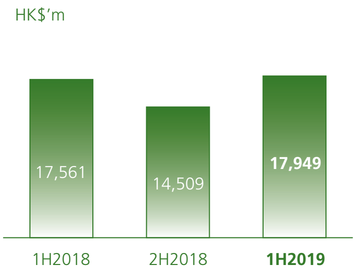
MANAGEMENT DISCUSSION AND ANALYSIS

Following the completion of the acquisition of Bank of China Limited, Vientiane Branch ("BOC Vientiane Branch") on 21 January 2019, the Group has applied the merger accounting method for the combination of entity under common control in the preparation of its financial statements. The comparative information for 2018 has been restated accordingly. The above transaction is referred as the "acquisition" in this Management Discussion and Analysis.

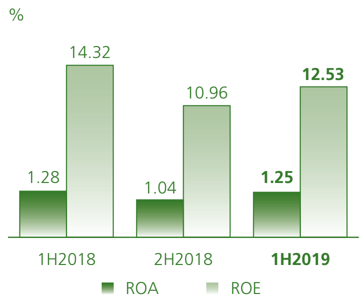
FINANCIAL PERFORMANCE AND CONDITIONS AT A GLANCE

The following table is a summary of the Group's key financial results for the first half of 2019 in comparison with the previous two half-year periods of 2018.

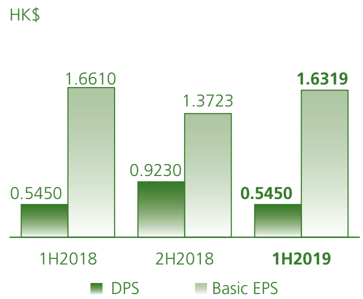
Profit Attributable to Equity Holders and Other Equity Instrument Holders



Return on Average Shareholders' Equity[1] ("ROE") and Return on Average Total Assets[1] ("ROA")



Basic Earnings Per Share ("Basic EPS") and Dividend Per Share ("DPS")



Profit attributable to equity holders and other equity instrument holders

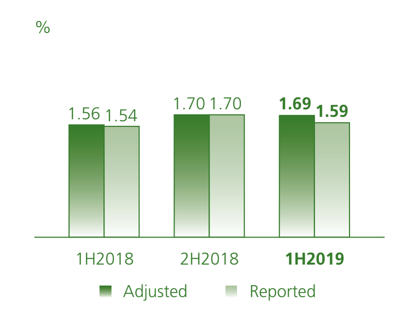
- The profit attributable to equity holders and other equity instrument holders in the first half of 2019 amounted to HK$17,949 million, representing a year-on-year increase of 2.2% and an increase of 23.7% compared to the second half of 2018.

Solid returns to shareholders

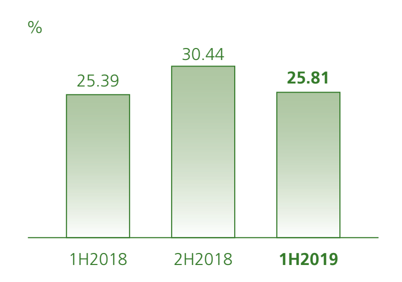
- ROE and ROA was 12.53% and 1.25% respectively.
- Basic EPS was HK$1.6319. The interim dividend per share was HK$0.545.

MANAGEMENT DISCUSSION AND ANALYSIS

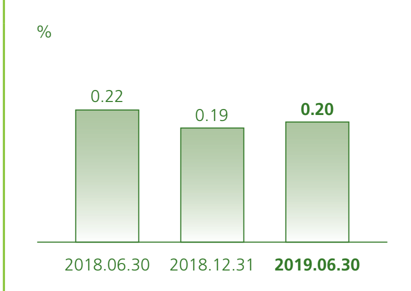
Net Interest Margin ("NIM")



Cost to Income Ratio



Classified or Impaired Loan Ratio[2]



Proactive assets and liabilities management, resulting in improved net interest margin ("NIM")

- NIM was 1.59%, up 5 basis points year-on-year. If the funding income or cost of foreign currency swap contracts[3] were included, NIM would have been 1.69%, up 13 basis points, as a result of the Group capturing opportunities from higher market interest rates and proactively managing its assets and liabilities.

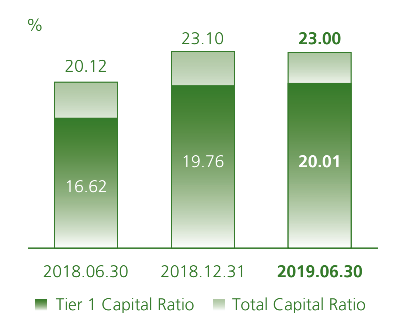
Flexible deployment of resources and high operational efficiency

- The Group's cost to income ratio was 25.81%, up 0.42 percentage points year-on-year, maintaining cost efficiency at a solid level relative to industry peers.

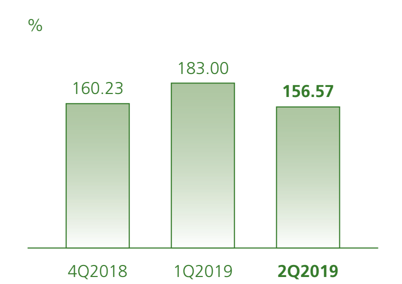
Prudent risk management, maintaining benign asset quality

- The classified or impaired loan ratio was 0.20%, well below the market average level.

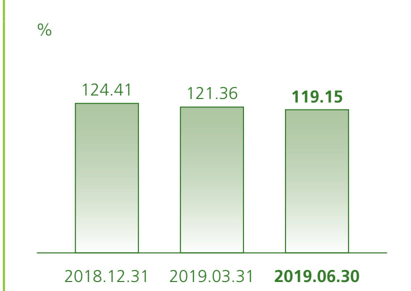
Capital Ratio



Average Value of Liquidity Coverage Ratio



Net Stable Funding Ratio



Strong capital position to support business growth

- Total capital ratio was 23.00%. Tier 1 capital ratio was 20.01%, up 0.25 percentage points from the prior year end.

Sound liquidity position

- The average value of the Group's liquidity coverage ratio in the first and second quarter of 2019 remained stable at 183.00% and 156.57% respectively.
- Net stable funding ratio stood at 121.36% at the end of March 2019 and 119.15% at the end of June 2019 respectively.

1. Return on average shareholders' equity and return on average total assets as defined in "Financial Highlights".
2. Classified or impaired loans represent advances that are either classified as "substandard", "doubtful" or "loss" under the Group's classification of loan quality, or classified as Stage 3.
3. Foreign exchange swap contracts are normally used for the Group's liquidity management and funding activities. In foreign exchange swap contracts, the Group exchanges one currency (original currency) for another (swapped currency) at the spot exchange rate (spot transaction) and commits to reverse the spot transaction by exchanging the same currency pair at a future maturity date at a predetermined rate (forward transaction). In this way, surplus funds in the original currency are swapped into another currency for liquidity and funding purposes with minimal foreign exchange risk. The exchange difference (funding income or cost) between the spot and forward contracts is recognised as a foreign exchange gain or loss (as included in "net trading gain"), while the corresponding interest differential between the surplus funds in the original currency and swapped currency is reflected in net interest income.

MANAGEMENT DISCUSSION AND ANALYSIS

ECONOMIC BACKGROUND AND OPERATING ENVIRONMENT

In the first half of 2019, the global economy exhibited slower growth and a more cautious outlook amid rising uncertainties, including ongoing trade friction between China and the US, the unresolved direction of Brexit, and elevated political risks in certain countries. The US economy continued to grow steadily, although there was a gradual decline in the manufacturing purchasing managers' and consumer confidence indices. Meanwhile, the US Federal Reserve shifted towards a more dovish monetary policy stance. Amid rising political risks in certain countries, Eurozone economic growth remained slow, and the European Central Bank continued its highly accommodative monetary policy. In the face of rising external uncertainties, the Mainland government provided stronger policy support to the Chinese economy, which recorded year-on-year growth of 6.3% in the first half of 2019. Economic performance in Southeast Asia was largely steady, with a number of countries benefitting from increased foreign investment.

Hong Kong's economic growth continued to slacken, with the economy expanded modestly by 0.5% year-on-year in the second quarter of 2019, slightly slower than the 0.6% growth in the first quarter. Total retail sales in Hong Kong declined 2.6% year-on-year in the first half of 2019. Nevertheless, positive factors including full employment, a more proactive fiscal policy by the HKSAR government and increasing policy support in other major economies, helped to overcome some of the uncertainties affecting Hong Kong.

The average 1-month HIBOR and 1-month LIBOR rose from 1.34% and 2.02% respectively in 2018 to 1.67% and 2.47% respectively in the first half of 2019. The USD yield curve was inverted at some points. The US Federal Reserve cut its federal funds target rate in late July, the first time in a decade.

In the first half of 2019, global financial markets were boosted by the dovish shift of the US Federal Reserve's monetary policy stance. However, Hong Kong stock market experienced a correction from the beginning of May onwards, against a backdrop of renewed China-US trade frictions and an increasingly cautious global economic outlook. As at the end of June 2019, the Hang Seng Index was up 10.4% from the end of 2018. However, IPO activity in the first half of 2019 dropped notably compared to the same period of 2018 and the average daily trading volume of the stock market declined by 22.7% over the same period of last year.

Private residential property prices gradually stabilised in the first half of 2019, largely driven by the optimism regarding the more accommodative stance of the US Federal Reserve and the low interest rate environment in Hong Kong. Prices of private residential properties rose 9.5% in the first half of 2019, with transaction volumes also rising. The HKSAR government continued to implement demand management measures and the HKMA maintained prudent supervisory measures on mortgage loans, which helped banks to maintain a solid asset quality of their mortgage businesses.

Offshore RMB business in Hong Kong maintained steady development, with a series of capital account liberalisation and RMB internationalisation measures being introduced and implemented in an orderly manner. The banking and insurance sectors were further opened up to foreign investors through the removal of shareholding limits from foreign investors and total asset requirements. There was also further expansion and improvement of the connections between Hong Kong and Chinese mainland stock markets, as well as gradual progress in the opening-up of the exchange-listed bond market and futures market. Meanwhile, MSCI carried out the phased expansion of the weighting of China's A shares in the MSCI index, while Chinese onshore bonds were included in the Bloomberg Barclays Global Aggregate Index. These measures opened up new business opportunities for the financial industry in Hong Kong and further promoted the healthy development of offshore RMB markets.

In the first half of 2019, Hong Kong's banking industry faced a number of challenges in its operating environment, including looming trade protectionism, changes in global monetary policies, the diverging performance of emerging market economies and rising geopolitical risks. During the period, the HKMA granted eight virtual banking licenses with a view to promote financial inclusion, product and business innovation and changes to the traditional operations of the banking industry. At the same time, the Mainland government further expanded the scope of its economic opening up and deepened its supply-side reform efforts. The development of the Guangdong-Hong Kong-Macao Greater Bay Area was further facilitated by the release of the Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area and the expansion of coverage of more than 30 categories of public services in the Chinese mainland to holders of the Mainland Travel Permit for Hong Kong and Macao residents from October 2019. Together with the further development of two-way capital market connections between the Chinese mainland and Hong Kong, all of these factors fueled Hong Kong's economic growth and led to enormous demand for financial services, thus instilling banks in Hong Kong with fresh impetus.

MANAGEMENT DISCUSSION AND ANALYSIS

CONSOLIDATED FINANCIAL REVIEW

The comparative information for 2018 has been restated following the Group's application of the merger accounting method in the preparation of its financial statements as a result of the acquisition.

Financial Highlights

HK$'m	**Half-year ended 30 June 2019**	(Restated) Half-year ended 31 December 2018	(Restated) Half-year ended 30 June 2018
Net operating income before impairment allowances	**29,169**	26,921	27,614
Operating expenses	**(7,528)**	(8,194)	(7,012)
Operating profit before impairment allowances	**21,641**	18,727	20,602
Operating profit after impairment allowances	**20,848**	17,829	20,258
Profit before taxation	**21,552**	17,853	21,228
Profit attributable to equity holders of the Company and other equity instrument holders	**17,949**	14,509	17,561

In the first half of 2019, the Group's profit attributable to equity holders and other equity instrument holders amounted to HK$17,949 million, an increase of HK$388 million or 2.2% year-on-year. Net operating income before impairment allowances was HK$29,169 million, up HK$1,555 million or 5.6% year-on-year. Net interest income rose, mainly as a result of rising market interest rates and the positive impact arising from the Group's proactive management of its assets and liabilities. A higher net gain was also recorded from the disposal of certain debt securities. Net fee and commission income decreased year-on-year, which partially offset the above-mentioned income growth. Operating expenses increased year-on-year as a result of the Group's ongoing investment in supporting its business expansion. Net charge of impairment allowances increased year-on-year while the net gain from fair-value adjustments on investment properties decreased on a year-on-year basis.

As compared with the second half of 2018, the Group's net operating income before impairment allowances rose by HK$2,248 million or 8.4%. This was mainly attributable to an increase in net fee and commission income and a net gain from the disposal of certain debt securities. However, net interest income decreased, partially offsetting the above-mentioned income growth. Moreover, operating expenses and net charge of impairment allowances fell, while the Group recorded a net gain from fair-value adjustments on investment properties. As a result, profit attributable to equity holders and other equity instrument holders increased by HK$3,440 million or 23.7% compared to the second half of last year.

INCOME STATEMENT ANALYSIS

The comparative information of the following income statement analysis has been restated to conform to the current year's presentation.

Net Interest Income and Net Interest Margin

HK$'m, except percentages	**Half-year ended 30 June 2019**	(Restated) Half-year ended 31 December 2018	(Restated) Half-year ended 30 June 2018
Interest income	**33,605**	33,264	28,601
Interest expense	**(13,702)**	(12,302)	(10,062)
Net interest income	**19,903**	20,962	18,539
Average interest-earning assets	**2,521,282**	2,440,558	2,434,698
Net interest spread	**1.37%**	1.49%	1.37%
Net interest margin	**1.59%**	1.70%	1.54%
Net interest margin (adjusted)*	**1.69%**	1.70%	1.56%

* Including the funding income or cost of foreign currency swap contracts.

Net interest income amounted to HK$19,903 million in the first half of 2019. If the funding income or cost of foreign currency swap contracts# were included, net interest income would have increased by 12.2% year-on-year. The increase was driven by improvement in net interest margin and growth in average interest-earning assets.

Average interest-earning assets expanded by HK$86,584 million or 3.6% year-on-year. The increase in deposits from customers led to an increase in advances to customers, debt securities investments and other debt instruments.

Net interest margin was 1.59%. If the funding income or cost of foreign currency swap contracts were included, net interest margin would have been 1.69%, up 13 basis points year-on-year. The Group's loan and deposit spread widened, owing to a year-on-year increase in market interest rates and the proactive management of its assets and liabilities. This, together with the improved average yield of its debt securities investments and other debt instruments and an increase in free fund contribution, resulted in a widening of the Group's net interest margin.

Foreign exchange swap contracts are normally used for the Group's liquidity management and funding activities. In foreign exchange swap contracts, the Group exchanges one currency (original currency) for another (swapped currency) at the spot exchange rate (spot transaction) and commits to reverse the spot transaction by exchanging the same currency pair at a future maturity date at a predetermined rate (forward transaction). In this way, surplus funds in the original currency are swapped into another currency for liquidity and funding purposes with minimal foreign exchange risk. The exchange difference (funding income or cost) between the spot and forward contracts is recognised as a foreign exchange gain or loss (as included in "net trading gain"), while the corresponding interest differential between the surplus funds in the original currency and swapped currency is reflected in net interest income.

The table below summarises the average balances and average interest rates of individual categories of assets and liabilities:

	Half-year ended 30 June 2019		(Restated) Half-year ended 31 December 2018		(Restated) Half-year ended 30 June 2018	
ASSETS	**Average balance HK$'m**	**Average yield %**	Average balance HK$'m	Average yield %	Average balance HK$'m	Average yield %
Balances and placements with banks and other financial institutions	**353,996**	**1.87**	376,997	1.84	456,406	1.95
Debt securities investments and other debt instruments	**869,063**	**2.42**	813,226	2.61	754,110	2.16
Advances to customers	**1,279,546**	**3.10**	1,232,959	3.03	1,206,431	2.67
Other interest-earning assets	**18,677**	**2.80**	17,376	2.60	17,751	1.66
Total interest-earning assets	**2,521,282**	**2.69**	2,440,558	2.70	2,434,698	2.37
Non interest-earning assets	**407,778**	**–**	386,325	–	372,560	–
Total assets	**2,929,060**	**2.31**	2,826,883	2.33	2,807,258	2.05
LIABILITIES	**Average balance HK$'m**	**Average rate %**	Average balance HK$'m	Average rate %	Average balance HK$'m	Average rate %
Deposits and balances from banks and other financial institutions	**198,894**	**1.22**	224,398	1.15	228,106	1.05
Current, savings and time deposits	**1,838,239**	**1.29**	1,726,379	1.16	1,726,102	0.90
Subordinated liabilities	**13,160**	**5.51**	16,053	5.42	20,458	5.46
Other interest-bearing liabilities	**41,671**	**1.78**	49,309	1.99	60,946	1.91
Total interest-bearing liabilities	**2,091,964**	**1.32**	2,016,139	1.21	2,035,612	1.00
Shareholders' funds* and other non interest-bearing deposits and liabilities	**837,096**	**–**	810,744	–	771,646	–
Total liabilities	**2,929,060**	**0.94**	2,826,883	0.86	2,807,258	0.72

* Shareholders' funds represent capital and reserves attributable to the equity holders of the Company.

If the funding income or cost of foreign currency swap contracts were included, the Group's net interest income would have increased by 0.8% compared to second half of 2018. This was mainly attributable to growth in average interest-earning assets. Net interest margin would have decreased by 1 basis point, mainly due to an increase in deposit costs arising from intense market competition and the rise in Hong Kong dollar savings deposit rate in the second half of last year, which was partially offset by the increase in the average yield of advances to customers.

Net Fee and Commission Income

HK$'m	**Half-year ended 30 June 2019**	(Restated) Half-year ended 31 December 2018	(Restated) Half-year ended 30 June 2018
Credit card business	**1,635**	1,707	1,734
Loan commissions	**1,623**	901	1,712
Insurance	**1,160**	681	865
Securities brokerage	**1,093**	1,064	1,705
Funds distribution	**464**	377	552
Bills commissions	**352**	338	401
Payment services	**339**	355	326
Currency exchange	**323**	322	268
Trust and custody services	**309**	320	313
Safe deposit box	**144**	131	154
Others	**678**	656	636
Fee and commission income	**8,120**	6,852	8,666
Fee and commission expense	**(2,074)**	(2,016)	(2,190)
Net fee and commission income	**6,046**	4,836	6,476

In the first half of 2019, net fee and commission income amounted to HK$6,046 million, down HK$430 million, or 6.6% from the high levels achieved in the same period last year. This was mainly due to the decreases in commission income from securities brokerage and funds distribution of 35.9% and 15.9% respectively, amid weakening investor sentiment in the market. During the reporting period, the Group captured market opportunities, continued to optimise its service channels and functions and enriched its product and service offerings, recording satisfactory growth in a number of areas. Commission income from insurance increased by 34.1%, driven by a growth in sales volume resulting from the Group's efforts to promote innovation in its insurance products and services, deliver promotional campaigns to its key clients and implement the digitalisation of its insurance application processes. Commission income from currency exchange increased 20.5%, as the Group captured opportunities arising from the strong demand for various foreign currency banknotes from travelling customers, as well as the proactive development of its banknote business in Hong Kong, the Chinese mainland, Southeast Asia and other overseas markets. Fee income from payment services was up 4.0%, as the Group accelerated the development of its cash pooling and cash management businesses. However, fee income from the Group's credit card business decreased by 5.7%, due to a decline in retail sales in Hong Kong. Loan commission income was down 5.2%, while fee and commission income from bills, trust and custody services, and safe deposit box also dropped. Meanwhile, fee and commission expenses fell, mainly due to lower credit card and securities brokerage related expenses.

Compared with the second half of 2018, net fee and commission income increased by HK$1,210 million or 25.0%. This was attributable to growth in fee and commission income from loans, insurance, funds distribution and securities brokerage. Fee and commission income from bills and safe deposit box also rose. However, fee and commission income from credit card business, payment services, and trust and custody services dropped. Fee and commission expenses increased, owing to higher insurance-related expenses as a result of growth in sales volume.

Net Trading Gain

HK$'m	**Half-year ended 30 June 2019**	(Restated) Half-year ended 31 December 2018	(Restated) Half-year ended 30 June 2018
Foreign exchange and foreign exchange products	**2,135**	1,016	1,700
Interest rate instruments and items under fair value hedge	**(489)**	(125)	175
Commodities	**126**	123	61
Equity and credit derivative instruments	**57**	26	114
Total net trading gain	**1,829**	1,040	2,050

In the first half of 2019, the Group's net trading gain amounted to HK$1,829 million, a decrease of HK$221 million or 10.8% year-on-year. Net trading gain from foreign exchange and foreign exchange products increased by HK$435 million, which was mainly attributable to an increase in net gain from foreign currency swap contracts, partially offset by the decrease in currency exchange income from customer transactions. Interest rate instruments and items under fair value hedge recorded a net trading loss, as compared with a net trading gain in the same period last year. This was primarily due to movements in interest rates causing mark-to-market changes to certain debt securities investments and interest rate instruments. Net trading gain from commodities increased, due to an increased gain from bullion transactions. The decrease in net trading gain from equity and credit derivative instruments was due to decreased income from equity-linked products. If the funding income or cost of foreign currency swap contracts were excluded, net trading gain would have decreased by 65.0% year-on-year.

Compared with the second half of 2018, net trading gain increased by HK$789 million or 75.9%. This was mainly attributable to a net gain from foreign currency swap contracts as compared with a net loss in the second half of 2018, coupled with a rebound in currency exchange income from customer transactions. This was partially offset by the higher mark-to-market losses of certain debt securities investments and interest rate instruments caused by interest rate movements. If the funding income or cost of foreign currency swap contracts were excluded, net trading gain would have decreased by 40.8% from the second half of 2018.

Net Gain/(Loss) on Other Financial Instruments at Fair Value through Profit or Loss

HK$'m	**Half-year ended 30 June 2019**	(Restated) Half-year ended 31 December 2018	(Restated) Half-year ended 30 June 2018
Net gain/(loss) on other financial instruments at fair value through profit or loss	**2,215**	(100)	(1,182)

The Group recorded a net gain of HK$2,215 million on other financial instruments at fair value through profit or loss, compared to a net loss of HK$1,182 million in the first half of 2018. The change was mainly attributable to the mark-to-market gain (as compared with a mark-to-market loss in the first half of 2018) of BOC Life's debt securities investments, caused by market interest rate movements, together with a gain in its equity securities investments. The mark-to-market changes of the debt securities investments mentioned above were offset by changes in BOC Life's policy reserves, as reflected in changes in net insurance benefits and claims as well as movements in liabilities, which were also attributable to the movement of market interest rates.

Compared with the second half of 2018, the change was mainly attributable to the mark-to-market gain of BOC Life's debt securities investments caused by market interest rate movements, together with a gain in its equity securities investments.

Operating Expenses

HK$'m	**Half-year ended 30 June 2019**	(Restated) Half-year ended 31 December 2018	(Restated) Half-year ended 30 June 2018
Staff costs	**4,264**	4,581	4,061
Premises and equipment expenses (excluding depreciation)	**652**	1,005	857
Depreciation	**1,402**	1,068	998
Other operating expenses	**1,210**	1,540	1,096
Total operating expenses	**7,528**	8,194	7,012

	At 30 June 2019	(Restated) At 31 December 2018	(Restated) At 30 June 2018
Staff headcount measured in full-time equivalents*	**13,964**	14,084	13,390

* The comparative information of staff headcounts measured in full-time equivalents as at 30 June and 31 December 2018 has been restated to enable analysis on a comparable basis.

Total operating expenses increased by HK$516 million, or 7.4% year-on-year, as a result of the Group's ongoing investment in human resources and the enhancement of its fintech service capabilities, undertaken with the aim of expediting the Group's transformation into a digital bank, improving its overall service competitiveness and supporting long-term business growth. The cost to income ratio was 25.81%, with the Group maintaining cost efficiency at a solid level relative to industry peers.

Staff costs increased by 5.0% year-on-year, mainly due to annual salary increment and increased headcount.

Premises and equipment expenses decreased by 23.9%. From 1 January 2019 onwards, the Group has adopted Hong Kong Financial Reporting Standard 16 ("HKFRS 16"), "Leases". Under this new standard, leases for use of premises are accounted for as a right-of-use asset, with related rental expenses recognised as the depreciation of the right-of-use asset. As a result, rental expenses dropped. This decline was partially offset by increased investments in information technology.

Depreciation increased by 40.5%, mainly due to the adoption of HKFRS 16, and increased depreciation charges on premises and information technology infrastructure.

Other operating expenses rose by 10.4%, mainly due to an increase in business promotional expenses related to the credit card and payment businesses as well as a rise in communication expenses.

Compared with the second half of 2018, total operating expenses decreased by HK$666 million or 8.1%. The decrease was due to lower performance-related remuneration and business promotional expenses.

Net Charge of Impairment Allowances on Advances and Other Accounts

HK$'m	**Half-year ended 30 June 2019**	(Restated) Half-year ended 31 December 2018	(Restated) Half-year ended 30 June 2018
Stage 1	**(276)**	(298)	460
Stage 2	**12**	(195)	(141)
Stage 3	**(453)**	(424)	(585)
Total net charge of impairment allowances on advances and other accounts	**(717)**	(917)	(266)

In the first half of 2019, the Group's net charge of impairment allowances on advances and other accounts amounted to HK$717 million, an increase of HK$451 million from the same period of 2018. Impairment allowances at Stage 1 recorded a net charge of HK$276 million, mainly driven by loan growth during the period, as compared to a net reversal in the same period last year. Impairment allowances at Stage 2 recorded a net reversal of HK$12 million, as compared to a net charge of HK$141 million in the same period last year. The change mainly reflected the impact of changes in the internal rating of certain customers. Impairment allowances at Stage 3 amounted to HK$453 million, a decrease of HK$132 million year-on-year, mainly attributable to a lower net charge of impairment allowances on certain advances in the personal loan portfolio and a higher recovery.

Compared with the second half of 2018, net charge of impairment allowances on advances and other accounts decreased by HK$200 million. The change mainly reflected the impact from the updating of parameter values in the expected credit losses assessment model in the second half of last year to take into consideration changes in economic outlook.

ANALYSIS ON ASSETS AND LIABILITIES

The table below summarises the Group's asset composition. The comparative figures as of 31 December 2018 have been restated to conform to the current year's presentation. Please refer to Note 22 to the Interim Financial Information for the contract/notional amounts and fair values of the Group's derivative financial instruments. Please refer to Note 38 to the Interim Financial Information for the contractual amounts of each significant class of contingent liability and commitment and the aggregate credit risk-weighted amounts of the Group.

Asset Composition

	At 30 June 2019		(Restated) At 31 December 2018	
HK$'m, except percentages	**Amount**	**% of total**	Amount	% of total
Cash and balances and placements with banks and other financial institutions	**385,357**	**12.9**	433,299	14.7
Hong Kong SAR Government certificates of indebtedness	**163,860**	**5.5**	156,300	5.3
Securities investments and other debt instruments[1]	**873,418**	**29.2**	899,967	30.4
Advances and other accounts	**1,370,281**	**45.9**	1,282,994	43.4
Fixed assets and investment properties	**72,404**	**2.4**	69,119	2.3
Other assets[2]	**123,120**	**4.1**	114,325	3.9
Total assets	**2,988,440**	**100.0**	2,956,004	100.0

1. Securities investments and other debt instruments comprise investment in securities and financial assets at fair value through profit or loss.
2. Other assets comprise derivative financial instruments, interests in associates and joint ventures, current tax assets and deferred tax assets.

Adhering to the principle of balanced and sustainable development, the Group continued to optimise the management of its assets and liabilities. As at 30 June 2019, the total assets of the Group amounted to HK$2,988,440 million, an increase of HK$32,436 million or 1.1% from the end of 2018. Cash and balances and placements with banks and other financial institutions decreased by HK$47,942 million or 11.1%, mainly due to a decrease in balances with banks and central banks. Securities investments and other debt instruments decreased by HK$26,549 million or 2.9%. Advances and other accounts rose by HK$87,287 million or 6.8%, with advances to customers growing by HK$85,303 million or 6.7%, and trade bills increasing by HK$3,173 million or 18.3%.

Advances to Customers

HK$'m, except percentages	At 30 June 2019 **Amount**	**% of total**	(Restated) At 31 December 2018 Amount	% of total
Loans for use in Hong Kong	**891,902**	**65.9**	841,720	66.4
Industrial, commercial and financial	**522,867**	**38.6**	492,712	38.9
Individuals	**369,035**	**27.3**	349,008	27.5
Trade financing	**80,517**	**6.0**	65,437	5.2
Loans for use outside Hong Kong	**380,119**	**28.1**	360,078	28.4
Total advances to customers	**1,352,538**	**100.0**	1,267,235	100.0

In the first half of 2019, the Group actively developed its local and cross-border businesses. It seized opportunities arising from the loan demand of large corporates, high-quality commercial and SME customers in Hong Kong. It optimised the digitalisation of the business processes of its mortgage business and enhanced the service quality of its mortgage centres. It strengthened its collaboration with BOC in order to capture opportunities brought about from the implementation of major national strategies. The Group remained the top mandated arranger in the Hong Kong and Macao syndicated loan market. It also maintained its leading position in the residential mortgage and reverse mortgage businesses. At the same time, it enhanced its marketing efforts for Southeast Asia business so as to acquire high-quality and influential local clients, and successfully participated in a number of major financing projects in Southeast Asia. In the first half of 2019, advances to customers grew by HK$85,303 million, or 6.7%, to HK$1,352,538 million.

Loans for use in Hong Kong increased by HK$50,182 million or 6.0%.

- Lending to the industrial, commercial and financial sectors increased by HK$30,155 million or 6.1%, reflecting growth in property development, financial concerns, wholesale and retail trade, information technology, transport and transport equipment, as well as stockbrokers.

- Lending to individuals increased by HK$20,027 million or 5.7%. Residential mortgage loans (excluding those under government-sponsored home purchasing schemes) grew by 4.8% while other individual loans increased by 8.0%, mainly driven by the increase in loans for property refinancing.

Trade financing increased by HK$15,080 million or 23.0%. Loans for use outside Hong Kong grew by HK$20,041 million or 5.6%, mainly driven by growth in loans for use in the Chinese mainland and Southeast Asia.

Loan Quality

HK$'m, except percentages	At 30 June 2019	(Restated) At 31 December 2018
Advances to customers	**1,352,538**	1,267,235
Classified or impaired loan ratio	**0.20%**	0.19%
Total impairment allowances	**6,032**	5,419
Total impairment allowances as a percentage of advances to customers	**0.45%**	0.43%
Residential mortgage loans[1] – delinquency and rescheduled loan ratio[2]	**0.01%**	0.01%
Card advances – delinquency ratio[2]	**0.20%**	0.19%

	Half-year ended 30 June 2019	Half-year ended 30 June 2018
Card advances – charge-off ratio[3]	**1.35%**	1.47%

1. Residential mortgage loans exclude those under the Home Ownership Scheme and other government-sponsored home purchasing schemes.
2. The delinquency ratio is the ratio of the total amount of overdue advances (more than three months) to total outstanding advances.
3. The charge-off ratio is the ratio of total write-offs made during the period to average card receivables during the period.

During the reporting period, the Group proactively strengthened its management systems for various types of risks and enhanced its regional risk management so as to maintain benign asset quality. The classified or impaired loan ratio was 0.20% as at 30 June 2019, up 0.01 percentage point from the end of last year. Classified or impaired advances to customers increased by HK$269 million, or 11.3%, to HK$2,652 million.

The credit quality of the Group's residential mortgage loans and card advances remained stable. The combined delinquency and rescheduled loan ratio of residential mortgage loans was 0.01% as at 30 June 2019. The charge-off ratio of card advances for the first half of 2019 was 1.35%, down 0.12 percentage points year-on-year.

Deposits from Customers

HK$'m, except percentages	At 30 June 2019 Amount	At 30 June 2019 % of total	(Restated) At 31 December 2018 Amount	(Restated) At 31 December 2018 % of total
Demand deposits and current accounts	**217,317**	**10.8**	207,812	11.0
Savings deposits	**900,580**	**44.6**	854,117	45.0
Time, call and notice deposits	**900,326**	**44.6**	833,867	43.9
	2,018,223	**100.0**	1,895,796	99.9
Structured deposits	**13**	**–**	2,199	0.1
Total deposits from customers	**2,018,236**	**100.0**	1,897,995	100.0

In the first half of 2019, the Group stepped up efforts to expand its mid- to high-end customer base and strengthened business relationships with large corporates and institutional customers in a bid to enlarge its deposit scale. As of 30 June 2019, total deposits from customers amounted to HK$2,018,236 million, an increase of HK$120,241 million or 6.3% from the end of last year. The Group continued to optimise the management of its deposit structure. With active promotion of its payroll, wealth management and integrated payment service solutions, its role as the main receiving bank for IPOs and its cash management and settlement businesses, the Group was able to support the growth of its current accounts and savings deposits. As a result, demand deposits and current accounts increased by 4.6% and savings deposits rose by 5.4%. Meanwhile, time, call and notice deposits increased by 8.0%.

Capital and Reserves Attributable to Equity Holders of the Company

HK$'m	At 30 June 2019	(Restated) At 31 December 2018
Share capital	**52,864**	52,864
Premises revaluation reserve	**39,460**	38,527
Reserve for fair value changes	**(1,121)**	(4,116)
Reserve for own credit risk	**(36)**	5
Regulatory reserve	**10,877**	10,496
Translation reserve	**(681)**	(832)
Merger reserve	**–**	350
Retained earnings	**166,971**	160,242
Reserves	**215,470**	204,672
Capital and reserves attributable to equity holders of the Company	**268,334**	257,536

Capital and reserves attributable to equity holders of the Company amounted to HK$268,334 million as at 30 June 2019, an increase of HK$10,798 million or 4.2% from the end of 2018. Retained earnings rose by 4.2% from the end of last year, mainly reflecting the profit achieved in the first half of 2019 after the distribution of final dividends for 2018. The premises revaluation reserve increased by 2.4%, reflecting an increase in the valuation of the Group's premises in the first half of 2019. The deficit in reserve for fair value changes decreased, mainly driven by market interest rate movements. The regulatory reserve increased by 3.6%, mainly driven by growth in advances to customers. The merger reserve as at 31 December 2018 arose, owing to the Group's application of the merger accounting method in relation to its combination with BOC Vientiane Branch.

Capital Ratio

HK$'m, except percentages	**At 30 June 2019**	At 31 December 2018
Consolidated capital after deductions		
Common Equity Tier 1 capital	**193,987**	180,202
Additional Tier 1 capital	**23,463**	23,476
Tier 1 capital	**217,450**	203,678
Tier 2 capital	**32,565**	34,393
Total capital	**250,015**	238,071
Total risk-weighted assets	**1,086,888**	1,030,815
Common Equity Tier 1 capital ratio	**17.85%**	17.48%
Tier 1 capital ratio	**20.01%**	19.76%
Total capital ratio	**23.00%**	23.10%

In the course of formulating its internal capital ratio targets, the Group not only takes into consideration regulatory requirements, but also adopts the internal capital adequacy assessment process and stress testing necessary to assess the Bank's capital requirement for Pillar II. This allows the Group to determine the most appropriate capital level to ensure that it has adequate capital strength to withstand any future unexpected losses arising from a drastic change in the economic environment. At the same time, the Group also takes into account its development strategy and risk appetite, as well as its short- and long-term capital requirements (including support from capital replenishment solutions), with the ultimate aim of ensuring the long-term stability of its capital level.

As at 30 June 2019, the Group's Common Equity Tier 1 ("CET1") capital and Tier 1 capital increased by 7.6% and 6.8% respectively, driven by profits net of dividends for the first half of 2019. The Group remains committed to balancing growth in risk-weighted assets ("RWAs") with enhancement in returns. Total RWAs increased by 5.4%, mainly driven by loan growth in the first half of 2019. The CET1 capital ratio was 17.85% and Tier 1 capital ratio was 20.01%, up 0.37 and 0.25 percentage points respectively from the end of 2018. Total capital ratio was 23.00%. The Group has established a long-term capital plan to continuously review its capital structure and control the growth of its RWAs, so as to maintain an appropriate capital level to support the sustainable business development of the Group.

Liquidity Coverage Ratio and Net Stable Funding Ratio

	2019	2018
Average value of liquidity coverage ratio		
First quarter	**183.00%**	134.33%
Second quarter	**156.57%**	146.39%

	2019	2018
Quarter-end value of net stable funding ratio		
First quarter	**121.36%**	118.98%
Second quarter	**119.15%**	118.82%

The Group's liquidity position remained sound, with the average value of its liquidity coverage ratio and the quarter-end value of its net stable funding ratio exceeding the regulatory requirement for the first two quarters of 2019.

BUSINESS REVIEW

In the first half of 2019, the Group remained committed to its strategy of building a top-class, full-service and internationalised regional bank. It actively responded to changes in the market environment and steadily pushed forward its business priorities, achieving steady improvement in development quality and maintaining major financial indicators at solid levels. Striving to be customer-centric at all times, it continued to develop the local market in Hong Kong so as to maintain sustainable development. The Group is actively involved in the development of the Guangdong-Hong Kong-Macao Greater Bay Area, and endeavours to build up its integrated competitive advantages by meeting people's livelihood financial needs. It promoted business development in Southeast Asia, enhancing regional synergies and development quality. It expedited its transformation into a digital bank and improved its capabilities in technological innovation, infrastructure and application. It also refined its diversified business platforms in order to develop its full-service and international service capabilities. Moreover, the Group closely monitored changes in the economic and financial environment and enhanced its risk management capabilities and internal compliance levels. It remained dedicated to cultivating its bank culture in order to ensure a balanced and sustainable development.

Business Segment Performance

Profit before Taxation by Business Segment

HK$'m, except percentages	**Half-year ended 30 June 2019** **Amount**	**% of total**	(Restated) Half-year ended 30 June 2018 Amount	% of total
Personal Banking	**6,454**	**30.0**	5,911	27.8
Corporate Banking	**8,065**	**37.4**	8,154	38.4
Treasury	**5,074**	**23.5**	4,807	22.7
Insurance	**551**	**2.6**	597	2.8
Others	**1,408**	**6.5**	1,759	8.3
Total profit before taxation	**21,552**	**100.0**	21,228	100.0

Note: For additional segmental information, see Note 41 to the Interim Financial Information.

PERSONAL BANKING

Financial Results

Personal Banking achieved a profit before tax of HK$6,454 million in the first half of 2019, an increase of HK$543 million or 9.2% year-on-year, mainly driven by an increase in net interest income.

Net interest income increased by 22.1%, mainly driven by the growth in the average balance of deposits along with an improvement in the deposit spread. The increase was, however, partially set off by the narrowing of loan spread. Net fee and commission income decreased by 6.5%, as fee income from securities brokerage and funds distribution decreased from the high level of last year amid the weakening investor sentiment in the market. However, commission income from insurance increased in line with a higher business volume, partially offsetting the above-mentioned income drop. Operating expenses rose by 8.2%, mainly due to an increase in staff costs and depreciation of the right-of-use assets.

Business Operations

Striving to be customer oriented and continuously refining its customer structure

The Group adopted a customer-centric strategy by observing customers' preferences and behaviours. It promoted a holistic wealth planning service and offered an all-round asset allocation analysis and portfolio solution to mid- to high-end customers. In order to meet customers' needs in wealth inheritance, assurance and travelling, the Group hosted exclusive sales events for high-net-worth customers and organised the Worldwide Wealth Management Expo 2019, providing customers with diversified investment and wealth management information and thus enhancing its brand recognition and loyalty. The Group further refined its customer structure. At the end of June 2019, the number of mid- to high-end customers increased by 7.8% from the end of last year.

The Group's private banking business maintained satisfactory growth. Through closer collaboration with other business units of the Group and BOC's domestic and overseas entities, the Group was able to provide professional private banking services to high-net-worth clients from Hong Kong, the Chinese mainland and overseas. It further optimised its open product platform for private banking and enriched its exclusive private banking products. It strengthened its private banking team and boosted its service levels in order to enhance its brand reputation. During the reporting period, the number of private banking clients and AUM recorded satisfactory growth as compared with the end of 2018.

Addressing people's livelihood banking needs and stepping up customer service enhancements

In line with measures promoted by the HKSAR government to improve people's livelihood, the Group launched an online virtual payment account opening service. It enriched BoC Pay application scenarios and further expanded its service coverage to non-BOCHK customers, thus allowing more customers in Hong Kong to enjoy convenient digital payments. Through collaboration among different business segments within the Group, it hosted wealth management seminars for tertiary students and provided exclusive services to meet their financial needs, thus increasing its service penetration to the younger customer segment. As part of its efforts to promote financial inclusion, BOCHK took the decision to remove service fees for its personal integrated banking services and general banking accounts, effective from 1 August 2019. During the reporting period, BOCHK was awarded the Best Retail Bank in Hong Kong by *The Asian Banker* in its International Excellence in Retail Financial Services Awards for the third time, in recognition of its performance in the retail banking industry.

Supporting the development of local small enterprises and continuously refining product packages

Responding to the HKMA's call to pursue financial inclusion, the Group continued to refine product packages for small enterprises. To support measures promoted by the HKSAR government for serving start-up enterprises, the Group launched the "Business Lite" account service. This simplifies account opening requirements and waives monthly charges and the minimum deposit balance requirement, with the aim of facilitating easier account opening for start-up enterprises and overseas enterprises investing in Hong Kong. The Group continued to support the development of local small enterprises. It provided customers with BOC "Small Business Loan" unsecured loans, corporate tax loans and one-stop business financial solutions, thus fulfilling customers' full range of financial needs. The Group also established Business Banking Centres at 4 branches so as to strengthen the professionalism and service capabilities of its frontline teams. In addition, the Group promoted BoC Bill, an integrated payment collection service for SMEs which offers various types of online and offline payment tools, in order to help merchants cope better in their daily operations. The total number of business integrated accounts for small enterprises increased by 6.9% compared to the end of last year.

Promoting integrated development and collaboration in the Greater Bay Area and expanding featured cross-border services

The Group actively pushed forward integrated development and collaboration in the Guangdong-Hong Kong-Macao Greater Bay Area by addressing the needs of residents in Guangdong, Hong Kong and Macao for financial services, including account opening, payment services and financing. BOCHK is the first bank in Hong Kong to launch a Chinese mainland personal account opening attestation service which allows Hong Kong residents to open Chinese mainland personal accounts without having to travel to the Chinese mainland. At the end of June 2019, there were over 50,000 related applications. The BoC Pay mobile application's cross-border retail payment function also allows Hong Kong people to make payments across the Greater Bay Area. In wealth management, the Group introduced "Greater Bay Area Service Connect" to provide mutual service access to Wealth Management customers in Guangdong, Hong Kong and Macao. The total number of cross-border mid- to high-end customers increased by 12.8% from the end of last year. During the period, BOCHK received the Outstanding GBA Financial Business – Innovative Cross-border Financial Services Award, jointly organised by Metro Finance and Hong Kong Ta Kung Wen Wei Media Group.

Maintaining steady growth in deposit and loan business with an increase in fee and commission income

In line with market interest rate trends, the Group devoted efforts to maintaining steady deposit growth and optimising deposit tenors. The Group grew its current account and savings deposit businesses via payroll services, wealth management and integrated payment solutions, thus maintaining satisfactory growth in personal deposits. Regarding its loan business, the Group strengthened its mortgage business for new residential properties and Home Ownership Scheme flats in the primary market, accelerated the development of digital mortgage business processes and enhanced the service quality and network coverage of its mortgage centres. As a result of these initiatives, the Group maintained its leading market position in terms of the total number of new residential mortgage loans and captured the largest market share in the reverse mortgage market. In response to market volatility, the Group also enriched its range of investment products so as to enhance their market competitiveness. In addition, to support the deferred annuity policy and Voluntary Health Insurance Scheme promoted by the HKSAR government, the Group enhanced innovation in its insurance product portfolio by integrating the concepts of retirement planning and wealth inheritance. The Group also launched its first online savings insurance plan. These factors, coupled with the full implementation of an electronic insurance application process at all branches, contributed to solid growth in fee and commission income.

Promoting fintech innovation to expedite digital process transformation

Embracing the "New Era of Smart Banking" advocated by the HKMA, the Group stepped up innovation in fintech and committed to pushing forward the digitalisation of its business processes. During the reporting period, the Group utilised open API to extend cross-platform cooperation and launched a developers' portal, opening up access to 63 items of personal financial product information. In addition, the Group cooperated in the development of economic and financial applications to support the roll out of cross-platform securities and foreign exchange trading services, enabling one-stop securities account opening and trading functions for Hong Kong and US stocks as well as China's A Shares. The Group actively initiated collaboration with third party platforms. It cooperated with online real estate platforms to apply blockchain technology in providing customers with one-stop online mortgage application and progress enquiry services. To cater for rapid growth in customer demand for online transactions, the Group adopted the concept of "mobile first" and accelerated the development of its digital services, enhancing both the design and functionality of its mobile banking by launching pioneering mobile fund distribution and remittance services as well as one-stop online securities account opening. At the end of June 2019, the number of mobile banking customers and active customers increased by 17.5% and 20.6% respectively from the end of 2018, with a continuous increase in both the number and proportion of the younger customer segment (aged 18-35).

Advancing development in the Southeast Asia region

The Group continued to enhance the development of its personal banking business in the Southeast Asia region, and successfully expanded its personal banking service network to Thailand, Malaysia, Vietnam, the Philippines, Indonesia, Cambodia, Laos and Brunei. Based on the characteristics of different countries, the Group implemented differentiated management and continued to refine its business organisation structure. It pushed forward its regional product management in an orderly manner and enhanced regional risk management. During the reporting period, the Group officially launched a wealth management service in BOC Malaysia to facilitate mutual brand recognition across the Chinese mainland, Hong Kong and Malaysia and enriched its offering of funds, bonds and other wealth management products, thus promoting the Group's wealth management brand image in Southeast Asia.

Actively promoting payment business development through credit card business

In the first half of 2019, new impetus for the development of the Group's credit card and payment businesses emerged from the rapid development of the Greater Bay Area and the booming mobile payment market in Hong Kong. The credit card business continued to introduce new payment methods, including contactless and QR code mobile payment, in order to penetrate the small amount and high frequency cash payment market, resulting in a year-on-year increase of over 40% in the total number of retail transactions.

CORPORATE BANKING

Financial Results

Corporate Banking achieved a profit before tax of HK$8,065 million, a decrease of HK$89 million or 1.1% year-on-year, mainly due to the decrease in net fee and commission income and an increase in the net charge of impairment allowances, which more than offset the impact from the increase in net interest income.

Net interest income increased by 12.4%, mainly attributable to the growth in the average balance of deposits, coupled with improvement in the deposit spread. Net fee and commission income decreased by 3.5%, with lower bills, loans and insurance commissions, which were partially offset by an increase in commission income from payment services. Net trading gain decreased by 15.4%, owing to a drop in currency exchange income from customer transactions. The net charge of impairment allowances amounted to HK$675 million, an increase of HK$626 million from a lower base in the same period last year when there was an improvement in the internal rating of certain corporate advances and the updating of the parameter values in the expected credit losses assessment model, resulting in a reversal of impairment allowances.

Business Operations

Continuous expansion of customer base and enhancement of integrated service capabilities

The Group remained committed to achieving high-quality development by meeting the demands of key customer groups for integrated financial solutions, including BOC's global strategic clients and large corporates from Hong Kong, Southeast Asia and other overseas countries. It devoted efforts to optimising its business structure and enhancing its service capabilities. By continuously enhancing its service capacity in commercial and investment banking business and improving its regional and comprehensive services, the Group was able to support a number of high-quality projects, which led to stable growth in deposits and loans. It remained the top mandated arranger in the Hong Kong and Macao syndicated loan market and successfully underwrote a number of bond issues with significant market influence. By keeping up with market changes and industrial policy, the Group actively promoted the advancement of green finance, including the underwriting of green bonds. At the same time, the Group promoted technological innovation so as to generate synergistic effects, improve its integrated services and deepen the use of scenario-based applications. Aligning with market trends, it continued to expand its integrated payment and collection services, thus helping to enhance the Group's brand image in payment services. In the first half of 2019, the Group retained its market leadership as an IPO main receiving bank in terms of the number of main board listing projects and the total amount of funds raised. In addition, it maintained strong business relationships with the world's major central banks and sovereign wealth funds.

Proactive development of commercial and SME customer base

The Group continued to improve its services to local commercial customers in Hong Kong by providing e-payment services, integrated payment and settlement solutions, and treasury products and services. It actively cooperated with the HKSAR government to promote the SME Financing Guarantee Scheme to support the development of Hong Kong's SMEs. During the reporting period, BOCHK received the Financial Services Awards of Excellence 2019 – SME Banking Services and SME Partner Awards of Excellence 2019 – Guangdong-Hong Kong-Macao Greater Bay Area Commercial Banking Services from the *Hong Kong Economic Journal*. BOCHK also won the Best SME's Partner Gold Award 2019 from the Hong Kong General Chamber of Small and Medium Business.

Promoting business development in Southeast Asia and the Greater Bay Area

The Group accelerated the improvement of its regional management capabilities and continued to optimise its management model and mechanisms. It strengthened collaborative marketing with its Southeast Asian entities in order to acquire high-quality and influential local clients, and successfully participated in a number of major projects in the region. It further integrated competitively proven products and services from Hong Kong into its Southeast Asian entities' local franchises, to help them expand into local mainstream markets. In keeping with BOC's wider support for China's Belt and Road Initiative, the Group actively collaborated with its Southeast Asian entities by participating in and arranging for relevant exchange and investment-related promotional activities including the Belt and Road Forum for International Cooperation, jointly organised by the Chinese government and the governments of Southeast Asian countries. This had the effect of enhancing BOCHK's brand image and business development in Southeast Asia. In order to capture the enormous business opportunities arising from the development of the Guangdong-Hong Kong-Macao Greater Bay Area, the Group strengthened its collaboration with BOC's entities in the Greater Bay Area across four major aspects of cross-border activities: people flow, commodities flow, fund flow and information flow. It established an integrated marketing and services system with a view to providing a full range of financial services to support the mutual access of infrastructures within the Greater Bay Area and to boosting the development of corporates within the area's technological innovation sector.

Constantly enhancing the competitiveness of corporate banking products and services

The Group continuously upgraded its integrated service capabilities in Hong Kong, the Greater Bay Area and Southeast Asia. Drawing on its customer-centric philosophy and building on its strong foundations in payment and settlement services, the Group continuously enhanced customers' experience and satisfaction through provision of various scenario-based integrated service solutions. It captured important opportunities arising from the Guangdong-Hong Kong-Macao Greater Bay Area and the Belt and Road Initiative to accelerate the regional development of its key businesses, including cash pooling, treasury centre, cash management and trade finance, and further uplifted its integrated regional service capabilities. In recognition of its excellent and highly professional services, BOCHK was named Best Cash Management Bank in Hong Kong for the fifth time and Best Transaction Bank in Hong Kong for the second time by *The Asian Banker*.

Continuous expansion in custody business

In the first half of 2019, there was increased volatility in investment markets which adversely affected the asset servicing industry. Through collaboration within the Group and with Chinese mainland and overseas entities, the Group's custody business strived to overcome these market challenges. Both total assets under custody and the asset size of Bond Connect reached new peaks and it delivered satisfactory growth in income during the reporting period. The Group also seized opportunities arising from China's respective mutual connectivity programmes, "Going Global" enterprises and the development of the Greater Bay Area to expand its cooperation with domestic and overseas institutions, while flexible service solutions were offered to help resolve clients' pain points in dealing with over-the-counter securities investments. The Group also embarked on the construction of a new product platform to enrich its overall service capabilities. As at the end of June 2019, the Group's total assets under custody amounted to HK$1,207.2 billion.

Continuous growth in trustee business with technological upgrades to services

The Group provides trustee and fund administration services for occupational retirement schemes and mandatory provident fund ("MPF") schemes as well as trustee and custodian services for unit trusts, through its subsidiary BOCI-Prudential Trustee Limited ("BOCI-Prudential Trustee"). In April 2019, BOCI-Prudential Trustee successfully launched the Tax Deductible Voluntary Contributions scheme. It also made technological improvements and upgrades to its MPF services in the first quarter, launching a brand new website design and AI chatbot service, "My MPF Bot", in an effort to improve customer experience. Its MPF App continued to incorporate new biometric authentication features such as facial and fingerprint recognition, with optical character recognition and e-signatures also set to be gradually implemented within the MPF application process so as to streamline application procedures and safeguard the security of online MPF accounts. The AUM of MPF maintained steady growth. As at the end of June 2019, its MPF asset size recorded a growth of 11.9% from the end of last year. In the first half of 2019, BOCI-Prudential Trustee received numerous accolades in recognition of its outstanding fund performance and high-quality MPF trustee and management services. BOCI-Prudential Trustee's My Choice MPF Scheme received multiple awards at the MPF Awards 2019, organised by independent rating agency, MPF Ratings. It became the first ever MPF trustee to receive the Excellent Trustee & Management Services Award at the Financial Services Awards of Excellence 2019, organised by the *Hong Kong Economic Journal*. It also received the Best Group Over 3 Years – Overall and the Best Group Over 3 Years – Bond awards at the 2019 Lipper Hong Kong Fund Awards, organised by *REFINITIV*.

TREASURY

Financial Results

Treasury recorded a profit before tax of HK$5,074 million, an increase of HK$267 million or 5.6% year-on-year. The growth was driven by an increase in net trading gain and net gain on other financial assets, which more than offset the decrease in net interest income.

Net interest income decreased by 12.1%, which was mainly attributable to the rise in funding costs. Net trading gain grew by HK$292 million, or 42.5% year-on-year, mainly attributable to an increase in net gain from foreign currency swap contracts, which was partially offset by the mark-to-market changes of certain debt securities investments and interest rate instruments caused by interest rate movements. Net gain on other financial assets increased by HK$686 million, as the Group disposed of certain debt securities and recorded a higher net gain in the first half of 2019. These positive impacts were, however, partially offset by a lower net gain on other financial instruments at fair value through profit or loss.

Business Operations

Continuous enhancement in trading and service capabilities

The Group deepened its research on market development and actively responded to market changes. It continued to enrich its product range and optimise its business structure. By expanding its trading resources and enhancing its trading capabilities, the Group was able to achieve solid growth in trading business. It increased investment in systems and continued to enhance system functionalities in order to steadily improve its electronic trading capabilities. With the aim of sharpening its comprehensive service capabilities and promoting the development of its customer business, the Group continuously strengthened the integration of cross-departmental and cross-business line products, professional capabilities, business models and business resources. Business unit management capabilities were improved in order to drive regional development. At the same time, the Group optimised internal control and conducted stringent control on business risks. In recognition of its treasury business performance, BOCHK was named the Best Currency Swap Member and received the Opening Contribution Award from the China Foreign Exchange Trade System. It also received the Outstanding International Member Award from Shanghai Gold Exchange, and won the Key Business Partner in FIC Market award at the 6th Annual RMB Fixed Income & Currency Conference, organised by HKEX.

Consolidating advantages in banknotes business

The Group actively expanded its wholesale banknotes business globally and enlarged its client base to consolidate its competitive advantages. It further enhanced cooperation with financial institutions in Southeast Asia and other overseas countries and achieved satisfactory results, with continuous improvements in client base and business scale. By increasing its investments in the Chinese mainland market, the Group further improved the blueprint of its foreign currency banknotes business in the Mainland. Meanwhile, it continued to strengthen risk management and improve business processes leading to continuous improvements in overall business capabilities.

Reinforcing competitive advantages in Renminbi clearing business

In April 2019, in line with the trend of constant innovation in Bond Connect cross-border settlement business, the Hong Kong Renminbi Clearing Bank enhanced its cross-border settlement function to support cross-border fund settlement for the negotiable certificate of deposit primary market via Bond Connect, thus expanding the depth and breadth of the cross-border bond business and reinforcing the leading position of BOCHK in the offshore Renminbi market. Moreover, BOCHK was awarded the Prize for Innovative Business Promotion (Bond Connect Business) 2018 by the Shanghai Clearing House in recognition of its contribution towards the cross-border settlement business of Bond Connect.

A proactive but risk-aware investment strategy

The Group continued to take a cautious approach to managing its banking book investments by closely monitoring market changes and seeking investment opportunities to enhance return while remaining alert to risk. In the first half of the year, the Group adjusted its investment portfolio to respond to changes in interest rates and to achieve solid returns.

Strengthening the Southeast Asia treasury business and advancing regional development

The Group actively pushed forward its regional development strategy in treasury business and continued to refine the regional business line management structure. With continuous improvement in developing talent in the treasury business, the Group enhanced its Southeast Asian entities' capabilities in dealing, marketing, products and risk management in order to solidify their business foundation. The Group increased its efforts in market research and business development analysis, and fully supported its Southeast Asian entities to acquire target clients. As a result, it successfully participated in a number of key projects in the region. The Group actively developed its investment business in Southeast Asia by enriching its banking book investment portfolio and optimising its asset allocation. By refining its regional funding pool management, the Group provided ample funding support for the development of its Southeast Asia business.

A wider range of asset management products

BOCHK Asset Management Limited ("BOCHK AM") actively captured development opportunities and expanded further in many areas. As at the end of June 2019, its AUM grew 12.6% compared to the end of last year. During the first half of 2019, BOCHK AM grasped investment opportunities to promote innovation in fund products and launched two public funds, namely the BOCHK All Weather Belt and Road Bond Fund and the BOCHK All Weather Greater Bay Area Strategy Fund. The latter is the first bond fund in Hong Kong to adopt a Greater Bay Area investment theme and the first public fund in the world to provide a Macau Pataca currency share class. In addition, to cater to the investment needs of high-net-worth clients, BOCHK AM launched a private bond fund with a fixed maturity, which would aim to capture investment opportunities in the bond market. These funds recorded satisfactory performance and were well received by clients. BOCHK AM further strengthened its sales network by adding new institutional clients, including state-owned and private-owned enterprises as well as charitable bodies, and by deepening business relationships with existing clients. Meanwhile, it continued to collaborate with BOC's entities in the Chinese mainland and the Group's Southeast Asian entities to expand its cross-border and Southeast Asian businesses. During the reporting period, BOCHK All Weather Greater Bay Area Strategy Fund was awarded Most Innovative New Fund Award – Hong Kong 2019 by *International Finance* in the Financial Awards 2019.

INSURANCE

Financial Results

In the first half of 2019, the Group's insurance segment benefitted from growth in renewal premiums, achieving a gross premium of HK$14,734 million, up 23.2% year-on-year. The standard new premium was HK$7,296 million, an increase of 17.2% year-on-year. The value of new business was HK$606 million, an increase of 12.2% year-on-year. Profit before tax was HK$551 million, down 7.7% year-on-year, which was mainly attributable to the increase in insurance reserve caused by the drop in market interest rates during the reporting period. This decrease was, however, partially offset by increased fair value gain on invested assets and higher net interest income.

Business Operations

Advancing product innovation and optimisation and strengthening service support

To support the tax deductible Voluntary Health Insurance Scheme ("VHIS") and deferred annuity products promoted by the HKSAR government, BOC Life joined the first batch of insurers in introducing relevant products to the market in April 2019, including the BOC Life Standard VHIS, BOC Life Deferred Annuity (Fixed Term) and BOC Life Deferred Annuity (Lifetime), with a view to offering customers a more diverse product range. During the reporting period, the iTarget 3 Years Savings Insurance Plan was launched simultaneously on BOCHK's mobile and internet banking for the first time, providing customers with a simple and convenient application service. This received an encouraging market response. In addition, Forever Glorious ULife Plan II was launched to enhance service support for high-end customers and increase the value of new business and long-term profitability.

Proactive application of insurtech to improve customer experience

Following the launch of BOC Life's Live Chat service in the first half of 2019, customers are now referred to customer service ambassadors via BOC Life's official Facebook page, WeChat Official Account and website, allowing them to make enquiries in an easy and simple manner. Moreover, the policy binding function on the WeChat Official Account effectively strengthened BOC Life's service support and customer communications.

Maintaining market leadership in life insurance and winning recognition for high-quality professional services

The Group maintained its leading position in Hong Kong's life insurance business and remained the market leader in RMB insurance business. In recognition of its service quality and professional image, BOC Life received a number of local and regional awards, including the Outstanding Insurance Business – Annuity Award (Hong Kong China) in the 2019 RMB Business Outstanding Awards, jointly organised by Metro Finance and Hong Kong Ta Kung Wen Wei Media Group; the GBA Insurance Award 2019 (HK Region): Outstanding Customer Services Award (Life Insurance) from Metro Finance; the Award for Innovative Management in Financial Industries: GOLD STEVIE® WINNER and Award for Innovation in Human Resources Management, Planning & Practice: GOLD STEVIE® WINNER presented by the Asia-Pacific Stevie® Awards; the Financial Services Awards of Excellence 2019 – Life Insurance from the *Hong Kong Economic Journal*; the Customer Service Excellence Award: Customer Service Counter Team – Merit Award from the Hong Kong Association for Customer Service Excellence; and the Cross Border Insurance Services – Excellence and Annuity Plan – Excellence awards in *Bloomberg Businessweek*'s Financial Institution Awards 2019.

REGIONAL BUSINESS

Enhancing Southeast Asian development strategy with the aim of building mainstream foreign banks in the region

Southeast Asia has remarkable development potential, as a core focus of China's Belt and Road initiative, as a market for RMB internationalisation and as a target region for Chinese enterprises' "Going Global" efforts. The Group adopted BOC's development strategy and pushed forward its steadfast commitment to building a top-class, full-service and internationalised regional bank. Accelerating its deployment in Southeast Asia, it crafted distinct development strategies for each of its Southeast Asian entities with an aim of gradually establishing differentiated competitive edges, all with a focus on serving "Going Global" enterprises and large corporates in Southeast Asia. The Group has developed a strong franchise and market-oriented management experience through a century of service in Hong Kong. Now acting as the regional hub for Southeast Asia, the Group fully leveraged these advantages and introduced its competitively proven products and services, advanced technology and management, and professional talent teams from Hong Kong to Southeast Asia. By extending BOCHK's competitive advantages in capital funding, products, management and talent, the Group was able to uplift its competitiveness and development quality in the Southeast Asian region, with the aim of building each Southeast Asian entity into the mainstream foreign bank in its local market. As a result of these regional integration efforts, Jakarta Branch was ranked fifth in terms of overall operations in the Indonesian banking industry in 2018 and was ranked first among all foreign banks in Indonesia. Moreover, Jakarta Branch was named the Best Foreign Bank of the year in the Best Indonesian Business Awards in 2019.

Constantly deepening regional management and steadily pushing forward integrated regional development

The Group successfully completed the acquisition of the Laos Business of BOC on 21 January 2019. BOCHK has developed into a regional bank with operating entities in eight Southeast Asian countries, including Thailand, Malaysia, Vietnam, the Philippines, Indonesia, Cambodia, Laos and Brunei. The Group continued to push forward logical integration of the business mechanisms, systems, personnel and culture of its Southeast Asian entities. It accelerated the development of its regional management model according to the business characteristics of the front, middle and back offices, and steadily pushed forward the model's operation and implementation according to differentiated development strategies. Different arrangements were made regarding approval authorisation, resource allocation, personnel management, performance management and daily operations. The frontline units further refined their differentiated regional business positioning and management models, so as to implement integrated operational and management objectives. The middle office units strengthened the internal risk and compliance control of the Southeast Asian entities, in order to effectively improve their overall internal risk control and anti-money laundering capabilities. The back offices enhanced regional administration and resource support in order to improve the operational capacity of back office operations across Southeast Asia.

Well aligned management by line of business leading to continuous growth in operating results

The Group's Southeast Asia business continued to achieve satisfactory results in the first half of 2019. Net operating income before impairment allowances of its Southeast Asian entities* was HK$1,389 million, a growth of 22.8% year-on-year. As at the end of June 2019, deposits from customers and advances to customers amounted to HK$51,025 million and HK$44,869 million, up 6.7% and 12.9% respectively from the end of 2018. The non-performing loan ratio was 1.27%, up 0.14 percentage points from the end of 2018.

* Referring to the eight Southeast Asian entities, including BOC Thailand, BOC Malaysia, Ho Chi Minh City Branch, Manila Branch, Jakarta Branch, Phnom Penh Branch, Vientiane Branch and Brunei Branch. Net operating income before impairment allowances, the balance of deposits from customers and advances to customers represent the consolidated data which were prepared in accordance with Hong Kong Financial Reporting Standards. Non-performing loan ratio was calculated in accordance with local regulatory requirements.

In the corporate banking business, the Group actively developed Belt and Road related projects and local mainstream markets, including projects relating to road and bridge infrastructure development, telecommunications equipment, energy and petroleum, and aviation facilities. It also established a regional relationship manager system with a focus on high-value customers, and continued to promote the integrated management of customer development and project marketing by analysing the distribution of "Going Global" enterprises in Southeast Asia alongside industrial transfer trends in the Asia-Pacific region, so as to capture the development opportunities arising from such customers and projects. It actively supported local corporates and family-owned enterprises in Southeast Asia with service solutions. The Group also actively expanded its business with institutional clients, promoting RMB products and treasury operations. BOC Thailand helped a Thai asset management company to become an RMB Qualified Foreign Institutional Investor, while the Ho Chi Minh City Branch handled the first cross-border RMB entrusted settlement business in Vietnam's non-border area, thus achieving a breakthrough for the expansion of RMB usage in Vietnam.

In the personal banking business, the Group continued to build up its product and service capabilities in Southeast Asia by enhancing its infrastructure and implementing differentiated management approaches. It also strengthened customer positioning and management by allocating suitable products and personnel to support business development and increase revenues. During the reporting period, BOC Malaysia launched its Wealth Management service, offering mutual brand recognition in the Chinese mainland, Hong Kong and Malaysia, and giving full play to regional branding advantages.

Promoting regional risk management using the Three Lines of Defense and Take-the-Most-Stringent-Approach principle to achieve healthy and sustainable development

The Group promoted regional risk management on the basis of the Three Lines of Defense and the Take-the-Most-Stringent-Approach principle, actively pushing forward the full implementation of its risk management framework and stepping up the construction of the management structure and personnel deployment of its Southeast Asian entities. It comprehensively strengthened its Southeast Asian entities' management of credit risk, internal control and compliance. By closely monitoring market and liquidity risk in the Southeast Asian market, these entities were able to enhance their emergency handling capabilities. By comprehensively enhancing their risk compliance and control capabilities, the Southeast Asian entities will lay a solid foundation for high-quality development, ensure compliance with the regulatory requirements of the HKMA and local regulatory bodies, and operate in accordance with the standards stipulated by the Group.

In conjunction with the Group's implementation of the Southeast Asian Institutional Risk Management Framework, the Group promoted anti-money laundering management in Southeast Asia through related policies and systems, organisational structures, professional staffing and technological systems. It continued to push forward the implementation of anti-money laundering systems by its Southeast Asian entities, as well as strengthening their internal control and anti-money laundering talent teams, in order to ensure that anti-money laundering measures are conducted according to the most stringent regulatory requirements. The Group also adopted effective measures to gradually improve the credit policies, credit models, loan approval processes, loan time and post-lending management of its Southeast Asian entities, including the launch of customer credit rating systems especially tailored to improve approval efficiency in the Southeast Asia region, thus continuously strengthen the Group's capabilities in regional credit risk management.

FINTECH AND INNOVATIONS

Adhering to the concept of "technology-based and innovation-driven development", the Group kept pace with fintech development trends and made increased investments to expedite its transformation into a digital bank. By applying innovative technology such as big data, artificial intelligence ("AI"), blockchain, biometric and open API in financial products, service processes, operations management and risk control, the Group was able to improve its service levels and continuously strengthen customer stickiness.

In line with the HKMA's preparation to bring Hong Kong into a new era of smart banking, the Group took the lead in launching an open API project in January 2019. At the same time, it promoted open API interfaces according to the HKMA's framework and fully deployed and leveraged its resources and advantages, allowing customers to use BOCHK open API through third party service providers in order to obtain real-time banking information. The Group continuously strengthened its biometric applications. Finger vein authentication has now been extended to all of BOCHK's automated teller machines in Hong Kong. The Innovation and Optimisation Centre, established in 2018, is dedicated to promoting the Group's overall competitiveness. The Centre formed various inter-departmental agile project teams in the first half of 2019 to support innovation-driven strategy research, deepen scenario-based applications of fintech, and accelerate the transformation of products and services for customer needs fulfilment in a timely fashion.

To meet customer demand for easy and convenient payments, the Group continuously upgraded the functionalities of BoC Pay, its mobile application. BoC Pay is the first mobile application provided by a bank to offer scan and pay, person to person (P2P) transfer and bill payments, to fully support non-BOCHK customers in opening payment accounts, and to offer real-time redemption of credit card gift points for payment. BoC Pay enables customers to scan and pay at a number of local merchants and to make daily payments through FPS in Hong Kong. It also supports UnionPay QR code payments to more than 11 million merchants in the Chinese mainland, including more than 700,000 merchants in the Greater Bay Area. During the reporting period, both transaction volume and the total number of users grew rapidly. The Group continued to expand the coverage of its integrated collection platform, BoC Bill, by providing comprehensive payment and settlement solutions, including all-in-one UnionPay QR code and FPS scanning code, to different types of enterprises in Hong Kong. Its coverage has been extended to a vast number of retail outlets in Hong Kong, in particular SMEs, with the aim of pioneering a new era in payment behaviour and enhancing competitiveness.

The Group also made continuous investments in enhancing technology risk management, boosting its cybersecurity threat monitoring capability and handling efficiency, and strengthening its preventive controls on information leakage, in order to provide customers with solid and secure financial services.

In recognition of its innovative achievements in technology and IT development, BOCHK received the FinTech (Banking, Insurance and Capital Market) Silver Award in the Hong Kong ICT Awards 2019, organised by the Office of the Government Chief Information Officer of the Hong Kong SAR Government and various Hong Kong trade and industry organisations in Hong Kong, Awards of Excellence – FinTech Banking in the Financial Services Awards of Excellence 2019 organised by the *Hong Kong Economic Journal*, and Excellent Brand of Greater Bay Area FinTech Services in the Hong Kong Leaders' Choice 2019 organised by Metro Finance.

Launching a virtual bank

On 27 March 2019, Livi VB Limited ("Livi"), a joint venture company owned by BOC Hong Kong (Holdings) Limited ("the Company"), JD New Orbit Technology (Hong Kong) Limited ("JD New Orbit") and JSH Virtual Ventures Holdings Limited ("JSHVV"), was granted a banking licence by the HKMA to conduct virtual banking businesses. The Company, JD New Orbit and JSHVV have made a total joint initial investment of HK$2.5 billion, with shareholdings of 44%, 36% and 20% respectively.

With the goal of fostering fintech innovation, promoting financial inclusion and enhancing customer experience, Livi brings a unique, brand-new and distinctive banking experience to Hong Kong. Using state-of-the-art technologies such as AI, blockchain, big data and smart risk modelling, Livi creates secure, simple and seamless banking services. Livi will take an innovative approach to providing flexible solutions, anytime and anywhere, to complement the everyday lives of consumers as well as the business operations of SMEs. For further information on the granting of the virtual banking licence, please refer to the announcement made by the Company on 27 March 2019.

RISK MANAGEMENT

Banking Group

Overview

The Group believes that sound risk management is crucial to the success of any organisation. In its daily operation, the Group attaches a high degree of importance to risk management and emphasises that a balance must be struck between risk control and business development. The principal types of risk inherent in the Group's businesses are credit risk, interest rate risk, market risk, liquidity risk, operational risk, reputation risk, legal and compliance risk, and strategic risk. The Group's risk management objective is to enhance shareholder value by maintaining risk exposures within acceptable limits. The Group has a defined risk appetite statement approved by the Board, which is an expression of the types and level of risk that the Group is willing to take in a controllable way in order to achieve its business goals and to meet the expectations of its stakeholders.

Risk management governance structure

The Group's risk management governance structure is designed to cover all business processes and ensures various risks are properly managed and controlled in the course of conducting business. The Group has a robust risk management organisational structure with a comprehensive set of policies and procedures to identify, measure, monitor and control various risks that may arise. These risk management policies and procedures are regularly reviewed and updated to reflect changes in markets and business strategies. Various groups of risk takers assume their respective responsibilities for risk management.

The Board of Directors, representing the interests of shareholders, is the highest decision-making authority of the Group and has the ultimate responsibility for risk management. The Board, with the assistance of its committees, has the primary responsibility for the formulation of risk management strategies and ensuring that the Group has an effective risk management system to implement these strategies.

The Risk Committee ("RMC"), a standing committee established by the Board of Directors, is responsible for overseeing the Group's various types of risks, approving Level I risk management policies and monitoring their implementation, and approving significant or high risk exposures or transactions. The Audit Committee assists the Board in fulfilling its role in overseeing the internal control system.

The Chief Executive ("CE") is responsible for managing the Group's various types of risks, and approving material risk exposures or transactions within his authority delegated by the Board of Directors. The Deputy Chief Executives ("DCEs") assist the CE in fulfilling his responsibilities on the day-to-day management of various types of risk, and are responsible for approving material risk exposures or transactions within their authorities delegated by the CE. The Chief Risk Officer ("CRO") assists the CE in fulfilling his responsibilities for the day-to-day management of risks. The CRO is responsible for initiating new risk management strategies, projects and measures in response to regulatory changes that will enable the Group to better monitor and manage any risks that may arise from time to time from new businesses, products and changes in the operating environment. The CRO is also responsible for reviewing material risk exposures or transactions within his delegated authority. In accordance with the principle of setting the hierarchy of risk management policies approved by the Board, senior management is also responsible for approving the detailed risk management policies of their responsible areas.

Various units of the Group have their respective risk management responsibilities. Business units act as the first line of defence while risk management units, which are independent from the business units, are responsible for the day-to-day management of different kinds of risks. Risk management units have the primary responsibility for drafting, reviewing and updating various risk management policies and procedures.

The Group's principal banking subsidiaries are subject to risk management policies that are consistent with those of the Group. Moreover, the Group's non-banking subsidiaries, such as BOC Life, are subject to the Group's risk management requirements. These subsidiaries are required to formulate their respective risk management policies based on the characteristics of their own industries, perform daily risk management responsibilities and report to BOCHK on a regular basis. Risk management units of BOCHK monitor the risk management status of these subsidiaries.

Credit risk management

Credit risk is the risk of loss that a customer or counterparty is unable to or unwilling to meet its contractual obligations. Credit risk exists in the trading book and banking book, as well as from on- and off-balance sheet transactions of the Group. It arises principally from lending, trade finance and treasury businesses. The Chief Credit Officer, who reports directly to the CRO, takes charge of credit risk management and is also responsible for the control of credit risk exposures of subsidiaries in line with the credit risk management principles and requirements set by the Group.

For advances, different credit approval and control procedures are adopted according to the level of risk associated with the customer, counterparty or transaction. The Credit Risk Assessment Committee, comprising experts from credit and other functions, is responsible for making an independent assessment of material credit applications which require the approval of DCEs or above. Credit applications for non-retail exposures are independently reviewed and objectively assessed by risk management units. Obligor ratings (in terms of probability of default) and facility ratings (in terms of loss given default) are assigned to these portfolios to support credit approval. Retail internal rating systems are deployed in the risk assessment of retail credit transactions, including small business loans under retail exposures, residential mortgage loans, personal loans and credit cards. Loan grades, obligor and facility ratings as well as loss estimates (if applicable) are used to support credit approval.

The Group also uses loan grades, obligor ratings and loss estimates (if applicable) to support credit monitoring, reporting and analysis of credit risk information. For non-retail exposures, more frequent rating review and closer monitoring are required for higher-risk customers. For retail exposures, monthly updated internal ratings and loss estimates are used for credit monitoring on a portfolio basis. More comprehensive review is required for obligors being identified under high-risk pools. The Group adopts loan grading criteria which divide credit assets into five categories with reference to the HKMA's guidelines. The Risk Management Department ("RMD") provides regular credit management information reports and ad hoc reports to the Management Committee ("MC"), RMC and Board of Directors to facilitate their continuous monitoring of credit risk. In addition, the Group identifies credit concentration risk by industry, geography, customer and counterparty. The Group monitors changes to counterparty credit risk, quality of the credit portfolio and credit risk concentrations, and reports regularly to the Group's Management.

The Group employs an internal master rating scale that can be mapped to Standard & Poor's external credit ratings. The structure of internal master rating scale is in compliance with the requirement of the Banking (Capital) Rules under the Hong Kong Banking Ordinance.

For investments in debt securities and securitisation assets, the obligor ratings or external credit ratings, assessment of the underlying assets and credit limits setting on customer/security issuer basis are used for managing credit risk associated with the investment. For derivatives, the Group sets customer limits to manage the credit risk involved and follows the same approval and control processes as applied for advances. On-going monitoring and stop-loss procedures are established.

For impairment assessment, a new impairment model is introduced in compliance with HKFRS 9, it requires the recognition of Expected Credit Loss ("ECL") for financial instrument held at amortised cost and fair value through other comprehensive income. Under HKFRS 9, ECL is assessed in three stages and the financial assets and loan commitments are classified in one of the three stages.

Stage 1: if the financial instrument is not credit-impaired upon origination and the credit risk on the financial instrument has not increased significantly since initial recognition, the loss allowance is measured at an amount up to 12-month ECL;

Stage 2: if the financial instrument is not credit-impaired upon origination but the credit risk on the financial instrument has increased significantly since initial recognition, the loss allowance is measured at an amount equal to the lifetime ECL;

Stage 3: if the financial instrument is credit-impaired, with one or more events that have a detrimental impact on the estimated future cash flows of that financial asset have occurred, the loss allowance is also measured at an amount equal to the lifetime ECL.

The significant credit deterioration criteria framework has been developed to determine the stage of the financial instrument. The framework incorporates quantitative and qualitative assessment such as the number of days past due, change in IRB rating and the stage assessment watchlist.

The Group leverages the parameters implemented under Basel II Internal Ratings-Based ("IRB") models and internal models where feasible and available to assess ECL. For the portfolios without models, all other reasonable and supportable information such as historical information, relevant loss experience or proxies are utilised. The measurement of ECL is the product of the financial instrument's probability of default ("PD"), loss given default ("LGD") and exposure at default ("EAD") discounted at the effective interest rate to the reporting date.

ECL is measured at an unbiased and probability-weighted amount that is determined by evaluating a range of possible outcomes, the time value of money and reasonable and supportable information about past events, current conditions and forecasts of future economic conditions. The Group adopts three economic scenarios in the ECL measurement to meet the requirements of HKFRS 9. The "Baseline" scenario represents a most likely outcome and the other two scenarios, referred to as "Good" scenario and "Bad" scenario, represent less likely outcomes which are more optimistic or more pessimistic compared to Baseline scenario.

RMC is responsible for approving ECL methodology and the Management is responsible for the ECL model implementation. Credit Risk Management is responsible for the maintenance of ECL methodology including models review and parameters update on a regular basis. Independent Model Validation Team is responsible for the annual validation of ECL models. If there is any change in ECL methodology, the Group will follow the proper approval process.

Market risk management

Market risk refers to the risk of loss arising from movements in the value of foreign exchange, interest rate, equity and commodity positions held by the Group due to the volatility of financial market price (foreign exchange rate, interest rate, equity price, commodity price). The Group adopts a moderate market risk appetite to achieve a balance between risk and return. The Group's objective in managing market risk is to secure healthy growth of the treasury business, by the effective management of potential market risk in the Group's business, according to the Group's overall risk appetite and strategy of the treasury business on the basis of a well-established risk management regime and related management measures.

In accordance with the Group's corporate governance principles in respect of risk management, the Board and RMC, senior management and functional departments/ units perform their duties and responsibilities to manage the Group's market risk. The RMD is responsible for the Group's market risk management, assisting senior management to perform their day-to-day duties, independently monitoring the market risk profile and compliance of management policies and limits of the Group and BOCHK, and ensuring that the aggregate and individual market risks are within acceptable levels.

The Group's market risk management covers BOCHK and its subsidiaries. The Group establishes market risk management policies to regulate BOCHK's and its subsidiaries' market risk management; meanwhile, the Group sets up the Group's VaR and stress test limits, which are allocated and monitored across the Group according to the business requirements and risk tolerance levels. In line with the requirements set in the Group's policy, the subsidiaries formulate the detailed policies and procedures and are responsible for managing their daily market risk.

The Group sets up market risk indicators and limits to identify, measure, monitor and control market risk. Major risk indicators and limits include but are not limited to VaR, Stop Loss, Open Position, Stress Testing and Sensitivity Analysis (Basis Point Value, Greeks), etc. To meet management's requirements, major risk indicators and limits are classified into four levels, and are approved by the RMC, MC, CRO and the DCE in charge of the treasury business or the head of the respective business unit respectively. The treasury business units of BOCHK and subsidiaries (as for Group Limit) are required to conduct their business within approved market risk indicators and limits.

The Group uses the VaR to measure and report general market risks to the RMC and senior management on a periodic basis. The Group adopts a uniformed VaR calculation model, using a historical simulation approach and two years of historical market data, to calculate the VaR of the Group and its subsidiaries over a one-day holding period with a 99% confidence level, and sets up the VaR limit of the Group and its subsidiaries.

The Group adopts back-testing to measure the accuracy of VaR model results. The back-testing compares the calculated VaR figure of market risk positions of each business day with the actual and hypothetical gains or losses arising from those positions on the next business day. Generally speaking, the number of back-testing exceptions in a rolling 12-month period will not exceed four times, given a 99% confidence level.

Interest rate risk management

Interest rate risk means the risks to a bank's earnings and economic value arising from movements in interest rate and term structures of the bank's asset and liability positions. The Group's interest rate risk exposures are mainly structural. The major types of interest rate risk from structural positions are:

- Repricing risk: mismatches in the maturity or repricing periods of assets and liabilities that may affect net interest income;
- Basis risk: different pricing basis for different transactions resulting that the yield on assets and cost of liabilities may change by different amounts within the same repricing period;
- Yield curve risk: non-parallel shifts in the yield curve that may have an adverse impact on net interest income or economic value; and
- Option risk: exercise of the options embedded in assets, liabilities or off-balance sheet items that can cause a change in the cash flows of assets and liabilities.

The Group's risk management framework applies also to interest rate risk management. The Asset and Liability Management Committee ("ALCO") exercises its oversight of interest rate risk in accordance with the "BOCHK Group Banking Book Interest Rate Risk Management Policy" approved by the RMC. The RMD is responsible for the Group's interest rate risk management. With the cooperation of the Financial Management Department and Investment Management, etc., RMD assists the ALCO to perform day-to-day interest rate risk management. Its roles include, but are not limited to, the formulation of management policies, selection of methodologies, setting of risk indicators and limits, assessment of target balance sheet, monitoring of the compliance with policies and limits, and submission of interest rate risk management reports to senior management and the RMC, etc.

The Group sets out interest rate risk indicators and limits to identify, measure, monitor and control interest rate risk on a daily basis. The indicators and limits include, but are not limited to, repricing gap limits, basis risk, duration, price value of a basis point ("PVBP"), Greeks, net interest income sensitivity ratio ("NII"), economic value sensitivity ratio ("EV"), etc. The indicators and limits are classified into different levels, which are approved by the CFO, CRO, ALCO and RMC accordingly. Risk-taking business units are required to conduct their business within the boundary of the interest rate risk limits. Before launching a new product or business in the banking book, the relevant departments are required to go through a risk assessment process, which includes the assessment of underlying interest rate risk and consideration of the adequacy of current risk monitoring mechanism. Any material impact on interest rate risk noted during the risk assessment process will be submitted to the RMC for approval.

NII and EV assess the impact of interest rate movement on the Group's net interest income and capital base. They are the Group's key interest rate risk indicators. The former assesses the impact of interest rate movement on net interest income as a percentage to the projected net interest income for the year. The latter assesses the impact of interest rate movement on economic value (i.e. the net present value of cash flows of assets, liabilities and off-balance sheet items discounted using the market interest rate) as a percentage to the latest capital base. Limits are set by the RMC on these two indicators to monitor and control the Group's banking book interest rate risk.

The Group uses scenario analyses and stress tests to assess the banking book interest rate risk that the Group would face under adverse circumstances. Scenario analyses and stress tests are also used to assess the impact on net interest income and economic value arising from the optionality of savings deposits, the prepayment of mortgage loans and the prepayment of debt securities with embedded options.

Liquidity risk management

Liquidity risk is the risk that banks may not be able to obtain sufficient and timely funding at a reasonable cost to meet their obligations as they fall due. The Group maintains a sound liquidity risk appetite to provide stable, reliable and adequate sources of cash to meet liquidity needs under normal circumstances or stressed scenarios; and to survive with net positive cumulative cash flow in extreme scenarios, without requesting the HKMA to act as the lender of last resort.

In accordance with the Group's corporate governance principles in respect of risk management, the Board and the RMC, senior management and functional departments/units perform their duties and responsibilities to manage the Group's liquidity risk. The RMC is the decision-making authority of liquidity risk management, and assumes the ultimate responsibility of liquidity risk management. As authorised by the RMC, ALCO exercises its oversight of liquidity risk and ensures the daily operations of the Group are in accordance with the risk appetite and policies as set by the RMC. The RMD is responsible for the Group's liquidity risk management. It cooperates with the Financial Management Department and Investment Management, etc. to assist the ALCO to perform liquidity management functions according to their specific responsibilities.

The Group's liquidity risk management objective is to effectively manage the liquidity of on- and off-balance sheet items with a reasonable cost based on the liquidity risk appetite to achieve sound operation and sustainable profitability. Deposits from customers are the Group's primary source of funds. To ensure stable and sufficient sources of funds are in place, the Group actively attracts new deposits, keeps the core deposit and obtains supplementary funding from the interbank market and by issuing bills in the capital market. According to different term maturities and the results of funding needs estimated from stressed scenarios, the Group adjusts its asset structure (including loans, bonds investment, interbank placement, etc.) to maintain sufficient liquid assets which provides adequate funds in support of normal business needs and ensure its ability to raise funds at a reasonable cost to serve external claims in case of emergency. The Group is committed to diversify the sources, tenors and use of funding to avoid excessive concentration of assets and liabilities; and prevent triggering liquidity risk due to the break of funding strand resulting from over-concentration of sources and use of funding in a particular area where problems occur. In order to manage such risk, the Group sets concentration limits on collateral pools and sources of funding such as Tier 1 high-quality readily liquefiable assets to total high-quality readily liquefiable assets ratio, top ten depositors ratio and large depositors ratio. Whenever necessary, the Group could improve the liquidity position by taking mitigation actions including, but not limited to obtaining funding through interbank borrowings or repos in the money market, selling bonds in the secondary market or retaining existing and attracting new customer deposits. Apart from increasing the funding, the Group would maintain good communication with the counterparties, the parent and the regulators to enhance mutual confidence.

The Group has established intra-group liquidity risk management guidelines to manage the liquidity funding among different entities within the Group, and to restrict their reliance of funding on each other. The Group also pays attention to manage liquidity risk created by off-balance sheet activities, such as loan commitments, derivatives, options and other complex structured products. The Group has an overall liquidity risk management strategy to cover the liquidity management of foreign currency assets and liabilities, collateral, intra-day liquidity, intra-group liquidity, the liquidity risk arising from other risks, etc., and has formulated corresponding contingency plan.

The Group established liquidity risk management indicators and limits to identify, measure, monitor and control liquidity risk on a daily basis. These indicators and limits include, but are not limited to liquidity coverage ratio ("LCR"), net stable funding ratio ("NSFR"), loan-to-deposit ratio, Maximum Cumulative Cash Outflow ("MCO") and liquidity cushion. The Group applies a cash flow analysis to assess the Group's liquidity condition under normal conditions and also performs a liquidity stress test (including institution specific, general market crisis and combined crisis) and other methods at least on a monthly basis to assess the Group's capability to withstand various severe liquidity crises. Also, relevant management information systems such as the Assets and Liabilities Management System and the Basel Liquidity Ratio Management System are developed to provide data and to prepare for regular management reports to facilitate liquidity risk management duties.

In accordance with the requirements of Supervisory Policy Manual LM-2 "Sound Systems and controls for Liquidity Risk Management" issued by the HKMA, the Group has implemented a behaviour model and assumptions of cash flow analysis and stress test to enhance the Group's cash flow analysis under both normal and stressed conditions. In cash flow analysis under normal circumstances, assumptions have been made relating to on-balance sheet items (such as deposits from customers) and off-balance sheet items (such as loan commitments). According to various characteristics of the assets, liabilities and off-balance sheet items, the Group forecasts the future cash flow based on the contractual maturity date and the assumptions of customer behaviour and balance sheet changes. The Group establishes the MCO indicator which predicts the future 30 days maximum cumulative net cash outflow in normal situations based on the above assumptions, to assess if the Group has sufficient financing capacity to meet the cash flow gap in order to achieve the objective of continuing operations.

In the liquidity stress test, institution specific, general market crisis and combined crisis scenarios have been set up, a combined crisis scenario is a combination of institution specific and general market crisis to assess the Group's capability to withstand a more severe liquidity crisis, with a more stringent set of assumptions being adopted. Stress test assumptions include the run-off rate of retail, wholesale and interbank deposits; the drawdown rate of loan commitments and trade-related contingent liabilities; the delinquency ratio and rollover rate of customer loans; and haircut of interbank placement and marketable securities. As at 30 June 2019, the Group was able to maintain a net cash inflow under the three stressed scenarios, indicating the Group has the ability to meet financing needs under stressed conditions. In addition, the Group has a policy in place to maintain a liquidity cushion which includes high quality or comparable quality marketable securities issued or guaranteed by sovereigns, central banks, public sector entities or multilateral development banks with 0% or

20% risk weight or marketable securities issued by non-financial corporate with a corresponding external credit rating of A- or above to ensure funding needs even under stressed scenarios. A contingency plan is being established which details the conditions to trigger the plan based on stress test results and early warning indicators, the action plans and relevant procedures and responsibility of relevant departments.

The LCR is calculated in accordance with the Banking (Liquidity) Rules effective from 1 January 2015. The Group, being classified as a category 1 authorised institution by the HKMA, is required to calculate the LCR on a consolidated basis. From 2019, the Group is required to maintain a LCR not less than 100%.

The NSFR is calculated in accordance with the Banking (Liquidity) (Amendment) Rules 2017 effective from 1 January 2018. The Group, being classified as a category 1 authorised institution by the HKMA, is required to calculate NSFR on consolidated basis and maintain a NSFR not less than 100%.

In certain derivative contracts, the counterparties have the right to request from the Group additional collateral if they have concerns about the Group's creditworthiness.

The Group's liquidity risk management also covers new products or business developments. Before launching a new product or business, the relevant departments are required to go through a risk assessment process, which includes the assessment of underlying liquidity risk and consideration of the adequacy of the current risk management mechanism. Any material impact on liquidity risk noted during the risk assessment process will be reported to the RMC for approval.

The Group has established a set of uniform liquidity risk management policies which serve as standards and guidance to all the Group's members for liquidity risk management. On the basis of the Group's uniform policies, each of the subsidiaries develops its own liquidity management policies according to its own characteristics, and assumes its own liquidity risk management responsibility. Subsidiaries are required to report their respective liquidity positions with relevant liquidity ratios on a regular basis to the RMD of BOCHK, which consolidates this information and evaluates group-wide liquidity risk to ensure relevant requirements are satisfied.

Operational risk management

Operational risk is the risk of loss resulting from inadequate or failed internal process, people and system, or from external events. The risk is inherent in every aspect of business operations and confronted by the Group in its day-to-day operational activities.

The Group has implemented the "Three Lines of Defence" for its operational risk management. All departments or functional units as the first line of defence are the first parties responsible for operational risk management, and carry out the duties and functions of self risk control in the process of business operation through self assessment and self enhancement. The Legal & Compliance and Operational Risk Management Department ("LCO"), together with certain specialist functional units in relation to operational risk management within the Group, including the Human Resources Department, Information Technology Department, Corporate Services Department, Financial Crime Compliance Department, Financial Management Department, Treasury and General Accounting & Accounting Policy Department (collectively known as "specialist functional units"), are the second line of defence. They are responsible for assessing and monitoring the operational risk conditions in the first line of defence, and providing them with guidance. The LCO, being independent from the business units, is responsible for assisting the Management in managing the Group's operational risk, including the establishment and review of the operational risk management policy and framework, designing the operational risk management tools and reporting mechanism, and assessing and reporting the overall operational risk position to the Management and RMC. Specialist functional units are required to carry out their managerial duties of the second line of defence with respect to some specific aspects of operational risk and its related issues. Besides taking charge of operational risk management in their own units, these units are also required to provide other units with professional advice/training in respect of certain operational risk categories and to lead the group-wide operational risk management. Group Audit is the third line of defence which provides independent assessment to the effectiveness and adequacy of the operational risk management framework and is required to conduct periodic audit of the operational risk management activities of various departments or functional units within the Group regarding their compliance and effectiveness and to put forward recommendations for remedial actions.

The Group has put in place an effective internal control process which requires the establishment of policies and control procedures for all the key activities. The Group adheres to the fundamental principle of proper segregation of duties and authorisation. The Group adopts various operational risk management tools or methodologies such as key risk indicators, self-assessment, operational risk events reporting and review to identify, assess, monitor and control the risks inherent in business activities and products, as well as purchase of insurance to mitigate unforeseeable operational risks. Business continuity plans are established to support business operations in the event of an emergency or disaster. Adequate backup facilities are maintained and periodic drills are conducted.

Reputation risk management

Reputation risk is the risk that negative publicity about the Group's business practices, whether genuine or not, will cause a potential decline in the customer base, or lead to costly litigation or revenue decrease. Reputation risk is inherent in other types of risk and every aspect of business operation and covers a wide spectrum of issues.

In order to mitigate reputation risk, the Group has formulated and duly followed its Reputation Risk Management Policy. The policy aims to identify and prevent reputation risk proactively at an early stage when an incident occurs. Since reputation risk is often caused by various types of operational and strategic issues that negatively impact the trust and perception of the Group, all operational and key risks identified are assessed through the established Key Control Self-Assessment framework, including risk assessment tools, to evaluate the severity of their impact on the Group, including the damage to reputation.

In addition, the Group has put in place a comprehensive framework to continuously monitor reputation risk incidents in the financial industry. This continuous monitoring enables the Group to effectively manage, control and mitigate any potential adverse impact from an incident. The Group also adopts robust disclosure practices to keep our stakeholders informed at all times, which helps build confidence in the Group and establish a strong public image.

Legal and compliance risk management

Legal risk is the risk that unenforceable contracts, lawsuits or adverse judgments may disrupt or otherwise negatively affect the operations or financial conditions of the Group. Compliance risk is the risk of legal or regulatory sanctions, financial losses or losses in reputation the Group may suffer as a result of its failure to comply with applicable laws and regulations. Legal and compliance risks are managed by the LCO, while the risks related to money laundering, terrorist financing and financial crimes including bribery and corruption are independently managed and monitored by the Financial Crime Compliance Department ("FCC"). LCO and FCC report directly to the DCE and CRO respectively. As part of the Group's corporate governance framework, the policies for the management of legal and compliance risks, and money laundering, terrorist financing and financial crime compliance risks are approved by the RMC as delegated by the Board.

Strategic risk management

Strategic risk generally refers to the risks that may cause current or future negative impacts on the earnings, or capital or reputation or market position of the Group because of poor business decisions, improper implementation of strategies and inadequacies in the response to the changing market condition. The Board reviews and approves the strategic risk management policy. Key strategic issues have to be fully evaluated and properly endorsed by the senior management and the Board.

The Group regularly reviews its business strategies to cope with the latest market situation and developments.

Capital management

The major objective of the Group's capital management is to maximise total shareholders' return while maintaining a capital adequacy position in relation to the Group's overall risk profile. ALCO periodically reviews the Group's capital structure and adjusts the capital mix where appropriate to maintain an optimal balance among risk, return and capital adequacy.

To comply with the HKMA's requirements as stated in the Supervisory Policy Manual "Supervisory Review Process", the Group adopts the internal capital adequacy assessment process ("ICAAP") and reviews it annually. Based on the HKMA's guidelines on Pillar II, ICAAP has been initiated to assess the extra capital needed to cover the material risks not captured or not adequately captured under Pillar I, and therefore minimum Common Equity Tier 1 capital ratio, minimum Tier 1 capital ratio and minimum Total capital ratio are determined. Meanwhile, operating ranges for the aforementioned capital ratios have also been established which enable the flexibility for future business growth and efficiency of capital utilisation.

Stress testing

The Group supplements the analysis of various types of risks with stress testing. Stress testing is a risk management tool for estimating risk exposures under stressed conditions arising from extreme but plausible market or macroeconomic movements. These tests are conducted on a regular basis by the Group's various risk management units in accordance with the principles stated in the Supervisory Policy Manual "Stress-testing" published by the HKMA. The ALCO monitors the results against the key risk limits approved by the RMC. The Financial Management Department reports the combined stress test results of the Group to the Board and RMC regularly.

BOC Life

BOC Life's principal business underwrites long-term insurance business in life and annuity (Class A), linked long term business (Class C), permanent health (Class D), retirement scheme management category I (Class G) and retirement scheme management category III (Class I) in Hong Kong. Major types of risk arising from BOC Life's insurance business are insurance risk, interest rate risk, liquidity risk, credit risk, equity price risk and currency risk. BOC Life closely monitors these risks and reports to its Risk Management Committee on a regular basis. Furthermore, BOC Life has regular communication with the Group to ensure consistency with the Group's risk management strategy. The key risks of its insurance business and related risk control process are as follows:

Insurance risk management

BOC Life is in the business of insuring against the risk of mortality, morbidity, disability, critical illness, accidents and related risks. These risks are managed through the application of underwriting strategy, reinsurance arrangements and regular experience monitoring.

The underwriting strategy is intended to set premium pricing at an appropriate level that corresponds with the underlying exposure of the risks underwritten and BOC Life's underwriting procedures include the screening processes, such as the review of health condition and family medical history, to ensure alignment with the underwriting strategy.

The reinsurance arrangement transfers the insurance risk associated with the insurance contracts to the third party. It does not, however, discharge BOC Life's liability as the primary insurer. If a reinsurer fails to pay a claim for any reasons, BOC Life remains liable for the payment to the policyholder. The creditworthiness of reinsurers is considered by reviewing the reinsurers' financial strength prior to finalisation of any reinsurance contract. BOC Life directs its reinsurance placement policy and assesses the creditworthiness of all reinsurers and intermediaries by reviewing credit grades provided by rating agencies and other publicly available financial information. BOC Life also monitors the reinsurance counterparty risk exposure on an ongoing basis.

Uncertainty in the estimation of future benefit payments and premium receipts for long-term insurance contracts arises from the unpredictability of long-term changes in overall levels of mortality, morbidity and persistency. In this regard, BOC Life has conducted relevant experience studies and researches regularly to identify emerging trends. Results would be taken into account in pricing and underwriting management.

MANAGEMENT DISCUSSION AND ANALYSIS

For details of the Group's Insurance Risk Management, please refer to Note 3.4 to the Interim Financial Information.

Interest rate risk management

An increase in interest rates may result in the depreciation of the value of BOC Life's investment assets. A decrease in interest rates may result in an increase in insurance liability and customer dissatisfaction due to decrease in returns. BOC Life manages the matching of assets and liabilities of its portfolios within an asset liability management framework that has been developed to achieve investment returns that match its obligations under insurance contracts; and to manage the adverse impact due to interest rate movement.

Liquidity risk management

BOC Life's liquidity risk is the risk of not being able to meet payment obligations as they fall due. BOC Life's asset and liability management framework includes stress tests and cash flow management to preserve liquidity to fulfil policy payment obligations from time to time.

Credit risk management

BOC Life has exposure to credit risk that a customer, debtor or counterparty will be unable to or unwilling to meet a commitment that they have entered into. Key areas to which BOC Life's insurance business is exposed include:

- Default risk associated with bonds, notes and counterparties
- Credit spread widening as a result of credit migration (downgrade)
- Reinsurers' share of insurance unpaid liabilities
- Amounts due from reinsurers in respect of claims already paid
- Amounts due from insurance contract holders
- Amounts due from insurance intermediaries

BOC Life manages credit risk by placing limits on its exposure to each investment counterparty and issuer. Such limits are subject to review by the Management at least once a year.

Equity price risk management

BOC Life's equity price risk refers to the risk of loss due to volatility of market price in equity securities, equity funds and private equity. BOC Life's asset and liability management framework includes managing the adverse impact due to equity price movement through stress test and exposure limit.

Currency risk management

BOC Life's currency risk refers to the risk of loss due to volatility of exchange rate. BOC Life's asset and liability framework includes managing the adverse impact due to exchange rate movement through stress test, exposure limit and risk limit.