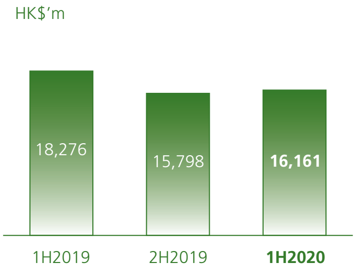
MANAGEMENT DISCUSSION AND ANALYSIS

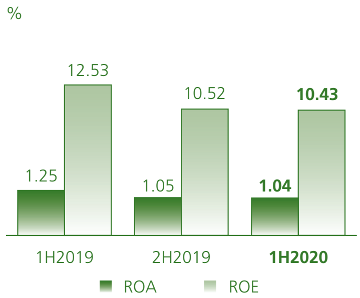
FINANCIAL PERFORMANCE AND CONDITIONS AT A GLANCE

The following table is a summary of the Group's key financial results for the first half of 2020 in comparison with the previous two half-year periods of 2019.

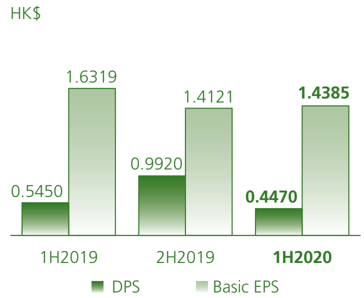
Profit for the period



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



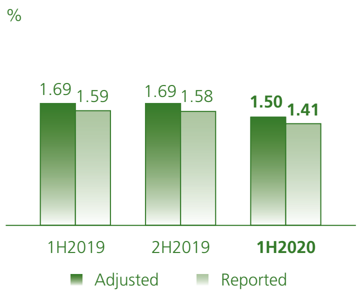
Basic Earnings Per Share ("Basic EPS") and Dividend Per Share ("DPS")



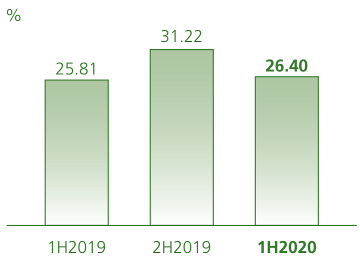
Profit for the period

- In the first half of 2020, profit for the period amounted to HK$16,161 million, representing an increase of 2.3% compared to the second half of 2019 but a year-on-year decrease of 11.6%.
- ROE and ROA was 10.43% and 1.04% respectively.
- Basic EPS was HK$1.4385. The interim dividend per share was HK$0.447.

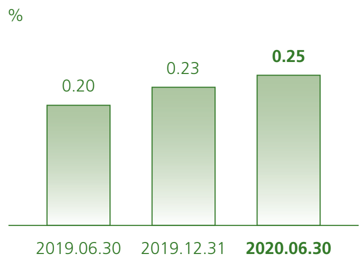
Net Interest Margin ("NIM")



Cost to Income Ratio



Classified or Impaired Loan Ratio[2]



Adjusted net interest margin ("NIM") narrowed amid falling market interest rates

- NIM was 1.41%. If the funding income or cost of foreign currency swap contracts[3] were included, NIM would have been 1.50%, down 19 basis points year-on-year, as a result of falling market interest rates. The Group proactively managed its assets and liabilities amid a low interest rate environment, partially mitigating the aforementioned negative impact.

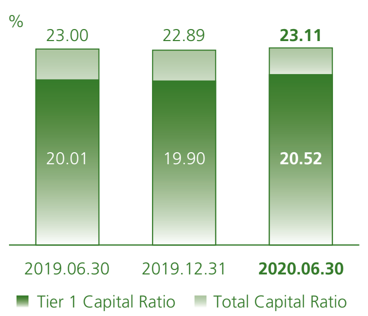
Maintaining high operational efficiency through flexible resource allocation

- The Group's cost to income ratio was 26.40%, up 0.59 percentage points year-on-year, maintaining its cost efficiency at a satisfactory level relative to industry peers.

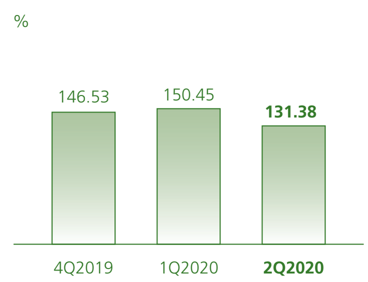
Maintaining benign asset quality through prudent risk management

- The classified or impaired loan was 0.25%, remaining below the market average.

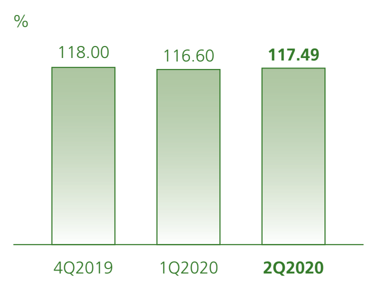
Capital Ratio



Average Value of Liquidity Coverage Ratio



Quarter-end Value of Net Stable Funding Ratio



Strong capital position to support business growth

- Tier 1 capital ratio was 20.52%, up 0.62 percentage points from that at the prior year-end, which was primarily attributable to profits recorded for the first half of 2020 as well as a decrease in regulatory reserve which led to a corresponding increase in retained earnings. Total capital ratio was 23.11%, up 0.22 percentage points from that at the prior year-end, as subordinated liabilities qualifying as Tier 2 capital instruments matured during the period.

Healthy liquidity position

- The average value of liquidity coverage ratio in the first and second quarter of 2020 remained healthy at 150.45% and 131.38% respectively.
- Net stable funding ratio stood at 116.60% at the end of the first quarter 2020 and 117.49% at the end of the second quarter 2020 respectively.

1. Return on average shareholders' equity and return on average total assets as defined in "Financial Highlights".
2. Classified or impaired advances represent advances which 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.

ECONOMIC BACKGROUND AND OPERATING ENVIRONMENT

The first half of 2020 witnessed the global outbreak of the COVID-19 pandemic. At the same time, Brexit negotiations progressed slowly, and global financial markets became more volatile. The US economy weakened and labour market conditions deteriorated amid the pandemic. In response, the Federal Reserve eased US monetary policy further by cutting the federal funds rate twice in March to a range of 0.00% to 0.25%, relaunching quantitative easing and enhancing credit support to enterprises. The Eurozone economy was also affected by the pandemic, with the European Central Bank announcing an increase in the scale of its asset purchases. In the Mainland, the pandemic was brought under control earlier. Following an economic contraction in the first quarter, the Mainland authorities heartily promoted the full resumption of work and production while increasing monetary and fiscal support, which led to economic improvement in the second quarter. Southeast Asian economies were also affected, with many countries introducing economic stimulus packages and cutting interest rates and reserve requirement ratios in order to cope with the economic fallout.

Many countries around the world imposed travel restrictions in response to the outbreak of COVID-19, which took a toll on Hong Kong's economy. Industries such as tourism, hotels, retail and imports and exports were severely affected, leading to a deep economic recession and a rise in the unemployment rate. Into the second quarter, the HKSAR government introduced relief measures to support enterprises and the labour market, which may help to alleviate the economic impacts of the pandemic.

Movements in the exchange rate of the Hong Kong dollar against the US dollar repeatedly triggered the strong-side Convertibility Undertaking in the first half of the year. The Hong Kong Monetary Authority ("HKMA") accordingly sold Hong Kong dollars, resulting in a rise in the aggregate balance in the banking sector. The average 1-month HIBOR and 1-month LIBOR dropped from 1.89% and 2.22% respectively in 2019 to 1.41% and 0.89% respectively in the first half of 2020.

Global stock market performance generally rebounded as central banks around the world successively eased their monetary policies, but Hong Kong's stock market underperformed. As at the end of June 2020, the Hang Seng Index had dropped 13.3% compared with the end of 2019. However, the average daily trading volume of the Hong Kong stock market in the first half of 2020 increased compared to the same period last year.

In the property market, the total number of transactions for residential properties in the first half of 2020 dropped compared to the same period of 2019. Residential property prices were relatively stable given the widespread easing of monetary policies by central banks around the world and the persistently low interest rate environment for the Hong Kong dollar. The HKSAR government continued to implement demand-side management measures, while the HKMA maintained prudent supervisory measures on mortgage loans, which helped banks to maintain stable asset quality in their mortgage businesses. Meanwhile, economic uncertainty weakened rental demand for commercial properties, leading to a continuous rise in vacancy rates and an overall decline in the property prices of office buildings.

Despite these challenges in the macro environment, the banking industry continues to enjoy enormous development opportunities. *The Opinions on Providing Financial Support for the Development of the Guangdong-Hong Kong-Macao Greater Bay Area*, jointly published by authorities such as the People's Bank of China in May, along with the launch announcement of the "Wealth Management Connect" pilot scheme for the Guangdong-Hong Kong-Macao Greater Bay Area in June, will promote mutual financial market access in the Greater Bay Area and expand market horizon for the Hong Kong banking industry. In addition, the HKMA continues to deepen the implementation of the "New Era of Smart Banking", which will facilitate the development of fintech and create more development opportunities for the banking industry. In addition, the HKMA continues to promote green and sustainable banking in phases, collaborating with the banking industry to promote the development of green finance in Hong Kong.

MANAGEMENT DISCUSSION AND ANALYSIS

CONSOLIDATED FINANCIAL REVIEW

Financial Highlights

HK$'m	**Half-year ended 30 June 2020**	Half-year ended 31 December 2019	Half-year ended 30 June 2019
Net operating income before impairment allowances	**28,743**	29,275	29,169
Operating expenses	**(7,589)**	(9,139)	(7,528)
Operating profit before impairment allowances	**21,154**	20,136	21,641
Operating profit after impairment allowances	**19,788**	18,907	20,848
Profit before taxation	**19,224**	18,536	21,552
Profit for the period	**16,161**	15,798	18,276
Profit attributable to equity holders of the Company	**15,209**	14,930	17,254

In the first half of 2020, the Group's profit for the period amounted to HK$16,161 million, a decrease of HK$2,115 million or 11.6% year-on-year. Profit attributable to equity holders was HK$15,209 million, a decrease of HK$2,045 million or 11.9% year-on-year. Net charge of impairment allowances increased year-on-year during the period, resulting from a weakening in the macro economic outlook and a growth in advances to customers. Fair-value adjustments on investment properties recorded a net loss, as compared with a net gain in the same period last year. Net operating income before impairment allowances was HK$28,743 million, down HK$426 million or 1.5% year-on-year. This was mainly due to a narrowing of net interest margin, which more than offset the positive impact from the increase in average interest-earning assets, resulting in a decrease in net interest income. Net fee and commission income fell, mainly due to the impact of the COVID-19 pandemic and economic downturn. This decrease in income was partially offset by a higher net gain from the disposal of certain debt securities investments. Operating expenses rose 0.8% on a year-on-year basis, as a result of the Group's ongoing investment in supporting its long-term business expansion while adopting cautious cost control measures.

As compared with the second half of 2019, the Group's net operating income before impairment allowances decreased by HK$532 million or 1.8%. This was mainly due to a decrease in net interest income and a lower net trading gain for the banking business, which was partially offset by an increase in net fee and commission income and a net gain from the disposal of debt securities investments. Operating expenses dropped, offsetting the impact from the increase in net charge of impairment allowances. Profit for the period increased by HK$363 million or 2.3% compared to the second half of last year.

INCOME STATEMENT ANALYSIS

Net Interest Income and Net Interest Margin

HK$'m, except percentages	**Half-year ended 30 June 2020**	Half-year ended 31 December 2019	Half-year ended 30 June 2019
Interest income	**28,936**	34,179	33,605
Interest expense	**(10,300)**	(13,559)	(13,702)
Net interest income	**18,636**	20,620	19,903
Average interest-earning assets	**2,651,178**	2,580,805	2,521,282
Net interest spread	**1.25%**	1.36%	1.37%
Net interest margin	**1.41%**	1.58%	1.59%
Net interest margin (adjusted)*	**1.50%**	1.69%	1.69%

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

Net interest income amounted to HK$18,636 million in the first half of 2020. If the funding income or cost of foreign currency swap contracts# were included, net interest income would have decreased by 6.1% year-on-year. The decrease was mainly due to a narrowing of net interest margin, partially offset by growth in average interest-earning assets.

Average interest-earning assets expanded by HK$129,896 million or 5.2% year-on-year. An increase in deposits from customers led to an increase in advances to customers.

Net interest margin was 1.41%. If the funding income or cost of foreign currency swap contracts were included, net interest margin would have been 1.50%, down 19 basis points year-on-year. This was mainly due to falling market interest rates, intense market competition for deposits and loans, and the relatively shorter loan repricing periods than those of deposits, resulting in a narrowing of the loan and deposit spread. In addition, the average yield of debt securities investments and other debt instruments dropped and the contribution from net free funds decreased. The Group proactively managed its assets and liabilities in response to challenges in the market environment, resulting in solid growth in its loan portfolio, enhanced deposit pricing management and an improved deposit mix with a higher CASA ratio, partially offsetting the aforementioned negative impacts.

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 2020		Half-year ended 31 December 2019		Half-year ended 30 June 2019	
ASSETS	**Average balance HK$'m**	**Average yield %**	Average balance HK$'m	Average yield %	Average balance HK$'m	Average yield %
Balances and placements with banks and other financial institutions	**305,597**	**1.09**	304,254	1.69	334,982	1.82
Debt securities investments and other debt instruments	**839,362**	**2.04**	860,283	2.31	869,063	2.42
Advances to customers and other accounts	**1,478,356**	**2.52**	1,390,802	3.03	1,298,560	3.09
Other interest-earning assets	**27,863**	**1.09**	25,466	2.42	18,677	2.80
Total interest-earning assets	**2,651,178**	**2.19**	2,580,805	2.63	2,521,282	2.69
Non interest-earning assets	**470,798**	**–**	431,848	–	407,778	–
Total assets	**3,121,976**	**1.86**	3,012,653	2.25	2,929,060	2.31
LIABILITIES	**Average balance HK$'m**	**Average rate %**	Average balance HK$'m	Average rate %	Average balance HK$'m	Average rate %
Deposits and balances from banks and other financial institutions	**197,300**	**0.77**	184,150	1.14	198,894	1.22
Current, savings and time deposits	**1,964,093**	**0.94**	1,891,679	1.24	1,838,239	1.29
Subordinated liabilities	**2,920**	**5.50**	13,027	5.47	13,160	5.51
Other interest-bearing liabilities	**36,464**	**1.40**	37,373	1.69	41,671	1.78
Total interest-bearing liabilities	**2,200,777**	**0.94**	2,126,229	1.27	2,091,964	1.32
Shareholders' funds* and other non interest-bearing deposits and liabilities	**921,199**	**–**	886,424	–	837,096	–
Total liabilities	**3,121,976**	**0.66**	3,012,653	0.89	2,929,060	0.94

* 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 decreased by 9.8% compared to the second half of 2019. Net interest margin fell by 19 basis points, which was mainly due to a narrowing of the loan and deposit spread and a drop in the average yield of debt securities investments and other debt instruments, as well as a decrease in the contribution from net free funds.

Net Fee and Commission Income

HK$'m	**Half-year ended 30 June 2020**	Half-year ended 31 December 2019	Half-year ended 30 June 2019
Securities brokerage	**1,567**	1,020	1,093
Loan commissions	**1,389**	1,052	1,623
Credit card business	**924**	1,340	1,635
Insurance	**713**	951	1,160
Funds distribution	**442**	437	464
Payment services	**358**	377	339
Trust and custody services	**322**	342	309
Bills commissions	**278**	348	352
Currency exchange	**157**	276	323
Safe deposit box	**153**	150	144
Others	**495**	589	678
Fee and commission income	**6,798**	6,882	8,120
Fee and commission expense	**(1,363)**	(2,009)	(2,074)
Net fee and commission income	**5,435**	4,873	6,046

In the first half of 2020, net fee and commission income amounted to HK$5,435 million, down HK$611 million or 10.1% year-on-year. The decrease was mainly due to the impact of the COVID-19 pandemic and economic downturn, which slowed economic activities and adversely affected the tourism, retail, and trade sectors, resulting in a drop in commission income from currency exchange, credit card business and bills of 51.4%, 43.5% and 21.0% respectively. Commission income from insurance and funds distribution decreased by 38.5% and 4.7% respectively amid adverse investor sentiment in the market and changes in market interest rates. Loan commissions also decreased by 14.4%. However, commission income from securities brokerage increased by 43.4% amid increased transaction volumes in the stock market in the first half of 2020. Commission income from payment services was up 5.6% as a result of the Group's efforts to accelerate the development of its cash management business and maintain its leading market position in the cash pooling business. Assets under management ("AUM") relating to the Group's trust and custody business continued to grow, with related income increasing by 4.2%. Fee and commission expenses fell, mainly due to a drop in credit card business related expenses as a result of lower business volume.

Compared with the second half of 2019, net fee and commission income increased by HK$562 million or 11.5%, which was mainly attributable to growth in commission income from securities brokerage and loans. However, commission income from credit card business, insurance, currency exchange, bills, trust and custody services as well as payment services decreased. Fee and commission expenses decreased due to lower insurance and credit card business related expenses.

Net Trading Gain

HK$'m	**Half-year ended 30 June 2020**	Half-year ended 31 December 2019	Half-year ended 30 June 2019
Foreign exchange and foreign exchange products	**2,863**	2,796	2,135
Interest rate instruments and items under fair value hedge	**(787)**	(89)	(489)
Commodities	**250**	240	126
Equity and credit derivative instruments	**4**	24	57
Total net trading gain	**2,330**	2,971	1,829

In the first half of 2020, the Group's net trading gain amounted to HK$2,330 million, an increase of HK$501 million or 27.4% year-on-year. Net trading gain from foreign exchange and foreign exchange products increased by HK$728 million, which was mainly attributable to a mark-to-market gain from foreign exchange products, as compared with a mark-to-market loss in the first half of 2019. Net trading loss from interest rate instruments and items under fair value hedge increased from the same period last year, primarily due to mark-to-market changes to certain debt securities investments and interest rate instruments caused by market interest rate movements. Net trading gain from commodities increased, mainly due to an increased gain from bullion transactions. The decrease in net trading gain from equity and credit derivative instruments was mainly due to a mark-to-market loss from equity instruments. If the funding income or cost of foreign currency swap contracts were excluded, net trading gain would have increased by 84.3% year-on-year.

Compared with the second half of 2019, net trading gain decreased by HK$641 million or 21.6%. This was mainly attributable to mark-to-market changes to certain debt securities investments and interest rate instruments caused by market interest rate movements. If the funding income or cost of foreign currency swap contracts were excluded, net trading gain would have decreased by 28.8% from the second half of 2019.

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

HK$'m	**Half-year ended 30 June 2020**	Half-year ended 31 December 2019	Half-year ended 30 June 2019
Net gain on other financial instruments at fair value through profit or loss	**202**	1,028	2,215

Net gain on other financial instruments at fair value through profit or loss recorded a decrease of HK$2,013 million or 90.9% year-on-year. The change was mainly due to a drop in the mark-to-market gain from BOC Life's debt securities related investments, together with a mark-to-market loss in its equity securities related investments. Compared with the second half of 2019, the change was mainly attributable to a drop in the mark-to-market gain from BOC Life's debt securities related investments, coupled with a mark-to-market loss in BOC Life's equity securities related investments. The mark-to-market changes of the debt securities investments mentioned above were offset by changes to BOC Life's policy reserves, also attributable to market interest rate movements, which were reflected in changes in net insurance benefits and claims as well as movements in liabilities.

Operating Expenses

HK$'m	**Half-year ended 30 June 2020**	Half-year ended 31 December 2019	Half-year ended 30 June 2019
Staff costs	**4,384**	5,100	4,264
Premises and equipment expenses (excluding depreciation)	**550**	890	652
Depreciation	**1,529**	1,479	1,402
Other operating expenses	**1,126**	1,670	1,210
Total operating expenses	**7,589**	9,139	7,528

	At 30 June 2020	At 31 December 2019	At 30 June 2019
Staff headcount measured in full-time equivalents	**14,867**	14,668	13,964

Total operating expenses amounted to HK$7,589 million, an increase of HK$61 million or 0.8% year-on-year, reflecting the Group's ongoing investment in its strategic priorities, including accelerating its transformation into a digital bank and supporting fintech innovation, pushing forward its regional business development and uplifting its overall service competitiveness, while always maintaining proactive cost control. The cost to income ratio was 26.40%, with the Group maintaining cost efficiency at a solid level relative to industry peers.

Staff costs increased by 2.8% year-on-year, mainly due to annual salary increment and increased headcount. The increase was also due to higher staff allowances and welfare expenses.

Premises and equipment expenses decreased by 15.6%. Following the adoption of Hong Kong Financial Reporting Standard 16 ("HKFRS 16"), "Leases", 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. However, some of the short-term leases, leases of low-value assets and variable lease payments continued to be recognised as rental expenses in the first half of 2019. Rental expenses decreased year-on-year subsequent to the expiration of these leases.

Depreciation increased by 9.1%, mainly due to the impact of HKFRS 16, and increased depreciation charges on premises and information technology infrastructure.

Other operating expenses decreased by 6.9%, mainly due to a decrease in advertising and business promotional expenses.

Compared with the second half of 2019, total operating expenses decreased by HK$1,550 million or 17.0%. The decrease was due to lower performance-related remuneration, advertising and business promotional expenses, as well as rental and renovation expenses.

Net Charge of Impairment Allowances on Advances and Other Accounts

HK$'m	**Half-year ended 30 June 2020**	Half-year ended 31 December 2019	Half-year ended 30 June 2019
Stage 1	**(831)**	(425)	(276)
Stage 2	**(72)**	9	12
Stage 3	**(408)**	(719)	(453)
Total net charge of impairment allowances on advances and other accounts	**(1,311)**	(1,135)	(717)

In the first half of 2020, net charge of impairment allowances on advances and other accounts amounted to HK$1,311 million, an increase of HK$594 million or 82.8% year-on-year. Impairment allowances at Stage 1 recorded a net charge of HK$831 million, up HK$555 million year-on-year. The outbreak of COVID-19 shocked the global economy, resulting in a year-on-year drop in GDP and a disruption in business activities which adversely affected profitability and liquidity of corporate clients. The rise in the unemployment rate also affected the credit quality of retail clients. The Group prudently updated the parameter values in the expected credit loss model to take into consideration the increased uncertainty in macroeconomic outlook, as well as loan growth during the period, resulting in an increase in impairment allowances. Impairment allowances at Stage 2 recorded a net charge of HK$72 million, as compared to a net reversal of HK$12 million in the same period last year, mainly reflecting the impact of changes to the internal ratings of certain customers. Impairment allowances at Stage 3 amounted to HK$408 million, a decrease of HK$45 million year-on-year, mainly due to the downgrading of certain corporate advances in the same period last year, resulting in a higher base for comparison. As at 30 June 2020, the Group's total loan impairment allowances as a percentage of advances to customers was 0.54%. Annualised credit cost of advances to customers was 0.18%, up 4 basis points from last year's full-year figure.

Compared with the second half of 2019, net charge of impairment allowances on advances and other accounts increased by HK$176 million, or 15.5%, owing to an increase in impairment allowances resulting from higher loan growth in the first half of this year alongside changes to the parameter values in the expected credit loss model, which was updated prudently to take into consideration the increased uncertainty in macroeconomic outlook arising from the impact of COVID-19.

ANALYSIS OF ASSETS AND LIABILITIES

The table below summarises the Group's asset composition. Please refer to Note 22 to the Interim Financial Information for the contract/notional amounts and fair values of the 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.

Asset Composition

	At 30 June 2020		At 31 December 2019	
HK$'m, except percentages	**Amount**	**% of total**	Amount	% of total
Cash and balances and placements with banks and other financial institutions	**409,658**	**12.7**	366,829	12.1
Hong Kong SAR Government certificates of indebtedness	**175,330**	**5.4**	163,840	5.4
Securities investments and other debt instruments[1]	**887,861**	**27.5**	886,846	29.3
Advances and other accounts	**1,510,363**	**46.8**	1,412,961	46.7
Fixed assets and investment properties	**69,787**	**2.2**	71,712	2.4
Other assets[2]	**173,727**	**5.4**	123,868	4.1
Total assets	**3,226,726**	**100.0**	3,026,056	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.

As at 30 June 2020, the total assets of the Group amounted to HK$3,226,726 million, an increase of HK$200,670 million or 6.6% from the end of last year. Cash and balances and placements with banks and other financial institutions increased by HK$42,829 million or 11.7%, mainly due to an increase in balances with central banks. Advances and other accounts rose by HK$97,402 million or 6.9%, with advances to customers growing by HK$107,868 million or 7.7% and trade bills decreasing by HK$7,460 million or 36.0%. Other assets increased by HK$49,859 million or 40.3%, as a result of an increase in accounts receivable of clearing items.

Advances to Customers

HK$'m, except percentages	At 30 June 2020 Amount	% of total	At 31 December 2019 Amount	% of total
Loans for use in Hong Kong	**993,146**	**66.0**	924,734	66.3
Industrial, commercial and financial	**565,927**	**37.6**	515,548	37.0
Individuals	**427,219**	**28.4**	409,186	29.3
Trade financing	**82,074**	**5.5**	75,764	5.4
Loans for use outside Hong Kong	**428,531**	**28.5**	395,385	28.3
Total advances to customers	**1,503,751**	**100.0**	1,395,883	100.0

In the first half of 2020, the Group remained committed to meeting the integrated financial service demands of large corporates from Hong Kong and overseas countries. It continued to strengthen its service capabilities to local commercial clients, supported the loan demands of high-quality customers and expedited the digitalisation of its mortgage business processes. At the same time, the Group steadily expanded its business in the Southeast Asian region and enhanced its marketing efforts so as to acquire Belt and Road related target clients and major projects, giving full play to its role as BOC's Asia-Pacific syndicated loan centre. During the period, 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 business in Hong Kong. In the first half of 2020, advances to customers grew by HK$107,868 million, or 7.7%, to HK$1,503,751 million.

Loans for use in Hong Kong grew by HK$68,412 million or 7.4%.

- Lending to the industrial, commercial and financial sectors increased by HK$50,379 million or 9.8%, reflecting growth in manufacturing, property investment, transport and transport equipment and IPO financing.

- Lending to individuals increased by HK$18,033 million, or 4.4%. Residential mortgage loans (excluding those under government-sponsored home purchasing schemes) grew by 4.1% while other individual loans increased by 7.7%, mainly driven by an increase in personal loans for investment and property refinancing purposes.

Trade financing increased by HK$6,310 million or 8.3%. Loans for use outside Hong Kong grew by HK$33,146 million or 8.4%, mainly driven by growth in loans for use in the Mainland and Southeast Asia.

Loan Quality

HK$'m, except percentages	**At 30 June 2020**	At 31 December 2019
Advances to customers	**1,503,751**	1,395,883
Classified or impaired loan ratio	**0.25%**	0.23%
Total impairment allowances	**8,056**	7,035
Total impairment allowances as a percentage of advances to customers	**0.54%**	0.50%
Residential mortgage loans[1] – delinquency and rescheduled loan ratio[2]	**0.02%**	0.01%
Card advances – delinquency ratio[2]	**0.34%**	0.27%

	Half-year ended 30 June 2020	Half-year ended 30 June 2019
Card advances – charge-off ratio[3]	**1.88%**	1.35%

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.

In view of the complex and challenging external environment experienced during the reporting period, the Group proactively strengthened its risk management system for all types of risks and continuously enhanced its regional risk management so as to maintain benign asset quality. As at 30 June 2020, the classified or impaired loan ratio was 0.25%, up 0.02 percentage points from the end of last year. Classified or impaired loans amounted to HK$3,817 million, an increase of HK$600 million from the end of last year.

The credit quality of the Group's residential mortgage loans remained stable. The combined delinquency and rescheduled loan ratio of residential mortgage loans was 0.02% as at 30 June 2020. The charge-off ratio of card advances for the first half of 2020 was 1.88%, up 0.53 percentage points year-on-year.

Deposits from Customers

HK$'m, except percentages	At 30 June 2020 Amount	At 30 June 2020 % of total	At 31 December 2019 Amount	At 31 December 2019 % of total
Demand deposits and current accounts	**293,328**	**13.7**	207,013	10.3
Savings deposits	**996,215**	**46.5**	900,009	44.8
Time, call and notice deposits	**850,893**	**39.8**	902,251	44.9
Total deposits from customers	**2,140,436**	**100.0**	2,009,273	100.0

In the first half of 2020, the Group stepped up its efforts to expand its mid- to high-end customer base and strengthened cooperation with government authorities, large corporates, major central banks, international financial institutions and sovereign funds through payroll, e-payment and payment collection services. At the same time, it actively leveraged its role as a main receiving bank for IPOs and expanded its cash management and cash pooling businesses, leading to solid growth in current accounts and savings deposits from both personal and corporate clients. As of 30 June 2020, total deposits from customers amounted to HK$2,140,436 million, an increase of HK$131,163 million or 6.5% from the end of last year. Demand deposits and current accounts increased by 41.7%, partly driven by IPO-related funds. Adjusting related impact, demand deposits and current accounts would have increased by 26.4%. Savings deposits increased by 10.7%. Time, call and notice deposits decreased by 5.7%. The CASA ratio was 60.2%.

Capital and Reserves Attributable to Equity Holders of the Company

HK$'m	At 30 June 2020	At 31 December 2019
Share capital	**52,864**	52,864
Premises revaluation reserve	**39,025**	39,458
Reserve for fair value changes	**1,462**	69
Reserve for own credit risk	**–**	(33)
Regulatory reserve	**5,667**	11,077
Translation reserve	**(902)**	(581)
Retained earnings	**185,969**	175,929
Reserves	**231,221**	225,919
Capital and reserves attributable to equity holders of the Company	**284,085**	278,783

Capital and reserves attributable to equity holders of the Company amounted to HK$284,085 million as at 30 June 2020, an increase of HK$5,302 million or 1.9% from the end of 2019. The premises revaluation reserve decreased by 1.1%, reflecting a decrease in the valuation of the Group's premises in the first half of 2020. Reserve for fair value changes increased, mainly driven by market interest rate movements. The regulatory reserve decreased by 48.8%, mainly due to the HKMA's relaxation of the regulatory reserve requirement, which also led to a corresponding increase in retained earnings. Retained earnings rose by 5.7% from the end of last year, mainly reflecting the profit achieved in the first half of 2020 after the distribution of final dividends for 2019, and the reversal from regulatory reserve.

Capital Ratio

HK$'m, except percentages	**At 30 June 2020**	At 31 December 2019
Consolidated capital after deductions		
Common Equity Tier 1 capital	**216,560**	195,039
Additional Tier 1 capital	**23,476**	23,476
Tier 1 capital	**240,036**	218,515
Tier 2 capital	**30,222**	32,855
Total capital	**270,258**	251,370
Total risk-weighted assets	**1,169,600**	1,098,018
Common Equity Tier 1 capital ratio	**18.52%**	17.76%
Tier 1 capital ratio	**20.52%**	19.90%
Total capital ratio	**23.11%**	22.89%

As at 30 June 2020, the Group's Common Equity Tier 1 ("CET1") capital and Tier 1 capital increased by 11.0% and 9.8% respectively, which was primarily attributable to profits recorded for the first half of 2020 and the HKMA's relaxation of its regulatory reserve requirement. Total capital increased by 7.5%, as subordinated liabilities qualifying as Tier 2 capital instruments matured during the period, resulting in lower growth in total capital. The Group remains committed to balancing growth in risk-weighted assets ("RWAs") with enhancement in returns. Total RWAs increased by 6.5%, mainly driven by loan growth. The CET1 capital ratio was 18.52% and Tier 1 capital ratio was 20.52%, up 0.76 and 0.62 percentage points respectively from the end of 2019. Total capital ratio was 23.11%, up 0.22 percentage points from the previous year-end. The Group continued to review its capital structure and manage the growth of its RWAs so as to maintain an appropriate capital level to support the sustainable business development while balancing returns to its equity holders.

Liquidity Coverage Ratio and Net Stable Funding Ratio

	2020	2019
Average value of liquidity coverage ratio		
First quarter	**150.45%**	183.00%
Second quarter	**131.38%**	156.57%
Third quarter	**N/A**	142.85%
Fourth quarter	**N/A**	146.53%

	2020	2019
Quarter-end value of net stable funding ratio		
First quarter	**116.60%**	121.36%
Second quarter	**117.49%**	119.15%
Third quarter	**N/A**	116.47%
Fourth quarter	**N/A**	118.00%

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 2020.

MANAGEMENT DISCUSSION AND ANALYSIS

BUSINESS REVIEW

Taking into consideration the complex and challenging environment in the first half of 2020, 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. Striving to be customer-centric at all times, it continued to develop the local market in Hong Kong, providing full support to the development of the real economy. The Group took the lead in introducing a number of financial relief initiatives and maintained stringent measures to prevent all risks during the pandemic. It was proactively involved in the construction of the Guangdong-Hong Kong-Macao Greater Bay Area and promoted cross-border synergistic collaboration so as to sharpen its integrated competitive strengths. It also improved its business network layout in Southeast Asia and enhanced regional synergies and service capabilities. The Group expedited its transformation into a digital bank, promoting technological innovation, infrastructure and application. Meanwhile, it deeply cultivated its bank culture to ensure solid, balanced and sustainable development.

Business Segment Performance

Profit before Taxation by Business Segment

	Half-year ended 30 June 2020		Half-year ended 30 June 2019	
HK$'m, except percentages	**Amount**	**% of total**	Amount	% of total
Personal Banking	**4,352**	**22.6**	6,454	30.0
Corporate Banking	**7,158**	**37.2**	8,065	37.4
Treasury	**7,217**	**37.6**	5,074	23.5
Insurance	**392**	**2.0**	551	2.6
Others	**105**	**0.6**	1,408	6.5
Total profit before taxation	**19,224**	**100.0**	21,552	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$4,352 million in the first half of 2020, a decrease of HK$2,102 million or 32.6% year-on-year, mainly due to a decrease in net interest income and net fee and commission income, resulting in a drop in net operating income, and an increase in net charge of impairment allowances.

Net interest income decreased by 16.5%, mainly due to a narrowing of the deposit spread as a result of falling market interest rates and intense market competition. Net fee and commission income decreased by 7.8%, owing to a drop in commission income from insurance and credit card businesses. However, commission income from securities brokerage rose amid increased transaction volumes in the stock market, which partially offset these negative impacts. Net charge of impairment allowances amounted to HK$630 million, up HK$542 million year-on-year, owing to an increase in impairment allowances linked to heightened uncertainty in the macroeconomic outlook.

Business Operations

Providing full support to pandemic relief and addressing people's livelihood banking needs

The Group took the lead in launching a number of financial support and relief initiatives, including a principal repayment moratorium for mortgage loans, grace periods for insurance premium payment, as well as additional insurance protection, with the aim of offering multi-faceted support to individual customers affected by the pandemic and helping customers to navigate through difficult times. The Group collaborated extensively with the HKSAR government's Cash Payout Scheme, using its mobile and internet banking channels as well as its 169 branches to assist the general public in registering for the scheme to receive the HK$10,000 payment. In addition, the Group was the only bank to offer cheque encashment services for the scheme, helping individuals to register for and collect the payment conveniently. To meet the general public's full range of financial needs, the Group provided maximal branch services during the pandemic and extended the service hours of account opening and certain transactions conducted through its e-channels. It also enriched the service scope of its e-channels, including launching a remote application service for its Qualifying Deferred Annuity Policy and Voluntary Health Insurance Scheme products, and broadening the range of insurance and investment products available online.

Giving full play to its online and offline competitive advantages to optimise customer services

In response to customer needs, the Group adjusted its service channel strategy by setting up eZone in its full branch network (excluding the Banking Services Centre and Safe Deposit Box Service Centre), providing customers with an innovative experience and tailored online and offline services. At the same time, it provided valuable services to mid- to high-end customers with a focus on offering professional, exclusive and privileged services, products and experiences. The Group further expanded its customer base, with the number of mid- to high-end customers as at the end of June 2020 maintaining double-digit percentage growth from the end of last year. By continuously enriching and integrating data resources and strengthening its big data AI infrastructure, the Group offered bespoke products and services according to customers' preferences and behaviours. It remained committed to developing the local customer segment in order to strengthen its core product advantages, resulting in steady growth of customer deposits, maintaining its top market position in total number of new residential mortgage loans, and recording notable year-on-year growth in the online transaction volumes of key investment products. During the period, in recognition of its performance in the personal banking industry, BOCHK was awarded Excellent Brand of Mortgage Services – Banking and Excellent Brand of Securities Services – Banking in the Hong Kong Leaders' Choice Brand Awards 2020 by Metro Finance, Bancassurer of the Year – Outstanding in the Financial Institution Awards 2020 by *Bloomberg Businessweek* and The Best Big Data or AI Initiative in the International Excellence in Retail Financial Services Awards 2020 by *The Asian Banker*.

The Group's private banking business maintained steady growth. By enhancing its collaboration with business units within the Group, it was able to strengthen its value chain for serving high-net-worth clients. In line with the development of green finance and environmental, social and governance standards, the Group enriched its exclusive private banking products and provided professional private banking services to high-net-worth clients and family offices. In addition, it continued to promote digital development, optimise its customised private banking systems, enrich its exclusive product range, strengthen its talent pool and team-building so as to enhance its private banking services. During the period, the number of customers continued to grow. As at 30 June 2020, private banking's AUM had increased 4.6% from the end of last year.

Promoting scenario-based application of products to accelerate customer migration to online transactions

The Group closely monitored changes in the market environment during the pandemic and accelerated its development into a digital bank. To meet rapid growth in customer demand for online transactions, the Group adopted a mobile first strategy by enhancing the personal account opening service and investment functions of its mobile banking, expediting the development of its digital mortgage business processes and providing e-channel service offerings so as to enhance its product functionality and competitiveness. In the first half of 2020, the total number of transactions conducted via mobile banking increased by over 60% year-on-year and the monthly average number of online mortgage applications was almost double that of last year's full-year figure. The Group utilised open Application Programme Interface ("API") technology to expand cross-platform cooperation and launched a developers' portal, opening up access to more than 90 open APIs. In line with the HKMA's Phase II of Open API, it strengthened cooperation with third party service providers, including online real estate agency platforms, external economic and financial applications, product comparison websites and comprehensive service platforms, so as to expand its cross-platform functions, including property purchase planning, securities and foreign exchange trading services and online loan application, and enrich its product scenario-based applications.

Promoting integrated development and collaboration in the Greater Bay Area and enhancing cross-border customer experience

The Group actively responded to the financial policies for the Guangdong-Hong Kong-Macao Greater Bay Area by focusing on the financial service needs of residents in Guangdong, Hong Kong and Macao, including account opening, transportation and property purchase. In the first half of 2020, it continued to enhance its Mainland personal account opening attestation service by supporting a digital account opening application process, as well as introducing a new standard instruction of remittance function in mobile banking, thus continuously enhancing Hong Kong residents' cross-border service experience. The Group enriched BoC Pay's application scenarios in the Greater Bay Area with the launch of a cross-border remittance function for mainland customers living in Hong Kong that facilitates their payments across the Greater Bay Area. To support Hong Kong customers' demand for purchasing properties in the Greater Bay Area, the Group launched the Greater Bay Area Personal Loan mortgage service, which optimises the full process of property viewing, contract signing, payment and mortgage services.

Enriching regional products and services and strengthening the foundation for business future growth

The Group continued to strengthen regional collaboration and optimise regional cross-border services. It expanded its cross-border attestation service to allow BOCHK customers to open personal accounts with BOC Malaysia and customers of the Ho Chi Minh City Branch and Brunei Branch to open personal accounts with BOCHK. The Group enriched its regional wealth management services, with BOC Malaysia offering a number of new funds and bonds. It accelerated digital development in Southeast Asia and achieved steady progress in its regional mobile payment project, with BOC Malaysia participating in and continuously enhancing an instant fund transfer service through local payment system DuitNow. The Jakarta Branch's debit cards were equipped with instant inter-bank transfer functionality via local automated teller machines within the country. The Manila Branch launched online foreign currency exchange services conducted via e-channels. In order to address personal customer needs for studying, employment, travel and property purchase in Southeast Asia, the Group launched the Personal Financial Services in Southeast Asia page on the BOCHK website. The Group also managed its regional products in a systematic and orderly manner, enhancing its internal management efficiency and risk control capabilities, and conducted the phrased roll out of its integrated account opening platform and loan approval system.

CORPORATE BANKING

Financial Results

Corporate Banking achieved a profit before tax of HK$7,158 million, a decrease of HK$907 million or 11.2% year-on-year, mainly due to a decrease in net interest income and net fee and commission income, which resulted in a drop in net operating income. This was partially offset by a decrease in net charge of impairment allowances.

Net interest income decreased by 9.9%, mainly due to a narrowing of both the deposit spread and loan spread as a result of intense market competition, although this was partially offset by growth in the average balance of deposits and loans. Net fee and commission income decreased by 12.8%, owing to a drop in loan and bills commissions. Net charge of impairment allowances amounted to HK$561 million, down HK$114 million year-on-year.

Business Operations

Actively responding to market changes and steadily advancing corporate banking business development

The Group continued to adhere to its customer-centric philosophy and pushed forward the deepening of its business transformation with the aim of meeting customers' needs, reinforcing integrated services and improving customer experience. In order to address the impact of the COVID-19 pandemic, it actively responded to market changes, devoted efforts to expanding its business and continuously improved its regional and comprehensive service capabilities. During the reporting period, the Group strengthened its support to a number of key projects in Hong Kong and Southeast Asia. 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. The Group also actively promoted the advancement of green finance so as to ensure sustainable development. Meanwhile, it maintained its market leadership as an IPO main receiving bank in terms of the number of main board listing assignments. In addition, it deepened its business relationships with the world's major central banks, international financial institutions and sovereign funds. It also further pushed forward digital transformation and scenario-based applications by strengthening cooperation with clients in e-payment and payment collection projects, so as to provide more convenient payment channels for customers in a number of aspects including clothing, food, accommodation, necessities and transportation.

Proactively fulfilling social responsibilities and navigating difficult times with its SME customers

The Group continuously improved its support to local commercial customers by enabling integrated digitalised and online financial services, undertaken with the aim of further enhancing service quality. The Group also actively supported its SME customers in view of the pandemic. It took the lead in introducing five financial support initiatives amid the pandemic, including a special loan scheme for SMEs to relieve the pandemic impact featuring an express approval process, as well as a principal moratorium for mortgage loans. It also collaborated with HKMC Insurance Limited to launch the Special 100% Loan Guarantee under the SME Financing Guarantee Scheme, in order to help SMEs affected by the pandemic obtain timely financing for their operations. At the same time, the Group offered full support to the Pre-approved Principal Payment Holiday Scheme, launched by the HKMA, together with the Banking Sector SME Lending Coordination Mechanism, which provided eligible corporate customers with deferred payment arrangements so as to alleviate cash flow pressures.

Strengthening key customer acquisition in Southeast Asia and the Greater Bay Area and giving full play to synergistic advantages

The Group stepped up efforts to solidify its regional business foundation and collaborated with its Southeast Asian entities to maintain growth momentum on the basis of appropriate risk control. In order to enhance the regional synergies of its Southeast Asian entities, the Group reinforced its integrated marketing efforts with a focus on core customers and key projects. It also bolstered regional collaboration by actively targeting and acquiring major "Belt and Road" clients and projects, including those related to roads and bridges, communication facilities, petroleum and energy, giving full play to its integrated operations in the Southeast Asian region. At the same time, the Group capitalised on its position as BOC's Asia-Pacific syndicated loan centre by assisting sizable businesses within the Southeast Asian region in arranging syndicated loans, thus deepening business relationships with local mainstream customers. Through regional collaborations, the Group was also able to oversee and facilitate the design, marketing and implementation of sophisticated projects, such as cash management projects, in an integrated and professional manner. In addition, in order to further develop its business in the Guangdong-Hong Kong-Macao Greater Bay Area, the Group continuously deepened its collaboration with BOC's entities in the Greater Bay Area regarding cross-border transactions, with a view to exploring the financial demands of key industries and target customers, as well as strengthening support for the development of science and technology enterprises, so as to contribute to financial interconnectivity within the Greater Bay Area.

Enhancing product and service competitiveness and striving to improve customer experience

The Group continuously refined its integrated service capabilities in Hong Kong, the Greater Bay Area and Southeast Asia by enhancing its product and service standards for corporate customers and further accelerating the development of its key businesses, including cash management, trade financing and treasury centre, thus securing its market-leading position in cash pooling business. In a bid to encourage diversification in financial product development and fintech innovation, the Group continuously enriched its digitalised products and services and optimised the functionalities of its online service platforms, so as to enhance customer experience. Its excellent and highly professional services were widely recognised by the market. One of its project co-organised with a mobile network provider, which supports the centralised management of global funds, was awarded Asia's Best Treasury & Finance Strategies in the CT Awards by *CorporateTreasurer*.

Continuously developing custody and trustee businesses

The Group's custody business effectively responded to market challenges and captured opportunities from the Chinese government's respective mutual market access policies, Chinese enterprises "Going Global" and the development of the Greater Bay Area. As a result, total assets under custody from corporate and institutional clients reached new heights in June 2020 and total number of Bond Connect clients also continued to rank among the global top tier. The Group was appointed by Bond Connect Company Limited to become a launch member of its first think tank. Meanwhile, it further deepened its cooperation with Chinese investment enterprises and reinforced its business relationships with banks in the Chinese mainland in terms of overseas custody business. It also proactively enhanced its corporate trust and agency service capabilities and received positive market feedback as a result. As at the end of June 2020, the Group's total assets under custody exceeded HK$1,226.1 billion.

In the first half of 2020, the MPF business of BOCI-Prudential Trustee Limited ("BOCI-Prudential Trustee") maintained steady growth and retained its top 5 position in the MPF market. During the first half of 2020, BOCI-Prudential Trustee remained dedicated to exploring new business opportunities alongside its MPF business. It was appointed as trustee to a number of employee share award schemes. In addition, BOCI-Prudential Trustee established a presence across major social media platforms so as to augment its influence through mobile channels and improve customer experience.

TREASURY

Financial Results

Treasury recorded a profit before tax of HK$7,217 million, an increase of HK$2,143 million or 42.2% year-on-year. The growth was driven by an increase in net interest income and net gain on other financial assets, which more than offset the decrease in net fee and commission income and net trading gain.

Net interest income increased by 15.4%, which was mainly attributable to a drop in funding costs. Net trading gain decreased, primarily due to mark-to-market changes to certain debt securities investments and interest rate instruments caused by market interest rate movements, which was partially offset by the mark-to-market changes on foreign exchange products and a higher net gain on financial assets from the disposal of certain debt securities.

Business Operations

Continuously enhancing treasury service capabilities and steadily promoting regional business development

The Group continued to deepen its market research and closely monitored market changes. It actively captured market opportunities and continuously enhanced customer service capabilities in order to achieve solid growth in client business. Leveraging its expertise and competitive edge in distribution channels, it pushed forward business model innovations that drove satisfactory performance in its precious metal trading business. The Group continued to improve its trading infrastructure so as to respond to the impact of the COVID-19 pandemic, enhancing its online service capacity and business scale. It also optimised its regulatory compliance and internal control and achieved solid development in all businesses. During the reporting period, BOCHK received the 2019 Outstanding International Business Award and the Prominent Contribution Award (International Board) from the Shanghai Gold Exchange, in recognition of its excellent performance during the pandemic.

By continuously enhancing its trading, sales, product development and risk control capabilities in regional financial markets, and formulating guidance on business development with reference to the local market conditions and customer demand of its Southeast Asian entities, the Group was able to further improve its integrated regional and professional capabilities in customer service and product development. During the period, the Jakarta Branch and Manila Branch completed significant direct exchange for clients between USD and IDR, and USD and RMB, respectively. BOC Thailand and BOC Malaysia achieved breakthroughs in cross-currency swap and interest rate swap business. The Phnom Penh Branch became the first overseas bank to be appointed by the People's Bank of China as a quoting bank for RMB to Cambodian Riel ("KHR") in the regional market, joined the China Foreign Exchange Trade System and successfully processed the first overseas RMB to KHR direct exchange for its clients.

Leveraging its strong franchise in RMB clearing services to expand the depth and breadth of its cross-border business

In order to support prevention and control measures against the COVID-19 pandemic in the Mainland, BOCHK, as the RMB clearing bank in Hong Kong, activated a special green channel of the Cross-border Interbank Payment System in the Mainland during the 2020 Chinese New Year holidays. Through this channel, it was able to provide cross-border RMB clearing services for donations and payments for the procurement of infectious prevention resources carried out between the Mainland and offshore markets, facilitating the timely arrival of funds. In addition, BOCHK officially joined SWIFT's global payments innovation platform in April 2020 in the capacity of the RMB clearing bank in Hong Kong, further enhancing the transparency and customer experience of its cross-border RMB remittance service. In the first half of 2020, BOC Malaysia was successfully reappointed as the RMB clearing bank and settlement bank in Malaysia, and was awarded 2019 Excellent Member and Media Star by the local chamber of commerce.

Capturing market opportunities and adhering to a proactive but risk-aware investment strategy

In response to market volatility, the Group continued to take a cautious approach to managing its banking book investments by closely tracking market changes. It planned ahead and actively sought investment opportunities to enhance returns while remaining alert to risk. During the first half of the year, the Group strengthened its process management and refined management so as to achieve balanced growth, and optimised its mix of assets and liabilities in order to respond to changes in market interest rates.

Continuous expansion in AUM and market recognition for investment performance

Despite the COVID-19 pandemic and market fluctuations, BOCHK Asset Management Limited ("BOCHK AM") continued to steadily expand its business, actively captured investment opportunities and optimised asset allocation for its clients, thus achieving continuous expansion in its AUM. As at the end of June 2020, its AUM had increased over 15% compared to the end of last year. BOCHK AM developed new funds during the period, with the official launch of the BOCHK All Weather Asian High Yield Bond Fund taking place in June. At the same time, it continued to expand its customer base and distribution channels while deepening business relationships with existing customers. In recognition of its investment performance, BOCHK AM was awarded Best Offshore RMB Bond Performance (3 years) and Best RMB Manager in Hong Kong in the 2020 Best of the Best Awards by *Asia Asset Management*. Meanwhile, the BOCHK All Weather Asian Bond Fund was awarded Best Fund over 3 Years – Bond Asia Pacific LC in the Lipper Fund Awards Hong Kong 2020 by *REFINITIV*.

INSURANCE

Financial Results

In the first half of 2020, the insurance industry faced severe challenges brought about by the COVID-19 pandemic and falling market interest rates. The standard new premium of the Group's insurance segment during the period was HK$5,442 million, down 25.4% year-on-year. Net interest income and reinsurance income increased, but investment income was adversely affected by market volatility. Profit before tax was HK$392 million, down 28.9% year-on-year. The value of new business was HK$659 million, an increase of 8.8% year-on-year, as a result of the Group's proactive improvements to its business structure.

Business Operations

Expanding the range of diversified products and distribution channels to improve customer experience

BOC Life Qualifying Deferred Annuity products have been well received by customers since their launch last year and remained the market leader. BOC Life continued to implement its strategy of diversifying distribution channels, expanding market coverage and strengthening its position as an expert in the area of retirement wealth management. During the period, BOC Life collaborated with Bupa (Asia) Limited to offer customers a high-end Voluntary Health Insurance Scheme plan. In response to the pandemic, BOC Life actively introduced a number of relief measures to provide customers with flexibility, including remote application for Qualifying Deferred Annuity products via telephone, an extension of the grace period for premium payment and the offering of additional COVID-19 coverage for designated customers. At the same time, BOC Life stepped up efforts to develop its online insurance service by launching a number of products available on mobile banking, including short-term savings, whole life protection, critical illness, deferred annuity and hospital cash plans, so as to provide customers with a more convenient digital insurance application experience. In the reporting period, the proportion of life insurance standard new premium from online services rose to 11.0%, up 2.0% year-on-year.

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

BOC Life 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 Annuity Plan – Outstanding and Online Platform – Outstanding awards in *Bloomberg Businessweek's* Financial Institution Awards 2020, the GBA Insurance Award 2020 (HK Region): Outstanding Customer Services Award from Metro Finance, the Sing Tao Excellent Services Brand Awards 2019: Qualifying Deferred Annuity Policy Award by *Sing Tao Daily*, the Fintech Awards 2019: Outstanding Life Insurance e-Application Platform by *etnet* and the 2019 BENCHMARK Wealth Management Award: Client Support – Best-in-Class by *BENCHMARK*.

REGIONAL BUSINESS

The Group remained committed to its strategy of building a top-class, full-service and internationalised regional bank and cautiously responded to the impacts of the COVID-19 pandemic and economic downturn. It continued to pursue integrated regional development and adopt effective measures to enhance support to its Southeast Asian entities, with the aim of them becoming mainstream foreign banks in their local markets. In the first half of 2020, the pandemic spread across Southeast Asia, resulting in an economic downturn for countries in the region. Despite the numerous challenges and risks faced by the Southeast Asian entities in this new situation, there are still opportunities ahead for the regional business. The signing of the Regional Comprehensive Economic Partnership is expected to lead to a proliferation of trading activities in the region. The enactment of the Free Trade Agreement signed between Hong Kong and the ASEAN will foster closer cooperation and enhance joint efforts in the construction of the Belt and Road Initiative. In addition, Southeast Asian countries continued to push forward digital transformation, which will bring new development potential to the region, while household consumption and infrastructure investment in the Southeast Asian region will generate remarkable growth potential.

Enhancing regional business network layout and deepening integrated regional development

The Group continued to enhance its regional business network layout. On 9 April 2020, the Group was granted approval by the Central Bank of Myanmar to set up its Yangon Branch in Myanmar. As a result, its Southeast Asian business will cover nine countries in the region, signifying a milestone in the Group's regional development. On 1 March 2020, the Jakarta Branch received approval from the Indonesian regulatory authority to upgrade its status to Commercial Bank Based on Business Activities 3, which significantly improved the Group's market position and brand influence in the country and laid a solid foundation for the Jakarta Branch to become a mainstream foreign bank in Indonesia. The Group also actively developed and implemented its management model and continuously optimised its institutional management in the region, which effectively improved the capacities and standards of its Southeast Asian entities in respect of customer sales, product innovation, technological operations, operational management and staff management.

Net operating income before impairment allowances of the Group's Southeast Asian entities* in the first half of 2020 amounted to HK$1,304 million, a drop of 6.1% year-on-year. As at the end of June 2020, deposits from customers and advances to customers amounted to HK$60,380 million and HK$53,398 million, up 6.7% and 6.0% respectively from the end of last year. The non-performing loan ratio was 1.94%, up 0.43 percentage points from the end of 2019.

* 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 and the balances of deposits from customers and advances to customers represent the consolidated data which were prepared in accordance with Hong Kong Financial Reporting Standards. The non-performing loan ratio was calculated in accordance with local regulatory requirements.

Adhering to stringent risk management so as to comprehensively enhance regional risk control capabilities

The Group steadily pushed forward the construction of its regional risk management by strengthening its Southeast Asian entities' credit risk management capacities and enhancing their market risk, interest rate risk and liquidity risk management capabilities, so as to actively respond to the impacts of the COVID-19 pandemic in the Southeast Asian region. The Group continued to enhance its Southeast Asian entities' legal compliance and operational risk management capabilities, while steadily strengthening their management control on outsourcing services. In addition, the Group reinforced its Southeast Asian entities' anti-money laundering work in order to continuously enhance related management standards. Moreover, the Group closely monitored significant emergency events in Southeast Asia, responding with agility to uplift its entities' capabilities, while coordinating their business continuity planning so as to ensure adherence to stringent risk management.

DIGITAL TRANSFORMATION DEVELOPMENT

The Group is engaged in deepening its application of innovative fintech, accelerating its digital transformation progress, promoting business process digitalisation, and improving operational efficiency. Its digital transformation is driven by top-level design, in line with the established Digital Transformation Blueprint of BOCHK and the new IT 3-Year Plan. By focusing on the five key digital capabilities of innovation, agility, digitisation, mobility, and regionalisation, it aims to establish three catalysing platforms, namely an intelligent platform, a digital platform and an open platform, to provide a stable, reliable and unified cornerstone for cloud technology and security governance. At the same time, the Group is actively acquiring and cultivating innovative fintech talents, as well as developing innovation mechanisms, organisational structures and corporate cultures to support its digital transformation. Based on technology-driven business reform, it provides brand-new digital solutions in customer services, financial products, service flows, operational management and risk control, with the aim of gradually becoming a digital bank characterised by business ecologies, process digitalisation, intelligent operations, agile project management, and cloud computing.

Building business ecologies

The Group actively deepened scenario-based applications and accelerated their integration into customer ecosystems. Through cross-sector cooperation, it facilitated fintech development and opened up access to more than 90 open APIs. In February 2020, the Group joined hands with a major real estate agency to launch an online real-time property valuation service via API, which was used over 1 million times up to the end of June. In addition, it cooperated with two stock quoting platforms to offer cross-platform mobile banking stock trading services for Hong Kong stocks, US stocks and A shares. To meet the needs for clothing, food, accommodation and transportation, the Group continued to provide the most comprehensive fund collection solutions through BoC Bill, including the usage of traditional bank cards, QR code and Octopus card services, covering industries (including SMEs) relating to people's livelihood. BoC Bill, together with BoC Pay, was able to support scenarios involving livelihood-related payments, allowing merchants and individual customers to enjoy cashless and contactless electronic payment services. The total number of customers of BoC Pay increased by 44.2% from the end of last year, while related transaction volumes also recorded a satisfactory growth compared to the same period last year. The Group continued to optimise BoC Pay by launching a cross-border small amount transfer function to support instant money transfer, further enriching the payment scenarios in the Greater Bay Area.

Digitalising processes

To meet rapid growth in customer demand for online transactions, the Group adopted a mobile first strategy by expanding the personal account opening service of its mobile banking to non-BOCHK customers, which significantly shortened transaction times for basic banking services. Its property valuation process was optimised through the application of blockchain technology, which covered almost 95% of the Group's total property valuations as at the end of June 2020, an increase of 13 percentage points from the end of last year. The Group continually optimised the business processes of its digitalised services. It constantly upgraded its intelligent Global Transaction Banking Platform (iGTB) with functional enhancements, increased its marketing efforts, and extended its services to the Southeast Asian region, so as to enhance its regional online service capabilities. The Group also stepped up its efforts to link eTradeConnect, an innovative trade finance platform in Hong Kong, with the trade finance platform of the People's Bank of China, with the aim of enhancing digitalisation capabilities in trade finance and promoting cross-border information exchange efficiency. Robotic process automation ("RPA") was further extended in the handling of middle and back office operational procedures, which effectively automated operational procedures, reduced processing time and enhanced staff productivity.

Moving towards intelligent operations

The Group introduced ID card verification technology and continuously enhanced facial recognition and optical character recognition ("OCR") technology in order to improve the efficiency and accuracy of mobile account opening, providing a solid infrastructure platform for services in Hong Kong and Southeast Asia. The Group continued to enhance its core banking services, with the introduction of an electronic account opening application service for SMEs, in order to improve account opening efficiency and customer experience. The Group utilised data analysis in its mortgage business and adopted an automatic approval process for qualifying personal residential mortgage loan applications, in order to improve approval efficiency. The Group accelerated the construction of intelligent customer services through chatbot and online chat services to facilitate the transition of customer services from manual to online. Supporting the construction of a bank-wide intelligent anti-fraud platform, it enhanced the capabilities in fraud case detection and remedy in order to fully strengthen the anti-fraud risk management. In response to the pandemic, a mobile office solution was introduced to support staff working from home.

Adopting agile project management

Dedicated to deepening the adoption of agile working model and culture, the Group implemented an agile approach to project development and constantly refined its business workflow in a customer-centric approach. It also established an innovative agile mechanism and system, with the aim of ensuring that digital transformation is undertaken in an orderly and effective manner. With the aim of facilitating digitalisation and agile transformation, the Group drew up the plans for agile team formation and development that will further uplift the effective organisation and operation of inter-departmental agile project teams. To enhance talent acquisition for technological innovation, the Group expanded its recruitment channels to attract talented professionals with expertise in big data, artificial intelligence, fintech, digital marketing and quantitative trading. It also continued to cultivate fintech talents and established the Digital and Innovation Academy. In line with its digital transformation, the Group's 2020 corporate culture development plan will focus on "encouraging innovative thinking and building an agile culture that is responsive, collaborative and efficient".

Moving towards cloud computing

Having introduced mainstream cloud technology to the banking industry, the Group utilised virtual technology to establish a cloud computing platform. It gradually established a cloud service model in the area of software development, so as to improve the flexibility and scalability of its systems, and gradually deployed customer-oriented application systems on its cloud computing platform in order to improve service efficiency and reduce operating costs.

Launching a virtual bank

Livi Bank Limited ("Livi"), a joint venture company owned by BOC Hong Kong (Holdings) Limited, Jingdong Digits Technology Holding Co., Ltd. and Jardine Matheson Group, commenced business on 12 August 2020 owing to the strong support from its three shareholders. Livi will focus on the retail banking business at launch to provide a simple digital banking product that is secure and designed to address the everyday needs of the Hong Kong customers. It will continue to expand its product and service offering, cooperate with renowned business partners to build its ecosystems and introduce new product features so as to provide convenient, inclusive and smart banking services with a focus on retail living ecosphere in Hong Kong.

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, market risk, interest rate 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, risk appetite and risk culture 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 Deputy Chief Executive in charge of legal, compliance, operational risk and anti-money laundering together with the Chief Risk Officer ("CRO") assist CE in fulfilling his responsibilities on day-to-day management of various types of risks and internal control. 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, an 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 Group has established the significant credit deterioration criteria framework to determine the stage of the financial instrument. The framework incorporates both quantitative and qualitative assessment, taking into account of factors such as number of days past due, change in IRB rating and the 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:

- Gap risk: mismatches in the maturity or repricing periods of assets and liabilities that may affect net interest income and economic value;
- 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; 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"), 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 Tier 1 capital. 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.

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 bank 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 2020, 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 Group, being classified as a category 1 authorised institution by the HKMA, is required to calculate the LCR and NSFR on a consolidated basis in accordance with the Banking (Liquidity) Rules. The Group is required to maintain a LCR and NSFR not less than 100% in 2020.

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, 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, fraud, bribery and corruption are independently managed and monitored by the Financial Crime Compliance Department ("FCC"). Both LCO and FCC report directly to the DCE. 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 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.

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.