,654	–	–
Purchase of available-for-sale securities		–	(51,932)	–	–
Proceeds from sale or redemption of debt securities measured at amortised cost		654	–	–	–
Purchase of debt securities measured at amortised cost		(1,855)	–	–	–
Proceeds from sale or redemption of held-to-maturity securities		–	2,747	–	–
Purchase of held-to-maturity securities		–	(3,113)	–	–
Purchase of investment properties		(111)	(180)	–	–
Purchase of property, plant and equipment		(136)	(162)	(88)	(107)
Dividends received from subsidiaries		–	–	17	18
Net cash used in investing activities		(6,905)	(17,891)	(32,286)	(16,506)
Cash flows from financing activities					
Bank loans raised	33(c)	235	106	–	–
Proceeds from issue of other debt securities	33(c)	34,006	29,027	–	–
Redemption of other debt securities issued	33(c)	(31,290)	(29,509)	–	–
Capital (distribution to)/injection by non-controlling interests		(123)	18	–	–
Dividends paid to non-controlling interests		(14)	(15)	–	–
Net cash from/(used in) financing activities		2,814	(373)	–	–
Net increase/(decrease) in cash and cash equivalents		11,235	(97,232)	11,448	(106,216)
Cash and cash equivalents at 1 January		377,555	461,950	361,711	455,108
Effect of foreign exchange rate changes		(6,073)	12,837	(6,070)	12,819
Cash and cash equivalents at 31 December	33(a)	382,717	377,555	367,089	361,711

The notes on pages 175 to 273 form part of these financial statements.

Exchange Fund – Notes to the Financial Statements

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

1 PRINCIPAL ACTIVITIES

The Monetary Authority, under delegated authority from the Financial Secretary as Controller of the Exchange Fund (the Fund), manages the Fund in accordance with the provisions of the Exchange Fund Ordinance (Cap. 66). The principal activities of the Fund are safeguarding the exchange value of the currency of Hong Kong and maintaining the stability and integrity of Hong Kong's monetary and financial systems.

The assets of the Fund are managed as four portfolios: the Backing Portfolio, the Investment Portfolio, the Long-Term Growth Portfolio and the Strategic Portfolio. The assets of the Backing Portfolio fully match the Monetary Base, under Hong Kong's Currency Board system. The Investment Portfolio is invested primarily in the bond and equity markets of the member countries of the Organisation for Economic Co-operation and Development (OECD). The Long-Term Growth Portfolio holds private equity and real estate investments. The Strategic Portfolio holds shares in Hong Kong Exchanges and Clearing Limited acquired by the Government of the Hong Kong Special Administrative Region (HKSAR) for the account of the Fund for strategic purposes. Operating segment information is set out in note 34.

2 SIGNIFICANT ACCOUNTING POLICIES

2.1 Statement of compliance

These financial statements have been prepared in accordance with all applicable Hong Kong Financial Reporting Standards (HKFRSs), which is a collective term that includes all applicable individual Hong Kong Financial Reporting Standards, Hong Kong Accounting Standards (HKASs) and Interpretations issued by the Hong Kong Institute of Certified Public Accountants (HKICPA), and accounting principles generally accepted in Hong Kong. A summary of the significant accounting policies adopted by the Fund and its subsidiaries (together referred to as the Group) is set out below.

The HKICPA has issued certain new and revised HKFRSs that are first effective or available for early adoption for the current accounting period. Note 3 provides information on the changes, if any, in accounting policies resulting from initial adoption of these developments to the extent that they are relevant to the Group for the current and prior accounting periods reflected in these financial statements.

2.2 Basis of preparation of the financial statements

The Group financial statements include the financial statements of the Group as well as the Group's interests in associates and joint ventures. The principal activities of the principal subsidiaries, associates and joint ventures are shown in notes 19 and 20.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

The measurement basis used in the preparation of the financial statements is historical cost except that the following assets and liabilities are stated at their fair values as explained in the accounting policies set out below:

- derivative financial instruments (note 2.6);
- financial assets and financial liabilities measured at fair value through income and expenditure account (note 2.6);
- financial assets measured at fair value through other comprehensive income (note 2.6);
- gold (note 2.11); and
- investment properties (note 2.12).

The preparation of financial statements in conformity with HKFRSs requires management to make judgements, estimates and assumptions that affect the application of policies and the reported amounts of assets, liabilities, income and expenditure. The estimates and associated assumptions are based on experience and various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgements about carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period, or in the period of the revision and future periods if the revision affects both current and future periods.

Judgements made by management in the application of HKFRSs that have significant effect on the financial statements and major sources of estimation uncertainty are disclosed in note 2.19.

Certain comparative figures for 2017 have been reclassified to conform to the current year presentation of the Group financial statements.

2.3 Subsidiaries and non-controlling interests

A subsidiary is an entity controlled by the Group. The Group controls an entity when it is exposed, or has rights, to variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. When assessing whether the Group has power, only substantive rights (held by the Group and other parties) are considered.

An investment in a subsidiary is consolidated into the Group financial statements from the date that control commences until the date that control ceases.

Intra-group balances, transactions and cash flows and any unrealised profits and losses arising from intra-group transactions are eliminated in full in preparing the Group financial statements.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

Non-controlling interests represent the equity in a subsidiary not attributable directly or indirectly to the Fund, and in respect of which the Group has not agreed any additional terms with the holders of those interests which would result in the Group as a whole having a contractual obligation in respect of those interests that meets the definition of a financial liability. Non-controlling interests are presented in the Group balance sheet within equity, separately from equity attributable to the owner of the Fund. Non-controlling interests in the results of the Group are presented on the face of the Group income and expenditure account and the Group statement of comprehensive income as an allocation of the surplus or deficit and total comprehensive income or loss for the year between non-controlling interests and the owner of the Fund.

In the balance sheet of the Fund, its investments in subsidiaries are stated at cost less impairment losses, if any (note 2.14).

2.4 Associates and joint ventures

An associate is an entity in which the Group has significant influence, but not control or joint control, over its management, through its power to participate in the financial and operating policy decisions.

A joint venture is a type of joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the arrangement. Joint control is the contractually agreed sharing of an arrangement, which exists only when decisions about the relevant activities require the unanimous consent of the parties sharing control.

An interest in an associate or a joint venture is accounted for in the Group financial statements under the equity method and is initially recorded at cost, adjusted for any excess or deficit of the Group's share of the acquisition-date fair values of the investee's identifiable net assets over the cost of the investment, if any. Thereafter, the investment is adjusted for the post acquisition change in the Group's share of the net assets of the associate or the joint venture and any impairment loss relating to the investment.

The Group income and expenditure account and statement of comprehensive income include the Group's share of the post-tax results of the associates and the joint ventures for the year. When the Group's share of losses exceeds its interest in the associates or the joint ventures, the Group's interest is reduced to nil and recognition of further losses is discontinued except to the extent that the Group has incurred legal or constructive obligations or made payments on behalf of the associates or the joint ventures. For this purpose, the Group's interest is the carrying amount of the investment under the equity method together with the Group's long-term interests that in substance form part of the Group's net investment in the associates or the joint ventures.

Unrealised profits and losses resulting from transactions between the Group and its associates and joint ventures are eliminated to the extent of the Group's interests in the associates or the joint ventures.

When the Group ceases to have significant influence over an associate or joint control over a joint venture, it is accounted for as a disposal of the entire interest in the associate or the joint venture, with a resulting gain or loss being recognised in the income and expenditure account. Any interest retained in the associate or the joint venture at the date when significant influence or joint control is lost is recognised at fair value and this amount is regarded as the fair value on initial recognition of a financial asset (note 2.6).

In the balance sheet of the Fund, interests in associates and joint ventures are stated at cost less impairment losses, if any (note 2.14).

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

2.5 Fair value measurement

The Group measures certain financial instruments, all investment properties and gold at fair value at each balance sheet date. The fair values of financial instruments measured at amortised cost are disclosed in note 40.

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The fair value measurement is based on the presumption that the transaction to sell the asset or transfer the liability takes place either:

- (a) in the principal market for the asset or liability, or
- (b) in the absence of a principal market, in the most advantageous market for the asset or liability.

The principal or the most advantageous market must be accessible by the Group.

The fair value of an asset or a liability is measured using the assumptions that market participants would use when pricing the asset or liability, assuming that market participants act in their economic best interest.

A fair value measurement of a non-financial asset takes into account a market participant's ability to generate economic benefits by using the asset in its highest and best use or by selling it to another market participant that would use the asset for its highest and best use.

The Group uses valuation techniques that are appropriate in the circumstances and for which sufficient data are available to measure fair value, maximising the use of relevant observable inputs and minimising the use of unobservable inputs.

The Group measures fair values using the following fair value hierarchy that reflects the significance of inputs used in making the measurements:

- (a) Level 1 – fair values are quoted prices (unadjusted) in active markets for identical assets or liabilities;
- (b) Level 2 – fair values are determined involving inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly (as prices) or indirectly (derived from prices); and
- (c) Level 3 – fair values are determined with inputs that are not based on observable market data (unobservable inputs).

For assets and liabilities that are recognised in the financial statements on a recurring basis, the Group determines whether transfers have occurred between levels in the hierarchy by re-assessing categorisation (based on the lowest level input that is significant to the fair value measurement as a whole) at the balance sheet date.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

2.6 Financial assets and financial liabilities

2.6.1 Initial recognition and measurement

The Group recognises financial assets and financial liabilities on the date it becomes a party to the contractual provisions of the instrument. Regular way purchases and sales of financial instruments are recognised on trade date, the date on which the Group commits to purchase or sell the instruments.

At initial recognition, financial assets and financial liabilities are measured at fair value plus or minus, in the case of a financial asset or financial liability not at fair value through income and expenditure account, transaction costs that are directly attributable to the acquisition of the financial assets or the issue of the financial liabilities. Transaction costs of financial assets and financial liabilities at fair value through income and expenditure account are expensed immediately.

2.6.2 Classification and subsequent measurement from 1 January 2018

After the adoption of HKFRS 9 “Financial Instruments” (note 3.1), the Group classifies its financial assets into three categories for determining the subsequent measurement methods, on the basis of both the Group’s business model for managing the assets and the contractual cash flow characteristics of the assets. The three measurement categories are:

- fair value through income and expenditure account (which is equivalent to the term “fair value through profit or loss” under HKFRS 9);
- fair value through other comprehensive income; and
- amortised cost.

The Group classifies its financial liabilities as subsequently measured at fair value through income and expenditure account, or other financial liabilities.

Financial liabilities measured at fair value through income and expenditure account include those that are irrevocably designated by the Group at initial recognition as at fair value through income and expenditure account when doing so results in more relevant information because either:

- (a) the designation eliminates or significantly reduces an accounting mismatch which would otherwise arise; or
- (b) a group of financial liabilities or financial assets and liabilities is managed and its performance is evaluated on a fair value basis in accordance with a documented risk management or investment strategy.

Financial liabilities measured at fair value through income and expenditure account also include contracts that contain embedded derivatives which significantly modify the cash flows otherwise required.

The Group reclassifies a financial asset when and only when it changes its business model for managing the asset. A financial liability is not reclassified.

An analysis of the Group’s financial assets and financial liabilities by category is set out in note 7.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

2.6.2.1 Debt securities

The Group classifies its debt securities as measured at (a) amortised cost, (b) fair value through other comprehensive income or (c) fair value through income and expenditure account, depending on the Group's business model in managing them and their contractual cash flow characteristics.

(a) Debt securities measured at amortised cost

Debt securities are measured at amortised cost if they are held within a business model whose objective is to hold them for collection of contractual cash flows and the contractual cash flows represent solely payments of principal and interest. Debt securities in this category are initially recognised at fair value plus directly attributable transaction costs and subsequently carried at amortised cost (net of any loss allowance). Interest income on these debt securities is recognised in the income and expenditure account using the effective interest method.

The effective interest method is a method of calculating the amortised cost of a financial asset or a financial liability and of allocating and recognising the interest income or interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial asset or financial liability to the gross carrying amount of the financial asset or to the amortised cost of the financial liability. When calculating the effective interest rate, the Group estimates cash flows by considering all contractual terms of the financial instrument but does not consider the expected credit losses. The calculation includes all fees paid or received between parties to the contract that are an integral part of the effective interest rate, transaction costs and all other premiums or discounts.

The measurement of loss allowances for debt securities measured at amortised cost is based on the expected credit loss model as described in note 2.9.

(b) Debt securities measured at fair value through other comprehensive income

Debt securities are measured at fair value through other comprehensive income if they are held within a business model whose objective is achieved by both collecting contractual cash flows and selling them and the contractual cash flows represent solely payments of principal and interest. Debt securities in this category are initially recognised at fair value plus directly attributable transaction costs and subsequently carried at fair value. Movements in the carrying amount of these securities are recognised in other comprehensive income, except for interest income, foreign exchange gains or losses, and impairment losses or reversals which are recognised in the income and expenditure account. Upon derecognition, the cumulative gain or loss previously recognised in other comprehensive income is reclassified from equity to the income and expenditure account.

The measurement of loss allowances for debt securities measured at fair value through other comprehensive income is based on the expected credit loss model as described in note 2.9. The loss allowances are recognised in other comprehensive income and do not reduce the carrying amount of such debt securities in the balance sheet.

(c) Debt securities measured at fair value through income and expenditure account

Debt securities that do not meet the criteria for being measured at amortised cost or fair value through other comprehensive income are measured at fair value through income and expenditure account. Debt securities in this category are initially recognised at fair value with transaction costs immediately charged to the income and expenditure account, and subsequently carried at fair value. Changes in fair value of these securities are recognised in the income and expenditure account in the period in which they arise.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

2.6.2.2 Equity securities and investment funds

Equity securities are measured at fair value through income and expenditure account, unless an election is made to designate them at fair value through other comprehensive income upon initial recognition.

For equity securities measured at fair value through income and expenditure account, changes in fair value are recognised in the income and expenditure account in the period in which they arise.

The Group classifies certain equity securities, which are held for strategic or longer term investment purposes, as fair value through other comprehensive income. The election of fair value through other comprehensive income is made upon initial recognition on an instrument-by-instrument basis and once made is irrevocable. Gains and losses on these equity securities are recognised in other comprehensive income, which are not reclassified subsequently to the income and expenditure account, including when they are derecognised. Dividends on such investments are recognised in the income and expenditure account unless the dividends clearly represent a recovery of part of the cost of the investment.

Investment funds are measured at fair value through income and expenditure account. Changes in fair value of these funds are recognised in the income and expenditure account in the period in which they arise.

2.6.2.3 Derivative financial instruments and hedge accounting

Derivatives are initially recognised at fair value on the date on which a derivative contract is entered into and are subsequently measured at their fair values. Fair values are obtained from market prices in active markets, including recent market transactions, and valuation techniques, including discounted cash flow models and options pricing models, as appropriate. Derivatives are carried as assets when their fair value is positive and as liabilities when their fair value is negative.

The best evidence of the fair value of a derivative at initial recognition is the transaction price (i.e. the fair value of the consideration given or received).

Certain derivatives embedded in other financial instruments are treated as separate derivatives when their economic characteristics and risks are not closely related to those of the host contract and the host contract is not carried at fair value through income and expenditure account. These embedded derivatives are measured at fair value through income and expenditure account.

The method of recognising the resulting fair value gain or loss depends on whether the derivative is designated as a hedging instrument, and if so, the nature of the item being hedged. The Group designates certain derivatives as either (a) hedges of the fair value of recognised assets or liabilities or unrecognised firm commitments (fair value hedge) or (b) hedges of highly probable future cash flows attributable to a recognised asset or liability, or a forecast transaction (cash flow hedge). Hedge accounting is used for derivatives designated in this way provided that certain criteria are met.

The Group documents, at the inception of the transaction, the relationship between hedging instruments and hedged items, as well as its risk management objective and strategy for undertaking various hedge transactions. The Group also documents its assessment, both at hedge inception and on an ongoing basis, of whether the derivatives that are used in hedging transactions are highly effective in offsetting changes in fair values or cash flows of hedged items.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

(a) Fair value hedge

Changes in the fair value of derivatives that are designated and qualified as fair value hedges are recorded in the income and expenditure account, together with any changes in the fair value of the hedged asset or liability that are attributable to the hedged risk.

If the hedge no longer meets the criteria for hedge accounting, the adjustment to the carrying amount of a hedged item for which the effective interest method is used, is amortised to the income and expenditure account over the period to maturity.

(b) Cash flow hedge

The effective portion of changes in the fair value of derivatives that are designated and qualified as cash flow hedges are recognised in other comprehensive income and accumulated in equity. The gain or loss relating to the ineffective portion is recognised immediately in the income and expenditure account.

Amounts accumulated in equity are recycled to the income and expenditure account in the periods in which the hedged item will affect the income and expenditure account.

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 in equity existing at that time remains in equity and is recognised when the forecast transaction is ultimately recognised in the income and expenditure account. When a forecast transaction is no longer expected to occur, the cumulative gain or loss that was reported in equity is immediately transferred to the income and expenditure account.

(c) Derivatives not qualified as hedges for accounting purposes

Derivative instruments entered into as economic hedges that do not qualify for hedge accounting are held at fair value through income and expenditure account. Changes in the fair value of such derivative instruments are recognised in the income and expenditure account.

2.6.2.4 Other financial assets

Other financial assets are measured at amortised cost (net of any loss allowance). This category includes cash and money at call, placements with banks and other financial institutions, and loan portfolio. The measurement of loss allowances for these financial assets is based on the expected credit loss model as described in note 2.9.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

2.6.2.5 Financial liabilities measured at fair value through income and expenditure account

The following financial liabilities are measured at fair value through income and expenditure account:

- Exchange Fund Bills and Notes (EFBN) issued which, on initial recognition, are irrevocably designated by the Group as at fair value through income and expenditure account; and
- other debt securities issued, which contain embedded derivatives that significantly modify the cash flows otherwise required.

Financial liabilities measured as at fair value through income and expenditure account are initially recognised at fair value. Changes in fair value are recognised in the income and expenditure account, except for those changes arising from changes in the Group's own credit risk. Any changes in fair value of liabilities due to changes in the Group's own credit risk are recognised in other comprehensive income and the amount of such changes recognised in other comprehensive income is not reclassified subsequently to the income and expenditure account upon derecognition.

2.6.2.6 Other financial liabilities

Other financial liabilities are financial liabilities other than those measured at fair value through income and expenditure account.

Other financial liabilities repayable on demand are stated at the principal amount payable. These include Certificates of Indebtedness, government-issued currency notes and coins in circulation (note 2.6.2.7), the balance of the banking system, placements by Fiscal Reserves (Operating and Capital Reserves), placements by the Bond Fund and placements by the Deposit Protection Scheme Fund.

Other financial liabilities with a fixed maturity and a predetermined rate are carried at amortised cost using the effective interest method. These include placements by banks and other financial institutions, other placements by HKSAR Government funds and statutory bodies, placements by subsidiaries, bank loans and other debt securities issued (other than those which contain embedded derivatives).

Placements by Fiscal Reserves (Future Fund) which are repayable on 31 December 2025 (unless otherwise directed by the Financial Secretary according to the terms of the placements) are stated at the principal amount payable. Interest payable on these placements is calculated at a composite rate determined annually (note 2.17.1) and compounded on an annual basis until maturity. If the composite rate is negative for a year, the negative return will first be offset against the balance of interest payable, with the excess portion (if any) written off against the principal amount payable. When the composite rate turns positive in subsequent years, the return will be used to recover fully or partially the amount written off.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

2.6.2.7 Certificates of Indebtedness and government-issued currency notes and coins in circulation

As backing for the banknote issues, each note-issuing bank is required to hold a non-interest-bearing Certificate of Indebtedness issued by the Financial Secretary, which is redeemable on demand. Payments for the issue and redemption of banknotes against these Certificates are made in US dollars at the fixed exchange rate of US\$1=HK\$7.80. Consistent with the requirement for backing banknote issues with US dollars, the issue and redemption of government-issued currency notes and coins are conducted with an agent bank against US dollars at the fixed exchange rate of US\$1=HK\$7.80.

The Group's liabilities in respect of Certificates of Indebtedness represent the US dollars payable to the note-issuing banks on redemption of the Certificates. The Group's liabilities in respect of government-issued currency notes and coins represent the US dollars payable to the agent bank when they are redeemed. Certificates of Indebtedness in issue and government-issued currency notes and coins in circulation are stated in the financial statements at the Hong Kong dollar equivalent of the US dollars required for their redemption using the closing exchange rate at the balance sheet date.

2.6.3 *Classification and subsequent measurement in 2017*

Under HKAS 39 "Financial Instruments: Recognition and Measurement", the Group classified its financial assets and financial liabilities into different categories at inception, depending on the purpose for which the financial assets were acquired or the financial liabilities were incurred. The categories were: trading financial instruments, financial assets and financial liabilities designated at fair value, loans and receivables, held-to-maturity securities, available-for-sale securities and other financial liabilities.

2.6.3.1 Trading financial instruments

Derivatives that did not qualify for hedge accounting were categorised as "trading" and carried at fair value. Changes in the fair value were included in the income and expenditure account in the period in which they arose.

2.6.3.2 Financial assets and financial liabilities designated at fair value

Financial assets and financial liabilities designated at fair value were mainly those that were managed, evaluated and reported internally on a fair value basis. They were carried at fair value. Changes in the fair value were included in the income and expenditure account in the period in which they arose.

2.6.3.3 Loans and receivables

Loans and receivables were non-derivative financial assets with fixed or determinable payments that were not quoted in an active market and which the Group had no intention of trading, other than those that the Group, upon initial recognition, designated as at fair value or as available-for-sale. Loans and receivables were carried at amortised cost using the effective interest method, less impairment losses if any (note 2.10).

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

2.6.3.4 Held-to-maturity securities

Held-to-maturity securities were non-derivative financial assets with fixed or determinable payments and fixed maturity which the Group had the positive intention and ability to hold to maturity, other than (a) those that the Group, upon initial recognition, designated as at fair value or as available-for-sale; and (b) those that met the definition of loans and receivables. Held-to-maturity securities were carried at amortised cost using the effective interest method, less impairment losses if any (note 2.10).

2.6.3.5 Available-for-sale securities

Available-for-sale securities were non-derivative securities that were designated as available-for-sale or were not classified in any of the other categories above. They included securities intended to be held for an indefinite period of time, but which might be sold in response to needs for liquidity or changes in the market environment. Available-for-sale securities were carried at fair value. Unrealised gains and losses arising from changes in the fair value were recognised in other comprehensive income and accumulated separately in the revaluation reserve, except for impairment losses if any (note 2.10). Foreign exchange gains and losses on monetary items were recognised in the income and expenditure account while foreign exchange gains and losses on non-monetary items were recognised in other comprehensive income. When available-for-sale securities were sold, gains or losses on disposal included the difference between the net sale proceeds and the carrying amount, and the accumulated fair value adjustments which were released from equity to the income and expenditure account.

The investment by the Fund in the shares of the Bank for International Settlements, which was held in order to participate in it on a long-term basis, was carried at cost, less impairment losses if any (note 2.10).

2.6.3.6 Other financial liabilities

Other financial liabilities were financial liabilities other than trading liabilities and those designated at fair value.

The items classified under other financial liabilities and their subsequent measurement in 2017 were the same as those from 1 January 2018 (note 2.6.2.6).

2.6.4 Derecognition

A financial asset is derecognised when the contractual rights to receive the cash flows from the financial asset expire, or where the financial asset together with substantially all the risks and rewards of ownership have been transferred.

A financial liability is derecognised when the obligation specified in the contract is discharged, is cancelled or expires.

Liabilities for EFBN in issue are derecognised when they are repurchased as a result of market making activities. The repurchase is considered a redemption of the debt.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

2.6.5 Offsetting

Financial assets and financial liabilities are offset and the net amount is reported in the balance sheet where 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 assets and settle the liabilities 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 Group or the counterparty.

2.7 Repurchase and reverse repurchase transactions

Securities sold subject to a simultaneous agreement to repurchase these securities at a certain later date at a fixed price (repurchase agreements) are retained on the balance sheet without changes in their measurement. The proceeds from the sale are reported as liabilities in “placements by banks and other financial institutions” and are carried at amortised cost.

Conversely, securities purchased under agreements to resell (reverse repurchase agreements) are reported as receivables in “placements with banks and other financial institutions” and are carried at amortised cost.

Interest earned on reverse repurchase agreements and interest incurred on repurchase agreements are recognised as interest income and interest expense respectively, over the life of each agreement using the effective interest method.

2.8 Securities lending agreements

Where securities are loaned with the receipt of cash or other securities as collateral, they are retained on the balance sheet without changes in their measurement. Where cash collateral is received, a liability is recorded in respect of the cash received in “placements by banks and other financial institutions”. Securities received as collateral are not recognised in the financial statements.

2.9 Impairment of financial instruments from 1 January 2018

After the adoption of HKFRS 9 (note 3.1), the Group applies a three-stage approach to measure expected credit losses and to recognise the corresponding loss allowances (provision in the case of loan commitments and financial guarantee contracts) and impairment losses or reversals, for financial instruments that are not measured at fair value through income and expenditure account, including mainly the following types of financial instruments:

- cash and money at call;
- placements with banks and other financial institutions;
- debt securities measured at amortised cost or fair value through other comprehensive income;
- loan portfolio;
- loan commitments; and
- financial guarantee contracts.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

The change in credit risk since initial recognition determines the measurement bases for expected credit losses:

Stage 1: 12-month expected credit losses

For financial instruments for which there has not been a significant increase in credit risk since initial recognition, the portion of the lifetime expected credit losses that represent the expected credit losses that result from default events that are possible within the 12 months after the reporting period are recognised.

Stage 2: Lifetime expected credit losses – not credit impaired

For financial instruments for which there has been a significant increase in credit risk since initial recognition but that are not credit impaired, lifetime expected credit losses representing the expected credit losses that result from all possible default events over the expected life of the financial instrument are recognised.

Stage 3: Lifetime expected credit losses – credit impaired

For financial instruments that have become credit impaired, lifetime expected credit losses are recognised and interest income is calculated by applying the effective interest rate to the amortised cost (net of loss allowance) rather than the gross carrying amount.

2.9.1 *Determining significant increases in credit risk*

At each reporting date, the Group assesses whether there has been a significant increase in credit risk for financial instruments since initial recognition by comparing the risk of default occurring over the remaining expected life as at the reporting date with that as at the date of initial recognition. For this purpose, the date of initial recognition of loan commitments and financial guarantee contracts is the date that the Group becomes a party to the irrevocable commitment. The assessment considers quantitative and qualitative information as well as forward-looking information. A financial asset is assessed to be credit impaired when one or more events that have a detrimental impact on the estimated future cash flows of that financial asset have occurred.

The Group assesses whether there has been a significant increase in credit risk since initial recognition on an individual or collective basis. For collective assessment, financial instruments are grouped on the basis of shared credit risk characteristics, taking into account investment type, credit risk ratings, date of initial recognition, remaining term to maturity, industry, geographical location of the counterparty or borrower and other relevant factors.

Debt securities with an external credit rating of investment grade are considered to have a low credit risk. Other financial instruments are considered to have a low credit risk if they have a low risk of default and the counterparty or borrower has a strong capacity to meet its contractual cash flow obligations in the near term. The credit risk on these financial instruments is assessed as not having increased significantly since initial recognition.

For a financial asset with lifetime expected credit losses recognised in the previous reporting period, if its credit quality improves and reverses the previously assessed significant increase in credit risk, then the loss allowance reverts from lifetime expected credit losses to 12-month expected credit losses.

When a financial asset is uncollectible, it is written off against the related loss allowance. Such assets are written off after all the necessary procedures have been completed and the amount of the loss has been determined. Subsequent recoveries of amounts previously written off are recognised in the income and expenditure account.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

2.9.2 Measurement of expected credit losses

Expected credit losses of a financial instrument are an unbiased and probability-weighted estimate of credit losses (i.e. the present value of all cash shortfalls) over the expected life of the financial instrument:

- for financial assets, a credit loss is 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, discounted at the effective interest rate. For a financial asset that is credit impaired at the reporting date, the Group measures the expected credit losses as the difference between the asset's gross carrying amount and the present value of estimated future cash flows discounted at the asset's original effective interest rate;
- for undrawn loan commitments, a credit loss is the present value of the difference between the contractual cash flows that are due to the Group if the commitment is drawn down and the cash flows that the Group expects to receive; and
- for financial guarantee contracts, a credit loss is the present value of expected payments to reimburse the holder less any amounts that the Group expects to recover.

Further details on the expected credit losses calculation are set out in note 39.3.3.

2.10 Impairment of financial instruments in 2017

Under HKAS 39, the carrying amounts of loans and receivables, held-to-maturity securities and available-for-sale securities were reviewed at each balance sheet date to determine whether there was objective evidence of impairment. Objective evidence that a financial asset was impaired included observable data that came to the attention of the Group about one or more of the following loss events which had an impact on the future cash flows of the financial asset that could be estimated reliably:

- significant financial difficulties of the issuer or borrower;
- a breach of contract such as default or delinquency in interest or principal payments;
- it becoming probable that the issuer or borrower would enter bankruptcy or other financial reorganisation;
- significant changes in the technological, market, economic or legal environment that had an adverse effect on the issuer or borrower;
- disappearance of an active market for that financial asset; and
- a significant or prolonged decline in the fair value of an investment in an equity instrument below its cost.

The Group first assessed whether objective evidence of impairment existed individually for financial assets that were individually significant. If the Group determined that no objective evidence of impairment existed for an individually assessed financial asset, whether significant or not, it would include that asset in a group of financial assets with similar credit risk characteristics and collectively assess them for impairment. Financial assets that were individually assessed for impairment and for which an impairment loss was or continued to be recognised were not included in a collective assessment of impairment. For exposures which were not individually significant, the Group would assess impairment collectively.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

If any such evidence existed, the carrying amount of the financial asset would be reduced to the estimated recoverable amount and the impairment loss would be determined and recognised as described below.

For loans and receivables and held-to-maturity securities, an impairment loss was the difference between the asset's carrying amount and the present value of estimated future cash flows discounted at the asset's original effective interest rate. The carrying amount of the asset was reduced through the use of an allowance account and the impairment loss was recognised in the income and expenditure account.

If in a subsequent period the amount of such impairment loss decreased and the decrease could be linked objectively to an event occurring after the impairment loss had been recognised, the impairment loss would be reversed through the income and expenditure account. A reversal of impairment losses was limited to the asset's carrying amount that would have been determined had no impairment loss been recognised in prior years.

For available-for-sale securities carried at fair value, the cumulative loss that had been recognised in the revaluation reserve was reclassified to the income and expenditure account. The amount of cumulative loss that was recognised in the income and expenditure account was the difference between the acquisition cost (net of any principal repayment and amortisation) and the current fair value, less any impairment loss on that financial asset previously recognised in the income and expenditure account. Impairment losses for debt securities were reversed if the subsequent increase in fair value could be objectively related to an event occurring after the impairment loss had been recognised. Reversals of impairment losses in such circumstances were recognised in the income and expenditure account. Impairment losses for equity securities were not reversed through the income and expenditure account. Any subsequent increase in the fair value of equity securities was recognised in other comprehensive income.

For available-for-sale equity securities carried at cost, the impairment loss was measured as the difference between the asset's carrying amount and the present value of estimated future cash flows discounted at the current market rate of return for a similar instrument. Such impairment losses were not reversed.

2.11 Gold

Gold is carried at fair value. Changes in the fair value of gold are included in the income and expenditure account in the period in which they arise.

2.12 Investment properties

Properties that are held for long-term rental yields, capital appreciation or both, and that are not occupied by the Group, are classified as investment properties.

Investment properties are recognised initially at cost, including related transaction costs. After initial recognition, investment properties are measured at fair value as assessed by independent professional valuers, or by the management based on the latest valuation made by the independent professional valuers. Fair value of the investment properties are measured based on the market or income approach. Under the market approach, the value is determined based on comparable transactions. For the income approach, the fair value is determined using valuation techniques including discounted cash flow and income capitalisation methods.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

Any gain or loss arising from a change in fair value or the disposal of an investment property is recognised directly in the income and expenditure account. Rental income from investment properties is recognised in the income and expenditure account in equal instalments over the periods covered by the lease term, except where an alternative basis is more representative of the pattern of benefits to be derived from the use of the leased asset.

2.13 Property, plant and equipment

The following items of property, plant and equipment are stated in the balance sheet at cost less accumulated depreciation and any impairment losses (note 2.14):

- a building held for own use situated on freehold land;
- land classified as held under a finance lease and building held for own use situated thereon; and
- plant and equipment, including plant, machinery, furniture, fixtures, equipment, motor vehicles and personal computers.

Intangible assets including computer software licences and system development costs are included in property, plant and equipment.

Freehold land is not depreciated. For other items of property, plant and equipment, depreciation is calculated to write off their cost less their estimated residual value, if any, on a straight-line basis over their estimated useful lives as follows:

- | | |
|---|--|
| – leasehold land classified as held under a finance lease | over the unexpired term of lease |
| – buildings situated on freehold land | 39 years |
| – buildings situated on leasehold land | over the shorter of the unexpired term of lease and their estimated useful lives |
| – plant and equipment | 3 to 15 years |
| – computer software licences and system development costs | 3 to 5 years |

A gain or loss arising from the disposal of an item of property, plant and equipment is determined as the difference between the net disposal proceeds and the carrying amount of the asset and is recognised in the income and expenditure account on the date of disposal.

2.14 Impairment of other assets

The carrying amounts of other assets, including interests in subsidiaries, interests in associates and joint ventures, and property, plant and equipment, are reviewed at each balance sheet date to identify any indication of impairment.

If any such indication exists, an impairment loss is recognised in the income and expenditure account whenever the carrying amount of an asset exceeds its recoverable amount. The recoverable amount of an asset is the greater of its fair value less costs of disposal and value in use.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

2.15 Cash and cash equivalents

Cash and cash equivalents comprise cash and money at call, placements with banks and other financial institutions and short-term highly liquid investments that are readily convertible to known amounts of cash and subject to an insignificant risk of changes in value, having been within three months of maturity when placed or acquired.

2.16 Insurance contracts

2.16.1 *Life insurance contracts*

Premiums are recognised as income when the cash is received from the annuitant, and the policy is issued and becomes effective after the completion of all the underwriting procedures.

Insurance contract liabilities are recognised when contracts are entered into and premiums are recognised. These liabilities are measured by using the Modified Net Level Premium Valuation method for long term business in accordance with the provision of the Insurance (Determination of Long Term Liabilities) Rules (Cap. 41E). The movements in liabilities at each reporting date are recorded in the income and expenditure account.

Insurance claims reflect the cost of all annuity payments, surrenders, withdrawals and death claims arising during the year. Surrenders, withdrawals and death claims are recorded on the basis of notifications received. Annuity payments are recorded when due.

2.16.2 *Mortgage insurance contracts*

The mortgage insurance business under the Mortgage Insurance Programme of the Group is accounted for on the annual accounting basis. Under the annual accounting approach, the Group makes provisions based on credible estimates of future income and outgoings to determine the underwriting result for the current accounting period. The underwriting result includes any adjustments arising from the correction of the previous estimates.

Gross premiums represent direct business written through authorized institutions as defined under the Banking Ordinance (Cap. 155) during an accounting period. The gross premiums after deduction of discounts and refunds, include the reinsurance premiums to be paid to the approved reinsurers, the risk premiums and servicing fees earned by the Group. The net premiums are recognised as income on a time-apportioned basis during the time the insurance coverage is effective.

Unearned premiums represent that portion of net premiums written which are estimated to relate to risks and services subsequent to the end of each reporting period.

Provisions are made for outstanding claims, claims incurred but not reported and loss reserve at the end of each reporting period.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

Reinsurance contracts refer to contracts entered into by the Group with reinsurers under which the Group is compensated for losses on one or more insurance contracts issued by the Group. Benefits to which the Group is entitled under its reinsurance contracts held are recognised as reinsurance assets. These assets consist of claims recoverable from reinsurers and receivables that are dependent on the expected claims and benefits arising under the related reinsured insurance contracts. Amounts recoverable from or due to reinsurers are measured consistently with the amounts associated with the reinsured insurance contracts and in accordance with the terms of each reinsurance contract. Reinsurance assets are primarily premiums for reinsurance contracts and are amortised as an expense.

A reinsurance asset is impaired if there is objective evidence, as a result of an event that occurred after initial recognition of the reinsurance asset, that the Group may not receive all amounts due to it under the terms of the contract, and the impact on the amounts that the Group will receive from the reinsurer can be reliably measured.

2.16.3 *Other guarantee and insurance contracts*

The Group provides financial guarantees for loan facilities provided to eligible small and medium enterprises (SMEs) and non-listed enterprises, in return for a guarantee fee, insurance coverage on reverse mortgage loans provided to elderly people and on lump-sum loans provided to owners of properties of subsidised housing schemes primarily for land premium settlement, in return for an insurance premium.

The Group will assess if its recognised liabilities are adequate on each reporting date, using the current estimates of future cash flows under these contracts. If the assessment shows that the carrying amount of its guarantee and insurance liabilities are inadequate in the light of the estimated future cash flows, the shortfall shall be recognised in the income and expenditure account.

2.17 **Revenue and expenditure recognition**

2.17.1 *Interest income and expense*

Interest on the majority of the placements by Fiscal Reserves (Operating and Capital Reserves) and placements by HKSAR Government funds and statutory bodies is payable at a fixed rate determined annually (notes 26 and 27). Interest on these placements is recognised in the income and expenditure account on an accrual basis, using the effective interest method.

Interest on the placements by Fiscal Reserves (Future Fund) is payable at a composite rate which is determined annually and linked with the performance of certain portfolios of assets under the Fund (note 26). Interest on these placements is recognised in the income and expenditure account on an accrual basis, based on the performance of those portfolios.

Interest income and expense for all other interest-bearing financial assets and financial liabilities is recognised in the income and expenditure account on an accrual basis, using the effective interest method.

Once a financial asset or a group of similar financial assets has been written down as a result of an impairment loss, interest income is thereafter recognised using the rate of interest used to discount the future cash flows for the purpose of measuring the impairment loss.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

2.17.2 *Net realised and unrealised gains/(losses)*

Realised gains or losses on financial instruments other than equity securities measured at fair value through other comprehensive income are recognised in the income and expenditure account when the financial instruments are derecognised.

Changes in fair value of financial instruments measured at fair value through income and expenditure account are recognised as unrealised gains or losses in the income and expenditure account in the period in which they arise.

2.17.3 *Dividend income*

Dividend income from listed equity securities is recognised in the income and expenditure account when the share price is quoted ex-dividend. Dividend income from unlisted equity securities is recognised when the shareholder's right to receive payment is unconditionally established.

Dividends on equity securities measured at fair value through other comprehensive income that clearly represent a recovery of part of the cost of the investment are presented in other comprehensive income.

2.17.4 *Bank licence fees*

Bank licence fees are fees receivable from authorized institutions under the Banking Ordinance and are accounted for in the period when the fees become receivable.

2.17.5 *Other income*

Other income includes rental income and fee income from the provision of financial market infrastructure services. Rental income is recognised on a straight-line basis over the lease term. Other income is accounted for in the period when it becomes receivable.

2.17.6 *Contributions to staff retirement schemes*

The Group operates several defined contribution schemes, including the Mandatory Provident Fund Scheme. Under these schemes, contributions payable each year are charged to the income and expenditure account. The assets of the staff retirement schemes are held separately from those of the Group.

2.17.7 *Rental payments under operating leases*

Leases where substantially all the rewards and risks of ownership remain with the lessor are classified as operating leases. Rental payments made under operating leases are charged to the income and expenditure account on a straight-line basis over the period of the relevant leases.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

2.17.8 *Income tax*

Income tax payable on profits of subsidiaries is recognised as an expense in the period in which profits arise.

Deferred tax assets and liabilities arise from deductible and taxable temporary differences respectively, being the differences between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes. Deferred tax assets are recognised to the extent that it is probable that future taxable profit will be available against which the assets can be utilised. Deferred tax liabilities are provided in full. For investment properties that are measured at fair value, the amount of deferred tax recognised is measured using the tax rates that would apply on sale of those assets at their carrying value at the reporting date on the presumption that their carrying amounts are recovered entirely through sale. In all other cases, the amount of deferred tax recognised is measured based on the expected manner of realisation or settlement of the carrying amount of the assets and liabilities, using tax rates enacted or substantively enacted at the balance sheet date. Deferred tax assets and liabilities are not discounted.

2.18 **Foreign currency translation**

The financial statements are presented in Hong Kong dollars, which is the Group's and the Fund's functional currency.

Foreign currency transactions during the year are translated into Hong Kong dollars using the spot exchange rates at the transaction dates. Monetary assets and liabilities denominated in foreign currencies are translated into Hong Kong dollars using the closing exchange rate at the balance sheet date. Non-monetary assets and liabilities that are measured in terms of historical cost in a foreign currency are translated into Hong Kong dollars using the spot exchange rates at the transaction dates. Non-monetary assets and liabilities that are measured at fair value in a foreign currency are translated into Hong Kong dollars using the closing exchange rates at the dates when the fair value is determined.

All foreign currency translation differences are presented in aggregate as "net exchange gain/(loss)" in the income and expenditure account. Although it is not practicable to disclose separately the net exchange gain/(loss) on financial assets and financial liabilities measured at fair value through income and expenditure account or on derivative financial instruments, the majority of the exchange gains/(losses) relate to these two categories of financial instruments.

The results of foreign operations are translated into Hong Kong dollars at the exchange rates approximating the foreign exchange rates ruling at the dates of the transactions. Balance sheet items are translated into Hong Kong dollars at the closing foreign exchange rates at the end of the reporting period. The resulting exchange differences are recognised in other comprehensive income and accumulated separately in equity in the translation reserve.

On disposal of a foreign operation, the cumulative amount of the exchange differences relating to that foreign operation is reclassified from equity to the income and expenditure account when the profit or loss on disposal is recognised.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

2.19 Critical accounting estimates and assumptions

The Group makes estimates and assumptions that affect the reported amounts of assets and liabilities. Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances.

(a) Fair value of investment properties

The fair value of investment properties is revalued by independent professional valuers using property valuation techniques which involve certain assumptions of market conditions. Details of the fair value measurement of investment properties are set out in note 21.1.

(b) Fair value of financial instruments

The majority of valuation techniques employ only observable market data. However, certain financial instruments are valued on the basis of valuation techniques that feature one or more significant market inputs that are unobservable, where the measurement of fair value is more judgemental. Details of the fair value measurement of financial instruments are set out in note 40.

(c) Impairment allowances on loan portfolio

The Group reviews its loan portfolio to assess expected credit losses on a regular basis. In determining expected credit losses, the Group makes judgements as to whether there is any significant increase in credit risk since initial recognition. It is required to exercise judgements in making assumptions and estimates to incorporate relevant information about external credit ratings, past events, current conditions and forecast of economic conditions. The methodology and assumptions used for estimating both the amount and timing of future cash flows are reviewed regularly to reduce any differences between loss estimates and actual loss experience. Information about the assumptions relating to measurement of expected credit losses is set out in note 39.3.3.

(d) Provision for outstanding claims on insurance and guarantee portfolios of general insurance business

The Group reviews the insurance and guarantee portfolios of its general insurance subsidiary to assess provision for outstanding claims, including claims of which the amounts have not been determined and claims arising out of incidents that have not been notified to the insurer and related expenses for settling such claims. In determining the provision for outstanding claims, the Group makes judgements and assumptions including but not limited to the loss severity rate applied, the economic conditions and the local property market in making estimation of the payments which the Group is required to make in fulfilling its obligations under the insurance and guarantee contracts. The methodology and assumptions used for estimating the ultimate claim amount are reviewed regularly.

(e) Insurance contract liabilities of life insurance business

The liability for insurance contracts of the Group's life insurance subsidiary is based on current assumptions with a margin for risk and adverse deviation. The main assumptions used relate to mortality, longevity, expenses and discount rates, which are reviewed regularly.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

2.20 Related parties

For the purposes of these financial statements, a person or an entity is considered to be related to the Group if:

- (a) the person, or a close member of that person's family:
 - (i) has control or joint control over the Group;
 - (ii) has significant influence over the Group; or
 - (iii) is a member of the key management personnel of the Group.
- (b) any of the following conditions applies to the entity:
 - (i) the entity and the Group are members of the same group (which means that each parent, subsidiary and fellow subsidiary is related to the others);
 - (ii) the entity is an associate or joint venture of the Group (or an associate or joint venture of a member of a group of which the Group is a member);
 - (iii) the entity and the Group are joint ventures of the same third party;
 - (iv) the entity is a joint venture of another entity and the Group is an associate of that entity;
 - (v) the entity is a post-employment benefit plan for the benefit of employees of either the Group or an entity related to the Group;
 - (vi) the entity is controlled or jointly controlled by a person identified in (a);
 - (vii) a person identified in (a)(i) has significant influence over the entity or is a member of the key management personnel of the entity (or of a parent of the entity); or
 - (viii) the entity, or any member of a group of which it is a part, provides key management personnel services to the Group.

Close members of the family of a person are those family members who may be expected to influence, or be influenced by, that person in their dealings with the entity.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

2.21 Operating segments

Operating segments are reported in a manner consistent with the internal management reports provided to the chief operating decision maker. The Group comprises the following operating segments:

- management of funds under the Currency Board Operations, including the Backing Portfolio;
- management of funds representing the general reserve assets of the Fund, including the Investment Portfolio, the Long-Term Growth Portfolio and the Strategic Portfolio; and
- maintaining the stability and integrity of monetary and financial systems of Hong Kong, which includes banking supervision and monetary management, and the activities of Hong Kong FMI Services Limited, The Hong Kong Mortgage Corporation Limited and Hong Kong Note Printing Limited.

Details of the operating segments of the Group are set out in note 34.

3 CHANGES IN ACCOUNTING POLICIES

The HKICPA has issued certain new or revised HKFRSs that are effective for the current accounting period. None of them impact on the accounting policies of the Group except for the adoption of HKFRS 9 as set out below.

The Group has not applied any new standard or interpretation that is not yet effective for the current accounting period (note 41).

3.1 HKFRS 9 “Financial Instruments”

As permitted by the transitional provisions of HKFRS 9, the Group elected not to restate comparative figures. Adjustments to the carrying amounts of certain financial assets at the date of initial application of HKFRS 9 were recognised in the opening balance of accumulated surplus or revaluation reserve of the current period.

The adoption of HKFRS 9 has mainly resulted in changes in the Group’s accounting policies for classification and measurement of financial assets and impairment of financial instruments.

Set out below are disclosures relating to the main impact of the adoption of HKFRS 9 on the Group.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

3.1.1 Classification and measurement of financial assets

The following tables analyse the impact of adoption of HKFRS 9 on financial assets as at 1 January 2018.

	Note	Group						
		HKAS 39 measurement		Reclassification	Remeasurement		HKFRS 9 measurement	
		Category	Amount		ECL	Other	Amount	Category
Cash and money at call		L&R	216,372	-	-	-	216,372	Amortised cost
Placements with banks and other financial institutions		L&R	156,688	-	(4)	-	156,684	Amortised cost
Financial assets measured at FVTIE		FVTIE	3,489,593	174,942	-	-	3,664,535	FVTIE
<i>From: Debt securities – AFS</i>	(a)			202				
<i>From: Equity securities – AFS</i>	(a)			1,456				
<i>From: Investment funds – AFS</i>	(a)			173,284				
Financial assets measured at FVOCI			-	5,473	-	655	6,128	FVOCI
<i>From: Debt securities – AFS</i>	(b)			4,980				
<i>From: Equity securities – AFS</i>	(b)			493		655		
AFS securities		AFS	180,415	(180,415)	-	-	-	
<i>To: Debt securities – FVTIE</i>	(a)			(202)				
<i>To: Debt securities – FVOCI</i>	(b)			(4,980)				
<i>To: Equity securities – FVTIE</i>	(a)			(1,456)				
<i>To: Equity securities – FVOCI</i>	(b)			(493)				
<i>To: Investment funds – FVTIE</i>	(a)			(173,284)				
Derivative financial instruments		FVTIE	2,403	-	-	-	2,403	FVTIE
HTM securities		HTM	10,348	(10,348)	-	-	-	
<i>To: Debt securities – amortised cost</i>	(c)			(10,348)				
Debt securities measured at amortised cost			-	10,348	(1)	-	10,347	Amortised cost
<i>From: Debt securities – HTM</i>	(c)			10,348	(1)			
Loan portfolio		L&R	7,830	-	-	-	7,830	Amortised cost
Other financial assets		L&R	52,395	-	-	-	52,395	Amortised cost
Total financial assets			4,116,044	-	(5)	655	4,116,694	

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

	Fund							
	Note	HKAS 39 measurement		Reclassification	Remeasurement		HKFRS 9 measurement	
		Category	Amount		ECL	Other	Amount	Category
Cash and money at call		L&R	215,649	-	-	-	215,649	Amortised cost
Placements with banks and other financial institutions		L&R	131,251	-	(3)	-	131,248	Amortised cost
Financial assets measured at FVTIE		FVTIE	3,473,286	-	-	-	3,473,286	FVTIE
Financial assets measured at FVOCI			-	493	-	655	1,148	FVOCI
<i>From: Equity securities – AFS</i>	(b)			493		655		
AFS securities		AFS	493	(493)	-	-	-	
<i>To: Equity securities – FVOCI</i>	(b)			(493)				
Derivative financial instruments		FVTIE	2,069	-	-	-	2,069	FVTIE
Other financial assets		L&R	51,379	-	-	-	51,379	Amortised cost
Total financial assets			3,874,127	-	(3)	655	3,874,779	

Abbreviations:	AFS	Available-for-sale
	ECL	Expected credit losses
	FVOCI	Fair value through other comprehensive income
	FVTIE	Fair value through income and expenditure account
	HTM	Held-to-maturity
	L&R	Loans and receivables

(a) Reclassification from available-for-sale to fair value through income and expenditure account

Unlisted investment funds and certain listed equity securities and listed debt securities amounting to HK\$174,942 million were reclassified from available-for-sale securities to financial assets measured at fair value through income and expenditure account because they are held within a business model in which they are managed and their performance is evaluated on a fair value basis. The related cumulative gain of HK\$34,186 million was transferred from the revaluation reserve to accumulated surplus at 1 January 2018.

(b) Reclassification from available-for-sale to fair value through other comprehensive income

Certain debt securities with a fair value of HK\$4,980 million previously classified as available-for-sale securities were reclassified to financial assets measured at fair value through other comprehensive income as they are held within a business model whose objective is achieved by both collecting contractual cash flows and selling them, and their contractual cash flows represent solely payments of principal and interest.

The Group elected the irrevocable option to designate its equity holdings in the Bank for International Settlements as equity securities measured at fair value through other comprehensive income. These equities, previously classified as available-for-sale securities and carried at cost amounting to HK\$493 million, were restated at fair value with a gain of HK\$655 million recognised in the revaluation reserve at 1 January 2018.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

(c) Reclassification from held-to-maturity to amortised cost

Certain debt securities amounting to HK\$10,348 million previously classified as held-to-maturity securities were reclassified to debt securities measured at amortised cost. The Group intends to hold these securities to collect contractual cash flows which consist solely of payments of principal and interest. There was no difference between the previous carrying amount and the gross carrying amount at 1 January 2018.

3.1.2 *Impairment of financial instruments*

The Group has the following main types of financial instruments subject to expected credit loss model under HKFRS 9:

- cash and money at call;
- placements with banks and other financial institutions;
- debt securities measured at amortised cost or fair value through other comprehensive income;
- loan portfolio;
- loan commitments; and
- financial guarantee contracts.

The Group has revised its impairment methodology for the above types of financial instruments. The revision had no impact on them as at 1 January 2018, except for the following two types.

(a) Placements with banks and other financial institutions

Placements with banks and other financial institutions are considered to have a low credit risk. The loss allowances are determined on a 12-month expected credit losses basis (note 39.3.3). Impairment losses of HK\$4 million for the Group were recognised in accumulated surplus at 1 January 2018.

(b) Debt securities measured at amortised cost or fair value through other comprehensive income

Investments in debt securities measured at amortised cost and those at fair value through other comprehensive income are considered to have a low credit risk. The loss allowances are determined on a 12-month expected credit losses basis (note 39.3.3). Impairment losses for the Group of HK\$1 million for debt securities measured at amortised cost and of HK\$1 million for debt securities measured at fair value through other comprehensive income were recognised in accumulated surplus at 1 January 2018.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

3.1.3 Impact on revaluation reserve and accumulated surplus on adoption of HKFRS 9

The impact on revaluation reserve and accumulated surplus due to the adoption of HKFRS 9 is as follows:

	Group	Fund
Revaluation reserve		
Balance at 1 January 2018	34,191	–
Reclassification of financial assets from available-for-sale to fair value through income and expenditure account	(34,186)	–
Gain on financial assets previously carried at cost and restated at fair value	655	655
Recognition of impairment losses on debt securities measured at fair value through other comprehensive income	1	–
Balance at 1 January 2018, as adjusted	661	655
Accumulated surplus		
Balance at 1 January 2018	788,465	713,140
Reclassification of financial assets from available-for-sale to fair value through income and expenditure account	34,186	–
Recognition of impairment losses on:		
– placements with banks and financial institutions	(4)	(3)
– debt securities measured at amortised cost	(1)	–
– debt securities measured at fair value through other comprehensive income	(1)	–
Balance at 1 January 2018, as adjusted	822,645	713,137

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

4 INCOME AND EXPENDITURE

(a) Investment income/(losses)

	Group		Fund	
	2018	2017	2018	2017
Interest income:				
– from derivative financial instruments	214	404	214	404
– from financial assets measured at fair value through income and expenditure account	60,460	34,741	59,995	34,735
– from financial assets measured at fair value through other comprehensive income	126	–	–	–
– from financial assets measured at amortised cost	4,624	3,623	3,496	2,808
– from available-for-sale securities	–	363	–	–
	65,424	39,131	63,705	37,947
Dividend income:				
– from financial assets measured at fair value through income and expenditure account	16,299	14,227	14,203	13,802
– from financial assets measured at fair value through other comprehensive income	11	–	11	–
– from available-for-sale securities	–	1,899	–	14
– from subsidiaries	–	–	17	18
	16,310	16,126	14,231	13,834
Income from investment properties:				
– rental income	1,510	1,312	–	–
– change in fair value on revaluation	408	582	–	–
	1,918	1,894	–	–
Net realised and unrealised (losses)/gains:				
– on derivative financial instruments	(4,889)	(4,207)	(4,745)	(5,983)
– on financial assets and financial liabilities measured at fair value through income and expenditure account	(57,560)	132,839	(75,798)	131,740
– on disposal of available-for-sale securities	–	15,079	–	–
– from impairment losses on available-for-sale securities	–	(6,561)	–	–
– on gold	(8)	71	(8)	71
	(62,457)	137,221	(80,551)	125,828
Net exchange (loss)/gain	(8,961)	50,303	(8,947)	53,502
TOTAL	12,234	244,675	(11,562)	231,111

Net realised and unrealised (losses)/gains included a loss of HK\$324 million (2017: HK\$1,676 million gain) on hedging instruments designated as fair value hedge and a gain of HK\$325 million (2017: HK\$1,676 million loss) on hedged items.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

(b) Interest expense on placements by Fiscal Reserves and HKSAR Government funds and statutory bodies

	Group and Fund	
	2018	2017
Interest expense on placements by Fiscal Reserves:		
– at a fixed rate determined annually ¹	43,815	23,482
– at market-based rates	1	1
– at a composite rate determined annually ²	16,386	22,729
Interest expense on placements by HKSAR Government funds and statutory bodies:		
– at a fixed rate determined annually ¹	13,769	8,581
– at market-based rates	48	9
TOTAL	74,019	54,802

¹ This rate was fixed at 4.6% per annum for 2018 (2017: 2.8%) – notes 26, 27 and 32.

² The composite rate was 6.1% per annum for 2018 (2017: 9.6%) – note 26 and 32.

(c) Other interest expense

	Group		Fund	
	2018	2017	2018	2017
Interest expense on Exchange Fund Bills and Notes issued	12,745	5,053	12,745	5,053
Interest expense on placements by subsidiaries	–	–	184	–
Interest expense on derivative financial instruments	81	101	2	7
Interest expense on financial instruments measured at fair value through income and expenditure account	83	48	81	47
Interest expense on other financial instruments	1,195	717	172	33
TOTAL	14,104	5,919	13,184	5,140

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

(d) Operating expenses

	Group		Fund	
	2018	2017	2018	2017
Staff costs				
Salaries and other staff costs	1,593	1,422	1,243	1,140
Retirement benefit costs	132	124	111	105
Premises and equipment expenses				
Depreciation	228	214	178	169
Rental expenses under operating leases	122	100	66	67
Other premises expenses	79	73	66	63
General operating costs				
Maintenance of office and computer equipment	136	112	122	100
Financial information and communication services	67	60	57	53
External relations	33	30	31	29
Public education and publicity	39	33	18	17
Service fees for financial infrastructure	94	113	94	113
Professional and other services	199	165	54	45
Training	11	9	9	8
Operating expenses relating to investment properties	213	207	–	–
Others	60	37	25	23
Investment management and custodian fees				
Management and custodian fees	1,479	1,815	1,381	1,496
Transaction costs	189	227	185	226
Withholding tax	778	662	778	662
Others	101	68	95	63
TOTAL	5,553	5,471	4,513	4,379

The aggregate emoluments of senior staff members (Executive Directors and above) of the Group were as follows:

	Group	
	2018	2017
Fixed pay	83.2	80.1
Variable pay	23.1	21.6
Other benefits	10.5	10.9
	116.8	112.6

Other benefits shown above included provident funds, medical and life insurance, gratuity and annual leave accrued during the year. There were no other allowances or benefits-in-kind.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

The numbers of senior staff (Executive Directors and above) of the Group whose emoluments including other benefits fell within the following bands were shown in the table below. The number of senior staff posts was 18 (2017: 18). The higher figures in the table below reflected staff movements during the respective years.

HK\$	Group	
	2018	2017
500,000 or below	–	1
500,001 to 1,000,000	1	–
1,500,001 to 2,000,000	1	–
2,500,001 to 3,000,000	–	1
3,000,001 to 3,500,000	1	–
4,000,001 to 4,500,000	1	1
4,500,001 to 5,000,000	3	3
5,000,001 to 5,500,000	3	4
5,500,001 to 6,000,000	2	2
6,000,001 to 6,500,000	1	1
6,500,001 to 7,000,000	3	2
7,500,001 to 8,000,000	1	1
9,500,001 to 10,000,000	2	2
10,500,001 to 11,000,000	1	1
	20	19

(e) Note and coin expenses

These represent reimbursements to the note-issuing banks in respect of note-issuing expenses and expenses incurred directly by the Fund in issuing government-issued currency notes and coins.

(f) Charge for impairment allowances

	Group		Fund	
	2018	2017	2018	2017
Charge for impairment allowances				
Placements with banks and other financial institutions (note 39.3.3(a))	1	–	1	–
Loan portfolio (note 39.3.3(c))	9	–	–	–
Provision on loan commitments (note 39.3.3(d))	5	–	–	–
TOTAL	15	–	1	–

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

5 REVENUE ACCOUNT FOR INSURANCE BUSINESS

	Group			
	2018			2017
	Non-life insurance	Life insurance	Total	Non-life insurance
Gross premiums written	635	2,780	3,415	493
Reinsurance premiums	(69)	–	(69)	(76)
Net premiums written	566	2,780	3,346	417
Movement in unearned premiums, net	(188)	–	(188)	(65)
Net commission and levy expenses	(131)	(12)	(143)	(141)
Net premiums earned	247	2,768	3,015	211
Net claims incurred, benefits paid and movement in policyholders' liabilities	(3)	(3,318)	(3,321)	–
Net premiums earned after provisions	244	(550)	(306)	211

6 INCOME TAX

(a) Income tax charged in the income and expenditure account

	Group		Fund	
	2018	2017	2018	2017
Current tax				
Hong Kong profits tax				
– current year	47	31	–	–
Taxation outside Hong Kong				
– current year	79	51	–	–
– under-provision in prior years	8	6	–	–
Deferred tax				
(Credit)/Charge for current year	(50)	21	–	–
	84	109	–	–

No provision for Hong Kong profits tax has been made for the Fund as it is an integral part of the government. The provision for Hong Kong profits tax relates to the tax liabilities of the Fund's subsidiaries. For 2018, it is calculated at 16.5% (2017: 16.5%) of the estimated assessable profits for the year. Tax for overseas subsidiaries is charged at the appropriate current rates of taxation ruling in the relevant countries.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

Reconciliation between tax expense and accounting profit at applicable tax rates:

	Group		Fund	
	2018	2017	2018	2017
(Deficit)/Surplus before taxation	(79,353)	181,456	(103,464)	166,627
Surplus subject to tax in Hong Kong and elsewhere	5,679	3,706	–	–
Tax calculated at domestic tax rates in the respective countries	1,022	664	–	–
Tax effect of:				
– non-deductible expenses	397	633	–	–
– non-taxable income	(1,375)	(1,203)	–	–
– tax losses not recognised	3	1	–	–
– utilisation of tax losses previously not recognised	(3)	(6)	–	–
– under-provision in prior years	8	6	–	–
– others	32	14	–	–
Actual tax expense	84	109	–	–

(b) Tax payable

	Note	Group		Fund	
		2018	2017	2018	2017
Tax payable	32	231	179	–	–

(c) Deferred tax

	Note	Group		Fund	
		2018	2017	2018	2017
Deferred tax assets	18	(80)	–	–	–
Deferred tax liabilities	32	143	118	–	–
		63	118	–	–

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

The major components of deferred tax (assets)/liabilities and the movements during the year were as follows:

	Group				
	Fair value changes on financial instruments and investment properties	Accelerated tax depreciation	Tax losses	Others	Net deferred tax (assets)/ liabilities
At 1 January 2017	73	38	(3)	(3)	105
Charged to the income and expenditure account	18	–	3	–	21
Credited to other comprehensive income	(18)	–	–	–	(18)
Exchange differences	10	–	–	–	10
At 31 December 2017	83	38	–	(3)	118
At 1 January 2018	83	38	–	(3)	118
Charged/(Credited) to the income and expenditure account	33	(3)	(77)	(3)	(50)
Exchange differences	(5)	–	–	–	(5)
At 31 December 2018	111	35	(77)	(6)	63

There was no significant unprovided deferred tax as at 31 December 2018 and 2017.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

7 CATEGORIES OF FINANCIAL ASSETS AND FINANCIAL LIABILITIES

	Group – 2018						
	Note	Total	Derivative financial instruments	Financial assets and financial liabilities measured at fair value through income and expenditure account	Financial assets measured at fair value through other comprehensive income	Financial assets measured at amortised cost	Other financial liabilities
Cash and money at call	8	183,521	-	-	-	183,521	-
Placements with banks and other financial institutions	9	172,556	-	-	-	172,556	-
Financial assets measured at fair value through income and expenditure account	10	3,682,911	-	3,682,911	-	-	-
Financial assets measured at fair value through other comprehensive income	11	6,246	-	-	6,246	-	-
Derivative financial instruments	13(a)	4,432	4,432	-	-	-	-
Debt securities measured at amortised cost	14	11,547	-	-	-	11,547	-
Loan portfolio	16	7,498	-	-	-	7,498	-
Others		99,645	-	-	-	99,645	-
FINANCIAL ASSETS		4,168,356	4,432	3,682,911	6,246	474,767	-
Certificates of Indebtedness	23	485,666	-	-	-	-	485,666
Government-issued currency notes and coins in circulation	23	12,639	-	-	-	-	12,639
Balance of the banking system	24	78,584	-	-	-	-	78,584
Placements by banks and other financial institutions	25	56,346	-	-	-	-	56,346
Placements by Fiscal Reserves	26	1,173,484	-	-	-	-	1,173,484
Placements by HKSAR Government funds and statutory bodies	27	320,534	-	-	-	-	320,534
Exchange Fund Bills and Notes issued	29	1,129,610	-	1,129,610	-	-	-
Derivative financial instruments	13(a)	4,075	4,075	-	-	-	-
Bank loans	30	12,795	-	-	-	-	12,795
Other debt securities issued	31	37,928	-	144	-	-	37,784
Others		186,309	-	-	-	-	186,309
FINANCIAL LIABILITIES		3,497,970	4,075	1,129,754	-	-	2,364,141

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

	Group – 2017							
	Note	Total	Trading financial instruments and hedging instruments	Financial assets and financial liabilities designated at fair value	Loans and receivables	Held-to- maturity securities	Available- for-sale securities	Other financial liabilities
Cash and money at call	8	216,372	–	–	216,372	–	–	–
Placements with banks and other financial institutions	9	156,688	–	–	156,688	–	–	–
Financial assets designated at fair value	10	3,489,593	–	3,489,593	–	–	–	–
Available-for-sale securities	12	180,415	–	–	–	–	180,415	–
Derivative financial instruments	13(a)	2,403	2,403	–	–	–	–	–
Held-to-maturity securities	15	10,348	–	–	–	10,348	–	–
Loan portfolio	16	7,830	–	–	7,830	–	–	–
Others		52,395	–	–	52,395	–	–	–
FINANCIAL ASSETS		4,116,044	2,403	3,489,593	433,285	10,348	180,415	–
Certificates of Indebtedness	23	456,726	–	–	–	–	–	456,726
Government-issued currency notes and coins in circulation	23	12,213	–	–	–	–	–	12,213
Balance of the banking system	24	179,790	–	–	–	–	–	179,790
Placements by banks and other financial institutions	25	59,337	–	–	–	–	–	59,337
Placements by Fiscal Reserves	26	1,073,794	–	–	–	–	–	1,073,794
Placements by HKSAR Government funds and statutory bodies	27	305,110	–	–	–	–	–	305,110
Exchange Fund Bills and Notes issued	29	1,045,248	–	1,045,248	–	–	–	–
Derivative financial instruments	13(a)	5,562	5,562	–	–	–	–	–
Bank loans	30	13,250	–	–	–	–	–	13,250
Other debt securities issued	31	35,517	–	142	–	–	–	35,375
Others		171,071	–	–	–	–	–	171,071
FINANCIAL LIABILITIES		3,357,618	5,562	1,045,390	–	–	–	2,306,666

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

	Fund – 2018						
	Note	Total	Derivative financial instruments	Financial assets and financial liabilities measured at fair value through income and expenditure account	Financial assets measured at fair value through other comprehensive income	Financial assets measured at amortised cost	Other financial liabilities
Cash and money at call	8	182,573	–	–	–	182,573	–
Placements with banks and other financial institutions	9	143,097	–	–	–	143,097	–
Financial assets measured at fair value through income and expenditure account	10	3,452,969	–	3,452,969	–	–	–
Financial assets measured at fair value through other comprehensive income	11	1,144	–	–	1,144	–	–
Derivative financial instruments	13(a)	4,270	4,270	–	–	–	–
Others		97,604	–	–	–	97,604	–
FINANCIAL ASSETS		3,881,657	4,270	3,452,969	1,144	423,274	–
Certificates of Indebtedness	23	485,666	–	–	–	–	485,666
Government-issued currency notes and coins in circulation	23	12,639	–	–	–	–	12,639
Balance of the banking system	24	78,584	–	–	–	–	78,584
Placements by banks and other financial institutions	25	56,346	–	–	–	–	56,346
Placements by Fiscal Reserves	26	1,173,484	–	–	–	–	1,173,484
Placements by HKSAR Government funds and statutory bodies	27	320,534	–	–	–	–	320,534
Placements by subsidiaries	28	7,710	–	–	–	–	7,710
Exchange Fund Bills and Notes issued	29	1,129,610	–	1,129,610	–	–	–
Derivative financial instruments	13(a)	3,755	3,755	–	–	–	–
Others		176,138	–	–	–	–	176,138
FINANCIAL LIABILITIES		3,444,466	3,755	1,129,610	–	–	2,311,101

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

	Fund – 2017							
	Note	Total	Trading financial instruments	Financial assets and financial liabilities designated at fair value	Loans and receivables	Held-to- maturity securities	Available- for-sale securities	Other financial liabilities
Cash and money at call	8	215,649	–	–	215,649	–	–	–
Placements with banks and other financial institutions	9	131,251	–	–	131,251	–	–	–
Financial assets designated at fair value	10	3,473,286	–	3,473,286	–	–	–	–
Available-for-sale securities	12	493	–	–	–	–	493	–
Derivative financial instruments	13(a)	2,069	2,069	–	–	–	–	–
Others		51,379	–	–	51,379	–	–	–
FINANCIAL ASSETS		3,874,127	2,069	3,473,286	398,279	–	493	–
Certificates of Indebtedness	23	456,726	–	–	–	–	–	456,726
Government-issued currency notes and coins in circulation	23	12,213	–	–	–	–	–	12,213
Balance of the banking system	24	179,790	–	–	–	–	–	179,790
Placements by banks and other financial institutions	25	59,337	–	–	–	–	–	59,337
Placements by Fiscal Reserves	26	1,073,794	–	–	–	–	–	1,073,794
Placements by HKSAR Government funds and statutory bodies	27	305,110	–	–	–	–	–	305,110
Exchange Fund Bills and Notes issued	29	1,045,748	–	1,045,748	–	–	–	–
Derivative financial instruments	13(a)	5,293	5,293	–	–	–	–	–
Others		164,002	–	–	–	–	–	164,002
FINANCIAL LIABILITIES		3,302,013	5,293	1,045,748	–	–	–	2,250,972

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

8 CASH AND MONEY AT CALL

	Group		Fund	
	2018	2017	2018	2017
At amortised cost				
Balance with central banks	63,385	75,935	63,385	75,935
Balance with banks	120,136	140,437	119,188	139,714
TOTAL	183,521	216,372	182,573	215,649

9 PLACEMENTS WITH BANKS AND OTHER FINANCIAL INSTITUTIONS

	Group		Fund	
	2018	2017	2018	2017
At amortised cost				
Placements in respect of reverse repurchase agreements:				
– with central banks	8,201	48,056	8,201	48,056
– with banks and other financial institutions	853	1,497	853	1,497
Other placements:				
– with central banks	14,876	–	14,876	–
– with banks	148,631	107,135	119,171	81,698
	172,561	156,688	143,101	131,251
Less: allowances for expected credit losses	(5)	–	(4)	–
TOTAL	172,556	156,688	143,097	131,251

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

10 FINANCIAL ASSETS MEASURED AT FAIR VALUE THROUGH INCOME AND EXPENDITURE ACCOUNT (2017: FINANCIAL ASSETS DESIGNATED AT FAIR VALUE)

	Group		Fund	
	2018	2017	2018	2017
At fair value				
Debt securities				
Treasury bills and commercial paper				
Listed outside Hong Kong	65,026	255,572	65,026	255,572
Unlisted	976,006	926,396	976,006	926,396
Certificates of deposit				
Listed outside Hong Kong	–	7,174	–	7,174
Unlisted	179,563	164,319	179,563	164,319
Other debt securities				
Listed in Hong Kong	9,422	6,254	9,422	6,254
Listed outside Hong Kong	1,411,885	1,198,095	1,411,885	1,198,095
Unlisted	198,379	216,252	183,285	203,764
Total debt securities	2,840,281	2,774,062	2,825,187	2,761,574
Equity securities				
Listed in Hong Kong	176,010	204,202	175,476	204,202
Listed outside Hong Kong	270,059	342,941	270,059	342,941
Unlisted	185,363	168,388	182,247	164,569
Total equity securities	631,432	715,531	627,782	711,712
Investment funds				
Unlisted	211,198	–	–	–
TOTAL	3,682,911	3,489,593	3,452,969	3,473,286

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

11 FINANCIAL ASSETS MEASURED AT FAIR VALUE THROUGH OTHER COMPREHENSIVE INCOME

	Group		Fund	
	2018	2017	2018	2017
At fair value				
Debt securities				
Listed in Hong Kong	598	–	–	–
Listed outside Hong Kong	2,129	–	–	–
Unlisted	2,375	–	–	–
	5,102	–	–	–
Equity securities				
Unlisted	1,144	–	1,144	–
TOTAL	6,246	–	1,144	–

The Group's investment in unlisted equity securities as at 31 December 2018 represents a holding of 4,285 shares in the Bank for International Settlements. The nominal value of each share is 5,000 Special Drawing Rights (SDRs) and is 25% paid up (note 37(a)).

12 AVAILABLE-FOR-SALE SECURITIES

	Group		Fund	
	2018	2017	2018	2017
Debt securities, at fair value				
Listed in Hong Kong	–	481	–	–
Listed outside Hong Kong	–	2,315	–	–
Unlisted	–	2,386	–	–
	–	5,182	–	–
Equity securities				
Listed in Hong Kong, at fair value	–	1,456	–	–
Unlisted, at cost	–	493	–	493
	–	1,949	–	493
Investment funds, at fair value				
Unlisted	–	173,284	–	–
TOTAL	–	180,415	–	493

The Group's investment in unlisted equity securities as at 31 December 2017 represented a holding of 4,285 shares in the Bank for International Settlements. The nominal value of each share was 5,000 SDRs and was 25% paid up (note 37(a)). Investment in unlisted investment funds mainly represented the Group's holding of private equity funds under the Long-Term Growth Portfolio.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

13 DERIVATIVE FINANCIAL INSTRUMENTS

Derivative financial instruments refer to financial contracts whose value depends on the value of one or more underlying assets or indices with settlement at a future date.

The Group uses derivative financial instruments to manage its exposures to market risk and facilitate the implementation of investment strategies. The principal derivative financial instruments used are interest rate and currency swap contracts, forward foreign exchange contracts and bond and equity index option contracts, which are primarily over-the-counter derivatives, as well as exchange-traded futures contracts.

Market risk arising from derivative financial instruments is included as part of the overall market risk exposure. The credit risk arising from these transactions is marked against the overall credit exposure to individual counterparties. The financial risk management approaches are outlined in note 39.

(a) Fair values of derivative financial instruments

An analysis of the fair values of derivative financial instruments held by product type is set out below:

	Group				Fund			
	2018		2017		2018		2017	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Derivatives categorised as held for trading								
Interest rate derivatives								
Interest rate swap contracts	358	183	554	246	347	129	548	94
Interest rate futures contracts	-	-	1	1	-	-	1	1
Equity derivatives								
Equity index futures contracts	255	145	249	55	255	145	249	55
Equity index option contracts	-	-	214	455	-	-	214	455
Currency derivatives								
Forward foreign exchange contracts	3,575	3,260	940	4,644	3,573	3,258	940	4,644
Bond derivatives								
Bond futures contracts	61	30	42	33	61	30	42	33
Bond option contracts	-	-	19	-	-	-	19	-
Commodity derivatives								
Commodity futures contracts	34	193	56	11	34	193	56	11
	4,283	3,811	2,075	5,445	4,270	3,755	2,069	5,293
Derivatives designated as hedging instruments in fair value hedges								
Interest rate derivatives								
Interest rate swap contracts	129	79	177	66	-	-	-	-
Currency derivatives								
Currency swap contracts	20	185	151	51	-	-	-	-
	149	264	328	117	-	-	-	-
TOTAL	4,432	4,075	2,403	5,562	4,270	3,755	2,069	5,293

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

The fair value hedges consist of currency and interest rate swap contracts that are used to protect against changes in the fair value of certain fixed-rate securities due to movements in market interest rates.

(b) Notional amounts of derivative financial instruments

An analysis of the notional amounts of derivative financial instruments held at the balance sheet date based on the remaining periods to settlement is set out below. The notional amounts of these instruments indicate the volume of outstanding transactions and do not represent the amounts at risk.

	Group									
	Notional amounts with remaining life of									
	2018					2017				
	Total	3 months	but over	5 years	Over	Total	3 months	but over	5 years	Over
or less		3 months	or less	1 year			or less	3 months	1 year	
Derivatives categorised as held for trading										
Interest rate derivatives										
Interest rate swap contracts	29,009	50	1,601	18,279	9,079	29,746	–	800	16,334	12,612
Interest rate futures contracts	–	–	–	–	–	9,188	85	4,553	4,550	–
Equity derivatives										
Equity index futures contracts	31,757	31,757	–	–	–	74,297	74,297	–	–	–
Equity index option contracts	–	–	–	–	–	42,530	14,404	28,126	–	–
Currency derivatives										
Forward foreign exchange contracts	401,717	341,904	59,813	–	–	404,603	323,731	80,872	–	–
Bond derivatives										
Bond futures contracts	37,747	37,747	–	–	–	41,808	41,808	–	–	–
Bond option contracts	–	–	–	–	–	3,909	–	3,909	–	–
Commodity derivatives										
Commodity futures contracts	18,445	12,227	6,218	–	–	11,279	7,449	3,830	–	–
	518,675	423,685	67,632	18,279	9,079	617,360	461,774	122,090	20,884	12,612
Derivatives designated as hedging instruments in fair value hedges										
Interest rate derivatives										
Interest rate swap contracts	14,247	2,180	3,811	6,916	1,340	13,909	1,826	4,378	6,540	1,165
Currency derivatives										
Currency swap contracts	8,455	1,769	3,915	1,330	1,441	7,302	1,457	3,592	812	1,441
	22,702	3,949	7,726	8,246	2,781	21,211	3,283	7,970	7,352	2,606
TOTAL	541,377	427,634	75,358	26,525	11,860	638,571	465,057	130,060	28,236	15,218

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

	Fund									
	Notional amounts with remaining life of									
	2018					2017				
	Total	3 months	1 year	5 years	Over	Total	3 months	1 year	5 years	Over
or less		or less	or less	or less	or less		or less	or less	or less	or less
Derivatives categorised as held for trading										
Interest rate derivatives										
Interest rate swap contracts	17,992	-	1,600	7,592	8,800	18,282	-	800	5,882	11,600
Interest rate futures contracts	-	-	-	-	-	9,188	85	4,553	4,550	-
Equity derivatives										
Equity index futures contracts	31,757	31,757	-	-	-	74,297	74,297	-	-	-
Equity index option contracts	-	-	-	-	-	42,530	14,404	28,126	-	-
Currency derivatives										
Forward foreign exchange contracts	396,552	340,004	56,548	-	-	404,603	323,731	80,872	-	-
Bond derivatives										
Bond futures contracts	37,747	37,747	-	-	-	41,808	41,808	-	-	-
Bond option contracts	-	-	-	-	-	3,909	-	3,909	-	-
Commodity derivatives										
Commodity futures contracts	18,445	12,227	6,218	-	-	11,279	7,449	3,830	-	-
TOTAL	502,493	421,735	64,366	7,592	8,800	605,896	461,774	122,090	10,432	11,600

14 DEBT SECURITIES MEASURED AT AMORTISED COST

	Group		Fund	
	2018	2017	2018	2017
At amortised cost				
Debt securities				
Listed in Hong Kong	6,317	-	-	-
Listed outside Hong Kong	2,106	-	-	-
Unlisted	3,125	-	-	-
	11,548	-	-	-
Less: allowances for expected credit losses	(1)	-	-	-
TOTAL	11,547	-	-	-

Fair value information of the above debt securities is provided in note 40.2.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

15 HELD-TO-MATURITY SECURITIES

	Group		Fund	
	2018	2017	2018	2017
At amortised cost				
Debt securities				
Listed in Hong Kong	–	5,502	–	–
Listed outside Hong Kong	–	1,959	–	–
Unlisted	–	2,887	–	–
TOTAL	–	10,348	–	–

Fair value information of the above held-to-maturity securities is provided in note 40.2.

16 LOAN PORTFOLIO

	Group		Fund	
	2018	2017	2018	2017
At amortised cost				
Mortgage loans	6,179	7,485	–	–
Other loans	1,328	345	–	–
	7,507	7,830	–	–
Less: allowances for expected credit losses	(9)	–	–	–
TOTAL	7,498	7,830	–	–

17 GOLD

	Group and Fund	
	2018	2017
Gold, at fair value		
66,798 ounces (2017: 66,798 ounces)	670	677

The fair value of gold is based on quoted price in an active market. It is classified under Level 1 of the fair value hierarchy.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

18 OTHER ASSETS

	Group		Fund	
	2018	2017	2018	2017
Interest and dividends receivable	11,634	9,012	11,217	8,693
Unsettled sales and redemption of securities	80,944	22,904	80,456	22,904
Prepayments, receivables and other assets	6,584	19,857	5,434	19,186
Staff housing loans	217	174	217	174
Loan to the International Monetary Fund	314	462	314	462
Reinsurance assets	172	165	–	–
Deferred tax assets	80	–	–	–
TOTAL	99,945	52,574	97,638	51,419

19 INTERESTS IN SUBSIDIARIES

	Fund	
	2018	2017
Unlisted shares, at cost	7,312	2,312
Loans to subsidiaries	162,434	135,219
TOTAL	169,746	137,531

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

The following is a list of the principal subsidiaries which are wholly owned by the Fund (except for Hong Kong Note Printing Limited¹) as at 31 December 2018:

Name of company	Principal activities	Issued equity capital
The Hong Kong Mortgage Corporation Limited	Investment in mortgages and loans	HK\$7,000,000,000
HKMC Annuity Limited ²	Long term insurance	HK\$5,000,000,000
HKMC Insurance Limited ²	General insurance	HK\$3,000,000,000
HKMC Mortgage Management Limited ²	Loan purchase, origination and servicing	HK\$1,000,000
Hong Kong Note Printing Limited	Banknote printing	HK\$255,000,000
Hong Kong FMI Services Limited	Performance of financial market infrastructure related operations	HK\$167,000,000
BNR Finance Company Limited	Investment holding	HK\$1
Debt Capital Solutions Company Limited	Investment holding	HK\$1
Drawbridge Investment Limited	Investment holding	HK\$1
Eight Finance Investment Company Limited	Investment holding	HK\$1
Stewardship Investment Company Limited	Investment holding	HK\$1
Stratosphere Finance Company Limited	Investment holding	HK\$1
Real Avenue Investment Company Limited	Investment properties holding	HK\$1
Real Boulevard Investment Company Limited	Investment properties holding	HK\$1
Real Gate Investment Company Limited	Investment properties holding	HK\$1
Real Horizon Investment Company Limited	Investment properties holding	HK\$1
Real Plaza Investment Company Limited	Investment properties holding	HK\$1
Real Summit Investment Company Limited	Investment properties holding	HK\$1

¹ 55% equity interest held by the Fund.

² Subsidiaries indirectly held by the Fund through The Hong Kong Mortgage Corporation Limited.

The place of incorporation and operation of the above subsidiaries are in Hong Kong.

In April 2018, The Hong Kong Mortgage Corporation Limited issued additional share capital of HK\$5 billion to the Fund for setting up HKMC Annuity Limited.

The Fund has committed to inject additional funds up to HK\$20 billion to The Hong Kong Mortgage Corporation Limited as equity for the purpose of financing The Hong Kong Mortgage Corporation Limited's additional capital injection to the HKMC Annuity Limited for maintaining its margin of solvency above a certain level. Up to 31 December 2018, there had been no capital injection to The Hong Kong Mortgage Corporation Limited under this arrangement.

The Fund has provided The Hong Kong Mortgage Corporation Limited with a revolving credit facility of HK\$30 billion (2017: HK\$30 billion) at prevailing market interest rates. As at 31 December 2018, there was no outstanding balance due from The Hong Kong Mortgage Corporation Limited under this facility (2017: Nil).

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

Loans to subsidiaries which principally hold investments including properties are unsecured, interest-free and repayable on demand.

Placements by subsidiaries are disclosed in note 28.

The financial statements of the principal subsidiaries are audited by firms other than the Audit Commission. The aggregate assets and liabilities of these subsidiaries not audited by the Audit Commission amounted to approximately 8% (2017: 7%) and 2% (2017: 2%) of the Group's total assets and total liabilities, respectively.

20 INTERESTS IN ASSOCIATES AND JOINT VENTURES

	Group	
	2018	2017
Associates¹		
Share of net assets	7,604	8,812
Joint ventures²		
Share of net assets	10,338	8,332
Due from joint ventures	26,394	18,603
	36,732	26,935
TOTAL	44,336	35,747

¹ Investment in an associate, comprising unlisted shares, is held directly by the Fund. In the Fund's balance sheet, the investment is stated at cost of HK\$5,000 (2017: HK\$5,000).

² The Fund does not directly hold investment in joint ventures.

20.1 Interests in associates

The Group holds investments in four associates. One associate, incorporated in Hong Kong, provides interbank clearing services. The other three associates, incorporated outside Hong Kong, hold overseas investment properties and investment funds. The Group holds equity interest in these associates ranging from 21% to 50%.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

Aggregate information of the Group's associates, which are not individually material, is summarised below:

	Group	
	2018	2017
Share of profit for the year	454	434
Share of other comprehensive (loss)/income	(399)	248
Share of total comprehensive income	55	682
Aggregate carrying amount of interests in the associates	7,604	8,812

The Group's share of outstanding investment commitments to associates is shown below:

	Group	
	2018	2017
Commitments to contribute funds	650	1,804

20.2 Interests in joint ventures

The Group holds investments in 20 joint ventures, which are all incorporated outside Hong Kong. The principal activities of these joint ventures are the holding of overseas investment properties. At the end of 2018, the Group held equity interest in these joint ventures ranging from 35% to 99%. Although the Group's equity interest in some of these joint ventures exceeds 50%, they are categorised as joint ventures because important business decisions relating to these joint ventures are required to be made with the consent of all parties. At 31 December 2018, the aggregate interest in these joint ventures amounted to 0.87% (2017: 0.64%) of the Group's total assets.

Aggregate information of the Group's joint ventures, which are not individually material, is summarised below:

	Group	
	2018	2017
Share of profit for the year	1,759	2,195
Share of other comprehensive (loss)/income	(355)	837
Share of total comprehensive income	1,404	3,032
Aggregate carrying amount of interests in the joint ventures	36,732	26,935

The Group's share of outstanding investment commitments to joint ventures is shown below:

	Group	
	2018	2017
Commitments to contribute funds	3,561	1,334

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

21 INVESTMENT PROPERTIES

	Group		Fund	
	2018	2017	2018	2017
At fair value				
At 1 January	26,242	22,723	–	–
Additions	111	180	–	–
Change in fair value on revaluation	408	582	–	–
Exchange differences	(1,440)	2,757	–	–
At 31 December	25,321	26,242	–	–

The carrying amount of the Group's investment properties is analysed as follows:

	Group		Fund	
	2018	2017	2018	2017
Held outside Hong Kong				
on freehold	12,742	13,136	–	–
on long-term lease (over 50 years)	12,579	13,106	–	–
TOTAL	25,321	26,242	–	–

The Group's investment properties are leased to third parties under operating leases. The gross rental income received and receivable by the Group and the related expenses in respect of these investment properties are summarised as follows:

	Group		Fund	
	2018	2017	2018	2017
Gross rental income	1,510	1,312	–	–
Direct expenses	(213)	(207)	–	–
Net rental income	1,297	1,105	–	–

The Group's total future minimum lease payments receivable under non-cancellable operating leases are as follows:

	Group		Fund	
	2018	2017	2018	2017
Within one year	1,178	1,209	–	–
After one year but not later than five years	3,779	4,083	–	–
After five years but not later than ten years	2,047	2,539	–	–
After ten years but not later than fifteen years	113	9	–	–
After fifteen years but not later than twenty years	3	4	–	–
TOTAL	7,120	7,844	–	–

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

At 31 December 2018, investment properties with a fair value of HK\$25,321 million (2017: HK\$26,242 million) were pledged to secure general banking facilities granted to the Group (note 30).

21.1 Fair value measurement of investment properties

The Group's investment properties are revalued by independent professional valuers on an open market value basis at the end of each financial year. The valuers have valued the Group's investment properties based on income approach with reference to comparable market evidence. The market value which is considered as the fair value of each investment property reflects, among other things, rental income from current leases and assumptions about rental income from future leases in light of the current market conditions. The fair value also reflects, on a similar basis, any cash outflows that could be expected in respect of the property. For all properties, their current use equates to the highest and best use. There has been no change to the valuation technique during the year.

Under the income approach, fair value is estimated using assumptions regarding the benefits and liabilities of ownership over the asset's life including the terminal value. This method involves the projection of a series of cash flows on a real property interest. To this projected cash flow series, a market-derived discount rate is applied to establish the present value of the income stream associated with the asset. The significant unobservable inputs used in the income approach are the selection of discount rates which ranged from 4.25% to 5.30% (2017: 5.00% to 5.60%), net initial yields which ranged from 3.61% to 6.55% (2017: 3.40% to 6.20%) and terminal capitalisation rates which ranged from 3.25% to 4.40% (2017: 4.00% to 4.71%). Significant increases or decreases in any of those inputs in isolation would result in significantly lower or higher fair value measurements, respectively.

All of the Group's investment properties are classified under Level 3 of the fair value hierarchy. There were no transfers into or out of Level 3 during the year.

An analysis of the movement between opening and closing balances of Level 3 investment properties, measured at fair value using a valuation technique with significant unobservable inputs, is shown below:

	Group		Fund	
	2018	2017	2018	2017
At 1 January	26,242	22,723	–	–
Additions	111	180	–	–
Change in fair value on revaluation recognised as "income from investment properties" in the income and expenditure account	408	582	–	–
Exchange differences recognised in other comprehensive income	(1,440)	2,757	–	–
At 31 December	25,321	26,242	–	–
Net gains recognised in the income and expenditure account relating to investment properties held at the balance sheet date	408	582	–	–

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

22 PROPERTY, PLANT AND EQUIPMENT

	Group			Total
	Premises	Plant and equipment	Computer software licences and system development costs	
Cost				
At 1 January 2017	3,852	1,299	400	5,551
Additions	–	141	21	162
Disposals	–	(47)	–	(47)
At 31 December 2017	3,852	1,393	421	5,666
At 1 January 2018	3,852	1,393	421	5,666
Additions	–	98	38	136
Disposals	–	(13)	–	(13)
At 31 December 2018	3,852	1,478	459	5,789
Accumulated depreciation				
At 1 January 2017	1,162	878	320	2,360
Charge for the year	87	102	25	214
Written back on disposal	–	(46)	–	(46)
At 31 December 2017	1,249	934	345	2,528
At 1 January 2018	1,249	934	345	2,528
Charge for the year	88	114	26	228
Written back on disposal	–	(13)	–	(13)
At 31 December 2018	1,337	1,035	371	2,743
Net book value				
At 31 December 2018	2,515	443	88	3,046
At 31 December 2017	2,603	459	76	3,138

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

	Fund			Total
	Premises	Plant and equipment	Computer software licences and system development costs	
Cost				
At 1 January 2017	3,843	556	400	4,799
Additions	–	86	21	107
Disposals	–	(15)	–	(15)
At 31 December 2017	3,843	627	421	4,891
At 1 January 2018	3,843	627	421	4,891
Additions	–	50	38	88
Disposals	–	(12)	–	(12)
At 31 December 2018	3,843	665	459	4,967
Accumulated depreciation				
At 1 January 2017	1,155	380	320	1,855
Charge for the year	87	57	25	169
Written back on disposal	–	(15)	–	(15)
At 31 December 2017	1,242	422	345	2,009
At 1 January 2018	1,242	422	345	2,009
Charge for the year	88	64	26	178
Written back on disposal	–	(12)	–	(12)
At 31 December 2018	1,330	474	371	2,175
Net book value				
At 31 December 2018	2,513	191	88	2,792
At 31 December 2017	2,601	205	76	2,882

The net book value of premises comprises:

	Group		Fund	
	2018	2017	2018	2017
In Hong Kong				
Leasehold land and the building situated thereon (leasehold between 10 and 50 years)	2,493	2,581	2,491	2,579
Outside Hong Kong				
Freehold land and the building situated thereon	22	22	22	22
TOTAL	2,515	2,603	2,513	2,601

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

23 CERTIFICATES OF INDEBTEDNESS, GOVERNMENT-ISSUED CURRENCY NOTES AND COINS IN CIRCULATION

	Group and Fund			
	Certificates of Indebtedness		Government-issued currency notes and coins in circulation	
	2018	2017	2018	2017
Carrying amount	485,666	456,726	12,639	12,213
Reconciliation with face value:				
Hong Kong dollar face value	483,845	455,715	12,592	12,186
Linked exchange rate for calculating the US dollars required for redemption	US\$1=HK\$7.80	US\$1=HK\$7.80	US\$1=HK\$7.80	US\$1=HK\$7.80
US dollars required for redemption	US\$ 62,031 million	US\$58,425 million	US\$ 1,614 million	US\$1,562 million
Market exchange rate for translation into Hong Kong dollars	US\$1=HK\$7.82935	US\$1=HK\$7.8173	US\$1=HK\$7.82935	US\$1=HK\$7.8173
Carrying amount	485,666	456,726	12,639	12,213

24 BALANCE OF THE BANKING SYSTEM

Under the interbank payment system based on Real Time Gross Settlement principles, all licensed banks maintain a Hong Kong dollar clearing account with the Hong Kong Monetary Authority (HKMA) for the account of the Fund. The aggregate amount in these clearing accounts, which must not have a negative balance, represents the total level of liquidity in the interbank market.

Under the weak-side Convertibility Undertaking, the HKMA undertakes to convert Hong Kong dollars in these clearing accounts into US dollars at the fixed exchange rate of US\$1=HK\$7.85. Likewise, under the strong-side Convertibility Undertaking, licensed banks can convert US dollars into Hong Kong dollars in these accounts, as the HKMA undertakes to buy US dollars at the fixed exchange rate of US\$1=HK\$7.75. Within the Convertibility Zone bounded by the two Convertibility Undertakings, the HKMA may choose to conduct market operations in a manner consistent with Currency Board principles. Such operations can result in matching changes in the balances of these accounts.

The balance of the banking system is repayable on demand and non-interest-bearing.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

25 PLACEMENTS BY BANKS AND OTHER FINANCIAL INSTITUTIONS

	Group and Fund	
	2018	2017
At amortised cost		
Placements by central banks	56,346	59,337

26 PLACEMENTS BY FISCAL RESERVES

	Group and Fund	
	2018	2017
Placements by Operating and Capital Reserves		
(i) with interest payable at a fixed rate determined annually		
General Revenue Account	635,424	589,950
Capital Works Reserve Fund	220,127	186,524
Civil Service Pension Reserve Fund	38,315	35,129
Disaster Relief Fund	23	17
Innovation and Technology Fund	26,383	7,271
Lotteries Fund	23,989	23,210
Capital Investment Fund	1,873	3,020
Loan Fund	2,815	4,141
	948,949	849,262
(ii) with interest payable at market-based rates		
General Revenue Account	5	2
	948,954	849,264
Placements by Future Fund with interest payable at a composite rate determined annually		
Land Fund	219,730	219,730
General Revenue Account	4,800	4,800
	224,530	224,530
TOTAL	1,173,484	1,073,794

Fiscal Reserves comprise Operating and Capital Reserves and the Future Fund.

Placements by Operating and Capital Reserves are repayable on demand. Interest on the majority of these placements is payable at a fixed rate determined every January. The rate is the average annual investment return of the Fund's Investment Portfolio for the past six years or the average annual yield of three-year Government Bond for the previous year subject to a minimum of zero percent, whichever is the higher. This rate was fixed at 4.6% per annum for 2018 (2017: 2.8%).

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

The Future Fund was established on 1 January 2016. Placements by Future Fund comprise an initial endowment from the balance of the Land Fund and periodic top-ups from the General Revenue Account as directed by the Financial Secretary. These placements are divided into two portions: one linked with the performance of the Investment Portfolio and another linked with the performance of the Long-Term Growth Portfolio. Interest on these placements is payable at a composite rate which is computed annually, on a weighted average basis, with reference to the above-mentioned fixed rate determined for placements by Operating and Capital Reserves and the annual rate of return linked with the performance of the Long-Term Growth Portfolio. The composite rate for 2018 was 6.1% (2017: 9.6%). Placements by Future Fund, together with the interest thereon (note 32), are repayable on 31 December 2025 unless otherwise directed by the Financial Secretary according to the terms of the placements.

27 PLACEMENTS BY HONG KONG SPECIAL ADMINISTRATIVE REGION GOVERNMENT FUNDS AND STATUTORY BODIES

	Group and Fund	
	2018	2017
Placements with interest payable at a fixed rate¹ determined annually		
Bond Fund	150,419	145,702
Community Care Fund	17,821	18,499
Elite Athletes Development Fund	5,433	6,273
Employees Retraining Board	14,269	14,432
Environment and Conservation Fund	5,826	5,569
Hospital Authority	19,368	18,833
Housing Authority	32,853	29,494
Language Fund	6,025	5,760
Research Endowment Fund	29,250	26,266
Samaritan Fund	6,041	7,373
Trading Funds	7,969	7,619
West Kowloon Cultural District Authority	13,010	12,438
Other funds ²	8,220	5,936
	316,504	304,194
Placements with interest payable at market-based rates		
Deposit Protection Scheme Fund	4,030	916
TOTAL	320,534	305,110

¹ The rate is the average annual investment return of the Fund's Investment Portfolio for the past six years or the average annual yield of three-year Government Bond for the previous year subject to a minimum of zero percent, whichever is the higher. This rate was fixed at 4.6% per annum for 2018 (2017: 2.8%).

² This is a collective placement by 13 HKSAR Government funds (2017: 12 HKSAR Government funds).

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

28 PLACEMENTS BY SUBSIDIARIES

	Fund	
	2018	2017
Placements by HKMC Annuity Limited ¹	7,710	–

¹ Placements by HKMC Annuity Limited are unsecured, interest-bearing and have fixed repayment terms from 6 to 10 years.

29 EXCHANGE FUND BILLS AND NOTES ISSUED

	Group		Fund	
	2018	2017	2018	2017
At fair value				
Exchange Fund Bills and Notes issued				
Exchange Fund Bills	1,098,812	1,008,939	1,098,812	1,008,939
Exchange Fund Notes	32,394	38,305	32,394	38,305
	1,131,206	1,047,244	1,131,206	1,047,244
Exchange Fund Bills held	(1,596)	(1,996)	(1,596)	(1,496)
TOTAL	1,129,610	1,045,248	1,129,610	1,045,748

Exchange Fund Bills and Notes (EFBN) issued are unsecured obligations of the Fund and are one of the components of the Monetary Base in the Currency Board Account. Exchange Fund Bills are issued by the Fund for maturities not exceeding one year. Exchange Fund Notes are issued by the Fund with 2-year, 3-year, 5-year, 7-year, 10-year and 15-year maturities.

Since January 2015, the Fund has ceased to issue Exchange Fund Notes with tenors of three years or above to avoid overlapping with Government Bonds of the same tenors. To maintain the overall size of Exchange Fund paper, the Fund has issued additional Exchange Fund Bills to replace maturing Exchange Fund Notes of those tenors.

Exchange Fund Bills held by the Fund as a result of market making activities are considered as redemption of the bills issued and are netted off.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

An analysis of the nominal value of EFBN issued at the beginning and the end of year is set out below:

	Group				Fund			
	2018		2017		2018		2017	
	Exchange Fund Bills	Exchange Fund Notes						
Issued by Currency Board Operations segment								
Nominal value at 1 January	1,010,679	37,800	914,898	48,200	1,010,679	37,800	914,898	48,200
Issuance	3,299,942	4,800	2,995,629	4,800	3,299,942	4,800	2,995,629	4,800
Redemption	(3,208,319)	(10,400)	(2,899,848)	(15,200)	(3,208,319)	(10,400)	(2,899,848)	(15,200)
Nominal value at 31 December	1,102,302	32,200	1,010,679	37,800	1,102,302	32,200	1,010,679	37,800
Long positions held by Financial Stability and Other Activities segment								
Nominal value at 31 December	(1,600)	-	(2,000)	-	(1,600)	-	(1,500)	-
Total nominal value	1,100,702	32,200	1,008,679	37,800	1,100,702	32,200	1,009,179	37,800
Carrying amount, at fair value	1,097,216	32,394	1,006,943	38,305	1,097,216	32,394	1,007,443	38,305
Difference	3,486	(194)	1,736	(505)	3,486	(194)	1,736	(505)

The fair value changes of EFBN issued are attributable to changes in benchmark interest rates.

30 BANK LOANS

	Group		Fund	
	2018	2017	2018	2017
At amortised cost				
Bank loans repayable:				
After one year but not later than two years	4,360	-	-	-
After two years but not later than five years	5,717	10,370	-	-
After five years but not later than ten years	2,718	2,880	-	-
TOTAL	12,795	13,250	-	-

At 31 December 2018, the banking facilities of the Group were secured by mortgage over the investment properties with a fair value of HK\$25,321 million (2017: HK\$26,242 million) (note 21).

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

31 OTHER DEBT SECURITIES ISSUED

	Group		Fund	
	2018	2017	2018	2017
Debt securities issued, carried at amortised cost	15,176	13,937	–	–
Debt securities issued, designated as hedged items under fair value hedge	22,608	21,438	–	–
Debt securities issued, measured at fair value	144	142	–	–
TOTAL	37,928	35,517	–	–

An analysis of the nominal value of other debt securities issued at the beginning and the end of year is set out below:

	Group		Fund	
	2018	2017	2018	2017
Total debt securities issued				
Nominal value at 1 January	35,398	35,783	–	–
Issuance	34,074	29,071	–	–
Redemption	(31,290)	(29,509)	–	–
Foreign currency translation differences	(36)	53	–	–
Nominal value at 31 December	38,146	35,398	–	–
Carrying amount	37,928	35,517	–	–
Difference	218	(119)	–	–
Debt securities issued, measured at fair value				
Nominal value	184	184	–	–
Carrying amount, at fair value	144	142	–	–
Difference	40	42	–	–

The fair value changes of debt securities issued measured at fair value are attributable to changes in benchmark interest rates.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

32 OTHER LIABILITIES

	Group		Fund	
	2018	2017	2018	2017
Unsettled purchases of securities	43,773	51,324	43,773	51,324
Housing Reserve ¹	82,376	78,753	82,376	78,753
Accrued interest on placements by Fiscal Reserves (Future Fund) ²	49,186	32,800	49,186	32,800
Accrued interest on placements by subsidiaries	–	–	23	–
Accrued charges and other liabilities	6,487	7,234	763	1,107
Other interest payable	447	376	126	122
Insurance liabilities	4,607	1,130	–	–
Provision for expected credit losses on loan commitments	5	–	–	–
Tax payable	231	179	–	–
Deferred tax liabilities	143	118	–	–
TOTAL	187,255	171,914	176,247	164,106

¹ In accordance with the directives made by the Financial Secretary in December 2014 and December 2015, the accrued interest on placements by Fiscal Reserves earned for 2014 and 2015 with a total of HK\$72,642 million were not paid on 31 December of the respective years but were set aside for the Housing Reserve which was established for the purpose of financing the development of public housing and public housing-related projects and infrastructure. The Housing Reserve earns interest at the fixed rate (note 26) on an annual basis and shall be paid on a date to be determined by the Financial Secretary. The interest accrued on the Housing Reserve for 2018 was HK\$3,623 million (2017: HK\$2,145 million).

² In accordance with the directive made by the Financial Secretary in December 2015, the accrued interest on placements by Future Fund should be rolled over and compounded at the composite rate (note 26) on an annual basis and shall only be paid upon maturity of the placements (i.e. 31 December 2025) unless otherwise directed by the Financial Secretary according to the terms of the placements.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

33 CASH AND CASH EQUIVALENTS AND OTHER CASH FLOW INFORMATION

(a) Components of cash and cash equivalents

	Group		Fund	
	2018	2017	2018	2017
Cash and money at call	183,521	216,372	182,573	215,649
Placements with banks and other financial institutions	153,083	144,829	138,403	129,708
Treasury bills and commercial paper	46,113	12,227	46,113	12,227
Certificates of deposit	–	4,127	–	4,127
TOTAL	382,717	377,555	367,089	361,711

(b) Reconciliation of cash and cash equivalents

	Note	Group		Fund	
		2018	2017	2018	2017
Amounts shown in the balance sheet					
Cash and money at call	8	183,521	216,372	182,573	215,649
Placements with banks and other financial institutions	9	172,561	156,688	143,101	131,251
Treasury bills and commercial paper	10	1,041,032	1,181,968	1,041,032	1,181,968
Certificates of deposit	10	179,563	171,493	179,563	171,493
		1,576,677	1,726,521	1,546,269	1,700,361
Less: Amounts with original maturity beyond 3 months		(1,193,960)	(1,348,966)	(1,179,180)	(1,338,650)
Cash and cash equivalents in the statement of cash flows		382,717	377,555	367,089	361,711

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

(c) Reconciliation of liabilities arising from financing activities

The table below shows changes in the Group's liabilities arising from financing activities, which are liabilities for which cash flows were, or future cash flows will be, classified in the statement of cash flows as cash flows from financing activities.

	Group		Total
	Bank loans (Note 30)	Other debt securities issued (Note 31)	
At 1 January 2017	11,724	34,233	45,957
Changes from financing cash flows			
Bank loans raised	106	–	106
Proceeds from issue of other debt securities	–	29,027	29,027
Redemption of other debt securities issued	–	(29,509)	(29,509)
Non-cash changes			
Amortisation	16	39	55
Exchange differences	1,404	52	1,456
Fair value changes	–	1,675	1,675
At 31 December 2017	13,250	35,517	48,767
At 1 January 2018	13,250	35,517	48,767
Changes from financing cash flows			
Bank loans raised	235	–	235
Proceeds from issue of other debt securities	–	34,006	34,006
Redemption of other debt securities issued	–	(31,290)	(31,290)
Non-cash changes			
Amortisation	16	62	78
Exchange differences	(706)	(36)	(742)
Fair value changes	–	(331)	(331)
At 31 December 2018	12,795	37,928	50,723

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

34 OPERATING SEGMENT INFORMATION

The Group determines its operating segments based on the reports reviewed by the chief operating decision maker. As a central banking institution, the HKMA is responsible for managing the Fund and maintaining the monetary and banking stability of Hong Kong. The Group comprises operating segments as stated in note 2.21.

	Group							
	Currency Board		Reserves		Financial Stability and		Total	
	Operations		Management		Other Activities			
	(note (a))							
	2018	2017	2018	2017	2018	2017	2018	2017
Income								
Interest and dividend income	38,467	20,423	41,245	32,950	2,022	1,884	81,734	55,257
Investment (losses)/gains	(2,444)	7,873	(64,341)	177,273	(2,715)	4,272	(69,500)	189,418
Other income	–	–	44	45	3,547	671	3,591	716
	36,023	28,296	(23,052)	210,268	2,854	6,827	15,825	245,391
Expenditure								
Interest expense	12,746	5,053	74,816	55,257	561	411	88,123	60,721
Other expenses	1,313	1,347	1,904	1,992	6,051	2,504	9,268	5,843
	14,059	6,400	76,720	57,249	6,612	2,915	97,391	66,564
(Deficit)/Surplus before share of profit of associates and joint ventures	21,964	21,896	(99,772)	153,019	(3,758)	3,912	(81,566)	178,827
Share of profit of associates and joint ventures, net of tax	–	–	2,174	2,589	39	40	2,213	2,629
(Deficit)/Surplus before taxation	21,964	21,896	(97,598)	155,608	(3,719)	3,952	(79,353)	181,456

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

	Group									
	Currency Board									
	Operations		Reserves		Financial Stability and		Re-allocation		Total	
	(note (a))		Management		Other Activities		(note (b) & (c))			
2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	
Assets										
Backing Assets										
Investment in designated										
US dollar assets	1,796,208	1,821,395	-	-	-	-	-	-	1,796,208	1,821,395
Interest receivable on designated										
US dollar assets	3,489	1,976	-	-	-	-	-	-	3,489	1,976
Net accounts (payable)/receivable	(6,184)	8,076	-	-	-	-	6,184	2	-	8,078
Other investments	-	-	2,125,196	2,110,585	212,612	193,928	590	(1,996)	2,338,398	2,302,517
Other assets	-	-	26,662	42,611	5,546	4,902	71,726	548	103,934	48,061
TOTAL ASSETS	1,793,513	1,831,447	2,151,858	2,153,196	218,158	198,830	78,500	(1,446)	4,242,029	4,182,027
Liabilities										
Monetary Base										
Certificates of Indebtedness	485,666	456,726	-	-	-	-	-	-	485,666	456,726
Government-issued currency notes										
and coins in circulation	12,639	12,213	-	-	-	-	-	-	12,639	12,213
Balance of the banking system	78,584	179,790	-	-	-	-	-	-	78,584	179,790
Exchange Fund Bills and Notes issued	1,131,206	1,047,244	-	-	-	-	(1,596)	(1,996)	1,129,610	1,045,248
Interest payable on Exchange										
Fund Notes	125	122	-	-	-	-	-	-	125	122
Net accounts (receivable)/payable	(73,788)	(458)	-	-	-	-	73,912	548	124	90
Other debt securities issued	-	-	635	676	37,293	34,841	-	-	37,928	35,517
Placements by banks and other										
financial institutions	-	-	-	-	56,346	59,337	-	-	56,346	59,337
Bank loans	-	-	12,795	13,250	-	-	-	-	12,795	13,250
Placements by Fiscal Reserves	-	-	1,173,484	1,073,794	-	-	-	-	1,173,484	1,073,794
Placements by HKSAR Government										
funds and statutory bodies	-	-	316,504	304,194	4,030	916	-	-	320,534	305,110
Other liabilities	-	-	173,626	168,886	11,271	8,376	6,184	2	191,081	177,264
TOTAL LIABILITIES	1,634,432	1,695,637	1,677,044	1,560,800	108,940	103,470	78,500	(1,446)	3,498,916	3,358,461

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

(a) Currency Board Operations

Starting from 1 October 1998, specific US dollar assets of the Fund have been designated to back the Monetary Base, which comprises Certificates of Indebtedness, government-issued currency notes and coins in circulation, the balance of the banking system and EFBN issued. While specific assets of the Fund have been earmarked for backing the Monetary Base, all the Fund's assets are available for the purpose of supporting the Hong Kong dollar exchange rate under the Linked Exchange Rate system.

In accordance with an arrangement approved by the Financial Secretary in January 2000, assets can be transferred between the Backing Portfolio and general reserves when the Backing Ratio reaches either the upper trigger point (112.5%) or the lower trigger point (105%). This arrangement allows transfer of excess assets out of the Backing Portfolio to maximise their earning potential while ensuring that there are sufficient liquid assets in the Backing Portfolio. The Backing Ratio stood at 109.86% as at 31 December 2018 (2017: 108.08%).

(b) Re-allocation of assets and liabilities

For the purpose of the Currency Board Operations segment, certain liabilities of the Fund are deducted from the Backing Assets and certain assets are deducted from the Monetary Base in order to allow proper computation of the Backing Ratio. This re-allocation adjustment adds back these items in order to reconcile the segmental information to the Group balance sheet.

The Backing Assets are presented on a net basis in the Currency Board Operations. Accounts payable for unsettled purchases of securities and redemption of Certificates of Indebtedness are included in "net accounts payable" to offset corresponding investments in the Backing Assets. As at 31 December 2018, deductions from the Backing Assets comprised "other liabilities" of HK\$6,184 million (2017: HK\$2 million).

The Monetary Base is also presented on a net basis. As at 31 December 2018, deductions from the Monetary Base comprising "other assets" of HK\$73,912 million (2017: HK\$548 million) consisted of three components:

- As Hong Kong dollar interest rate swaps have been used as a means to manage the cost of issuing Exchange Fund Notes, interest receivable of HK\$10 million (2017: HK\$20 million) and unrealised gains of HK\$337 million (2017: HK\$528 million) on these interest rate swaps are included in "net accounts (receivable)/payable" to reduce the Monetary Base.
- When Hong Kong dollar overnight advances secured on EFBN have been made to banks under the Discount Window Operations, the advances of HK\$2,186 million (2017: Nil) are included in "net accounts (receivable)/payable" to reduce the Monetary Base.
- EFBN issued on tender date but not yet settled of HK\$71,379 million (2017: Nil) are included in "net accounts (receivable)/payable" to reduce the Monetary Base.

(c) Exchange Fund Bills and Notes held

EFBN held by the Financial Stability and Other Activities segment are treated as redemption of EFBN issued in the Currency Board Operations segment.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

35 PLEDGED ASSETS

Assets are pledged as margin for futures contracts and securities lending agreements and as collateral for securing general banking facilities. Securities lent do not include EFBN in issue. There are no financial assets pledged against contingent liabilities.

	Note	Group		Fund	
		2018	2017	2018	2017
Secured liabilities					
Commodity futures contracts, at fair value		159	–	159	–
Interest rate swap contracts, at fair value		6	4	6	4
Bank loans	30	12,795	13,250	–	–
Other debt securities issued		635	676	–	–
Assets pledged					
Cash and money at call		132	85	132	85
Available-for-sale securities		–	1,762	–	–
Financial assets measured at fair value through income and expenditure account		4,281	4,859	4,281	4,859
Equity interests in associates		1,623	–	–	–
Investment properties	21	25,321	26,242	–	–

During the year, the Group entered into collateralised reverse repurchase agreements, repurchase agreements and securities lending transactions that may result in credit exposure in the event that the counterparty to the transaction is unable to fulfil its contractual obligations. The Group controls credit risk associated with these activities by monitoring counterparty credit exposure and collateral values on a daily basis and requiring additional collateral to be deposited with or returned to the Group when deemed necessary.

These transactions are conducted under terms that are usual and customary to standard lending, and securities borrowing and lending activities.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

36 COMMITMENTS

(a) Capital commitments

Capital expenditure authorised but not provided for in the financial statements at the balance sheet date was as follows:

	Group		Fund	
	2018	2017	2018	2017
Contracted for	38	46	35	42
Authorised but not yet contracted for	259	301	208	250
	297	347	243	292

(b) Credit facility to the International Monetary Fund

The Fund has participated in the New Arrangements to Borrow (NAB), a standby credit facility provided to the International Monetary Fund (IMF) for the purpose of managing instability in the international monetary system. The facility is subject to periodic review and renewal. As at 31 December 2018, the Fund had an undertaking under the NAB to lend foreign currencies to the IMF up to HK\$3,702 million equivalent (2017: HK\$3,788 million equivalent), in the form of a loan bearing prevailing market interest rates. The outstanding principal due from the IMF under the NAB amounted to HK\$314 million equivalent with a repayment term of five years (2017: HK\$462 million equivalent) (note 18).

(c) Credit facility to the Hong Kong Deposit Protection Board

The Fund has provided the Hong Kong Deposit Protection Board (HKDPB) with a standby credit facility of HK\$120 billion (2017: HK\$120 billion) at prevailing market interest rates for meeting the necessary liquidity required for payment of compensation in the event of a bank failure. As at 31 December 2018, there was no outstanding balance due from the HKDPB under this facility (2017: Nil).

(d) Repurchase agreements with other central banks

The Fund has entered into bilateral repurchase agreements with various central banks in Asia and Australasia amounting up to HK\$45,019 million equivalent (2017: HK\$44,949 million equivalent). The arrangement allows each organisation to enhance the liquidity of its foreign reserve portfolio with minimal additional risk. As at 31 December 2018, there was no outstanding transaction with any central bank under this arrangement (2017: Nil).

(e) Chiang Mai Initiative Multilateralisation Agreement

The Chiang Mai Initiative Multilateralisation (CMIM) was established under the aegis of the 10 Association of Southeast Asian Nations (ASEAN) member countries together with China, Japan and Korea (ASEAN+3) to provide short-term US dollars through currency swap transactions to participants facing balance-of-payments and liquidity difficulties with a total size of US\$240 billion (2017: US\$240 billion). Hong Kong, through the HKMA, participates in the CMIM and has undertaken to commit up to US\$8.4 billion (2017: US\$8.4 billion) out of the Fund. Hong Kong has the right to request liquidity support up to US\$6.3 billion (2017: US\$6.3 billion) from the CMIM in case of emergency. Up to 31 December 2018, there had been no request to activate the CMIM (2017: Nil).

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

(f) Bilateral swap agreement

The People's Bank of China and the HKMA renewed a bilateral swap agreement in November 2017 for another three years, with a size of RMB400 billion/HK\$470 billion. This currency swap agreement helps facilitate the development of offshore renminbi business in Hong Kong. The bilateral swap outstanding as at 31 December 2018 was RMB50 billion (2017: RMB56.8 billion).

(g) Investment commitments

The Group's subsidiaries with principal activities of holding investments, including properties, had outstanding investment commitment of HK\$209,159 million equivalent as at 31 December 2018 (2017: HK\$170,171 million equivalent).

(h) Lease commitments

As at 31 December 2018, the total future minimum lease payments payable under non-cancellable operating leases of premises were as follows:

	Group		Fund	
	2018	2017	2018	2017
Within one year	124	119	69	69
After one year but not later than five years	106	220	55	125
TOTAL	230	339	124	194

(i) Financial Dispute Resolution Centre Limited

The HKMA signed a Memorandum of Understanding together with the Financial Services and the Treasury Bureau and the Securities and Futures Commission on 21 December 2011 regarding the funding arrangement on the set-up and operating costs of the Financial Dispute Resolution Centre Limited (FDRCL). There was no contribution to FDRCL in 2018 (2017: Nil). The outstanding commitment of the Fund to contribute to FDRCL as at 31 December 2018 was HK\$10.5 million (2017: HK\$10.5 million).

37 CONTINGENT LIABILITIES

(a) Uncalled portion of investment in the Bank for International Settlements

As at 31 December 2018, the Fund had a contingent liability of up to 16.1 million SDRs or HK\$175 million equivalent (2017: 16.1 million SDRs or HK\$179 million equivalent), in respect of the uncalled portion of its 4,285 shares (2017: 4,285 shares) in the Bank for International Settlements (notes 11 and 12).

SDR is an international reserve asset created by the IMF. Its value is based on a basket of five major currencies comprising US dollar, euro, renminbi, Japanese yen and pound sterling. As at 31 December 2018, SDR 1 was valued at US\$1.39053 (2017: US\$1.42501).

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

(b) Financial guarantees

The Group has provided guarantees in respect of bank loans granted to joint ventures. The maximum liability as at 31 December 2018 was HK\$1,583 million equivalent (2017: HK\$1,287 million equivalent).

38 MATERIAL RELATED PARTY TRANSACTIONS

Transactions with related parties are conducted at rates determined by the Monetary Authority taking into account the nature of each transaction on a case-by-case basis.

In addition to the transactions and balances disclosed elsewhere in these financial statements, during the year, the Group, through The Hong Kong Mortgage Corporation Limited, purchased HK\$281 million (2017: HK\$293 million) of mortgage loans from the HKSAR Government.

The Exchange Fund Advisory Committee (EFAC) through its Sub-Committees advises the Financial Secretary in his control of the Fund. Members of the EFAC and its Sub-Committees are appointed in a personal capacity by the Financial Secretary for the expertise and experience that they can bring to the Committees. Transactions with companies related to members of the EFAC and its Sub-Committees, if any, have been conducted as a normal part of the operation of the Group and on terms consistent with its ongoing operations.

39 FINANCIAL RISK MANAGEMENT

This note presents information about the nature and extent of risks to which the Group is exposed, in particular those arising from financial instruments, and the risk management framework of the Group. The principal financial risks the Group is exposed to are credit risk, market risk and liquidity risk.

39.1 Governance

The Financial Secretary is advised by the EFAC in his control of the Fund. The EFAC is established under section 3(1) of the Exchange Fund Ordinance, which requires the Financial Secretary to consult the Committee in his exercise of control of the Fund. Members of the EFAC are appointed in a personal capacity by the Financial Secretary under the delegated authority of the Chief Executive of the HKSAR for the expertise and experience that they can bring to the Committee. Such expertise and experience include knowledge of monetary, financial and economic affairs and of investment issues, as well as of accounting, management, business and legal matters.

The EFAC is assisted in its work by five Sub-Committees, which monitor specific areas of the HKMA's work and report and make recommendations to the Financial Secretary through the EFAC.

Among these Sub-Committees, the Investment Sub-Committee (ISC) monitors the HKMA's investment management activities and makes recommendations on the investment policy and strategy of the Fund and on risk management and other related matters. Operating within the policies and guidelines endorsed by the EFAC or its delegated authority, the Exchange Fund Investment Office (EFIO) of the HKMA conducts the day-to-day management of the Fund's investment activities, with the Risk and Compliance Department, which is independent of the front office functions of the EFIO, carrying out the risk management activities of the Fund.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

39.2 Investment management and control

Investment activities of the Fund are conducted in accordance with the investment benchmark derived from the Fund's investment objectives. The investment benchmark directs the strategic asset allocation of the Fund and is reviewed on a regular basis to ensure that it consistently meets the investment objectives. Changes to the investment benchmark, if required, must be endorsed by the EFAC.

The Fund's target asset and currency mix were as follows:

	2018	2017
Asset type		
Bonds	72%	71%
Equities and related investments	28%	29%
	100%	100%
Currency		
US dollar and Hong Kong dollar	89%	89%
Others ¹	11%	11%
	100%	100%

¹ Other currencies included mainly euro, renminbi, pound sterling and Japanese yen.

In addition to the investment benchmark, the EFAC determines the risk tolerance level governing the extent to which the Fund's asset and currency mix may deviate from the investment benchmark, taking into account the risk volatility of and correlation across the asset classes and markets that the Fund is allowed to invest in. Authority to take medium term investment decisions is delegated to senior management of the HKMA down to the Executive Director level.

The Risk and Compliance Department is responsible for risk management and compliance monitoring regarding the investments of the Fund. It monitors the risk exposure of the Fund, checks compliance of investment activities against established guidelines and reports and follows up any identified breaches.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

39.3 Credit risk

Credit risk is the risk of financial loss when a counterparty or a borrower fails to meet its contractual obligations. The Group's credit risk arises principally from the investments of the Fund and the loan portfolio held by the subsidiaries.

39.3.1 Management of credit risk

The HKMA maintains effective credit risk management over the investments of the Fund. Based on the delegated authority of the EFAC, the Credit, Rules and Compliance Committee (CRCC) was established within the HKMA with the following responsibilities: (i) to establish and maintain the Credit Exposure Policy to govern the investments of the Fund; (ii) to review the adequacy of the existing credit risk management practices and, where necessary, formulate proposals for amendments; (iii) to conduct analysis of credit risk issues; (iv) to establish and review credit limits for the approved issuers and counterparties; (v) to review and consider proposals of amendments to the Operational Rules for Exchange Fund Investments as appropriate, and make recommendations to the Monetary Authority for endorsement; and (vi) to monitor the compliance of the investments of the Fund with the established policies and limits, and report and follow up any identified breaches. The CRCC is chaired by the Deputy Chief Executive (Monetary) whose responsibilities are independent of the day-to-day investment activities of the Fund, and includes representatives from the EFIO, the Risk and Compliance Department, the Monetary Management Department, and the Research Department of the HKMA.

In light of the rapidly evolving risk environment, the HKMA will remain vigilant in monitoring and managing the Fund's credit risk exposure, and will sustain the impetus for better credit risk management practices to support the investment activities of the Fund.

Credit limits are established in accordance with in-house methodologies as set out in the Operational Rules for Exchange Fund Investments and the Credit Exposure Policy to limit exposures to counterparty, issuer and country risks arising from the investments of the Fund.

(a) Counterparty risk

The Fund selects its counterparties in lending, placement, derivatives and trading transactions prudently and objectively. Since the Fund conducts transactions with a counterparty for a range of financial instruments, credit limits are established to limit the overall exposure to each authorised counterparty based on its credit ratings, financial strength and other relevant information.

Counterparty credit exposures are measured according to the risk nature of financial products involved in the transaction. Counterparty credit exposures of derivatives include an estimate for the potential future credit exposure of the derivative contracts, in addition to their positive mark-to-market replacement value.

(b) Issuer risk

Issuer risk arises from investments in debt securities. Credit limits for approved issuers are set on both individual and group levels to control the risk of loss arising from the default of debt securities issuers and to prevent undue risk concentration.

Moreover, to be qualified as an approved investment, a new market or financial instrument must meet the minimum credit, security and liquidity requirements of the Fund.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

(c) Country risk

Country risk is broadly defined to include both the sovereign risk and the transfer risk. Sovereign risk denotes a government's ability and willingness to repay its obligations. Transfer risk is the risk that a borrower may not be able to secure foreign exchange to service its external obligations, for example, due to an action by the government to impose restrictions on the transfer of funds from the debtors in the country to foreign creditors. Under the existing framework, country limits are established to control the Fund's overall credit risk exposures to the countries endorsed by the CRCC.

The above credit limits are reviewed regularly. Credit exposure is monitored against these limits on a daily basis. To ensure prompt identification, proper approval and consistent monitoring of credit risk, the Fund has implemented a unified automated credit monitoring system which provides fully-integrated straight-through-processing linking the front, middle and back office functions. The pre-deal checking takes place in the front office prior to the commitment of any transaction to ensure that the intended transaction will not exceed the credit limits. The end-of-day compliance checking further verifies that the Fund complies with the established credit policies and procedures.

Any breaches of credit limits are reported to the CRCC and the ISC, and are followed up by the Risk and Compliance Department in a timely manner. The approval authorities to sanction these breaches are set out in the Credit Exposure Policy.

To manage the exposure to credit risk arising from the loan portfolio and mortgage insurance business, a four-pronged approach is established for (i) selecting Approved Sellers carefully, (ii) adopting prudent mortgage purchasing criteria and insurance eligibility criteria, (iii) conducting effective due diligence reviews and (iv) ensuring adequate protection for higher-risk mortgages.

39.3.2 Exposure to credit risk

The maximum exposure to credit risk of the financial assets of the Group and the Fund are equal to their carrying amounts. The maximum exposures to credit risk of off-balance sheet exposures are as follows:

	Note	Group		Fund	
		2018	2017	2018	2017
Risk in force – mortgage insurance	39.6	23,737	21,101	–	–
Risk in force – other guarantees and insurance	39.6	9,645	6,877	–	–
Loan commitments, guarantees and other credit related commitments		237,151	235,227	264,173	263,940
TOTAL		270,533	263,205	264,173	263,940

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

39.3.3 Credit quality and expected credit losses measurement

In general, expected credit losses are calculated using three main parameters, i.e. probability of default, loss given default and exposure at default. The 12-month expected credit losses are calculated by multiplying the 12-month probability of default, loss given default and exposure at default. Lifetime expected credit losses are calculated using the lifetime probability of default instead. The probability of default represents the expected point-in-time probability of a default over either (i) the next 12 months (i.e. 12-month probability of default) or (ii) the remaining lifetime of the financial instrument (i.e. lifetime probability of default), based on conditions existing at the balance sheet date and forward-looking information that affect credit risk. The exposure at default represents the expected balance at default, taking into account the repayment of principal and interest from the balance sheet date to the default event together with any expected drawdown of a committed loan. The loss given default represents expected losses on the exposure at default given the event of default, taking into account, among other attributes, the mitigating effect of collateral value at the time it is expected to be realised and the time value of money.

While cash and money at call and financial guarantee contracts are subject to the impairment requirements, their expected credit losses were immaterial. Credit quality and expected credit losses measurement for other financial instruments are analysed below.

(a) Placements with banks and other financial institutions

The Group has established an expected credit losses calculation methodology that is based on the probability of default assigned to each counterparty according to their external credit ratings and the related historical credit losses experience, adjusted for forward-looking information, to determine the amounts of loss allowances.

These financial assets are considered to have a low credit risk. The loss allowances are measured at amounts equal to 12-month expected credit losses.

The credit quality of placements with banks and other financial institutions is analysed below:

	Group		Fund	
	2018	2017	2018	2017
Credit rating¹				
AA- to AA+	40,114	67,783	33,533	67,206
A- to A+	102,364	77,223	81,330	54,979
Lower than A- or un-rated ²	30,083	11,682	28,238	9,066
Gross carrying amount	172,561	156,688	143,101	131,251
Less: allowances for expected credit losses	(5)	–	(4)	–
Carrying amount	172,556	156,688	143,097	131,251

¹ This is the lowest of ratings designated by Moody's, Standard & Poor's and Fitch.

² This included mainly balance with central banks which is not rated.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

The movements in loss allowances for placements with banks and other financial institutions in 2018 were as follows:

	Group	Fund
At 1 January 2018 under HKAS 39	–	–
Adjustment on adoption of HKFRS 9 (note 3.1.2(a))	4	3
At 1 January 2018, as adjusted	4	3
Increase in loss allowances recognised in the income and expenditure account	1	1
At 31 December 2018	5	4

(b) Debt securities

The Group predominantly invests in liquid OECD government bonds and other quasi-government debt securities issues. As at 31 December 2018, approximately 71% (2017: 78%) of the debt securities held by the Group were rated “double-A” or above by Moody’s, Standard & Poor’s and Fitch.

For debt securities measured at amortised cost or fair value through other comprehensive income, the Group has established an expected credit losses calculation methodology that is based on the probability of default assigned to each issuer according to their external credit ratings and the related historical credit losses experience, adjusted for forward-looking information, to determine the amounts of loss allowances.

These debt securities are considered to have a low credit risk. The loss allowances are measured at amounts equal to 12-month expected credit losses.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

The credit quality of debt securities is analysed below:

(i) Debt securities measured at fair value

	Group			
	2018		2017	
	Measured at fair value through income and expenditure account	Measured at fair value through other comprehensive income	Designated at fair value	Available-for-sale
Credit rating¹				
AAA	493,297	30	587,220	56
AA- to AA+	1,514,814	3,069	1,579,065	2,969
A- to A+	434,648	1,993	374,930	1,956
Lower than A- or un-rated ²	397,522	10	232,847	201
TOTAL	2,840,281	5,102	2,774,062	5,182

¹ This is the lowest of ratings designated by Moody's, Standard & Poor's and Fitch.

² This included mainly debt securities issued by the Bank for International Settlements which are not rated.

	Fund	
	2018	2017
	Measured at fair value through income and expenditure account	Designated at fair value
Credit rating¹		
AAA	493,297	587,220
AA- to AA+	1,514,814	1,579,065
A- to A+	434,648	374,930
Lower than A- or un-rated ²	382,428	220,359
TOTAL	2,825,187	2,761,574

¹ This is the lowest of ratings designated by Moody's, Standard & Poor's and Fitch.

² This included mainly debt securities issued by the Bank for International Settlements which are not rated.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

(ii) Debt securities measured at amortised cost

	Group	
	2018	2017
	Measured at amortised cost	Held-to- maturity
Credit rating¹		
AAA	712	859
AA- to AA+	2,827	3,147
A- to A+	8,009	6,342
Gross carrying amount	11,548	10,348
Less: allowances for expected credit losses (note 3.1.2(b))	(1)	–
Carrying amount	11,547	10,348

¹ This is the lowest of ratings designated by Moody's, Standard & Poor's and Fitch.

There was no movement in loss allowances for debt securities measured at amortised cost or fair value through other comprehensive income in 2018.

(c) Loan portfolio

The Group uses three categories for loans which reflect their credit risk and how the loss allowances are determined for each of those categories.

A summary of the assumptions underpinning the Group's expected credit loss model on loans is as follows:

Category	Group definition of category	Basis for calculation of expected credit losses
Stage 1	Loans that have a low credit risk with borrowers having a strong capacity to meet the contractual obligations at the reporting date or there have not been significant increases in credit risk since initial recognition	12-month expected credit losses
Stage 2	Loans for which there have been significant increases in credit risk since initial recognition, where significant increases in credit risk are presumed when contractual payments are more than 30 days past due	Lifetime expected credit losses – not credit impaired
Stage 3	Loans that have objective evidence of impairment including those that exhibit characteristics of non-repayment or those with contractual payments that are 90 days past due	Lifetime expected credit losses – credit impaired

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

Loans will be written off when there is no reasonable expectation of recovery on the delinquent interest and/or principal repayments.

Over the term of the loans, the Group accounts for its credit risk by appropriately providing for expected credit losses on a timely basis. In determining the expected credit losses, the Group considers historical credit risk information with reference to external or internal credit ratings and applies forward-looking factors, such as macroeconomic data and credit outlook of the borrowers, to perform multi-scenario analysis.

The credit quality of loan portfolio is analysed as follows:

	Group – 2018			
	Stage 1	Stage 2	Stage 3	Total
Loan portfolio with external credit rating¹				
BB- to BB+	402	–	–	402
B+ and below	662	–	–	662
Gross carrying amount	1,064	–	–	1,064
Less: allowances for expected credit losses	(8)	–	–	(8)
	1,056	–	–	1,056
Loan portfolio with internal credit rating				
Gross carrying amount	6,436	1	6	6,443
Less: allowances for expected credit losses	–	–	(1)	(1)
	6,436	1	5	6,442
TOTAL	7,492	1	5	7,498

¹ These are equivalent ratings of Moody's, Standard & Poor's and Fitch provided by an external institution.

The movements in loss allowances for loan portfolio in 2018 were as follows:

	Group			
	Stage 1	Stage 2	Stage 3	Total
At 1 January 2018	–	–	–	–
Net new lending	8	–	–	8
Increase in loss allowances recognised in the income and expenditure account	–	–	1	1
At 31 December 2018	8	–	1	9

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

(i) Credit impaired loans

These are loans where the Group determines on an individual basis that it is probable that it will be unable to collect all principal and interest due according to the contractual terms of the loan agreements. As at 31 December 2018, individually impaired loans of the Group amounted to HK\$0.5 million (2017: HK\$0.4 million). Since there was no collateral held against these impaired loans (2017: Nil), loss allowances have been fully provided.

(ii) Repossessed collateral

The Group obtained assets by taking possession of collateral held as security. Repossessed assets are sold as soon as practicable, with the proceeds used to reduce the outstanding indebtedness. As at 31 December 2018, there was no repossessed asset obtained (2017: HK\$4 million).

(d) Loan commitments

The Group's loan commitments are considered to have a low credit risk. The provision for expected credit losses are measured at amounts equal to 12-month expected credit losses. The movements in provision for expected credit losses in 2018 were as follows:

	Group
At 1 January 2018	–
Increase in provision for expected credit losses from new irrevocable commitments	5
At 31 December 2018	5

39.3.4 Concentration of credit risk

The majority of the Group's credit risk exposures are from the holding of highly liquid debt securities issued or guaranteed by OECD governments and other quasi-government entities. The maximum credit risk exposure by industry groups is analysed below:

	Group		Fund	
	2018	2017	2018	2017
Governments and government agencies ¹	2,159,110	2,248,103	2,158,083	2,247,481
Supra-nationals	193,653	262,833	193,618	262,833
States, provinces and public-sector entities ²	205,539	207,383	234,968	236,881
Financial institutions	499,679	454,945	459,618	419,787
Others ³	537,149	315,221	633,055	394,099
TOTAL	3,595,130	3,488,485	3,679,342	3,561,081

¹ These included debt securities guaranteed by governments.

² These included debt securities guaranteed by states.

³ These included debt securities issued by the Bank for International Settlements.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

39.4 Market risk

Market risk is the risk that changes in market variables such as interest rates, exchange rates and equity prices may affect the fair values or cash flows of investments.

39.4.1 Types of market risk

(a) Interest rate risk

Interest rate risk refers to the risk of loss arising from changes in market interest rates. This can be further classified into fair value interest rate risk and cash flow interest rate risk.

Fair value interest rate risk is the risk that the fair value of a financial instrument will fluctuate because of changes in market interest rates. The Group is exposed to fair value interest rate risk since a substantial portion of its investments is in fixed-rate debt securities. These securities are subject to interest rate risk as their fair values will fall when market interest rates increase. Other significant financial assets and financial liabilities with a fixed interest rate, and therefore subject to interest rate risk, include placements with banks and other financial institutions and EFBN issued.

Cash flow interest rate risk is the risk that future cash flows of a financial instrument will fluctuate because of changes in market interest rates. Because the Group has no significant floating-rate investments and liabilities, the Group's future cash flows are not materially affected by potential changes in market interest rates.

(b) Currency risk

Currency risk is the risk of loss arising from changes in foreign exchange rates. A large portion of the Group's foreign currency assets is held in US dollars with the remaining mainly in other major international currencies. When the exchange rates of the relevant foreign currencies against the Hong Kong dollar fluctuate, the value of these foreign currency assets expressed in Hong Kong dollar will vary accordingly.

Due to the linked exchange rate of the US dollar relative to the Hong Kong dollar, the Group's currency risk principally arises from its assets and liabilities denominated in foreign currencies other than the US dollar.

(c) Equity price risk

Equity price risk is the risk of loss arising from changes in prices or valuation. The Group's equity and related investments are subject to price risk since the value of these investments will decline if market prices or valuation fall.

The majority of the equity securities held by the Group are constituent stocks of major stock market indexes and companies with large market capitalisation.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

39.4.2 Management of market risk

The market risk of the Fund as a whole is regularly measured and monitored to prevent excessive risk exposure. The investment benchmark and tracking error limit of the Fund govern the asset allocation strategies. These, together with the volatility of asset markets, will affect the Fund's market risk exposure. The Fund uses derivative financial instruments to manage its exposures to market risk and facilitate the implementation of investment strategies. The market risk of the Fund is mainly measured and monitored using a Value-at-Risk (VaR) methodology.

VaR is calculated using the parametric approach based on a 95% confidence level and one-month time horizon. The result represents the maximum expected loss of the Fund over a one-month period under normal market conditions, with a 5% chance that the actual loss may exceed the calculated VaR. The Fund's absolute VaR and the relative VaR (i.e. the VaR of the Fund relative to its investment benchmark), expressed in dollar amounts, are measured by the Risk and Compliance Department and reported to management, the ISC and the EFAC on a regular basis.

The relative VaR of the Fund is also used to calculate the actual tracking error of the Fund against its investment benchmark. This is regularly monitored against the tracking error limit endorsed by the EFAC to ensure that the market risk exposure of the Fund is within its limit. The tracking error of a portfolio indicates how well the portfolio tracks its investment benchmark. The smaller the tracking error, the closer the portfolio tracks its benchmark. The tracking error limit is established to prevent the Fund from taking unduly large market risk with respect to its investment benchmark. The actual tracking error of the Fund is regularly reported to the ISC and the EFAC, and any breach of the limit is followed up in a timely manner.

VaR is a widely accepted measure of market risk within the financial services industry. It provides users with a single amount to measure market risk and takes into account multiple risks. VaR should however be assessed in the context of some of its inherent limitations. The calculation of VaR involves a number of assumptions that may or may not be valid in a real life scenario, in particular in extreme market conditions. The calculation of VaR assumes that future events can be predicted by historical data, and that changes in risk factors follow a normal distribution. The end-of-day basis does not reflect intraday exposures. In addition, the confidence level on which calculation of VaR is based needs to be taken into account as it indicates the possibility that a larger loss could be realised.

To compensate for some of the limitations of VaR, the HKMA also conducts stress tests to estimate the potential losses under extremely adverse market conditions. This serves to identify the major attributes of market risk under extreme market conditions, and helps to prevent the Fund from being exposed to excessive market risk. The results of the stress tests are also reported to the ISC and the EFAC on a regular basis.

To manage the interest rate risk arising from the fixed-rate debt securities issued by the Group to fund the purchase of portfolios of loans, a major portion of the risk is hedged using fair value hedges in the form of interest rate swaps by swapping into floating-rate funding to better match the floating-rate assets.

The Fund's investment in less liquid assets (i.e. private equity and real estate) is grouped under the Long-Term Growth Portfolio. The investment risks of the less liquid assets are managed at the aggregate level through such measures as asset class approval, allocation limit and aggregate general partner exposure. The cap for the market value of the Long-Term Growth Portfolio is set at the sum of one-third of the accumulated surplus of the Fund and the portion of the Future Fund and placements by subsidiaries linked with the Long-Term Growth Portfolio.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

39.4.3 Exposure to market risk

(a) Interest rate risk

The interest rate gap position in respect of the Group's major interest-bearing assets and liabilities, including the net repricing effect of interest rate derivatives is shown below. The assets and liabilities are stated at carrying amounts at the balance sheet date and categorised by the earlier of contractual repricing dates or maturity dates.

	Group – 2018							Non-interest-bearing financial instruments
	Repricing period of interest-bearing financial instruments							
	1 month or less	3 months or less but over 1 month	1 year or less but over 3 months	5 years or less but over 1 year	10 years or less but over 5 years	Over 10 years	Over 10 years	
Assets								
Cash and money at call	126,105	-	-	-	-	-	126,105	57,416
Placements with banks and other financial institutions	148,368	22,724	1,445	-	-	-	172,537	19
Financial assets measured at fair value through income and expenditure account	552,484	376,868	756,510	757,946	226,620	145,599	2,816,027	866,884
Financial assets measured at fair value through other comprehensive income	852	3,240	497	503	-	-	5,092	1,154
Debt securities measured at amortised cost	-	1,310	1,336	4,318	4,583	-	11,547	-
Loan portfolio	6,575	380	530	11	1	1	7,498	-
Interest-bearing assets	834,384	404,522	760,318	762,778	231,204	145,600	3,138,806	
Liabilities								
Placements by banks and other financial institutions	-	-	-	-	-	-	-	56,346
Placements by Fiscal Reserves with interest payable at market-based rates ¹	5	-	-	-	-	-	5	-
Placements by HKSAR Government funds and statutory bodies with interest payable at market-based rates ¹	4,030	-	-	-	-	-	4,030	-
Exchange Fund Bills and Notes issued	346,277	459,041	302,277	13,078	7,690	1,247	1,129,610	-
Bank loans	7,975	-	-	2,102	2,718	-	12,795	-
Other debt securities issued	5,631	11,495	8,082	8,469	2,739	1,512	37,928	-
Interest-bearing liabilities	363,918	470,536	310,359	23,649	13,147	2,759	1,184,368	
Net interest-bearing assets/(liabilities)	470,466	(66,014)	449,959	739,129	218,057	142,841	1,954,438	
Interest rate derivatives (net position, notional amounts)	7,427	(22,443)	5,411	(692)	8,840	1,200	(257)	
Interest rate sensitivity gap	477,893	(88,457)	455,370	738,437	226,897	144,041	1,954,181	

¹ Placements by Fiscal Reserves, HKSAR Government funds and statutory bodies with interest payable at a fixed rate or a composite rate determined annually are excluded because their interest rates are not determined on the basis of market interest rates (notes 26 and 27). As at 31 December 2018, such placements amounted to HK\$1,489,983 million.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

	Group – 2017							Non-interest-bearing financial instruments
	Repricing period of interest-bearing financial instruments							
	1 month or less	3 months or less but over 1 month	1 year or less but over 3 months	5 years or less but over 1 year	10 years or less but over 5 years	Over 10 years	Total	
Assets								
Cash and money at call	147,940	–	–	–	–	–	147,940	68,432
Placements with banks and other financial institutions	139,554	13,023	4,093	–	–	–	156,670	18
Financial assets designated at fair value	500,523	639,230	629,532	642,385	195,178	139,797	2,746,645	742,948
Available-for-sale securities	638	3,045	715	583	–	–	4,981	175,434
Held-to-maturity securities	117	1,009	464	4,802	3,956	–	10,348	–
Loan portfolio	7,778	26	11	15	–	–	7,830	–
Interest-bearing assets	796,550	656,333	634,815	647,785	199,134	139,797	3,074,414	
Liabilities								
Placements by banks and other financial institutions	–	–	–	–	–	–	–	59,337
Placements by Fiscal Reserves with interest payable at market-based rates ¹	2	–	–	–	–	–	2	–
Placements by HKSAR Government funds and statutory bodies with interest payable at market-based rates ¹	916	–	–	–	–	–	916	–
Exchange Fund Bills and Notes issued	336,628	451,533	229,192	15,914	9,473	2,508	1,045,248	–
Bank loans	8,417	–	–	1,954	2,879	–	13,250	–
Other debt securities issued	9,410	9,502	4,751	7,564	2,775	1,515	35,517	–
Interest-bearing liabilities	355,373	461,035	233,943	25,432	15,127	4,023	1,094,933	
Net interest-bearing assets	441,177	195,298	400,872	622,353	184,007	135,774	1,979,481	
Interest rate derivatives (net position, notional amounts)	8,101	(19,874)	1,160	(2,337)	10,576	2,400	26	
Interest rate sensitivity gap	449,278	175,424	402,032	620,016	194,583	138,174	1,979,507	

¹ Placements by Fiscal Reserves, HKSAR Government funds and statutory bodies with interest payable at a fixed rate or a composite rate determined annually are excluded because their interest rates are not determined on the basis of market interest rates (notes 26 and 27). As at 31 December 2017, such placements amounted to HK\$1,377,986 million.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

	Fund – 2018							Non-interest-bearing financial instruments
	Repricing period of interest-bearing financial instruments						Total	
	1 month or less	3 months or less but over 1 month	1 year or less but over 3 months	5 years or less but over 1 year	10 years or less but over 5 years	Over 10 years		
Assets								
Cash and money at call	125,464	-	-	-	-	-	125,464	57,109
Placements with banks and other financial institutions	139,182	3,915	-	-	-	-	143,097	-
Financial assets measured at fair value through income and expenditure account	552,484	376,868	756,510	757,946	226,620	145,599	2,816,027	636,942
Interest-bearing assets	817,130	380,783	756,510	757,946	226,620	145,599	3,084,588	
Liabilities								
Placements by banks and other financial institutions	-	-	-	-	-	-	-	56,346
Placements by Fiscal Reserves with interest payable at market-based rates ¹	5	-	-	-	-	-	5	-
Placements by HKSAR Government funds and statutory bodies with interest payable at market-based rates ¹	4,030	-	-	-	-	-	4,030	-
Exchange Fund Bills and Notes issued	346,277	459,041	302,277	13,078	7,690	1,247	1,129,610	-
Interest-bearing liabilities	350,312	459,041	302,277	13,078	7,690	1,247	1,133,645	
Net interest-bearing assets/(liabilities)	466,818	(78,258)	454,233	744,868	218,930	144,352	1,950,943	
Interest rate derivatives (net position, notional amounts)	-	(16,409)	1,600	6,009	7,600	1,200	-	
Interest rate sensitivity gap	466,818	(94,667)	455,833	750,877	226,530	145,552	1,950,943	

¹ Placements by Fiscal Reserves, HKSAR Government funds and statutory bodies, and subsidiaries with interest payable at a fixed rate or a composite rate determined annually are excluded because their interest rates are not determined on the basis of market interest rates (notes 26, 27 and 28). As at 31 December 2018, such placements amounted to HK\$1,497,693 million.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

	Fund – 2017							Non-interest-bearing financial instruments
	Repricing period of interest-bearing financial instruments							
	1 month or less	3 months or less but over 1 month	1 year or less but over 3 months	5 years or less but over 1 year	10 years or less but over 5 years	Over 10 years	Total	
Assets								
Cash and money at call	147,398	–	–	–	–	–	147,398	68,251
Placements with banks and other financial institutions	128,595	2,656	–	–	–	–	131,251	–
Financial assets designated at fair value	500,523	639,230	629,532	642,385	195,178	139,797	2,746,645	726,641
Interest-bearing assets	776,516	641,886	629,532	642,385	195,178	139,797	3,025,294	
Liabilities								
Placements by banks and other financial institutions	–	–	–	–	–	–	–	59,337
Placements by Fiscal Reserves with interest payable at market-based rates ¹	2	–	–	–	–	–	2	–
Placements by HKSAR Government funds and statutory bodies with interest payable at market-based rates ¹	916	–	–	–	–	–	916	–
Exchange Fund Bills and Notes issued	337,128	451,533	229,192	15,914	9,473	2,508	1,045,748	–
Interest-bearing liabilities	338,046	451,533	229,192	15,914	9,473	2,508	1,046,666	
Net interest-bearing assets	438,470	190,353	400,340	626,471	185,705	137,289	1,978,628	
Interest rate derivatives (net position, notional amounts)	–	(17,718)	800	5,318	9,200	2,400	–	
Interest rate sensitivity gap	438,470	172,635	401,140	631,789	194,905	139,689	1,978,628	

¹ Placements by Fiscal Reserves, HKSAR Government funds and statutory bodies with interest payable at a fixed rate or a composite rate determined annually are excluded because their interest rates are not determined on the basis of market interest rates (notes 26 and 27). As at 31 December 2017, such placements amounted to HK\$1,377,986 million.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

(b) Currency risk

The currency exposure of the Group is summarised below:

	Group			
	2018		2017	
	Assets (in HK\$ billion)	Liabilities (in HK\$ billion)	Assets (in HK\$ billion)	Liabilities (in HK\$ billion)
Hong Kong dollar	396.4	2,928.9	333.2	2,809.4
US dollar	3,404.6	548.5	3,408.4	523.6
	3,801.0	3,477.4	3,741.6	3,333.0
Others ¹	441.0	21.5	440.4	25.5
TOTAL	4,242.0	3,498.9	4,182.0	3,358.5

	Fund			
	2018		2017	
	Assets (in HK\$ billion)	Liabilities (in HK\$ billion)	Assets (in HK\$ billion)	Liabilities (in HK\$ billion)
Hong Kong dollar	361.5	2,898.6	297.7	2,775.9
US dollar	3,298.8	542.3	3,319.9	521.3
	3,660.3	3,440.9	3,617.6	3,297.2
Others ¹	394.6	3.7	397.7	4.9
TOTAL	4,054.9	3,444.6	4,015.3	3,302.1

¹ Other currencies included mainly euro, renminbi, pound sterling and Japanese yen.

(c) Equity price risk

As at 31 December 2018 and 2017, the majority of equity investments were reported as “financial assets measured at fair value through income and expenditure account” (2017: financial assets designated at fair value) as shown in note 10.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

39.4.4 Sensitivity analysis

The Value-at-Risk positions of the Fund at 31 December and during the year, based on a 95% confidence level and one-month time horizon, were as follows:

	Fund	
	2018	2017
Value-at-Risk		
At 31 December ¹	42,108	22,943
During the year		
Average	38,401	22,721
Maximum	45,188	27,051
Minimum	23,628	19,520

¹ The amount represented 1.1% of the Fund's investments which were subject to VaR measurement as at 31 December 2018 (2017: 0.6%).

39.5 Liquidity risk

Liquidity risk refers to the risk that the Group may not have sufficient funds available to meet its liabilities as they fall due. In addition, the Group may not be able to liquidate its financial assets at a price close to fair value within a short period of time.

39.5.1 Management of liquidity risk

To ensure sufficient liquidity to meet liabilities and the ability to raise funds to meet exceptional needs, the Group invests primarily in liquid financial markets and instruments that are readily saleable to meet liquidity needs. There are internal investment restrictions to prevent undue concentrations in individual debt securities issues, debt securities issuers, and groups of closely related debt securities issuers. There are also limitations on the maximum proportion of assets that can be placed in fixed term deposits and less liquid assets, and requirements regarding the ability to convert foreign currency assets into cash. In addition, prudent liquidity control measures are imposed on the Fund's investments in less liquid credit assets such as asset-backed securities. All these restrictions and limits are designed to promote the liquidity of assets and consequently minimise the liquidity risk. The liquidity risk for the Fund's investment is monitored on an aggregate basis through appropriate portfolio mix with sufficient liquid assets to offset investments of less liquid assets. Compliance with these limits is monitored by the Risk and Compliance Department and any breaches are reported to the ISC and are promptly followed up.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

39.5.2 Exposure to liquidity risk

The remaining contractual maturities at the balance sheet date of major financial liabilities, commitments and derivative financial liabilities, which are based on contractual undiscounted cash flows and the earliest date on which the Group can be required to pay, are shown below:

	Group – 2018						Total
	Remaining maturity						
	1 month or less	3 months or less but over 1 month	1 year or less but over 3 months	5 years or less but over 1 year	10 years or less but over 5 years	Over 10 years	
Non-derivative cash outflows							
Certificates of Indebtedness	485,666	-	-	-	-	-	485,666
Government-issued currency notes and coins in circulation	12,639	-	-	-	-	-	12,639
Balance of the banking system	78,584	-	-	-	-	-	78,584
Placements by banks and other financial institutions	-	-	56,346	-	-	-	56,346
Placements by Fiscal Reserves	948,954	-	-	-	224,530	-	1,173,484
Placements by HKSAR Government funds and statutory bodies	182,842	-	18,500	98,192	21,000	-	320,534
Exchange Fund Bills and Notes issued	346,500	460,468	304,674	14,233	8,093	1,221	1,135,189
Bank loans	64	21	236	10,808	2,974	-	14,103
Other debt securities issued	2,179	6,288	11,794	14,684	3,171	2,124	40,240
Other liabilities	112,429	23,902	49	268	49,214	-	185,862
Loan commitments, guarantees and other credit related commitments	235,786	44	1,164	157	-	-	237,151
TOTAL	2,405,643	490,723	392,763	138,342	308,982	3,345	3,739,798
Derivative cash outflows/(inflows)							
Derivative financial instruments settled:							
– on net basis	374	(20)	3	79	69	10	515
– on gross basis							
Total outflows	117,858	46,141	63,752	1,512	1,503	-	230,766
Total inflows	(116,196)	(45,438)	(63,123)	(1,571)	(1,329)	-	(227,657)
TOTAL	2,036	683	632	20	243	10	3,624

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

	Group – 2017						Total
	Remaining maturity						
	1 month or less	3 months or less but over 1 month	1 year or less but over 3 months	5 years or less but over 1 year	10 years or less but over 5 years	Over 10 years	
Non-derivative cash outflows							
Certificates of Indebtedness	456,726	–	–	–	–	–	456,726
Government-issued currency notes and coins in circulation	12,213	–	–	–	–	–	12,213
Balance of the banking system	179,790	–	–	–	–	–	179,790
Placements by banks and other financial institutions	–	–	59,337	–	–	–	59,337
Placements by Fiscal Reserves	849,264	–	–	–	224,530	–	1,073,794
Placements by HKSAR Government funds and statutory bodies	173,418	6,000	11,000	103,312	11,380	–	305,110
Exchange Fund Bills and Notes issued	336,738	452,395	230,520	17,190	9,880	2,469	1,049,192
Bank loans	67	22	272	11,371	3,268	–	15,000
Other debt securities issued	4,927	2,177	12,031	13,691	3,163	2,168	38,157
Other liabilities	126,975	10,295	305	320	32,800	–	170,695
Loan commitments, guarantees and other credit related commitments	235,227	–	–	–	–	–	235,227
TOTAL	2,375,345	470,889	313,465	145,884	285,021	4,637	3,595,241
Derivative cash outflows/(inflows)							
Derivative financial instruments settled:							
– on net basis	100	457	(45)	86	69	17	684
– on gross basis							
Total outflows	100,388	132,523	72,895	994	1,540	–	308,340
Total inflows	(98,506)	(130,773)	(72,342)	(1,103)	(1,532)	–	(304,256)
TOTAL	1,982	2,207	508	(23)	77	17	4,768

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

	Fund – 2018						Total
	Remaining maturity						
	1 month or less	3 months or less but over 1 month	1 year or less but over 3 months	5 years or less but over 1 year	10 years or less but over 5 years	Over 10 years	
Non-derivative cash outflows							
Certificates of Indebtedness	485,666	–	–	–	–	–	485,666
Government-issued currency notes and coins in circulation	12,639	–	–	–	–	–	12,639
Balance of the banking system	78,584	–	–	–	–	–	78,584
Placements by banks and other financial institutions	–	–	56,346	–	–	–	56,346
Placements by Fiscal Reserves	948,954	–	–	–	224,530	–	1,173,484
Placements by HKSAR Government funds and statutory bodies	182,842	–	18,500	98,192	21,000	–	320,534
Placements by subsidiaries	–	–	160	–	7,550	–	7,710
Exchange Fund Bills and Notes issued	346,500	460,468	304,674	14,233	8,093	1,221	1,135,189
Other liabilities	102,884	23,885	42	15	49,186	–	176,012
Loan commitments and other credit related commitments	264,173	–	–	–	–	–	264,173
TOTAL	2,422,242	484,353	379,722	112,440	310,359	1,221	3,710,337
Derivative cash outflows/(inflows)							
Derivative financial instruments settled:							
– on net basis	368	(2)	1	94	49	–	510
– on gross basis							
Total outflows	117,073	44,332	57,223	–	–	–	218,628
Total inflows	(115,414)	(43,636)	(56,549)	–	–	–	(215,599)
TOTAL	2,027	694	675	94	49	–	3,539

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

	Fund – 2017						Total
	Remaining maturity						
	1 month or less	3 months or less but over 1 month	1 year or less but over 3 months	5 years or less but over 1 year	10 years or less but over 5 years	Over 10 years	
Non-derivative cash outflows							
Certificates of Indebtedness	456,726	–	–	–	–	–	456,726
Government-issued currency notes and coins in circulation	12,213	–	–	–	–	–	12,213
Balance of the banking system	179,790	–	–	–	–	–	179,790
Placements by banks and other financial institutions	–	–	59,337	–	–	–	59,337
Placements by Fiscal Reserves	849,264	–	–	–	224,530	–	1,073,794
Placements by HKSAR Government funds and statutory bodies	173,418	6,000	11,000	103,312	11,380	–	305,110
Exchange Fund Bills and Notes issued	337,238	452,395	230,520	17,190	9,880	2,469	1,049,692
Other liabilities	120,489	10,286	305	–	32,800	–	163,880
Loan commitments and other credit related commitments	263,940	–	–	–	–	–	263,940
TOTAL	2,393,078	468,681	301,162	120,502	278,590	2,469	3,564,482
Derivative cash outflows/(inflows)							
Derivative financial instruments settled:							
– on net basis	101	446	(13)	73	54	1	662
– on gross basis							
Total outflows	100,215	131,218	69,246	–	–	–	300,679
Total inflows	(98,333)	(129,449)	(68,552)	–	–	–	(296,334)
TOTAL	1,983	2,215	681	73	54	1	5,007

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

39.6 Insurance risk

The Group, through its life insurance subsidiary, offers annuity product to personal customers. Insurance risk arises from an inaccurate assessment of the risks entailed in writing and pricing an insurance policy. The major insurance risk is the longevity risk which arises from the possibility that actual life expectancy of annuitants being longer than expected.

Insurance risk is managed by adopting a prudent set of assumptions and conducting regular experience studies. Asset-liability mismatch risk inherent to the annuity product is due to asset volatility, uncertain annuity liabilities, cash flow mismatch and currency mismatch between assets and liabilities. To mitigate such risk, the Group actively monitors the performance and steadfastly maintains control over asset allocation.

The Group established Longevity Risk Committee to manage longevity risk of the Group. Its duties include approving longevity risk management policies and hedging transactions and reviewing longevity experiences and exposures of the Group. It also monitors and analyses the general trend, technological changes and their implications for human longevity.

The Group, through its general insurance subsidiary, provides (i) mortgage insurance cover to authorized institutions in respect of mortgage loans originated by such authorized institutions and secured on residential properties in Hong Kong; (ii) insurance cover to authorized institutions in respect of reverse mortgage loans originated by such authorized institutions to elderly people; (iii) insurance cover to authorized institutions in respect of lump-sum loans to owners of properties of subsidised housing schemes for land premium settlement; and (iv) financial guarantee cover to authorized institutions in respect of loans originated by such authorized institutions to SMEs and non-listed enterprises in Hong Kong. The Group faces insurance risk of the possibility of the insured event occurring and the uncertainty of the amount of the resulting claim.

Under the Mortgage Insurance Programme, the Group offers mortgage insurance that covers authorized institutions for first credit losses of up to 40% of the value of properties financed under mortgage loans with loan-to-value ratio 90% or below at origination. The Group reinsures the exposure with approved reinsurers. As at 31 December 2018, the total risk-in-force was HK\$23.7 billion (2017: HK\$21.1 billion), of which HK\$19.7 billion (2017: HK\$17.6 billion) was retained by the Group after reinsurance. The Group also provides financial guarantee cover to authorized institutions up to 50% to 70% of the banking facilities granted to SMEs and non-listed enterprises in Hong Kong, and insurance cover to authorized institutions in respect of reverse mortgage loans originated by such authorized institutions and secured on residential properties, and in respect of lump-sum loans advanced by such authorized institutions to owners of properties of subsidised housing schemes primarily for land premium settlement and secured on these properties. As at 31 December 2018, the total risk-in-force was HK\$9.6 billion (2017: HK\$6.9 billion).

For a portfolio of insurance contracts where the theory of probability is applied to pricing and provisioning, the principal risk that the Group faces under its insurance contracts is that the actual claims exceed the carrying amount of the insurance liabilities. This could occur because the frequency or severity of claims is greater than estimated. Insurance events are random and the actual number and amount of claims and benefits will vary from year to year from the estimate established using statistical techniques.

Experience shows that the larger the portfolio of similar insurance contracts, the smaller the relative variability about the expected outcome will be. In addition, a more diversified portfolio is less likely to be affected across the board by a change in any subset of the portfolio. The Group has developed a business strategy to diversify the type of insurance risks accepted and within each of the key categories to achieve a sufficiently large population of risks to reduce the variability of the expected outcome.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

The frequency and severity of claims can be affected by several factors. The most significant factors are a downturn in the economy, a slump in local property market and a low mortality rate of reverse mortgage borrowers. Economic downturn, which may cause a rise in defaulted payment, affects the frequency of claims and collateral value. A drop in property prices, where the collateral values fall below the outstanding balance of the mortgage loans, will increase the severity of claims. Low mortality rate of reverse mortgage borrowers means longer payout period and larger loan balance will be over time. This will affect the frequency and severity of claims as there is a risk of the property value being insufficient to cover the outstanding loan balance in the future.

The Group manages these risks by adopting a set of prudent insurance underwriting eligibility criteria. To ensure sufficient provision is set aside for meeting future claim payments, the Group calculates technical reserves on prudent liability valuation assumptions and the methods prescribed in the regulatory guidelines. The Group also takes out quota-share reinsurance from its approved mortgage reinsurers in an effort to limit its risk exposure under the mortgage insurance business. The reinsurers are selected according to prudent criteria and their credit ratings are reviewed regularly. For financial guarantee cover provided to authorized institutions, the Group relies on the lenders' prudent credit assessment on the borrowers to mitigate default risk and any loss in the loan facility will be shared proportionately between the Group and the lender on a *pari passu* basis to minimise moral hazards. The mortality assumptions of reverse mortgages are also reviewed on a regular basis, to assess the risk of larger deviation between the actual and expected operating results.

39.7 Operational risk

Operational risk is the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. Operational risk is inherent in all aspects of the Group's operations covering all business segments.

The Group's objective is to cost-effectively manage operational risk to prevent financial losses or damage to the Group's reputation.

The primary responsibility for the development and implementation of controls to address operational risk rests with line management, with oversight by an internal high-level Risk Committee. The Committee is chaired by the Chief Executive of the HKMA with the three Deputy Chief Executives as members. The Risk Committee provides direction and guidance for line management in managing operational risk.

Operational risk management is supported by a formal risk assessment process. This is conducted annually and supplemented with quarterly updates. It requires each division to assess and rank the potential impact and likelihood of occurrence of financial and operational risks. It also requires divisions to review the procedures and controls in place for addressing the identified risks. This risk and control self-assessment is reviewed by Internal Audit to ensure consistency and reasonableness before submission to the Risk Committee, which has the responsibility for ensuring that the identified risks are properly addressed. Results of this risk assessment are also taken into account, in conjunction with other risk factors, for the development of an annual Internal Audit work plan. Internal Audit will audit the risk areas at various frequencies depending on the levels of risks and the results of past audits. It reports its findings regularly to the EFAC Audit Sub-Committee and the Chief Executive of the HKMA and follows up on outstanding issues to ensure that they are resolved in a proper manner.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

Operational risk is also inherent in the investment activities and processes of the EFIO. To enhance its operational risk oversight, the Risk and Compliance Department formalised its operational risk management framework for the EFIO. The key elements of the framework include identification and monitoring of key risk indicators; reporting to the senior management of the HKMA on the operational risk profile of the EFIO; handling of operational risk incidents; and issuing monthly operational risk reports to relevant senior executives.

40 FAIR VALUE MEASUREMENT OF FINANCIAL INSTRUMENTS

40.1 Fair value of financial instruments measured at fair value on a recurring basis

40.1.1 Fair value hierarchy

The carrying values of financial instruments measured at fair value at the balance sheet date across the three levels of the fair value hierarchy are shown below:

	Group – 2018			Total
	Level 1	Level 2	Level 3	
Assets				
Financial assets measured at fair value through income and expenditure account				
Treasury bills and commercial paper	260,241	780,791	–	1,041,032
Certificates of deposit	–	179,563	–	179,563
Other debt securities	1,516,298	88,294	15,094	1,619,686
Equity securities	446,069	137,168	48,195	631,432
Investment funds	–	–	211,198	211,198
	2,222,608	1,185,816	274,487	3,682,911
Financial assets measured at fair value through other comprehensive income				
Debt securities	5,102	–	–	5,102
Equity securities	–	–	1,144	1,144
	5,102	–	1,144	6,246
Derivative financial instruments	350	4,082	–	4,432
	2,228,060	1,189,898	275,631	3,693,589
Liabilities				
Exchange Fund Bills and Notes issued	–	1,129,610	–	1,129,610
Derivative financial instruments	368	3,707	–	4,075
Other debt securities issued, measured at fair value	–	144	–	144
	368	1,133,461	–	1,133,829

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

	Group – 2017			Total
	Level 1	Level 2	Level 3	
Assets				
Financial assets designated at fair value				
Treasury bills and commercial paper	458,493	723,475	–	1,181,968
Certificates of deposit	7,174	164,319	–	171,493
Other debt securities	1,322,331	85,782	12,488	1,420,601
Equity securities	547,143	125,388	43,000	715,531
	2,335,141	1,098,964	55,488	3,489,593
Available-for-sale securities				
Debt securities	5,182	–	–	5,182
Equity securities	1,456	–	–	1,456
Investment funds	–	1,891	171,393	173,284
	6,638	1,891	171,393	179,922
Derivative financial instruments	348	2,055	–	2,403
	2,342,127	1,102,910	226,881	3,671,918
Liabilities				
Exchange Fund Bills and Notes issued	–	1,045,248	–	1,045,248
Derivative financial instruments	100	5,462	–	5,562
Other debt securities issued, measured at fair value	–	142	–	142
	100	1,050,852	–	1,050,952

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

	Fund – 2018			
	Level 1	Level 2	Level 3	Total
Assets				
Financial assets measured at fair value through income and expenditure account				
Treasury bills and commercial paper	260,241	780,791	–	1,041,032
Certificates of deposit	–	179,563	–	179,563
Other debt securities	1,516,298	88,294	–	1,604,592
Equity securities	445,535	137,168	45,079	627,782
	2,222,074	1,185,816	45,079	3,452,969
Financial assets measured at fair value through other comprehensive income				
Equity securities	–	–	1,144	1,144
Derivative financial instruments	350	3,920	–	4,270
	2,222,424	1,189,736	46,223	3,458,383
Liabilities				
Exchange Fund Bills and Notes issued	–	1,129,610	–	1,129,610
Derivative financial instruments	368	3,387	–	3,755
	368	1,132,997	–	1,133,365
Fund – 2017				
	Level 1	Level 2	Level 3	Total
Assets				
Financial assets designated at fair value				
Treasury bills and commercial paper	458,493	723,475	–	1,181,968
Certificates of deposit	7,174	164,319	–	171,493
Other debt securities	1,322,331	85,782	–	1,408,113
Equity securities	547,143	125,388	39,181	711,712
	2,335,141	1,098,964	39,181	3,473,286
Derivative financial instruments	348	1,721	–	2,069
	2,335,489	1,100,685	39,181	3,475,355
Liabilities				
Exchange Fund Bills and Notes issued	–	1,045,748	–	1,045,748
Derivative financial instruments	100	5,193	–	5,293
	100	1,050,941	–	1,051,041

The Group's policy is to recognise transfers between levels of fair value hierarchy as at the end of the reporting period in which they occur. During the year, there were no transfers of financial instruments between Level 1 and Level 2 of the fair value hierarchy.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

An analysis of the movement between opening and closing balances of Level 3 assets, measured at fair value using a valuation technique with significant unobservable inputs, is shown below:

	2018			
	Group		Fund	
	Measured at fair value through income and expenditure account	Measured at fair value through other comprehensive income	Measured at fair value through income and expenditure account	Measured at fair value through other comprehensive income
At 1 January 2018	226,881	1,148	39,181	1,148
Net gains/(losses) recognised in the income and expenditure account	3,003	–	(245)	–
Net losses recognised in other comprehensive income	–	(4)	–	(4)
Purchases	77,325	–	21,949	–
Sales	(30,485)	–	(13,614)	–
Exchange differences	(45)	–	–	–
Transfers into Level 3	98	–	98	–
Transfers out of Level 3	(2,290)	–	(2,290)	–
At 31 December 2018	274,487	1,144	45,079	1,144
Net gains/(losses) recognised in the income and expenditure account relating to those assets held at the balance sheet date	3,121	–	(365)	–
	2017			
	Group		Fund	
	Designated at fair value	Available-for-sale	Designated at fair value	
At 1 January 2017	51,368	124,518	36,766	
Net gains recognised in the income and expenditure account	5,715	–	3,412	
Net gains recognised in other comprehensive income	–	14,504	–	
Purchases	11,867	48,503	7,613	
Sales	(15,631)	(16,132)	(10,779)	
Transfers into Level 3	3,262	–	3,262	
Transfers out of Level 3	(1,093)	–	(1,093)	
At 31 December 2017	55,488	171,393	39,181	
Net gains recognised in the income and expenditure account relating to those assets held at the balance sheet date	5,797	–	2,606	

During the year, certain financial instruments were transferred between Level 2 and Level 3 of the fair value hierarchy reflecting changes in transparency of observable market data for these instruments.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

40.1.2 Valuation techniques and key inputs

The fair value of financial instruments classified under Level 1 is based on quoted market prices in active markets for identical assets or liabilities at the balance sheet date.

In the absence of quoted market prices in active markets, the fair value of financial instruments classified under Level 2 is estimated using present value or other valuation techniques, using inputs based on market conditions existing at the balance sheet date. Specific valuation techniques and key inputs used to value these financial instruments include:

- (a) quoted market price or broker quotes for similar instruments;
- (b) derivative financial instruments are priced using models with observable market inputs including interest rate swaps and foreign exchange contracts; and
- (c) commercial paper and debt securities are priced using discounted cash flow techniques with observable yield curves.

For investments in unlisted investment funds, certain unlisted equity securities and certain unlisted debt securities which are classified under Level 3, their fair values are estimated by making reference to valuation reports provided by investment managers. It is not practicable to quote a range of key unobservable inputs.

For certain unlisted equity securities valued by the Group, which are classified under Level 3, their fair values are derived from Comparable Company Valuation Model, which derives the valuation of an investment through the product of its earnings, earning multiples of comparable public companies and a discount factor for a lack of liquidity. Significant unobservable inputs used under this valuation method include earning multiples of similar companies and liquidity discount:

Significant unobservable inputs	Quantitative amount	
	2018	2017
Earning multiples of similar companies	5.3 – 12.2	7.0 – 11.4
Liquidity discount	20%	20%

If the prices of these investments had increased/decreased by 10%, it would have resulted in a decrease/an increase in the Group's deficit for the year of HK\$27,449 million (2017: increase/decrease in the Group's surplus for the year of HK\$5,549 million) and in other comprehensive loss of HK\$114 million (2017: increase/decrease in other comprehensive income of HK\$17,139 million).

The shareholding in the Bank for International Settlements (note 11) is also classified under Level 3. Its fair value is estimated based on the Group's interest in the net asset value of the Bank at the reporting date, discounted at 30% to reflect the discount rate used by the Bank for share repurchases.

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

40.2 Fair value of debt securities not measured at fair value on a recurring basis

The fair values of debt securities measured at amortised cost and other debt securities issued that were not measured at fair value are shown below:

		Group – 2018				
		Carrying value	Fair value		Total	
Note			Level 1	Level 2		
Financial assets						
	Debt securities measured at amortised cost	14	11,547	11,530	–	11,530
Financial liabilities						
	Other debt securities issued	31	37,784	–	37,224	37,224

		Group – 2017				
		Carrying value	Fair value		Total	
Note			Level 1	Level 2		
Financial assets						
	Held-to-maturity securities	15	10,348	10,264	298	10,562
Financial liabilities						
	Other debt securities issued	31	35,375	–	35,507	35,507

In the absence of quoted market prices in active markets, the fair values of debt securities classified under Level 2 are estimated using present value or other valuation techniques, with inputs based on market conditions existing at the balance sheet date. Specific valuation techniques and key inputs used to value these debt securities include quoted market prices for securities with similar credit, maturity and yield characteristics for debt securities measured at amortised cost (2017: held-to-maturity securities), discounted cash flow model based on a current yield curve appropriate for the remaining term to maturity for other debt securities issued.

All other financial instruments of the Group and the Fund are stated at fair value or carried at amounts not materially different from their fair values as at 31 December 2018 and 2017.

41 POSSIBLE IMPACT OF AMENDMENTS, NEW STANDARDS AND INTERPRETATIONS ISSUED BUT NOT YET EFFECTIVE FOR THE YEAR ENDED 31 DECEMBER 2018

Up to the date of issue of these financial statements, the HKICPA has issued a number of amendments and new standards which are not yet effective for the year ended 31 December 2018 and which have not been adopted in these financial statements. The new standards include:

	Effective for accounting periods beginning on or after
HKFRS 16 “Leases”	1 January 2019
HKFRS 17 “Insurance Contracts”	1 January 2021

Exchange Fund – Notes to the Financial Statements (continued)

(Amounts expressed in millions of Hong Kong dollars, unless otherwise stated.)

So far, the Group expects that the adoption of HKFRS 16 is unlikely to have any significant effect on its financial statements and in respect of HKFRS 17, the Group is in the process of assessing the possible impact on its financial statements in the period of initial adoption.

HKFRS 16 “Leases”

HKFRS 16 sets out the principles for the recognition, measurement, presentation and disclosure of leases. It will supersede HKAS 17 related to leases. It introduces a single lessee accounting model and requires a lessee to recognise assets and liabilities for all leases with a term of more than 12 months, unless the underlying asset is of low value. Under HKFRS 16, a lessee is required to recognise a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments. Accordingly, a lessee should recognise depreciation of the right-of-use asset and interest on the lease liability. The right-of-use asset and the lease liability are initially measured on a present value basis. The measurement includes non-cancellable lease payments and payments to be made in optional periods if the lessee is reasonably certain to exercise an option to extend the lease. In respect of the lessor accounting, HKFRS 16 substantially carries forward the lessor accounting requirements in HKAS 17.

HKFRS 16 will primarily affect the Group’s accounting as a lessee of leases for land and premises. The Group elects to apply the modified retrospective approach where the comparative figures are not restated, with the effect of initial adoption recognised as an adjustment to the opening balance of accumulated surplus. On 1 January 2019, the Group expects to recognise right-of-use assets of HK\$804 million and lease liabilities of HK\$715 million and increase its accumulated surplus by HK\$89 million. Certain right-of-use assets are required to be measured under fair value model as they meet the definition of investment property in HKAS 40. In view of the amounts involved, the Group expects that the adoption of this new standard is unlikely to have a significant effect on its financial statements. The new standard is mandatory for financial years beginning on or after 1 January 2019. At this stage, the Group does not intend to adopt the standard before its effective date.

HKFRS 17 “Insurance Contracts”

HKFRS 17 establishes a comprehensive global insurance standard which provides guidance on the recognition, measurement, presentation and disclosures of insurance contracts. The standard requires entities to measure insurance contract liabilities at their current fulfilment values. The Group is yet to assess the full impact of the standard on its financial position and results of operations. The new standard is effective for annual periods beginning on or after 1 January 2021 and will be applied retrospectively with restatement of comparatives unless impracticable. At this stage, the Group does not intend to adopt the standard before its effective date.

42 APPROVAL OF FINANCIAL STATEMENTS

The financial statements were approved by the Financial Secretary on the advice of the Exchange Fund Advisory Committee on 4 April 2019.

Annex and Tables

275	Annex	Authorized Institutions and Local Representative Offices
280	Table A	Major Economic Indicators
282	Table B	Performance Ratios of the Banking Sector
284	Table C	Authorized Institutions: Domicile and Parentage
285	Table D	Authorized Institutions: Region/Economy of Beneficial Ownership
286	Table E	Presence of World's Largest 500 Banks in Hong Kong
288	Table F	Balance Sheet: All Authorized Institutions and Retail Banks
290	Table G	Major Balance Sheet Items by Region/Economy of Beneficial Ownership of Authorized Institutions
291	Table H	Flow of Funds for All Authorized Institutions and Retail Banks
292	Table I	Loans to and Deposits from Customers by Category of Authorized Institutions
293	Table J	Loans to Customers inside Hong Kong by Economic Sector
294	Table K	Deposits from Customers
295	Table L	Geographical Breakdown of Net External Claims/(Liabilities) of All Authorized Institutions

Annex Authorized Institutions and Local Representative Offices

at 31 December 2018

LICENSED BANKS

Incorporated in Hong Kong

Bank of China (Hong Kong) Limited	CMB WING LUNG BANK LIMITED (formerly known as WING LUNG BANK, LIMITED)	Nanyang Commercial Bank, Limited
BANK OF COMMUNICATIONS (HONG KONG) LIMITED	DAH SING BANK, LIMITED	PUBLIC BANK (HONG KONG) LIMITED
Bank of East Asia, Limited (The)	DBS BANK (HONG KONG) LIMITED	Shanghai Commercial Bank Limited
China CITIC Bank International Limited	FUBON BANK (HONG KONG) LIMITED	Standard Chartered Bank (Hong Kong) Limited
China Construction Bank (Asia) Corporation Limited	Hang Seng Bank, Limited	Tai Sang Bank Limited
Chiyu Banking Corporation Limited	Hongkong and Shanghai Banking Corporation Limited (The)	Tai Yau Bank, Limited
Chong Hing Bank Limited	Industrial and Commercial Bank of China (Asia) Limited	OCBC Wing Hang Bank Limited
CITIBANK (HONG KONG) LIMITED		

Incorporated outside Hong Kong

ABN AMRO Bank N.V.	BANK SINOPAC	Chugoku Bank, Ltd. (The)
AGRICULTURAL BANK OF CHINA LIMITED	Barclays Bank PLC	CIMB Bank Berhad
Allahabad Bank	BDO UNIBANK, INC. also known as: BDO BDO Unibank Banco De Oro Banco De Oro Unibank BDO Banco De Oro	Citibank, N.A.
Australia and New Zealand Banking Group Limited	BNP PARIBAS	Commerzbank AG
Axis Bank Limited	BNP PARIBAS SECURITIES SERVICES	Commonwealth Bank of Australia
Banca Monte dei Paschi di Siena S.p.A.	CA Indosuez (Switzerland) SA	Coöperatieve Rabobank U.A.
Banco Bilbao Vizcaya Argentaria S.A.	Canadian Imperial Bank of Commerce	Coutts & Co AG also known as: Coutts & Co SA Coutts & Co Ltd
Banco Santander, S.A.	CANARA BANK	CREDIT AGRICOLE CORPORATE AND INVESTMENT BANK
Bangkok Bank Public Company Limited	CATHAY BANK	CREDIT INDUSTRIEL ET COMMERCIAL
Bank J. Safra Sarasin AG also known as: Banque J. Safra Sarasin SA Banca J. Safra Sarasin SA Bank J. Safra Sarasin Ltd	CATHAY UNITED BANK COMPANY, LIMITED	Credit Suisse AG
Bank Julius Baer & Co. Ltd.	Chang Hwa Commercial Bank, Ltd.	CTBC Bank Co., Ltd
Bank of America, National Association	Chiba Bank, Ltd. (The)	DBS BANK LTD.
Bank of Baroda	China Construction Bank Corporation	Deutsche Bank Aktiengesellschaft
Bank of China Limited	China Development Bank	DZ BANK AG Deutsche Zentral- Genossenschaftsbank, Frankfurt am Main
Bank of Communications Co., Ltd.	China Everbright Bank Co., Ltd.	E.Sun Commercial Bank, Ltd.
Bank of India	China Merchants Bank Co., Ltd.	EAST WEST BANK
Bank of Montreal	CHINA MINSHENG BANKING CORP., LTD.	EFG Bank AG also known as: EFG Bank SA EFG Bank Ltd
BANK OF NEW YORK MELLON (THE)	China Zhesang Bank Co., Ltd.	
Bank of Nova Scotia (The)		
BANK OF SINGAPORE LIMITED		
BANK OF TAIWAN		

Annex Authorized Institutions and Local Representative Offices at 31 December 2018 (continued)

ERSTE GROUP BANK AG	MEGA INTERNATIONAL COMMERCIAL BANK CO., LTD.	Standard Chartered Bank
FAR EASTERN INTERNATIONAL BANK	MELLI BANK PLC	State Bank of India
First Abu Dhabi Bank PJSC	Mitsubishi UFJ Trust and Banking Corporation	State Street Bank and Trust Company
First Commercial Bank, Ltd.	Mizuho Bank, Ltd.	Sumitomo Mitsui Banking Corporation
Hachijuni Bank, Ltd. (The)	MUFG Bank, Ltd. (formerly known as The Bank of Tokyo-Mitsubishi UFJ, Ltd.)	Sumitomo Mitsui Trust Bank, Limited
HDFC BANK LIMITED	National Australia Bank Limited	Svenska Handelsbanken AB (publ)
HONG LEONG BANK BERHAD	National Bank of Pakistan	TAIPEI FUBON COMMERCIAL BANK CO., LTD.
HSBC Bank plc	NATIXIS	TAISHIN INTERNATIONAL BANK CO., LTD
HSBC Bank USA, National Association	NatWest Markets N.V. (formerly known as The Royal Bank of Scotland N.V.)	Taiwan Business Bank, Ltd. (formerly known as TAIWAN BUSINESS BANK)
HSBC Private Bank (Suisse) SA	NATWEST MARKETS PLC (former known as The Royal Bank of Scotland public limited company)	Taiwan Cooperative Bank, Ltd.
Hua Nan Commercial Bank, Ltd.	O-Bank Co., Ltd.	Taiwan Shin Kong Commercial Bank Co., Ltd.
ICBC STANDARD BANK PLC	Oversea-Chinese Banking Corporation Limited	Toronto-Dominion Bank
ICICI BANK LIMITED	Philippine National Bank	UBS AG
Indian Overseas Bank	Pictet & Cie (Europe) S.A.	UCO Bank
Industrial and Commercial Bank of China Limited	PT. Bank Negara Indonesia (Persero) Tbk.	UniCredit Bank AG
Industrial Bank Co., Ltd.	Punjab National Bank	UNION BANCAIRE PRIVÉE, UBP SA
Industrial Bank of Korea	Royal Bank of Canada	Union Bank of India
ING Bank N.V.	Shanghai Commercial & Savings Bank, Ltd. (The)	United Overseas Bank Ltd.
INTESA SANPAOLO SPA	Shanghai Pudong Development Bank Co., Ltd.	Wells Fargo Bank, National Association
JPMorgan Chase Bank, National Association	Shiga Bank, Ltd. (The)	Westpac Banking Corporation
KBC Bank N.V.	Shinhan Bank	Woori Bank
KEB Hana Bank	Shizuoka Bank, Ltd. (The)	Yuanta Commercial Bank Co., Ltd (Licence transfer from Ta Chong Bank, Ltd.)
Kookmin Bank	Skandinaviska Enskilda Banken AB	
Land Bank of Taiwan Co., Ltd.	Societe Generale	
LGT Bank AG also known as: LGT Bank Ltd. LGT Bank SA		
MACQUARIE BANK LIMITED		
Malayan Banking Berhad		
Mashreq Bank – Public Shareholding Company also known as Mashreqbank psc		

Deletion in 2018

Edmond de Rothschild (Suisse) S.A.
HSBC BANK INTERNATIONAL LIMITED
Iyo Bank, Ltd. (The)

Annex Authorized Institutions and Local Representative Offices at 31 December 2018 (continued)

RESTRICTED LICENCE BANKS

Incorporated in Hong Kong

ALLIED BANKING CORPORATION (HONG KONG) LIMITED	Habib Bank Zurich (Hong Kong) Limited	ORIX ASIA LIMITED
Banc of America Securities Asia Limited	J.P. MORGAN SECURITIES (ASIA PACIFIC) LIMITED	SCOTIABANK (HONG KONG) LIMITED
Bank of China International Limited	KDB Asia Limited	
Bank of Shanghai (Hong Kong) Limited	Morgan Stanley Asia International Limited	Deletion in 2018
Citicorp International Limited	Nippon Wealth Limited	Societe Generale Asia Limited
Goldman Sachs Asia Bank Limited		

Incorporated outside Hong Kong

EUROCLEAR BANK
PT. BANK MANDIRI (PERSERO) Tbk
RBC Investor Services Bank S.A.
Siam Commercial Bank Public Company Limited (The)
Thanakharn Kasikorn Thai Chamkat (Mahachon) also known as KASIKORNBANK PUBLIC COMPANY LIMITED

Annex Authorized Institutions and Local Representative Offices at 31 December 2018 (continued)

DEPOSIT-TAKING COMPANIES

Incorporated in Hong Kong

BCOM Finance (Hong Kong) Limited	Corporate Finance (D.T.C.) Limited	PUBLIC FINANCE LIMITED
BPI International Finance Limited	FUBON CREDIT (HONG KONG) LIMITED	SHINHAN ASIA LIMITED
Chau's Brothers Finance Company Limited	Gunma Finance (Hong Kong) Limited	Vietnam Finance Company Limited
Chong Hing Finance Limited	Habib Finance International Limited	WOORI GLOBAL MARKETS ASIA LIMITED
Commonwealth Finance Corporation Limited	Henderson International Finance Limited	
	KEB Hana Global Finance Limited	
	KEXIM ASIA LIMITED	
		Deletion in 2018
		HKCB Finance Limited

Incorporated outside Hong Kong

NIL

Annex Authorized Institutions and Local Representative Offices at 31 December 2018 (continued)

LOCAL REPRESENTATIVE OFFICES

ABC BANKING CORPORATION LTD	Iyo Bank, Ltd. (The) [#]	Standard Bank of South Africa Limited (The)
Ashikaga Bank, Ltd. (The)	JIH SUN INTERNATIONAL Bank, Ltd.	Swissquote Bank SA
BANCO BPM SOCIETA' PER AZIONI	Korea Development Bank (The)	also known as:
Banco Security	Manulife Bank of Canada	Swissquote Bank AG
BANK OF BEIJING CO., LTD.	Metropolitan Bank and Trust Company	Swissquote Bank Inc.
BANK OF DONGGUAN CO., LTD.	Nanto Bank, Ltd. (The)	Swissquote Bank Ltd
Bank of Fukuoka, Ltd. (The)	National Bank of Canada	Union Bank of Taiwan
Bank of Kyoto, Ltd. (The)	Nishi-Nippon City Bank, Ltd. (The)	Unione di Banche Italiane S.p.A.
Bank of Yokohama, Ltd. (The)	Norinchukin Bank (The)	VP Bank Ltd
Banque Cantonale de Genève	Oita Bank, Ltd. (The)	also known as:
Banque Transatlantique S.A.	P.T. Bank Central Asia	VP Bank AG
BENDURA BANK AG [#]	P.T. Bank Rakyat Indonesia (Persero)	VP Bank SA
CAIXABANK S.A.	Ping An Bank Co., Ltd.	Yamaguchi Bank, Ltd. (The)
CHINA BOHAI BANK CO., LTD.	Resona Bank, Limited	Yamanashi Chuo Bank, Ltd.
CHINA GUANGFA BANK CO., LTD.	Rothschild & Co Bank AG	
CLEARSTREAM BANKING S.A.	(formerly known as	
Doha Bank Q.S.C.	Rothschild Bank AG)	
Dukascopy Bank SA	Schroder & Co Bank AG	Deletion in 2018
Export-Import Bank of China (The)	also known as:	Corporation Bank
Habib Bank A.G. Zurich	Schroder & Co Banque SA	JAPAN POST BANK Co., Ltd.
HSH Nordbank AG	Schroder & Co Banca SA	Yuanta Commercial Bank Co., Ltd
HUA XIA BANK CO., Limited	Schroder & Co Bank Ltd	
	Schroder & Co Banco SA	
	Shinkin Central Bank	
	Shoko Chukin Bank, Ltd. (The)	
	Silicon Valley Bank	

[#] Addition in 2018

Table A Major Economic Indicators

	2014	2015	2016	2017	2018
I. Gross Domestic Product					
Real GDP growth (%)	2.8	2.4	2.2	3.8	3.0 ^(a)
Nominal GDP growth (%)	5.7	6.1	3.9	6.9	6.9 ^(a)
Real growth of major expenditure components of GDP (%)					
– Private consumption expenditure	3.3	4.8	2.0	5.5	5.6 ^(a)
– Government consumption expenditure	3.1	3.4	3.4	2.8	4.2 ^(a)
– Gross domestic fixed capital formation	(0.1)	(3.2)	(0.1)	2.9	2.2 ^(a)
of which					
– Building and construction	9.3	2.2	5.9	(0.5)	(0.7) ^(a)
– Machinery, equipment and Intellectual property products	(8.7)	(7.7)	(6.4)	3.8	9.1 ^(a)
– Exports ^(b)	1.0	(1.4)	0.7	5.9	3.8 ^(a)
– Imports ^(b)	1.0	(1.8)	0.9	6.6	4.5 ^(a)
GDP at current market prices (US\$ billion)	291.5	309.4	320.9	341.6	363.0 ^(a)
Per capita GDP at current market prices (US\$)	40,316	42,432	43,736	46,216	48,717 ^(a)
II. External Trade (HK\$ billion) ^(b)					
Trade in goods ^(c)					
– Exports of goods	3,986.8	3,889.2	3,892.9	4,212.8	4,457.9 ^(a)
– Imports of goods	4,237.7	4,066.5	4,022.6	4,391.3	4,712.0 ^(a)
– Balance of trade in goods	(250.9)	(177.3)	(129.7)	(178.5)	(254.1) ^(a)
Trade in services					
– Exports of services	829.1	808.9	764.8	812.9	892.3 ^(a)
– Imports of services	573.5	574.3	578.1	605.5	635.9 ^(a)
– Balance of trade in services	255.6	234.6	186.7	207.4	256.3 ^(a)
III. Fiscal Expenditure and Revenue (HK\$ million, fiscal year)					
Total government expenditure ^(d)	405,871	435,633	462,052	470,863	537,753 ^(a)
Total government revenue	478,668	450,007	573,125	619,836	596,419 ^(a)
Consolidated surplus/(deficit)	72,797	14,374	111,073	148,973	58,666 ^(a)
Reserve balance as at end of fiscal year ^(e)	828,514	842,888	953,960	1,102,934	1,161,600 ^(a)
IV. Prices (annual change, %)					
Consumer Price Index (A)	5.6	4.0	2.8	1.5	2.7
Composite Consumer Price Index	4.4	3.0	2.4	1.5	2.4
Trade Unit Value Indices					
– Domestic exports	0.2	(3.0)	(1.4)	2.0	1.8
– Re-exports	2.0	0.1	(1.7)	1.8	2.4
– Imports	1.9	(0.4)	(1.7)	1.9	2.6
Property Price Indices					
– Residential flats	6.0	15.5	(3.6)	16.7	13.0 ^(a)
– Office premises	3.2	6.1	(4.9)	14.1	14.0 ^(a)
– Retail premises	2.8	7.3	(5.8)	6.0	5.9 ^(a)
– Flatted factory premises	1.9	8.4	(4.3)	12.3	14.1 ^(a)

Table A Major Economic Indicators (continued)

	2014	2015	2016	2017	2018
V. Labour					
Labour force (annual change, %)	0.4	0.8	0.4	0.7	0.8
Employment (annual change, %)	0.5	0.8	0.4	1.0	1.3
Unemployment rate (annual average, %)	3.3	3.3	3.4	3.1	2.8
Underemployment rate (annual average, %)	1.5	1.4	1.4	1.2	1.1
Employment ('000)	3,744	3,774	3,787	3,823	3,867
VI. Money Supply (HK\$ billion)					
HK\$ money supply					
– M1	1,116.7	1,253.4	1,428.8	1,598.0	1,555.7
– M2 ^(f)	5,225.8	5,765.5	6,280.2	7,010.3	7,262.5
– M3 ^(f)	5,236.2	5,778.8	6,292.7	7,024.5	7,284.3
Total money supply					
– M1	1,708.7	1,971.1	2,214.0	2,431.5	2,421.6
– M2	11,011.4	11,618.4	12,508.1	13,755.3	14,348.1
– M3	11,048.9	11,655.0	12,551.3	13,803.8	14,403.7
VII. Interest Rates (end of period, %)					
Three-month interbank rate ^(g)	0.38	0.39	1.02	1.31	2.33
Savings deposit	0.01	0.01	0.01	0.01	0.13
One-month time deposit	0.01	0.01	0.01	0.01	0.14
Banks' 'Best lending rate'	5.00	5.00	5.00	5.00	5.13
Banks' 'Composite rate'	0.39	0.26	0.31	0.38	0.89
VIII. Exchange Rates (end of period)					
HK\$/US\$ ^(h)	7.756	7.751	7.754	7.814	7.834
Trade-weighted Effective Exchange Rate Index (Jan 2010=100)	99.0	104.9	108.8	100.9	104.8
IX. Foreign Currency Reserve Assets (US\$ billion) ⁽ⁱ⁾	328.5	358.8	386.3	431.4	424.6
X. Stock Market (end of period figures)					
Hang Seng Index	23,605	21,914	22,001	29,919	25,846
Average price/earnings ratio	10.9	9.9	10.5	16.3	10.5
Market capitalisation (HK\$ billion)	24,892.4	24,425.6	24,450.4	33,718.0	29,723.2

(a) The estimates are preliminary.

(b) Compiled based on the change of ownership principle in recording goods sent abroad for processing and merchandising.

(c) Includes non-monetary gold.

(d) Includes repayment of bonds and notes issued in July 2004.

(e) Includes changes in provision for loss in investments with the Exchange Fund.

(f) Adjusted to include foreign currency swap deposits.

(g) Refers to three-month Hong Kong Dollar Interest Settlement Rates.

(h) Based on the average closing middle market telegraphic transfer rate supplied by the Hang Seng Bank Limited.

(i) Excludes unsettled forward transactions but includes gold.

Table B Performance Ratios of the Banking Sector^(a)

	All Authorized Institutions					Retail Banks				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
	%	%	%	%	%	%	%	%	%	%
Asset Quality^(b)										
As % of total credit exposures ^(c)										
Total outstanding provisions/impairment allowances	0.38	0.44	0.49	0.48	0.49	0.24	0.28	0.29	0.26	0.34
Classified ^(d) exposures:										
– Gross	0.38	0.49	0.58	0.48	0.39	0.33	0.43	0.45	0.37	0.34
– Net of specific provisions/individual impairment allowances	0.23	0.31	0.35	0.26	0.19	0.23	0.30	0.31	0.25	0.20
– Net of all provisions/impairment allowances	0.00	0.05	0.09	0.00	(0.10)	0.09	0.15	0.17	0.11	(0.00)
As % of total loans ^(e)										
Total outstanding provisions/impairment allowances	0.55	0.66	0.76	0.71	0.70	0.35	0.46	0.51	0.45	0.52
Classified ^(d) loans:										
– Gross	0.52	0.73	0.85	0.68	0.55	0.46	0.69	0.72	0.56	0.50
– Net of specific provisions/individual impairment allowances	0.32	0.46	0.51	0.36	0.25	0.32	0.49	0.48	0.36	0.30
– Net of all provisions/impairment allowances	(0.03)	0.07	0.10	(0.04)	(0.15)	0.12	0.23	0.21	0.11	(0.02)
Overdue > 3 months and rescheduled loans	0.34	0.47	0.67	0.52	0.36	0.29	0.45	0.53	0.40	0.32
Profitability										
Return on assets (operating profit)	0.97	0.88	0.81	0.91	0.97	1.19	1.05	1.09	1.16	1.27
Return on assets (post-tax profit)	0.81	0.83	1.00	0.83	0.84	0.99	1.04	1.44	1.07	1.10
Net interest margin	1.14	1.07	1.04	1.12	1.20	1.40	1.32	1.32	1.45	1.62
Cost-to-income ratio	48.9	50.3	50.4	47.0	45.0	43.4	45.3	43.2	41.9	38.7
Loan impairment charges to total assets	0.06	0.09	0.10	0.10	0.06	0.05	0.09	0.07	0.06	0.05
Liquidity										
Loan to deposit ratio (all currencies)	72.2	70.1	68.4	73.0	72.6	57.5	56.5	57.0	59.5	60.1
Loan to deposit ^(f) ratio (Hong Kong dollar)	83.3	78.2	77.1	82.7	86.9	74.6	71.5	71.2	73.1	77.5
						Surveyed Institutions				
						2014	2015	2016	2017	2018
						%	%	%	%	%
Asset Quality										
Delinquency ratio of residential mortgage loans						0.03	0.03	0.03	0.03	0.02
Credit card receivables										
– Delinquency ratio						0.20	0.25	0.24	0.22	0.21
– Charge-off ratio						1.83	1.82	1.92	1.75	1.51
						Locally Incorporated Licensed Banks				
						2014	2015	2016	2017	2018
						%	%	%	%	%
Profitability										
Operating profit to shareholders' funds						13.1	11.4	10.9	11.7	12.9
Post-tax profit to shareholders' funds						11.1	11.4	14.6	10.9	11.2
Capital Adequacy										
Equity to assets ratio ^(b)						8.8	9.3	9.6	9.6	9.3
						All Locally Incorporated Authorized Institutions				
						2014	2015	2016	2017	2018
						%	%	%	%	%
Capital Adequacy^(g)										
Common Equity Tier 1 capital ratio						13.7	14.6	15.4	15.3	16.0
Tier 1 capital ratio						13.9	15.3	16.4	16.5	17.9
Total capital ratio						16.8	18.3	19.2	19.1	20.3

(a) Figures are related to Hong Kong offices only unless otherwise stated.

(b) Figures are related to Hong Kong offices. For the locally incorporated AIs, figures include their overseas branches.

(c) Credit exposures include loans and advances, acceptances and bills of exchange held, investment debt securities issued by others, accrued interest, and commitments and contingent liabilities to or on behalf of non-banks.

(d) Denotes loans or exposures graded as "substandard", "doubtful" or "loss" in the HKMA's Loan Classification System.

(e) Starting from 2015, the coverage was expanded to include locally incorporated AIs' major overseas subsidiaries.

(f) Includes swap deposits.

(g) The ratios are on a consolidated basis.

Table C Authorized Institutions: Domicile and Parentage

	2014	2015	2016	2017	2018
Licensed Banks					
(i) Incorporated in Hong Kong	21	22	22	22	22
(ii) Incorporated outside Hong Kong	138	135	134	133	130
Total	159	157	156	155	152
Restricted Licence Banks					
(i) Subsidiaries of licensed banks:					
(a) incorporated in Hong Kong	1	1	1	1	1
(b) incorporated outside Hong Kong	6	6	5	5	4
(ii) Subsidiaries or branches of foreign banks which are not licensed banks in Hong Kong	11	11	10	7	7
(iii) Bank related	1	3	3	3	3
(iv) Others	2	3	3	3	3
Total	21	24	22	19	18
Deposit-taking Companies					
(i) Subsidiaries of licensed banks:					
(a) incorporated in Hong Kong	6	4	4	4	3
(b) incorporated outside Hong Kong	3	3	3	3	3
(ii) Subsidiaries of foreign banks which are not licensed banks in Hong Kong	6	6	6	6	6
(iii) Bank related	2	–	–	–	–
(iv) Others	6	5	4	4	4
Total	23	18	17	17	16
All Authorized Institutions	203	199	195	191	186
Local Representative Offices	63	64	54	49	48

Table D Authorized Institutions: Region/Economy of Beneficial Ownership

Region/Economy	Licensed Banks					Restricted Licence Banks					Deposit-taking Companies				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
Asia & Pacific															
Hong Kong	7	7	7	7	7	–	–	–	–	–	4	3	2	2	2
Australia	5	5	5	5	5	–	–	–	–	–	–	–	–	–	–
Mainland China	19	21	21	22	22	2	2	2	2	2	3	3	3	3	2
India	12	12	12	12	12	–	–	–	–	–	1	1	1	1	1
Indonesia	1	1	1	1	1	1	1	1	1	1	–	–	–	–	–
Japan	11	11	11	11	10	1	2	2	2	2	1	1	1	1	1
Malaysia	4	4	4	4	4	–	–	–	–	–	1	1	1	1	1
Pakistan	1	1	1	1	1	–	1	1	1	1	2	1	1	1	1
Philippines	2	2	2	2	2	1	1	1	1	1	2	2	2	2	2
Singapore	6	6	6	6	6	–	–	–	–	–	2	–	–	–	–
South Korea	5	4	5	5	5	2	2	2	1	1	4	4	4	4	4
Taiwan	19	19	20	20	20	–	–	–	–	–	1	1	1	1	1
Thailand	1	1	1	1	1	3	3	3	2	2	–	–	–	–	–
Vietnam	–	–	–	–	–	–	–	–	–	–	1	1	1	1	1
Sub-Total	93	94	96	97	96	10	12	12	10	10	22	18	17	17	16
Europe															
Austria	2	2	1	1	1	–	–	–	–	–	–	–	–	–	–
Belgium	1	1	1	1	1	1	1	1	1	1	–	–	–	–	–
France	9	8	7	7	7	2	2	2	1	–	–	–	–	–	–
Germany	4	4	4	3	3	–	–	–	–	–	–	–	–	–	–
Italy	4	3	3	3	3	–	–	–	–	–	–	–	–	–	–
Liechtenstein	1	1	1	1	1	–	–	–	–	–	–	–	–	–	–
Netherlands	3	3	3	3	3	–	–	–	–	–	–	–	–	–	–
Spain	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–
Sweden	2	2	2	2	2	–	–	–	–	–	–	–	–	–	–
Switzerland	6	6	8	7	6	–	–	–	–	–	–	–	–	–	–
United Kingdom	11	10	10	10	9	–	–	–	–	–	1	–	–	–	–
Sub-Total	45	42	42	40	38	3	3	3	2	1	1	0	0	0	0
Middle East															
Iran	1	1	1	1	1	–	–	–	–	–	–	–	–	–	–
United Arab Emirates	3	3	2	2	2	–	–	–	–	–	–	–	–	–	–
Sub-Total	4	4	3	3	3	0	0	0	0	0	0	0	0	0	0
North America															
Canada	5	5	5	5	5	3	3	2	2	2	–	–	–	–	–
United States	10	10	9	9	9	5	6	5	5	5	–	–	–	–	–
Sub-Total	15	15	14	14	14	8	9	7	7	7	0	0	0	0	0
Brazil	1	2	1	1	1	–	–	–	–	–	–	–	–	–	–
South Africa	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Grand Total	159	157	156	155	152	21	24	22	19	18	23	18	17	17	16

Table E Presence of World's Largest 500 Banks in Hong Kong

Positions at 31.12.2018	Number of Overseas Banks ^(b)					Licensed Banks ^(c)					Restricted Licence Banks ^(c)					Deposit-Taking Companies ^(c)					Local Representative Offices				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
World Ranking^(a)																									
1–20	20	20	20	20	20	39	39	36	34	33	5	5	6	5	4	–	–	–	1	1	–	–	–	–	–
21–50	25	26	27	27	27	24	25	27	28	28	4	5	4	4	4	2	1	2	1	–	3	3	2	2	2
51–100	26	28	28	28	30	25	23	21	22	24	2	2	3	2	2	4	3	3	3	3	5	7	8	8	8
101–200	38	34	32	34	36	23	22	22	24	24	3	2	–	1	2	1	1	1	1	1	18	15	10	10	10
201–500	52	57	56	47	42	28	30	32	29	27	3	3	3	2	1	4	4	4	5	4	19	22	19	13	12
Sub-total	161	165	163	156	155	139	139	138	137	136	17	17	16	14	13	11	9	10	11	9	45	47	39	33	32
Others	47	41	31	31	31	20	18	18	18	16	4	7	6	5	5	12	9	7	6	7	18	17	15	16	16
Total	208	206	194	187	186	159	157	156	155	152	21	24	22	19	18	23	18	17	17	16	63	64	54	49	48

(a) Top 500 banks/banking groups in the world ranked by total assets. Figures are extracted from The Banker, July 2018 issue.

(b) The sum of the number of licensed banks, restricted licence banks, deposit-taking companies and local representative offices exceeds the number of overseas banks with presence in Hong Kong due to the multiple presence of some of the overseas banks.

(c) Consist of branches and subsidiaries of overseas banks.

Table F Balance Sheet: All Authorized Institutions and Retail Banks

All Authorized Institutions

(HK\$ billion)	2014			2015			2016			2017			2018		
	HK\$	F/CY	Total												
Assets															
Loans to customers	4,000	3,276	7,276	4,153	3,382	7,535	4,479	3,544	8,023	5,360	3,954	9,314	5,836	3,886	9,723
– Inside Hong Kong ^(a)	3,462	1,596	5,058	3,650	1,604	5,254	3,988	1,651	5,639	4,653	1,860	6,513	5,023	1,841	6,865
– Outside Hong Kong ^(b)	539	1,680	2,218	503	1,778	2,281	491	1,893	2,384	707	2,093	2,801	813	2,045	2,858
Interbank lending	431	4,948	5,379	561	4,577	5,138	720	4,513	5,233	652	5,343	5,995	692	5,906	6,598
– Inside Hong Kong	254	598	852	362	672	1,034	401	673	1,074	327	690	1,017	338	764	1,102
– Outside Hong Kong	176	4,351	4,527	199	3,905	4,104	318	3,841	4,159	326	4,653	4,978	354	5,142	5,496
Negotiable certificates of deposit (“NCDs”)	123	144	267	152	269	422	209	355	564	172	429	601	168	394	562
Negotiable debt instruments, other than NCDs	884	2,620	3,505	962	2,722	3,684	1,160	2,906	4,067	1,274	3,092	4,365	1,358	3,441	4,799
Other assets	850	1,165	2,015	1,053	1,349	2,403	1,049	1,716	2,766	924	1,497	2,421	875	1,486	2,361
Total assets	6,288	12,154	18,442	6,881	12,300	19,181	7,617	13,036	20,652	8,382	14,315	22,697	8,929	15,113	24,043
Liabilities															
Deposits from customers ^(c)	4,800	5,273	10,073	5,312	5,437	10,750	5,809	5,918	11,727	6,485	6,268	12,752	6,715	6,671	13,386
Interbank borrowing	694	4,293	4,986	805	4,011	4,816	888	3,842	4,730	829	4,653	5,482	945	4,849	5,794
– Inside Hong Kong	328	688	1,016	455	743	1,198	533	740	1,273	458	756	1,214	517	776	1,293
– Outside Hong Kong	365	3,605	3,971	351	3,267	3,618	355	3,101	3,457	371	3,897	4,268	428	4,073	4,501
Negotiable certificates of deposit	213	631	845	240	592	832	265	525	790	235	720	955	220	595	815
Other liabilities	1,205	1,333	2,537	1,322	1,461	2,783	1,563	1,843	3,405	1,618	1,889	3,507	1,853	2,195	4,048
Total liabilities	6,912	11,530	18,442	7,680	11,501	19,181	8,525	12,128	20,652	9,167	13,530	22,697	9,733	14,310	24,043

Retail Banks

(HK\$ billion)	2014			2015			2016			2017			2018		
	HK\$	F/CY	Total												
Assets															
Loans to customers	3,264	1,397	4,660	3,376	1,432	4,808	3,611	1,601	5,212	4,171	1,819	5,991	4,600	1,831	6,431
– Inside Hong Kong ^(a)	2,939	830	3,768	3,091	817	3,908	3,340	907	4,247	3,818	995	4,813	4,163	996	5,159
– Outside Hong Kong ^(b)	325	567	892	285	616	900	271	694	965	353	825	1,178	437	835	1,272
Interbank lending	236	2,099	2,335	303	1,643	1,946	372	1,683	2,054	383	1,993	2,376	445	2,364	2,809
– Inside Hong Kong	156	257	413	227	260	488	264	357	621	246	384	630	272	453	725
– Outside Hong Kong	80	1,843	1,923	75	1,383	1,458	108	1,325	1,433	137	1,609	1,746	173	1,911	2,084
Negotiable certificates of deposit (“NCDs”)	96	80	177	113	127	240	153	124	277	119	123	242	136	123	259
Negotiable debt instruments, other than NCDs	677	1,722	2,398	772	1,985	2,757	931	2,047	2,978	995	2,036	3,031	1,048	2,243	3,292
Other assets	671	814	1,485	781	935	1,716	771	1,217	1,989	733	1,118	1,851	722	1,116	1,838
Total assets	4,944	6,112	11,055	5,344	6,123	11,467	5,838	6,672	12,510	6,400	7,090	13,490	6,952	7,677	14,629
Liabilities															
Deposits from customers ^(c)	4,374	3,734	8,108	4,719	3,787	8,506	5,073	4,072	9,145	5,704	4,356	10,061	5,939	4,754	10,693
Interbank borrowing	294	698	992	329	586	915	365	535	900	304	587	891	354	714	1,068
– Inside Hong Kong	150	350	500	200	281	481	250	242	492	193	248	440	234	263	497
– Outside Hong Kong	144	347	491	130	304	434	115	293	408	111	340	451	120	451	572
Negotiable certificates of deposit	64	176	239	62	123	185	50	85	136	46	125	171	42	79	121
Other liabilities	956	760	1,716	1,058	803	1,861	1,235	1,094	2,329	1,316	1,051	2,367	1,528	1,220	2,748
Total liabilities	5,688	5,367	11,055	6,169	5,298	11,467	6,723	5,787	12,510	7,370	6,120	13,490	7,862	6,767	14,629

(a) Defined as loans for use in Hong Kong plus trade finance.

(b) Includes “others” (i.e. unallocated).

(c) Hong Kong dollar customer deposits include swap deposits.

Figures may not add up to total because of rounding.

Table G Major Balance Sheet Items by Region/Economy of Beneficial Ownership of Authorized Institutions

(HK\$ billion)		Mainland					Total
		China	Japan	US	Europe	Others	
Total Assets	2017	8,212	1,554	1,109	3,035	8,786	22,697
	2018	8,845	1,500	1,156	3,281	9,261	24,043
Deposits from Customers	2017	4,620	390	550	1,566	5,626	12,752
	2018	4,805	372	619	1,683	5,906	13,386
Loans to Customers	2017	3,585	612	286	1,258	3,572	9,314
	2018	3,682	577	299	1,296	3,869	9,723
Loans to Customers Inside Hong Kong ^(a)	2017	2,414	368	235	729	2,766	6,513
	2018	2,466	352	254	753	3,039	6,865
Loans to Customers Outside Hong Kong ^(b)	2017	1,172	243	51	529	806	2,801
	2018	1,216	226	44	542	830	2,858

(a) Defined as loans for use in Hong Kong plus trade finance.

(b) Includes "others" (i.e. unallocated).

Figures may not add up to total because of rounding.

Table H Flow of Funds for All Authorized Institutions and Retail Banks

All Authorized Institutions

Increase/(Decrease) in (HK\$ billion)	2017			2018		
	HK\$	F/CY	Total	HK\$	F/CY	Total
Assets						
Loans to customers	881	409	1,290	476	(67)	409
– Inside Hong Kong ^(a)	665	209	874	371	(19)	352
– Outside Hong Kong ^(b)	216	201	417	106	(49)	57
Interbank lending	(67)	830	762	40	563	603
– Inside Hong Kong	(75)	17	(57)	12	74	85
– Outside Hong Kong	7	812	819	28	490	518
All other assets	(48)	40	(8)	31	303	334
Total assets	765	1,279	2,044	547	799	1,346
Liabilities						
Deposits from customers ^(c)	676	350	1,025	231	403	634
Interbank borrowing	(59)	811	752	116	196	312
– Inside Hong Kong	(75)	15	(59)	59	20	79
– Outside Hong Kong	16	796	812	57	176	233
All other liabilities	25	242	267	220	181	400
Total liabilities	642	1,402	2,044	566	780	1,346
Net Interbank Borrowing/(Lending)	9	(19)	(10)	76	(367)	(291)
Net Customer Lending/(Borrowing)	205	60	265	246	(471)	(225)

Retail Banks

Increase/(Decrease) in (HK\$ billion)	2017			2018		
	HK\$	F/CY	Total	HK\$	F/CY	Total
Assets						
Loans to customers	560	219	779	429	12	441
– Inside Hong Kong ^(a)	478	88	566	345	1	346
– Outside Hong Kong ^(b)	82	131	213	84	11	95
Interbank lending	11	311	322	63	371	434
– Inside Hong Kong	(18)	26	9	26	69	95
– Outside Hong Kong	29	284	313	36	302	338
All other assets	(9)	(111)	(121)	61	205	265
Total assets	562	418	980	552	587	1,140
Liabilities						
Deposits from customers ^(c)	631	285	916	235	397	632
Interbank borrowing	(62)	52	(10)	50	127	177
– Inside Hong Kong	(58)	6	(52)	41	15	56
– Outside Hong Kong	(4)	46	42	10	111	121
All other liabilities	77	(4)	74	207	123	331
Total liabilities	647	333	980	492	647	1,140
Net Interbank Borrowing/(Lending)	(73)	(259)	(331)	(12)	(244)	(256)
Net Customer Lending/(Borrowing)	(71)	(66)	(137)	194	(386)	(191)

(a) Defined as loans for use in Hong Kong plus trade finance.

(b) Includes "others" (i.e. unallocated).

(c) Hong Kong dollar customer deposits include swap deposits.

Figures may not add up to total because of rounding.

Table I Loans to and Deposits from Customers by Category of Authorized Institutions

(HK\$ billion)	Loans to Customers				Deposits from Customers ^(a)			
	HK\$	F/CY	Total	%	HK\$	F/CY	Total	%
2014								
Licensed banks	3,954	3,241	7,195	99	4,790	5,249	10,039	100
Restricted licence banks	22	29	51	1	5	22	27	–
Deposit-taking companies	24	6	31	–	5	2	7	–
Total	4,000	3,276	7,276	100	4,800	5,273	10,073	100
2015								
Licensed banks	4,118	3,342	7,460	99	5,299	5,420	10,720	100
Restricted licence banks	23	34	57	1	8	17	25	–
Deposit-taking companies	12	6	18	–	5	1	6	–
Total	4,153	3,382	7,535	100	5,312	5,437	10,750	100
2016								
Licensed banks	4,447	3,507	7,954	99	5,797	5,893	11,689	100
Restricted licence banks	20	33	52	1	7	25	32	–
Deposit-taking companies	12	5	17	–	5	1	6	–
Total	4,479	3,544	8,023	100	5,809	5,918	11,727	100
2017								
Licensed banks	5,330	3,921	9,251	99	6,471	6,239	12,710	100
Restricted licence banks	17	27	45	–	9	28	37	–
Deposit-taking companies	12	5	18	–	5	1	6	–
Total	5,360	3,954	9,314	100	6,485	6,268	12,752	100
2018								
Licensed banks	5,802	3,847	9,650	99	6,695	6,646	13,341	100
Restricted licence banks	22	33	55	1	15	25	40	–
Deposit-taking companies	12	5	18	–	6	1	6	–
Total	5,836	3,886	9,723	100	6,715	6,671	13,386	100

(a) Hong Kong dollar customer deposits include swap deposits.

The sign “–” denotes a figure of less than 0.5.

Figures may not add up to total because of rounding.

Table J Loans to Customers inside Hong Kong by Economic Sector

All Authorized Institutions

Sector (HK\$ billion)	2014		2015		2016		2017		2018	
	HK\$	%								
Hong Kong's visible trade	543	11	454	9	455	8	494	8	457	7
Manufacturing	266	5	244	5	247	4	293	4	318	5
Transport and transport equipment	261	5	275	5	295	5	342	5	338	5
Building, construction and property development, and investment	1,060	21	1,138	22	1,260	22	1,471	23	1,542	22
Wholesale and retail trade	473	9	444	8	413	7	409	6	412	6
Financial concerns (other than authorized institutions)	388	8	453	9	546	10	821	13	871	13
Individuals:										
– to purchase flats in the Home Ownership Scheme, the Private Sector Participation Scheme and the Tenants Purchase Scheme	42	1	41	1	43	1	51	1	58	1
– to purchase other residential properties	988	20	1,078	21	1,122	20	1,208	19	1,314	19
– other purposes	450	9	490	9	519	9	618	9	681	10
Others	588	12	637	12	740	13	805	12	875	13
Total^(a)	5,058	100	5,254	100	5,639	100	6,513	100	6,865	100

Retail Banks

Sector (HK\$ billion)	2014		2015		2016		2017		2018	
	HK\$	%								
Hong Kong's visible trade	316	8	294	8	312	7	327	7	315	6
Manufacturing	163	4	160	4	171	4	201	4	216	4
Transport and transport equipment	176	5	185	5	192	5	213	4	218	4
Building, construction and property development, and investment	829	22	856	22	949	22	1,086	23	1,157	22
Wholesale and retail trade	310	8	262	7	255	6	245	5	260	5
Financial concerns (other than authorized institutions)	203	5	224	6	284	7	425	9	464	9
Individuals:										
– to purchase flats in the Home Ownership Scheme, the Private Sector Participation Scheme and the Tenants Purchase Scheme	42	1	41	1	43	1	51	1	58	1
– to purchase other residential properties	976	26	1,070	27	1,115	26	1,202	25	1,307	25
– other purposes	362	10	398	10	430	10	495	10	550	11
Others	393	10	417	11	498	12	569	12	613	12
Total^(a)	3,768	100	3,908	100	4,247	100	4,813	100	5,159	100

(a) Defined as loans for use in Hong Kong plus trade finance.
Figures may not add up to total because of rounding.

Table K Deposits from Customers

(HK\$ billion)	All Authorized Institutions				Retail banks			
	Demand	Savings	Time	Total	Demand	Savings	Time	Total
Hong Kong Dollar ^(a)								
2014	787	2,242	1,772	4,800	700	2,206	1,468	4,374
2015	904	2,490	1,918	5,312	803	2,436	1,480	4,719
2016	1,038	2,715	2,055	5,809	925	2,669	1,479	5,073
2017	1,160	3,067	2,258	6,485	1,022	3,005	1,677	5,704
2018	1,093	2,806	2,817	6,715	988	2,757	2,193	5,939
Foreign Currency								
2014	592	1,723	2,957	5,273	349	1,514	1,871	3,734
2015	718	2,005	2,715	5,437	396	1,706	1,685	3,787
2016	785	2,224	2,909	5,918	448	1,939	1,684	4,072
2017	833	2,263	3,172	6,268	494	1,964	1,898	4,356
2018	874	2,118	3,678	6,671	559	1,845	2,350	4,754
Total								
2014	1,379	3,965	4,729	10,073	1,049	3,721	3,339	8,108
2015	1,622	4,495	4,633	10,750	1,199	4,142	3,165	8,506
2016	1,824	4,939	4,964	11,727	1,373	4,608	3,164	9,145
2017	1,993	5,330	5,430	12,752	1,517	4,969	3,575	10,061
2018	1,967	4,924	6,495	13,386	1,547	4,602	4,543	10,693

(a) Hong Kong dollar customer deposits include swap deposits.

Figures may not add up to total because of rounding.

Table L Geographical Breakdown of Net External Claims/(Liabilities) of All Authorized Institutions

Region/Economy ^(a) (HK\$ billion)	2017			2018		
	Net Claims on/(Liabilities to) Banks Outside Hong Kong	Net Claims on/(Liabilities to) Non-Bank Customers Outside Hong Kong	Total Net Claims/ (Liabilities)	Net Claims on/(Liabilities to) Banks Outside Hong Kong	Net Claims on/(Liabilities to) Non-Bank Customers Outside Hong Kong	Total Net Claims/ (Liabilities)
	Developed Countries	390	914	1,303	434	1,029
United States of America	103	383	486	118	571	689
Australia	245	88	333	270	104	374
Japan	61	339	401	4	338	342
Canada	50	42	92	95	70	165
Luxembourg	67	19	86	54	20	74
Ireland	(1)	24	22	0	44	44
New Zealand	19	19	38	20	22	41
Germany	10	63	74	(18)	52	34
Sweden	3	(1)	2	3	14	18
France	(6)	64	58	(47)	59	12
Norway	4	7	11	5	6	11
Belgium	1	3	3	7	3	10
Liechtenstein	(1)	(1)	(1)	8	(0)	8
Austria	5	1	5	4	0	5
Denmark	1	2	3	1	1	2
Finland	1	2	3	2	(1)	2
Malta	(1)	1	1	(1)	1	(0)
Greece	(0)	(1)	(1)	(0)	(1)	(1)
Portugal	0	(1)	(0)	(0)	(1)	(1)
Switzerland	(83)	(7)	(90)	(11)	(6)	(17)
Spain	(20)	(1)	(22)	(33)	(2)	(35)
Italy	(30)	(2)	(31)	(35)	(2)	(37)
Netherlands	(164)	22	(143)	(107)	40	(67)
United Kingdom	125	(151)	(26)	94	(305)	(211)
Others	(0)	(1)	(1)	0	2	2
Offshore centres	(85)	124	39	(23)	120	97
West Indies UK	0	152	152	0	130	130
Cayman Islands	(28)	60	33	(5)	68	62
Panama	0	2	2	1	7	9
Bahrain	12	4	15	4	4	9
Mauritius	(4)	3	(1)	5	2	7
Jersey	(0)	4	4	(0)	5	4
Guernsey	(0)	(0)	(0)	(0)	3	2
Singapore	39	(87)	(48)	86	(86)	(0)
Vanuatu	(0)	(1)	(1)	(0)	(1)	(1)
Bermuda	(0)	(2)	(2)	(0)	(1)	(1)
Barbados	0	(1)	(1)	0	(2)	(2)
Bahamas	(6)	1	(5)	(12)	3	(9)
Samoa	(0)	(27)	(27)	(0)	(27)	(27)
Macao SAR	(97)	14	(84)	(101)	16	(85)
Others	0	1	1	0	(1)	(1)
Developing Europe	(1)	(65)	(65)	(11)	(64)	(75)
Turkey	5	0	5	4	(1)	3
Hungary	2	(0)	2	1	1	2
Czech Republic	0	(0)	(0)	(1)	0	(0)
Russia	(0)	(64)	(64)	(8)	(64)	(72)
Others	(8)	(1)	(9)	(7)	(0)	(8)

Table L Geographical Breakdown of Net External Claims/(Liabilities) of All Authorized Institutions (continued)

Region/Economy ^(a) (HK\$ billion)	2017			2018		
	Net Claims on/(Liabilities to) Banks Outside Hong Kong	Net Claims on/(Liabilities to) Non-Bank Customers Outside Hong Kong	Total Net Claims/ (Liabilities)	Net Claims on/(Liabilities to) Banks Outside Hong Kong	Net Claims on/(Liabilities to) Non-Bank Customers Outside Hong Kong	Total Net Claims/ (Liabilities)
Developing Latin America and Caribbean	27	16	42	22	8	30
Venezuela	16	1	17	14	0	14
Brazil	8	2	10	7	2	9
Mexico	1	5	6	0	6	7
Peru	0	4	4	0	5	5
Chile	1	(2)	(1)	1	(2)	(1)
Argentina	1	(0)	0	0	(2)	(2)
Others	0	6	6	(1)	(1)	(2)
Developing Africa and Middle East	38	19	57	19	(2)	17
United Arab Emirates	35	30	65	27	27	54
Qatar	7	24	31	12	23	35
South Africa	5	1	6	6	2	8
Oman	(0)	3	2	(1)	3	2
Kenya	(1)	0	(0)	0	1	1
Egypt	1	1	2	(2)	2	(0)
Israel	1	(2)	(0)	1	(1)	(0)
Algeria	(0)	(0)	(1)	(0)	(0)	(1)
Ghana	(1)	(0)	(1)	(1)	(0)	(1)
Kuwait	(2)	(11)	(13)	(0)	(1)	(2)
Liberia	0	(2)	(2)	0	(3)	(3)
Saudi Arabia	(1)	20	18	(17)	(2)	(18)
Nigeria	(2)	(14)	(17)	(2)	(19)	(22)
Others	(4)	(30)	(34)	(4)	(32)	(35)
Developing Asia and Pacific	1,362	(471)	890	1,427	(442)	984
Mainland China	904	(183)	721	865	(152)	713
Republic of Korea	219	30	248	230	46	277
India	(9)	86	77	(5)	75	70
Malaysia	31	(10)	21	46	7	53
Indonesia	13	18	31	16	16	32
Bangladesh	15	(1)	14	19	(1)	18
Sri Lanka	9	5	14	7	4	11
Mongolia	(0)	2	1	(0)	2	2
Papua New Guinea	(0)	1	1	(0)	2	2
Myanmar	(1)	1	0	(1)	1	0
Pakistan	5	(2)	3	1	(2)	(1)
Brunei Darussalam	(1)	(1)	(2)	(1)	(1)	(2)
Kazakhstan	(6)	(6)	(12)	(2)	(3)	(4)
Vietnam	(14)	8	(6)	(18)	13	(5)
Cambodia	(4)	0	(4)	(5)	(1)	(6)
Nepal	(13)	(1)	(14)	(6)	(2)	(8)
Thailand	57	(61)	(4)	57	(68)	(10)
Philippines	(15)	(18)	(33)	(15)	(23)	(37)
Taiwan	171	(344)	(172)	240	(363)	(123)
Others	0	4	4	(2)	5	3
International organisations	0	74	74	0	76	76
Overall Total	1,731	610	2,341	1,868	726	2,593

(a) Regions and economies are classified according to the Bank for International Settlements' (BIS) Guidelines for Reporting the BIS International Banking Statistics issued in March 2013.

Figures may not add up to total because of rounding.

Abbreviations used in this Report

AIs	–	Authorized institutions	HKAB	–	Hong Kong Association of Banks
AML/CFT	–	Anti-money laundering and counter-financing of terrorism	HKD	–	Hong Kong dollar
AMBs	–	Approved money brokers	HKFRSs	–	Hong Kong Financial Reporting Standards
AMLO	–	Anti-Money Laundering and Counter-Terrorist Financing Ordinance	HKIMR	–	Hong Kong Institute for Monetary Research
AoF	–	Academy of Finance	HKMA	–	Hong Kong Monetary Authority
APG	–	Asia/Pacific Group on Money Laundering	HKTR	–	Hong Kong Trade Repository
ASC	–	Audit Sub-Committee	IA	–	Insurance Authority (<i>Banking Stability chapter</i>)
ASEAN	–	Association of Southeast Asian Nations	IA	–	Internal Audit (<i>Corporate Functions chapter</i>)
BCR	–	Banking (Capital) Rules	IFFO	–	Infrastructure Financing Facilitation Office
BELR	–	Banking (Exposure Limits) Rules	IFRS 9	–	International Financial Reporting Standard 9
BO	–	Banking Ordinance	IMF	–	International Monetary Fund
BP	–	Backing Portfolio	INEDs	–	Independent non-executive directors
CBC	–	Currency Board Sub-Committee	IOSCO	–	International Organization of Securities Commissions
CBCM	–	Cross-Border Crisis Management	IP	–	Investment Portfolio
CCP standard	–	Capital requirements for bank exposures to central counterparties	IRB	–	Internal ratings-based
CDD	–	Customer due diligence	IRRBB	–	Interest rate risk in the banking book
CFR	–	Core Funding Ratio	LAC	–	Loss-absorbing capacity
CHATS	–	Clearing House Automated Transfer System	LAC Rules	–	Financial Institutions (Resolution) (Loss-absorbing Capacity Requirements – Banking Sector) Rules
CLS	–	Continuous Linked Settlement	LCR	–	Liquidity Coverage Ratio
CMCG	–	Crisis Management Coordination Group	LegCo	–	Legislative Council
CMF	–	Crisis Management Framework	LEERS	–	Linked Exchange Rate System
CMGs	–	Crisis management groups	LMR	–	Liquidity Maintenance Ratio
CMU	–	Central Moneymarkets Unit	LTGP	–	Long-Term Growth Portfolio
CPMI	–	Committee on Payments and Market Infrastructures	LTV	–	Loan-to-value
CoP	–	Code of Practice	ML/TF	–	Money laundering and terrorist financing
C-RAF	–	Cyber Resilience Assessment Framework	MoU	–	Memorandum of Understanding
CSDs	–	Central securities depositories	MPF	–	Mandatory Provident Fund
CSE	–	Crisis Simulation Exercise	MSP	–	Mystery shopping programme
CTCs	–	Corporate treasury centres	NLTI	–	Non-investment-linked long-term insurance
CU	–	Convertibility Undertaking	NSFR	–	Net Stable Funding Ratio
DPS	–	Deposit Protection Scheme	Open API	–	Open Application Programming Interface
DSR	–	Debt servicing ratio	OTC	–	Over-the-counter
D-SIBs	–	Domestic systemically important banks	PBoC	–	People's Bank of China
DvP	–	Delivery versus Payment	PBGS	–	Pilot Bond Grant Scheme
ECF	–	Enhanced Competency Framework	PFMI	–	Principles for Financial Market Infrastructures
EFAC	–	Exchange Fund Advisory Committee	PSSVFO	–	Payment Systems and Stored Value Facilities Ordinance
EFBNs	–	Exchange Fund Bills and Notes	Regtech	–	Regulatory technology
EMEAP	–	Executives' Meeting of East Asia-Pacific Central Banks	ReSG	–	Resolution Steering Group
FATF	–	Financial Action Task Force	PvP	–	Payment-versus-payment
FCAS	–	Fintech Career Acceleration Scheme	RIs	–	Registered institutions
FFO	–	Fintech Facilitation Office	RMB	–	Renminbi
FIRO	–	Financial Institutions (Resolution) Ordinance	RPSs	–	Retail payment systems
FMIIs	–	Financial market infrastructures	RTGS	–	Real Time Gross Settlement
FMR	–	Focused Meeting on Resolution	SA-CCR	–	Standardised approach for measuring counterparty credit risk exposures
FPS	–	Faster Payment System	SFC	–	Securities and Futures Commission
FS	–	Financial Secretary	SIG	–	Supervision and Implementation Group
FSB	–	Financial Stability Board	SMEs	–	Small and medium-sized enterprises
FSS	–	Fintech Supervisory Sandbox	SPM	–	Supervisory Policy Manual
GBA	–	Greater Bay Area	SRC	–	Supervisory and Regulatory Cooperation
GDP	–	Gross Domestic Product	Suptech	–	Supervisory technology
GFC	–	Global Financial Crisis	SVFs	–	Stored value facilities
GSC	–	Governance Sub-Committee	USD	–	US dollar
G-SIBs	–	Global systemically important banks	TLAC	–	Total loss-absorbing capacity
HIBOR	–	Hong Kong Interbank Offered Rate	WGFM	–	Working Group on Financial Markets

Reference Resources

The *HKMA Annual Report* is usually published in April each year. A number of other HKMA publications provide explanatory and background information on the HKMA's policies and functions. These include:

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HKMA Background Brief No. 2 – Banking Supervision in Hong Kong (Second Edition)

HKMA Background Brief No. 3 – Mandate and Governance of the Hong Kong Monetary Authority

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Money in Hong Kong

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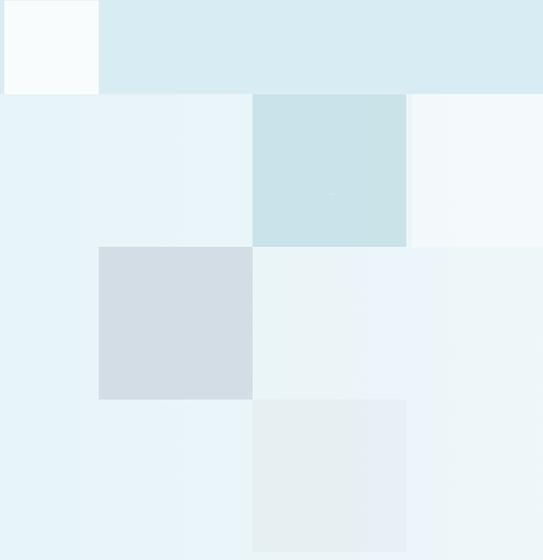
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