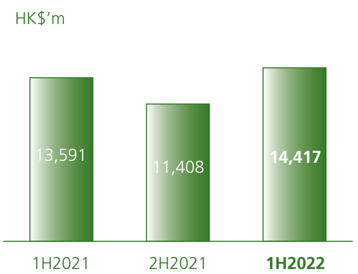
MANAGEMENT DISCUSSION AND ANALYSIS

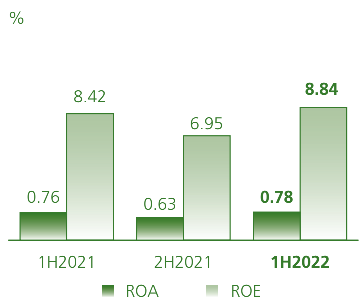
FINANCIAL PERFORMANCE AND CONDITIONS AT A GLANCE

The following table is a summary of the Group's key financial results for the first half of 2022 in comparison with the previous two half-year periods of 2021.

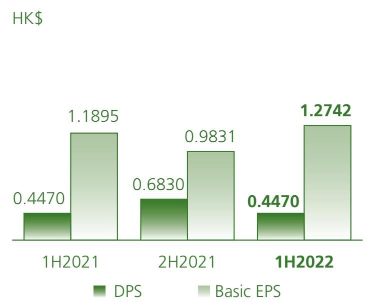
Profit for the period



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



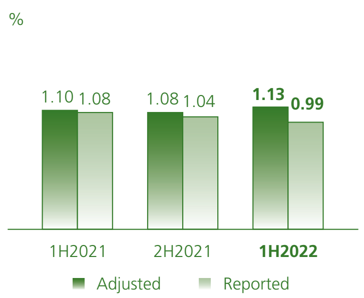
Basic Earnings Per Share ("Basic EPS") and Dividend Per Share ("DPS")



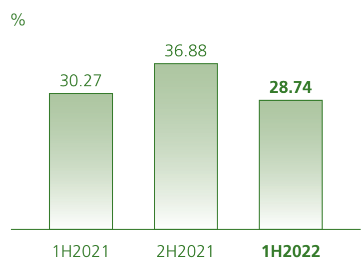
Profit for the period

- In the first half of 2022, profit for the period amounted to HK$14,417 million, representing an increase of 6.1% compared to the same period of the previous year and an increase of 26.4% compared to the second half of 2021.
- ROE and ROA were 8.84% and 0.78% respectively.
- Basic EPS was HK$1.2742. The interim dividend per share was HK$0.447.

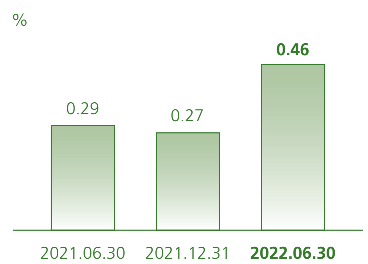
Net Interest Margin ("NIM")



Cost to Income Ratio



Classified or Impaired Loan Ratio[2]



Net interest margin ("NIM") expanded amid rising market interest rates

- NIM was 0.99%. If the funding income or cost of foreign currency swap contracts[3] were included, NIM would have been 1.13%, an increase of 3 basis points year-on-year. This was primarily due to the Group's efforts to seize market opportunities from rising market interest rates and proactively manage its assets and liabilities, which led to continuous improvement in asset yield.

Maintaining satisfactory levels of cost efficiency through the continuous optimisation of resource allocation

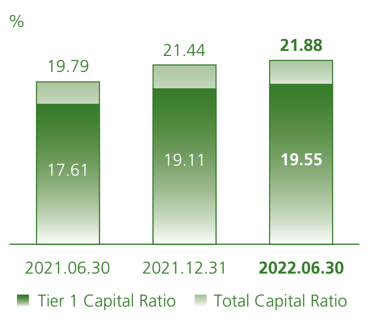
- Cost to income ratio was 28.74%. The Group strengthened cost management while ensuring ongoing investment in its strategic priorities, optimisation of resource allocation and implementation of low-carbon operational initiatives, thus maintaining its cost to income ratio at a satisfactory level relative to industry peers.

Maintaining benign asset quality through prudent risk management

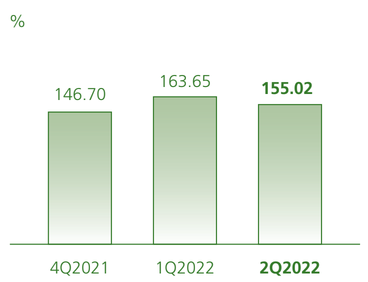
- The classified or impaired loan ratio was 0.46%, which remained below the market average.

MANAGEMENT DISCUSSION AND ANALYSIS

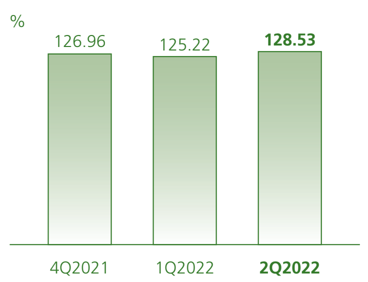
Capital Ratio



Average Value of Liquidity Coverage Ratio



Quarter-end Value of Net Stable Funding Ratio



Strong capital position to support solid business growth

- The tier 1 capital ratio was 19.55% and the total capital ratio was 21.88%, with both ratios maintained at a solid level.

Liquidity remained ample

- The average values of liquidity coverage ratio in the first and second quarter of 2022 stood at 163.65% and 155.02% respectively.
- Net stable funding ratio stood at 125.22% at the end of the first quarter of 2022 and 128.53% at the end of the second quarter of 2022.

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

MANAGEMENT DISCUSSION AND ANALYSIS

ECONOMIC BACKGROUND AND OPERATING ENVIRONMENT

In the first half of 2022, the COVID-19 pandemic situation remained volatile and continued to affect supply chains around the world. The external environment featured a relatively high degree of uncertainty amid persistent geopolitical risks. Against a backdrop of heightened inflation, the Federal Reserve began to increase the benchmark rate and reduce its balance sheet. Meanwhile, the European Central Bank shifted its focus from reducing asset purchases to carrying out interest rate hikes. In the Chinese mainland, the domestic economy was adversely affected by pandemic developments and international issues from the second quarter onwards, and the Chinese Government introduced a range of stimulating measures with an aim of stablising the economy. Travel restrictions for countries in Southeast Asia were gradually eased, facilitating economic recovery in the region.

The fifth wave of the pandemic impacted Hong Kong's economic growth and domestic consumption levels in the first quarter of 2022. Subsequently, following the gradual relaxation of social distancing measures and the launch of a new phase of the HKSAR Government's Consumption Voucher Scheme, the year-on-year decline in GDP for the second quarter narrowed.

The exchange rate of the Hong Kong dollar against the US dollar repeatedly triggered the weak-side Convertibility Undertaking in the first half of the year, which led the Hong Kong Monetary Authority ("HKMA") to purchase Hong Kong dollars from the market and caused a contraction in the aggregate balance of the banking sector. The 1-month HIBOR increased from 0.16% at the end of 2021 to 0.87% at the end of June 2022. As the Federal Reserve started to increase the benchmark rate, 1-month USD LIBOR was up from 0.10% at the end of 2021 to 1.79% at the end of June 2022, and the 1-month SOFR also increased from 0.05% to 1.69% over the same period. The US treasury yield curve flattened during the period, with the treasury yield spread between 2-year and 10-year tenors narrowing from 78 basis points at the end of 2021 to six basis points at the end of June 2022, and subsequently becoming inverted.

The Hong Kong stock market was affected by weak global market sentiment in the first half of 2022, with anemic levels of IPO activity. The total amount of funds raised and the average daily trading volume of the stock market decreased by 76.6% and 26.5% respectively compared to the same period last year. As at the end of June 2022, the Hang Seng Index was down 6.6% compared with the end of 2021.

In the Hong Kong property market, residential property transaction volumes decreased year-on-year in the first half of 2022 while private residential property prices declined compared with the previous year-end, amid local stock market volatility, the Federal Reserve's rate hike and balance sheet reduction, and tightened social distancing measures owing to the pandemic situation. The HKSAR Government continued to implement demand-side management measures and the HKMA maintained prudent supervisory measures on mortgage loans, notwithstanding the easing of the upper limit on the value of properties eligible for the Mortgage Insurance Programme. In general, the asset quality of banks' mortgage businesses remained stable. The pace of recovery in the commercial property market was slowed by ongoing social distancing measures. Declines were recorded in the rental costs, prices and transaction volumes of retail properties, while the Grade-A office market remained relatively stable.

Despite challenges in the macroeconomic environment, the banking industry continues to enjoy enormous development opportunities. The start of the interest rate hike cycle will boost the profitability in the banking sector. In addition, the 14th Five-Year Plan will further enhance the opening up of the financial sector in the Chinese mainland, as well as promote RMB internationalisation. This, together with other favourable conditions including the further development of the Greater Bay Area, the expansion of mutual financial market access between the Chinese mainland and Hong Kong, the enactment of the Regional Comprehensive Economic Partnership ("RCEP") and the development of the Hong Kong's Northern Metropolis area, will provide tremendous business opportunities for the banking sector in Hong Kong.

MANAGEMENT DISCUSSION AND ANALYSIS

CONSOLIDATED FINANCIAL REVIEW

Financial Highlights

HK$'m	**Half-year ended 30 June 2022**	Half-year ended 31 December 2021	Half-year ended 30 June 2021
Net operating income before impairment allowances	**27,232**	23,932	25,050
Operating expenses	**(7,826)**	(8,825)	(7,582)
Operating profit before impairment allowances	**19,406**	15,107	17,468
Operating profit after impairment allowances	**17,692**	14,144	16,286
Profit before taxation	**17,389**	13,815	16,153
Profit for the period	**14,417**	11,408	13,591
Profit attributable to equity holders of the Company	**13,472**	10,394	12,576

In the first half of 2022, the Group's net operating income before impairment allowances amounted to HK$27,232 million, an increase of HK$2,182 million or 8.7% year-on-year. If the funding income or cost of foreign currency swap contracts were included, net interest income would have recorded year-on-year growth, owing to the Group's proactive management of assets and liabilities amid rising market interest rates. However, net fee and commission income dropped year-on-year, mainly due to the severity of the pandemic in the beginning of the year, weakened investor sentiment in the market and delays in business activities. Net trading gain increased year-on-year, mainly reflecting changes in the mark-to-market value of certain interest rate instruments caused by market interest rate movements. Operating expenses increased as the Group enhanced its cost structure and explored the utilisation of internal resources to meet additional requirements while at the same time ensuring investment in its key businesses and strategic priorities. Meanwhile, the net charge of impairment allowances increased and a higher net loss was recorded from fair-value adjustments on investment properties. Profit for the period amounted to HK$14,417 million, a year-on-year increase of HK$826 million or 6.1%. Profit attributable to equity holders was HK$13,472 million, an increase of HK$896 million or 7.1% year-on-year.

As compared with the second half of 2021, the Group's net operating income before impairment allowances increased by HK$3,300 million or 13.8%. This was mainly attributable to an increase in net interest income including the funding income or cost of foreign currency swap contracts, an increase in net trading gain as well as a decrease in operating expenses, which more than offset the drop in net fee and commission income and the increase in the net charge of impairment allowances. As a result, the Group's profit for the period increased by HK$3,009 million or 26.4% 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 2022**	Half-year ended 31 December 2021	Half-year ended 30 June 2021
Interest income	**22,002**	20,450	19,848
Interest expense	**(6,621)**	(4,451)	(3,906)
Net interest income	**15,381**	15,999	15,942
Average interest-earning assets	**3,139,822**	3,052,163	2,977,664
Net interest spread	**0.90%**	0.97%	1.02%
Net interest margin	**0.99%**	1.04%	1.08%
Net interest margin (adjusted)*	**1.13%**	1.08%	1.10%

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

Net interest income amounted to HK$15,381 million in the first half of 2022. If the funding income or cost of foreign currency swap contracts# were included, net interest income would have increased by 8.7% year-on-year to HK$17,663 million. This was mainly due to growth in average interest-earning assets and improvement in net interest margin. Average interest-earning assets expanded by HK$162,158 million or 5.4% year-on-year. If the funding income or cost of foreign currency swap contracts were included, net interest margin would have been 1.13%, up 3 basis points year-on-year, as a result of the Group's efforts to seize market opportunities from rising market interest rates while proactively managing its assets and liabilities, which resulted in improvement in asset yield and an increased contribution from net free funds.

Compared with the second half of 2021, the Group's net interest income would have increased by 5.8% if the funding income or cost of foreign currency swap contracts were included. This was mainly due to growth in average interest-earning assets and improvement in net interest margin. Average interest-earning assets expanded by HK$87,659 million or 2.9%. Net interest margin widened by 5 basis points, as market interest rates rebounded from a low level, leading to an increase in the asset yield of advances to customers and debt securities investments.

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 2022		Half-year ended 31 December 2021		Half-year ended 30 June 2021	
ASSETS	**Average balance HK$'m**	**Average yield %**	Average balance HK$'m	Average yield %	Average balance HK$'m	Average yield %
Balances and placements with banks and other financial institutions	**412,493**	**0.72**	382,074	0.83	385,213	0.80
Debt securities investments and other debt instruments	**1,082,644**	**1.30**	1,059,290	1.24	970,458	1.27
Advances to customers and other accounts	**1,638,263**	**1.66**	1,596,657	1.51	1,604,278	1.52
Other interest-earning assets	**6,422**	**2.53**	14,142	0.81	17,715	0.70
Total interest-earning assets	**3,139,822**	**1.41**	3,052,163	1.33	2,977,664	1.34
Non interest-earning assets	**544,979**	**–**	541,641	–	606,975	–
Total assets	**3,684,801**	**1.20**	3,593,804	1.13	3,584,639	1.12
LIABILITIES	**Average balance HK$'m**	**Average rate %**	Average balance HK$'m	Average rate %	Average balance HK$'m	Average rate %
Deposits and balances from banks and other financial institutions	**323,117**	**0.81**	296,539	0.78	203,553	0.44
Current, savings and time deposits	**2,254,428**	**0.46**	2,115,003	0.31	2,263,622	0.30
Other interest-bearing liabilities	**22,756**	**1.10**	21,434	0.19	18,178	1.09
Total interest-bearing liabilities	**2,600,301**	**0.51**	2,432,976	0.36	2,485,353	0.32
Shareholders' funds* and other non interest-bearing deposits and liabilities	**1,084,500**	**–**	1,160,828	–	1,099,286	–
Total liabilities	**3,684,801**	**0.36**	3,593,804	0.25	3,584,639	0.22

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

Net Fee and Commission Income

HK$'m	**Half-year ended 30 June 2022**	Half-year ended 31 December 2021	Half-year ended 30 June 2021
Loan commissions	**1,769**	953	1,793
Securities brokerage	**1,388**	1,554	2,189
Credit card business	**903**	1,145	996
Insurance	**556**	795	734
Payment services	**360**	377	374
Trust and custody services	**341**	390	374
Funds distribution	**295**	307	417
Bills commissions	**262**	302	321
Safe deposit box	**149**	155	151
Currency exchange	**87**	61	58
Funds management	**26**	60	101
Others	**687**	588	608
Fee and commission income	**6,823**	6,687	8,116
Fee and commission expense	**(1,679)**	(1,472)	(1,459)
Net fee and commission income	**5,144**	5,215	6,657

In the first half of 2022, net fee and commission income amounted to HK$5,144 million, down HK$1,513 million or 22.7% year-on-year. The drop was mainly due to the weakened investor sentiment in the market, which resulted in a decrease in commission income from securities brokerage, insurance and funds distribution of 36.6%, 24.3% and 29.3% respectively. Commission income from funds management decreased by 74.3% year-on-year as capital market volatility affected the performance of fund investments. Commission income from bills, credit card business, trust and custody services, payment services and loans decreased year-on-year owing to delays in business activities and weakening consumer demand. However, commission income from currency exchange rose by 50.0% year-on-year, mainly attributable to increased demand for foreign currency banknotes following the gradual easing of travel restrictions for countries in Southeast Asia. Fee and commission expenses increased due to a notable uplift in the sales volume of BOC Life's broker and tied agency channels.

Compared with the second half of 2021, net fee and commission income decreased by HK$71 million or 1.4%, mainly owing to a decrease in commission income from insurance, securities brokerage, credit card business, trust and custody services, funds management, bills, payment services and funds distribution. However, commission income from loans and currency exchange rose. Fee and commission expenses increased due to a significant rise in the sales volume of BOC Life's broker and tied agency channels.

Net Trading Gain

HK$'m	**Half-year ended 30 June 2022**	Half-year ended 31 December 2021	Half-year ended 30 June 2021
Foreign exchange and foreign exchange products	**4,685**	2,561	2,164
Interest rate instruments and items under fair value hedge	**4,071**	(12)	(48)
Commodities	**182**	72	103
Equity and credit derivative instruments	**20**	116	135
Total net trading gain	**8,958**	2,737	2,354

In the first half of 2022, the Group's net trading gain amounted to HK$8,958 million, an increase of HK$6,604 million or 280.5% year-on-year. If the funding income or cost of foreign currency swap contracts were excluded, net trading gain would have increased by 226.9% year-on-year to HK$6,676 million. This was mainly attributable to the Group recording a net trading gain from interest rate instruments and items under fair value hedge in the first half, as compared with a net trading loss in the same period last year, which resulted from changes in the mark-to-market value of certain interest rate instruments caused by market interest rate movements. Net trading gain from commodities increased, primarily due to a higher gain from bullion transactions. Net trading gain from equity and credit derivative instruments decreased by HK$115 million year-on-year, with lower income realised from equity-linked products amid weakened investor sentiment in the market.

Compared with the second half of 2021, net trading gain increased by HK$6,221 million or 227.3%. If the funding income or cost of foreign currency swap contracts were excluded, net trading gain would have increased by 226.3% from the second half of last year. This was mainly attributable to changes in the mark-to-market value of certain interest rate instruments caused by market interest rate movements.

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

HK$'m	**Half-year ended 30 June 2022**	Half-year ended 31 December 2021	Half-year ended 30 June 2021
Net (loss)/gain on other financial instruments at fair value through profit or loss	**(1,471)**	(1,232)	96

In the first half of 2022, the Group recorded a net loss on other financial instruments at fair value through profit or loss of HK$1,471 million, as compared with a net gain of HK$96 million in the same period last year. The change was mainly due to a drop in the mark-to-market value of BOC Life's debt securities investments caused by market interest rate movements. The abovementioned mark-to-market changes of BOC Life's debt securities investments were offset by changes to its 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.

Compared with the second half of 2021, the increase in net loss was mainly attributable to a drop in the mark-to-market value of BOC Life's debt securities investments caused by market interest rate movements.

Operating Expenses

HK$'m	**Half-year ended 30 June 2022**	Half-year ended 31 December 2021	Half-year ended 30 June 2021
Staff costs	**4,605**	5,153	4,389
Premises and equipment expenses (excluding depreciation and amortisation)	**589**	653	579
Depreciation and amortisation	**1,526**	1,524	1,515
Other operating expenses	**1,106**	1,495	1,099
Operating expenses	**7,826**	8,825	7,582

	At 30 June 2022	At 31 December 2021	At 30 June 2021
Staff headcount measured in full-time equivalents	**14,220**	14,553	14,462

Operating expenses amounted to HK$7,826 million, an increase of HK$244 million or 3.2% year-on-year. The Group pursued efficient resource allocation in order to meet its basic operating needs and ensure strategic implementation, while optimising its existing cost base so as to achieve balanced growth in between expenses and income. At the same time, it actively implemented low-carbon operational initiatives. It also explored the utilisation of internal resources to meet additional requirements for enhancing cost efficiency. The cost to income ratio was 28.74%, remaining at a satisfactory level relative to industry peers.

Staff costs increased by 4.9% year-on-year, mainly because of the lower accrual of performance-related remuneration made in the same period last year.

Premises and equipment expenses were up 1.7%, mainly due to increased investment in information technology.

Depreciation and amortisation increased by 0.7%, mainly due to increased amortisation of intangible assets and higher depreciation charges on premises, which more than offset the impact of lower depreciation charges on right-of-use assets and information technology.

Other operating expenses increased by 0.6%, mainly owing to an increase in anti-pandemic supplies, advertising and charitable donation expenses.

Compared with the second half of 2021, operating expenses decreased by HK$999 million or 11.3%. The decrease was mainly due to lower staff costs and a decrease in business promotion, charitable donation, professional consultation and advertising expenses.

Net Charge of Impairment Allowances on Advances and Other Accounts

HK$'m	**Half-year ended 30 June 2022**	Half-year ended 31 December 2021	Half-year ended 30 June 2021
Stage 1	**(359)**	425	40
Stage 2	**(316)**	(678)	(504)
Stage 3	**(1,051)**	(516)	(733)
Net charge of impairment allowances on advances and other accounts	**(1,726)**	(769)	(1,197)

In the first half of 2022, the Group's net charge of impairment allowances on advances and other accounts amounted to HK$1,726 million, an increase of HK$529 million or 44.2% year-on-year. Impairment allowances at Stage 1 recorded a net charge of HK$359 million, as compared to a net reversal of HK$40 million in the same period last year. In the first half of 2022, in response to the adverse effects of the fifth wave of the pandemic on Hong Kong's economy, ongoing geopolitical risks and rising inflation around the world, the Group updated the parameter values of its expected credit loss model, which resulted in an increase in the net charge of impairment allowances. By contrast, those parameter values had improved in the same period last year, driven by the gradual recovery of the world's major economies, causing a net reversal of impairment allowances. Impairment allowances at Stage 2 recorded a net charge of HK$316 million, a decrease of HK$188 million year-on-year. The change was mainly attributable to the higher impairment allowances made in the same period last year, when the Group took into consideration the potential risks arising from client exposures under the prevailing pandemic relief measures. Impairment allowances at Stage 3 amounted to a net charge of HK$1,051 million, an increase of HK$318 million year-on-year, owing to new impairment allowances being made in response to the downgrading of certain corporate advances this year. The annualised credit cost of advances to customers and other accounts was 0.21%, up 0.06 percentage points from the same period of the previous year. As at 30 June 2022, the Group's total loan impairment allowances as a percentage of advances to customers was 0.67%.

Compared with the second half of 2021, the Group's net charge of impairment allowances on advances and other accounts increased by HK$957 million or 124.4%, mainly reflecting a higher net charge of impairment allowances arising from the updating of the parameter values of the expected credit loss model, the downgrading of certain corporate advances and higher loan growth in the first half of 2022.

ANALYSIS OF ASSETS AND LIABILITIES

The table below summarises the Group's asset composition. Please refer to Note 21 to the Interim Financial Information for the contract/notional amounts and fair values of the Group's derivative financial instruments. Please refer to Note 36 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 2022		At 31 December 2021	
HK$'m, except percentages	**Amount**	**% of total**	Amount	% of total
Cash and balances and placements with banks and other financial institutions	**436,774**	**12.1**	465,535	12.8
Hong Kong SAR Government certificates of indebtedness	**212,660**	**5.9**	203,810	5.6
Securities investments and other debt instruments[1]	**1,061,350**	**29.3**	1,167,770	32.1
Advances and other accounts	**1,678,660**	**46.4**	1,597,194	43.9
Fixed assets and investment properties	**63,393**	**1.7**	64,163	1.8
Other assets[2]	**168,297**	**4.6**	140,958	3.8
Total assets	**3,621,134**	**100.0**	3,639,430	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 2022, the total assets of the Group amounted to HK$3,621,134 million, a decrease of HK$18,296 million or 0.5% from the end of last year. Cash and balances and placements with banks and other financial institutions decreased by HK$28,761 million or 6.2%, mainly due to a decrease in balances with banks. The Group prudently managed its banking book investments, resulting in a decrease in securities investments and other debt instruments of HK$106,420 million or 9.1%. Advances and other accounts rose by HK$81,466 million or 5.1%, with advances to customers growing solidly by HK$81,966 million or 5.1%, and trade bills increasing by HK$878 million or 12.1%.

Advances to Customers

HK$'m, except percentages	At 30 June 2022 Amount	% of total	At 31 December 2021 Amount	% of total
Loans for use in Hong Kong	**1,136,079**	**67.6**	1,083,205	67.7
Industrial, commercial and financial	**622,924**	**37.1**	581,799	36.4
Individuals	**513,155**	**30.5**	501,406	31.3
Trade financing	**81,060**	**4.8**	73,611	4.6
Loans for use outside Hong Kong	**463,911**	**27.6**	442,268	27.7
Total advances to customers	**1,681,050**	**100.0**	1,599,084	100.0

In the first half of 2022, the Group captured opportunities from its three major markets of Hong Kong, the Greater Bay Area and Southeast Asia while adhering to its customer-centric philosophy of focusing closely on customer needs. It strengthened its support to local commercial and SME customers in Hong Kong by offering exclusive service solutions and launched financial relief initiatives to support SMEs. The Group made concerted efforts to develop its mortgage business by optimising the services available on its Home Expert mobile application and enhancing cooperation with real estate agencies and mortgage intermediaries, with a view to reinforcing its leading market position in mortgages. It also captured development opportunities from regional synergies by enhancing collaboration with its Southeast Asian entities and BOC's entities in the Greater Bay Area and Asia-Pacific region in order to better understand the financial demands of key industries and target customers, thus enhancing its cross-border business advantages. During the period, the Group remained the top mandated arranger in the Hong Kong-Macao syndicated loan market and held the top market position in terms of the total number of new mortgage loans in Hong Kong. In the first half of 2022, advances to customers grew by HK$81,966 million, or 5.1%, to HK$1,681,050 million.

Loans for use in Hong Kong grew by HK$52,874 million or 4.9%.

- Lending to the industrial, commercial and financial sectors increased by HK$41,125 million or 7.1%, reflecting loan growth in property development and investment, wholesale and retail trade, manufacturing and information technology.
- Lending to individuals increased by HK$11,749 million or 2.3%, mainly driven by growth in residential mortgage loans and other individual loans.

Trade financing increased by HK$7,449 million or 10.1%. Loans for use outside Hong Kong grew by HK$21,643 million or 4.9%, mainly driven by growth in loans for use in the Chinese mainland.

Loan Quality

HK$'m, except percentages	**At 30 June 2022**	At 31 December 2021
Advances to customers	**1,681,050**	1,599,084
Classified or impaired loan ratio	**0.46%**	0.27%
Total impairment allowances	**11,235**	9,877
Total impairment allowances as a percentage of advances to customers	**0.67%**	0.62%
Residential mortgage loans[1] – delinquency and rescheduled loan ratio[2]	**0.02%**	0.01%
Card advances – delinquency ratio[2]	**0.28%**	0.23%

	Half-year ended 30 June 2022	Half-year ended 30 June 2021
Card advances – charge-off ratio[3]	**1.38%**	1.58%

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 the first half of 2022, several industries faced stiff challenges in light of the volatile COVID-19 pandemic situation, ongoing geopolitical risks and rising worldwide inflation. The Group proactively strengthened its risk management systems for all types of risks and continuously enhanced its risk management so as to maintain solid asset quality. As at 30 June 2022, the Group's classified or impaired loans amounted to HK$7,810 million, an increase of HK$3,489 million from the end of last year, mainly owing to the downgrading of certain corporate advances. The classified or impaired loan ratio was 0.46%, up 0.19 percentage points from the end of last year. The combined delinquency and rescheduled loan ratio of residential mortgage loans was 0.02%. The charge-off ratio of card advances for the first half of 2022 was 1.38%, down 0.20 percentage points year-on-year.

Deposits from Customers

HK$'m, except percentages	At 30 June 2022 Amount	At 30 June 2022 % of total	At 31 December 2021 Amount	At 31 December 2021 % of total
Demand deposits and current accounts	**296,744**	**12.4**	327,234	14.1
Savings deposits	**1,184,697**	**49.3**	1,194,094	51.2
Time, call and notice deposits	**919,168**	**38.3**	809,827	34.7
Total deposits from customers	**2,400,609**	**100.0**	2,331,155	100.0

In the first half of 2022, the Group strengthened cooperation with government authorities, public entities and large corporates, and enhanced its mid to high-end customer base. At the same time, the Group seized market opportunities from cross-boundary wealth management, promoted product innovation by launching online applications and green deposits, and actively expanded its e-payment and e-collection, payroll, cash management, cash pooling and IPO receiving bank services. As at 30 June 2022, total deposits from customers amounted to HK$2,400,609 million, an increase of HK$69,454 million or 3.0% from the end of the previous year. Demand deposits and current accounts decreased by 9.3%. Savings deposits decreased by 0.8%. Time, call and notice deposits increased by 13.5%. The CASA ratio was 61.7%, a decrease of 3.6 percentage points from the end of last year.

Capital and Reserves Attributable to Equity Holders of the Company

HK$'m	At 30 June 2022	At 31 December 2021
Share capital	**52,864**	52,864
Premises revaluation reserve	**38,797**	38,590
Reserve for financial assets at fair value through other comprehensive income	**(8,539)**	(413)
Regulatory reserve	**6,265**	6,073
Translation reserve	**(1,581)**	(1,000)
Retained earnings	**207,935**	201,885
Reserves	**242,877**	245,135
Capital and reserves attributable to equity holders of the Company	**295,741**	297,999

Capital and reserves attributable to equity holders of the Company amounted to HK$295,741 million as at 30 June 2022, a decrease of HK$2,258 million or 0.8% from the end of last year. The premises revaluation reserve increased by 0.5%. The deficit in reserve for financial assets at fair value through other comprehensive income increased, mainly due to the impact of market interest rate movements. The regulatory reserve increased by 3.2%, mainly driven by growth in advances to customers. The translation reserve decreased, mainly due to the depreciated carrying value of the Southeast Asian entities' local currency net assets caused by the strengthening of the US dollar. Retained earnings rose by 3.0% from the end of last year.

Capital Ratio

HK$'m, except percentages	**At 30 June 2022**	At 31 December 2021
Consolidated capital after deductions		
Common Equity Tier 1 capital	**229,606**	224,189
Additional Tier 1 capital	**23,476**	23,476
Tier 1 capital	**253,082**	247,665
Tier 2 capital	**30,185**	30,174
Total capital	**283,267**	277,839
Total risk-weighted assets	**1,294,797**	1,296,153
Common Equity Tier 1 capital ratio	**17.73%**	17.30%
Tier 1 capital ratio	**19.55%**	19.11%
Total capital ratio	**21.88%**	21.44%

As at 30 June 2022, Common Equity Tier 1 ("CET1") capital and tier 1 capital had increased by 2.4% and 2.2% respectively from the end of last year, which was primarily attributable to profits recorded for the first half of 2022. Total capital increased by 2.0% from the previous year-end. Total risk-weighted assets ("RWAs") decreased by 0.1% from the end of last year. The CET1 capital ratio was 17.73% and the tier 1 capital ratio was 19.55%, while the total capital ratio stood at 21.88%. The Group properly managed its capital plan so as to maintain an appropriate capital level for meeting stricter regulatory requirements and supporting sustainable business development while balancing returns to equity holders.

Liquidity Coverage Ratio and Net Stable Funding Ratio

	2022	2021
Average value of liquidity coverage ratio		
First quarter	**163.65%**	134.09%
Second quarter	**155.02%**	134.20%
Third quarter	**N/A**	134.73%
Fourth quarter	**N/A**	146.70%

	2022	2021
Quarter-end value of net stable funding ratio		
First quarter	**125.22%**	124.90%
Second quarter	**128.53%**	118.50%
Third quarter	**N/A**	125.92%
Fourth quarter	**N/A**	126.96%

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 2022.

MANAGEMENT DISCUSSION AND ANALYSIS

BUSINESS REVIEW

In the first half of 2022, the Group thoroughly implemented the "2021-2025 Strategic Development Plan of BOCHK Group". Reinforcing its strategic commitments, the Group stepped up efforts to capture local business opportunities so as to deeply cultivate the core market of Hong Kong, consolidate its customer base and business foundations, and realise business potential. By capitalising on opportunities arising from the national strategic policies of the Chinese mainland, the Group vigorously developed its cross-border business, unleashed its business advantages in the offshore market, participated in the innovative policies of the Guangdong-Hong Kong-Macao Greater Bay Area, and cultivated new business growth drivers. With the aim of further enhancing its regional service capabilities and expediting the delivery of products and services, the Group kept up with the pace of RMB internationalisation, strengthened regional collaborations across Southeast Asia, and seized major development opportunities arising from the enactment of the Regional Comprehensive Economic Partnership Agreement ("RCEP"). Meanwhile, the Group actively embedded the concepts of green finance and sustainable development into its business and operations, continuously putting into practice low-carbon and resource efficiency initiatives in its own operations while also taking advantage of the green finance business opportunities brought about by carbon neutrality targets, actively promoting its sustainability-linked loan business and providing diversified low-carbon products and services to meet customers' needs for green transformation. The Group consolidated the core support capacity of its technological foundations so as to offer an all-round digital banking service, and strengthened the development of its integrated business platforms and collaborative mechanisms to improve its integrated service capabilities. In addition, it adhered to "bottom-line" thinking in its risk management and made constant efforts to improve its human resources, culture and operational procedures in order to provide strong support for the implementation of its strategic plan.

Business Segment Performance

Profit before Taxation by Business Segment

	Half-year ended 30 June 2022		Half-year ended 30 June 2021	
HK$'m, except percentages	**Amount**	**% of total**	Amount	% of total
Personal Banking	**3,079**	**17.7**	3,652	22.6
Corporate Banking	**5,493**	**31.6**	6,713	41.6
Treasury	**7,554**	**43.5**	5,141	31.8
Insurance	**371**	**2.1**	513	3.2
Others	**892**	**5.1**	134	0.8
Total profit before taxation	**17,389**	**100.0**	16,153	100.0

Note: For additional segmental information, see Note 39 to the Interim Financial Information.

PERSONAL BANKING

Financial Results

Personal Banking achieved a profit before tax of HK$3,079 million in the first half of 2022, a decrease of HK$573 million or 15.7% year-on-year, mainly due to a decrease in net fee and commission income and an increase in net charge of impairment allowances, which were partially offset by an increase in net interest income. Net interest income increased by 15.5%, mainly attributable to growth in the average balance of CASA deposits and loans, coupled with an improvement in the deposit spread. Net fee and commission income decreased by 22.2%, mainly due to the weakened investor sentiment in the market, which resulted in lower transaction volumes in the stock market and hence lower commission income from securities brokerage and funds distribution. Commission income from credit card business decreased owing to weakening consumer demand. Net charge of impairment allowances amounted to HK$111 million, up HK$44 million year-on-year, mainly due to an increase in impairment allowances caused by an update to the parameter values of the expected credit loss model.

Business Operations

Pursuing sustainable development and launching diversified green finance products and services

In line with the market trend towards low-carbon transition, the Group captured opportunities from development of green finance and enriched its green finance products and services suites so as to promote sustainable development and smart living. In response to growing market and customer interest in green investment and ESG products, it fully supported the HKSAR Government's issuance of retail green bonds and introduced Hong Kong's first retail green bond trading platform via mobile banking, ranking first in the market in terms of both subscription volume and number of customers. The Group pioneered the first Green Personal Loan in Hong Kong. At an initial stage, it offered preferential loans to customers intending to purchase electric vehicles so as to encourage the adoption of green transport. It also extended its Green Mortgage Plan to cover first and second-hand purchases of all green buildings accredited with BEAM Plus Platinum or Gold ratings from both private developers and government-subsidised residential projects. In addition, the Group become the first Platinum Patron member of the Hong Kong Green Building Council in the banking sector, and stepped up its efforts to further promote green buildings, low-carbon living and a greener future.

Giving full play to online and offline advantages and committing to its core market in Hong Kong

The Group accelerated its development into a digital bank and utilised innovative technology to enhance its online service capabilities, thus ensuring continuous and effective business operations. The number of customers using its electronic platforms as at the end of June 2022 grew as compared to the previous year-end. The Group consolidated the market-leading advantages of its core products, achieving stable growth in customer deposits, maintaining the top market position in terms of total number of new residential mortgage loans, and recording year-on-year growth in the number of transactions conducted through its mobile banking platform, particularly those related to foreign exchange trading, time deposits and transfers which grew satisfactorily. It also maintained its leading market position in online insurance, due to the wide range of products from life insurance companies available on its platform. It enhanced its online investment service capabilities with add-on features enabling overall investment portfolio review and secondary bond trading, with a view to improving customer experience. Its Home Expert mobile application was also optimised through the application of blockchain technology to property valuations, which was used in 99% of its valuation reports during the period. The average number of online mortgage applications received per month in the first half of 2022 increased by approximately 7.3 times compared to that of 2021. At the same time, the Group closely monitored changes in the market during the pandemic and continuously supported and participated in various financial support schemes and relief measures introduced by the HKSAR Government and the HKMA, including further extending the application deadline of its mortgage principal moratorium plan, which helped to alleviate the cash-flow pressures of personal customers affected by the pandemic. During the period, BOCHK was awarded Excellent Brand of Property Purchase Planning and Mortgage Services – Banking Solutions and Excellent Brand of Securities and Investment Banking Services in the Hong Kong Leaders' Choice 2022 awards organised by Metro Finance.

Enhancing value-added services and meeting the comprehensive needs of customers

The Group continued to promote its premium brand and strengthened the range of exclusive products and services offered to its high-end customers, including placement of USD personal green deposits through e-channels, the brand-new "BOC Private Card" and an exclusive one-to-one mortgage consultation service for Private Wealth customers, with the aim of better fulfilling their investment, financial and wealth management needs. As a result, the number of Private Wealth customers at the end of June 2022 recorded double-digit percentage growth as compared to the previous year-end, further expanding its customer base. Meanwhile, the Group introduced "Banking TrendyToo", a new brand targeting the young customer segment, in May 2022. This aims to assist young customers to meet their financial goals across four dimensions, namely "Chill Banking+", "Happy Spending+", "Smart Investing+" and "Cool Living+", by offering diversified and 24/7 services alongside easy tips for "Trendy Banking". More than 10,000 new customers had been acquired as at the end of June 2022. The Group also launched "BOC Chill Card", an eco-friendly credit card, offering young customers with a 10% cash rebate on designated merchant spending, and a 5% cash rebate on mobile payments and online spending to attract them to participate in green consumption. During the period, BOCHK was named the Most Selected Main Retail Bank in Hong Kong by *The Asian Banker*.

The Group's private banking business maintained steady growth. By enhancing its collaboration with other business units and Southeast Asian entities within the Group, it was able to optimise its service chain by providing high-net-worth clients and family offices with professional private banking services. The Group integrated green finance and ESG standards into product and service design, pushing forward high-quality and sustainable development in its private banking business. In addition, it continued to promote digital transformation so as to enhance its private banking service and trading platform. At the same time, it accelerated process automation and digitalisation, innovated its service model, and enriched its product range. As at the end of June 2022, the Group's private banking assets under management increased by 2.4% from the previous year-end.

Consolidating cross-border advantages and strengthening the foundations of its RMB business

In response to difficulties encountered by Hong Kong customers who were unable to visit mainland branches in person to handle bank account issues during the pandemic, the Group introduced helpful measures to remotely update mainland bank account information and reactivate dormant mainland bank accounts. At the end of June 2022, the cumulative number of GBA Account opened exceeded 185,000, representing steady growth from the end of last year. The Group enhanced the customer experience of its Bank of China Cross-Boundary Wealth Management Connect service by continuously expanding the range of products offered and optimising the related workflows and online service model, with the aggregate number of accounts opened for both Southbound and Northbound services ranking among the top tier in Hong Kong as at the end of June 2022. To satisfy growing demand for RMB products and to meet customers' investment and wealth management needs, the Group leveraged its prominent position in RMB business by introducing a series of "RMB One" packages featuring comprehensive offers of different RMB products and services such as securities, funds, life insurance, time deposits and foreign exchange. During the period, BOCHK was once again named Best Chinese Bank for the Greater Bay Area by *Asiamoney*, which also recognised it as Best Chinese Bank for the Wealth Management Connect, and was awarded Excellent Brand of Wealth Management Connect Scheme in the Hong Kong Leaders' Choice 2022 awards organised by Metro Finance.

CORPORATE BANKING

Financial Results

Corporate Banking achieved a profit before tax of HK$5,493 million, a decrease of HK$1,220 million or 18.2% year-on-year, mainly due to a higher net charge of impairment allowances. Net operating income before impairment allowances increased by 1.3%. Net interest income was broadly unchanged from the same period last year, as an improvement in the deposit spread was offset by a narrowing of the loan spread. Net fee and commission income was largely unchanged year-on-year, with commission income from loans and professional services increasing while commission income from bills as well as trust and custody services decreased. Net trading gain rose 14.6%, which was mainly attributable to increased currency exchange income from customer transactions. Net charge of impairment allowances amounted to HK$1,590 million, up HK$1,244 million year-on-year, mainly reflecting the higher net charge of impairment allowances owing to the downgrading of certain corporate advances and the updating of the parameter values of the expected credit loss model.

Business Operations

Continuously enhancing integrated service capabilities and advancing green and sustainable development

The Group adhered to its customer-centric business philosophy and continuously promoted the deepening of business transformation with the aim of meeting customers' comprehensive demands for professional and integrated services. It actively responded to changes in the business environment, captured market opportunities and strengthened its support to a number of key projects in Hong Kong, the Greater Bay Area and Southeast Asia. As a result, the Group remained the top mandated arranger bank in the Hong Kong-Macao syndicated loan market and underwrote a number of bond issues with significant market influence. It also maintained the leading market share in IPO main receiving bank business in terms of the number of listings and total funds raised on the Main Board. The Group further promoted the development of its key businesses including trade financing, payment and settlement as well as treasury centre services, and continued to maintain its leading position in the cash pooling business. In recognition of its outstanding and highly professional services, a number of its customer collaborations were commended by professional media groups, including an overseas treasury centre and global cash pooling project established for a rail transit equipment supplier that was awarded Best Cash Pooling Solution – Highly Commended by *Treasury Management International*, and a domestic cash pooling project in cooperation with a local retail chain enterprise that received the Award for Excellence in Cash Management Solutions from *Ming Pao*.

Cultivating the concept of sustainable development, the Group constantly enriched and refined its green finance products and services suites, which included green advisory services, green loan arrangement, green time deposits, green bond issuance and green cash management services for its corporate clients, so as to assist and encourage its customers to establish sustainable business models and achieve green development goals. As at the end of June 2022, its green and sustainability-linked loan balance increased by 50% compared to the prior year-end, while the volume of newly underwritten ESG-related bond issuance recorded year-on-year growth of 71% in the first half of 2022. The Group issued "sustainable and smart living" themed green bonds for the second consecutive year, with a total issue size of HK$2 billion and a two-year tenor. The proceeds were used to finance or refinance eligible low-carbon infrastructure projects that facilitate the development of industries such as renewable energy and green buildings. BOCHK and S&P Dow Jones Indices launched the "S&P BOCHK China Hong Kong Greater Bay Area Net Zero 2050 Climate Transition Index", the first climate transition index covering listed companies in the Guangdong-Hong Kong-Macao Greater Bay Area, with a view to encouraging companies in the area to achieve a variety of decarbonisation targets, facilitating their transition to a low-carbon economy, and providing the investment community with a cost-efficient and diversified investment tool to redirect more capital flows towards companies with smaller carbon footprints. In recognition of its efforts in promoting sustainable development, BOCHK was awarded Excellent Brand of Green and Sustainable Corporate Banking Services in the Hong Kong Leaders' Choice 2022 awards organised by Metro Finance.

Strengthening financial support for commercial and SME customers and promoting inclusive finance

The Group remained committed to undertaking its corporate social responsibilities and further strengthening financial support for local commercial and SME customers. It endeavoured to deliver customised financial solutions that pinpoint customer needs through enhanced sectoral and digital servicing capabilities. In response to the fifth wave of the pandemic in Hong Kong, the Group further strengthened its financial service initiatives to help SMEs cope with changes in the operating environment and to navigate difficult times alongside them. This included providing active and continuous support to the credit guarantee products and Special 100% Loan Guarantee Scheme under the Hong Kong Mortgage Corporation Limited's SME Financing Guarantee Scheme, as well as the HKMA's Pre-approved Principal Payment Holiday Scheme. In order to alleviate SME's pain points in raising finance and improve customer experience, the Group also actively engaged in the HKMA's Commercial Data Interchange project, which enables commercial data to be used to facilitate credit assessments, and launched the BOCHK Bill Merchant Loan Programme, which makes use of BoC Bill transaction data in the credit approval process, thus simplifying the loan application process for SMEs and enhancing approval efficiency. The Group's ongoing efforts to provide high-quality SME services won wide acclaim and recognition, receiving the Best SME's Partner Award from the Hong Kong General Chamber of Small and Medium Business for the 15th consecutive year.

Giving full play to synergistic advantages and expediting the development of regional business

The Group deepened its cooperation with BOC's institutions in the Greater Bay Area and strengthened research and analysis on policies and planning, in order to better understand the financial demands of key industries and target customers and to achieve concrete business synergies. Aligning with opportunities arising from policies, the Group proactively supported the development of innovative technology enterprises based in major regions such as the Guangdong-Hong Kong-Macao Greater Bay Area, the Yangtze River Delta and the Beijing-Tianjin-Hebei region, by offering them diversified products and services. It also actively captured opportunities arising from the HKSAR Government's development plan for the Northern Metropolis area so as to cultivate new business growth drivers. Seizing opportunities from RMB internationalisation, the Group promoted RMB business under mutual market access schemes, enriched innovative RMB products and strengthened the application functionality of RMB in large blockchain trade financing platforms such as "eTradeConnect", "Contour" and "Effitrade", thus achieving solid progress in its development of key customer segments and regional businesses as well as maintaining its leading position in offshore RMB business.

In terms of its Southeast Asian business, the Group adhered to the concept of business integration and seized opportunities arising from the consolidation of economic and trade partnerships across the Asia-Pacific region following the enactment of RCEP. It strengthened collaborations with BOC's entities in the Asia-Pacific region with an emphasis on developing Belt and Road and "Going Global" projects as well as large corporate customers in the region. It also actively led or participated in regional syndicated projects in Southeast Asia, with solid progress achieved in Southeast Asian industrial park projects. Committed to realising the concept of sustainable development, the Group pushed forward the development of green finance in the Southeast Asian region. The Vientiane Branch successfully launched the first certified green deposits in Laos. Serving as joint lead underwriter and bookrunner, the Manila Branch assisted in the pricing and issuance of the Government of the Philippines' US$2.25 billion sovereign bond, which included its first global ESG bond, priced at US$1 billion. The Group continuously optimised its regional product offering, expanding its intelligent Global Transaction Banking ("iGTB") platform to eight Southeast Asian countries in order to support a range of online transactions including transfers within the same bank, domestic interbank transfers and international remittance services. It also continued to provide cross-currency payroll services and supported a variety of distinct payment service gateways in the Southeast Asian region, with a view to providing all-round online services for corporate customers. All of this contributed to significant improvements in the Group's regional management capabilities and the competitiveness of its corporate banking business.

Steadily developing custody and trust business

The Group actively developed new business with financial institution clients and strengthened collaborative marketing efforts with BOC's overseas branches to expand its business. As a result, the number of its custodian clients as at the end of June 2022 recorded a satisfactory growth of 7% compared to the end of last year, with total assets under custody from corporate and institutional clients amounting to over HK$620 billion. The Group continued to deepen business cooperation with Chinese investment companies on corporate trust and agency services, fully assisting customers to raise funds from bond markets. It was awarded Bond Connect Top Custodian for the fifth consecutive year by Bond Connect Company Limited.

BOCI-Prudential Trustee Limited ("BOCI-Prudential Trustee") made continuous efforts to diversify its income streams and was successfully appointed as administrator to several ORSO schemes by a number of sizable enterprises. It continued to optimise its retirement schemes and asset servicing digital platforms, and rolled out an upgraded BOC-Prudential Easy Choice e-Form mobile application. As at the end of June 2022, MPF assets under its trusteeship amounted to HK$76 billion, continuing to rank among the top tier in Hong Kong. In respect of its unit trust and fund administration business, BOCI-Prudential Trustee actively assisted the Group's major institutional clients in launching a sizable fund; joined hands with an investment manager to establish a private open-ended fund company; and launched its first non-money market fund, which allows daily dividends accrued to be re-invested into the sub-fund. It actively explored potential business opportunities from Cross-Boundary Wealth Management Connect and provided custody and escrow services for Special Purpose Acquisition Companies ("SPAC"). During the period, BOCI-Prudential Trustee received a number of awards, including seven awards at the 2022 MPF Awards organised by MPF Ratings Limited, Excellent Brand of MPF Online Platform once again at the Hong Kong Leaders' Choice Awards 2022 organised by Metro Finance, and multiple awards for its funds at the Lipper Fund Awards Hong Kong 2022 organised by *Refinitiv*. It was also named as a "Caring Company" in the Caring Company Scheme organised by the Hong Kong Council of Social Service.

TREASURY

Financial Results

Treasury recorded a profit before tax of HK$7,554 million, an increase of HK$2,413 million or 46.9% year-on-year. This was primarily due to an increase in net trading gain, attributable to changes in the mark-to-market value of certain interest rate instruments caused by market interest rate movements as well as an increase in net gain from foreign currency swap contracts, which was partially offset by a net loss on other financial assets and a decrease in net interest income due to higher funding costs.

Business Operations

Continuously enhancing trading capabilities and steadily promoting global markets business

The Group actively seized business development opportunities by closely monitoring market trends, thus achieving stable growth in its trading business. It continued to push forward digital transformation and technological advancement in its treasury business, with notable improvements made in its online servicing and transaction processing capabilities, and satisfactory results recorded in client business. Meanwhile, the Group deepened its management-by-business-unit approach across its Southeast Asian entities. It constantly enhanced service quality by expanding the range of treasury products offered in the Southeast Asian region and actively customising product solutions for its clients, thus maintaining satisfactory performance in its regional business. At the same time, the Group continued to collaborate with BOC entities in the Asia-Pacific region. During the period, it helped BOC Tokyo Branch to launch the world's first JPY floating-rate bond referencing the new Tokyo Overnight Average Rate (TONA) benchmark rate, assisted BOC Singapore Branch in a pricing project for a green fixed-rate bond, and executed foreign exchange swap business transactions with BOC Tokyo Branch and BOC Sydney Branch.

Expanding the depth and breadth of its cross-border business to reinforce its strong franchise in RMB treasury business

The total clearing volume of the Hong Kong RMB Clearing Bank in the first half of 2022 reached RMB192 trillion, a year-on-year increase of 7.6%, maintaining strong growth momentum. The Group continuously expedited the innovation and promotion of RMB-related products and placed emphasis on cultivating the offshore RMB market, with its RMB trading business registering a satisfactory growth momentum as a result. It leveraged its advantages in regional synergies and tapped the business potential of local clients. The Ho Chi Minh City Branch completed a sizable USD/CNH exchange and cross-border remittance transaction with its peers in Vietnam. The Vientiane Branch and Brunei Branch each launched their first RMB trade-related business. The Manila Branch achieved year-on-year growth of 10.5% in cross-border RMB clearing volume in the first half of 2022, representing a market share of over 83% in the Philippines market. The Group actively supported the bilateral local currency settlement ("LCS") agreement between China and Indonesia, with the Jakarta Branch's LCS-related trading volume and RMB salary direct remittance business volume ranking first among local peers. During the period, BOCHK was named as "Excellent Participant" in multiple business areas by CIPS Company Limited.

Adhering to a solid and risk-aware investment strategy and promoting green finance

The Group continued to take a cautious approach to managing its banking book investments and closely monitored worldwide interest rate adjustments. It actively responded to market volatility during the interest rate hike cycle and took a pre-emptive approach to managing risk while seeking fixed-income investment opportunities to enhance returns. At the same time, the Group stepped up its efforts to promote innovation in green finance. It executed its first green repo transaction, collateralising a non-green USD-denominated bond with a counterparty and then linking the Hong Kong dollar funds obtained to a green loan that supports sustainable building projects.

Proactively capturing market opportunities to steadily develop its asset management business

Despite volatile global capital markets, BOCHK Asset Management Limited ("BOCHK AM") pushed forward its stable business development by proactively seeking out and capturing investment opportunities for its clients, maintaining proper asset allocation in its portfolios, and strengthening its investment and research capabilities. Fostering ESG concepts for development, BOCHK AM stepped up efforts to refine its internal policies and workflows, and embedded climate-related risks into its risk management framework in order to enhance related risk management. It continued to push forward the digital upgrading of its operating systems and the optimisation of its customer service procedures, with the aim of improving the service system of its middle and back offices so as to provide a better customer experience. In recognition of its professional expertise, BOCHK AM was awarded Best China Fund House and Best RMB Manager in the 2022 Best of the Best Awards by *Asia Asset Management*, while its BOCHK All Weather ESG Multi-Asset Fund was awarded Most Innovative Product – Mutual Fund in the 2021 Offshore China Fund Awards co-organised by the China Asset Management Association of Hong Kong and Bloomberg.

INSURANCE

Financial Results

In the first half of 2022, the Group's insurance segment recorded a gross premium of HK$15,388 million, up 10.5% year-on-year. The standard new premium increased by 5.1% year-on-year to HK$6,604 million. The Group actively promoted new products with higher value-add, leading to an increase in the value of new business of 84.0% year-on-year to HK$964 million. However, investment income dropped owing to financial market volatility. As a result, profit before tax was down 27.7% year-on-year to HK$371 million.

Business Operations

Developing mid to high-end customers through multiple channels and widening the reach of digital channels

BOC Life continuously expanded its mid to high-end customer base. Based on its comprehensive three-pronged approach consisting of affluent private banking, brokerage by Chinese banks and large independent financial advisors, BOC Life successfully grasped the opportunities arising from mid to high-end customers' demand for insurance products and achieved steady business development. It took multiple measures to strengthen its multi-channel development strategy, including expanding the tied agent workforce and enhancing the products and services offered through the broker channel. It widened the coverage of its e-channels and helped Livi Bank to obtain an insurance agent licence and launch the 3-Year Savings Insurance Plan through the livi mobile application, which received a positive market response.

Proactively promoting ESG and sustainable development initiatives

BOC Life remained committed to supporting ESG initiatives. It continued to promote its "Live Young" reward programme, with a view to enhancing health and wellness awareness and encouraging customers' healthy lifestyles. It strengthened cooperation with charities, addressing the needs of the community and fulfilling its social responsibilities. During the period, BOC Life organised in-app campaigns known as "Live Young Charity Challenges" to encourage its customers to achieve shared goals for charitable causes, including supporting the social enterprises of Hong Kong Sheng Kung Hui Welfare Council in fighting the pandemic and making donations to families in grassroot communities. BOC Life also donated rapid antigen test kits for COVID-19 to social enterprise St. James' Settlement to help the people in need of anti-pandemic supplies, and offered free life insurance support to over 40,000 qualified frontline staff members of more than 1,000 residential care service centres for the elderly and disabled through a joint taskforce formed by local social welfare organisations. BOC Life stepped up its efforts to create shared value by collaborating with environmental experts and social enterprises, with a number of its ESG-themed corporate charity initiatives winning industry-wide acclaim as well as awards and accolades.

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

BOC Life maintained its leading position in Hong Kong's life insurance sector as well as in sales conducted via e-channels, and remained the market leader in RMB insurance. In recognition of its service excellence and professionalism, BOC Life received a number of local and regional awards, including the Award for Excellence in Community Contribution in the 2022 Awards for Excellence in Finance on Brand Value organised by *Ming Pao*, the Award of Distinction in the 28th Annual Communicator Awards organised by the Academy of Interactive & Visual Arts, and the Employer of Choice Award 2021 from *JobMarket*.

SOUTHEAST ASIAN BUSINESS

The Group continued to pursue regional integrated development and deepened its management-by-business-unit approach in order to push forward high-quality development in its Southeast Asian business. Seizing opportunities brought about by the enactment of RCEP, the Group actively implemented the synergistic mechanism framework of its regional businesses and reinforced multi-level and cross-departmental business collaborations, with a view to capturing regional business opportunities and developing the Southeast Asian market, which is the world's most populous free trade zone that boasts the largest economic trade scale as well as greatest potential. The year 2022 not only marks the beginning of a comprehensive strategic partnership between China and the ASEAN, but also signifies the starting point of the world's progress towards post-pandemic economic recovery. In the first half of the year, the Group continued to give full play to its synergistic advantages, constantly optimised its product offering in the region and improved its regional management capabilities and competitiveness. Each of its Southeast Asian entities steadily enhanced its service quality and efficiency, with the goal of becoming a mainstream foreign bank in its local market.

MANAGEMENT DISCUSSION AND ANALYSIS

Enhancing regional business network layout and continuously optimising management of its Southeast Asian entities

The Group continued to implement its regional management model, enhanced the management of its regional entities, strengthened integrated regional development and adopted market-by-market strategies in order to enhance its Southeast Asian entities' proactiveness in business development. It continuously enhanced its regional service capabilities, with BOC Thailand, BOC Malaysia and the Manila Branch each launching an online RMB salary direct remittance service. It also accelerated digitalisation and efficiency improvements in its Southeast Asian entities while remaining committed to optimising the online payment experience for local customers. The Phnom Penh Branch became the first Chinese bank in Cambodia to support cross-border UnionPay QR payment and launched a cross-border BOCHK personal account opening service. Seizing opportunities arising from the collaborative cross-border QR code payment system jointly launched by The Bank of Thailand and The Central Bank of Malaysia, BOC Thailand rolled out its PromptPay 24/7 real-time fund transfer and QR code remittance services and BOC Malaysia introduced its Real-time Retail Payments Platform (RPP) and the Real-time Financial Process Exchange (FPX) payment service. At the same time, the Group assisted five peer banks in Southeast Asia to apply for indirect participant qualification in the Cross-border Interbank Payment System (CIPS), participated in opening RMB accounts for peer banks in the Philippines and Malaysia, and successfully acquired the custodian business of a local brokerage in Thailand for its Qualified Foreign Institutional Investor (QFII) assets. The Brunei Branch's cross-border finance business and cross-border RMB settlement volume recorded significant growth, maintaining the leading position among its peers in the local market. During the period, the Group completed the relocation and business commencement of the Central Park Sub-Branch of Jakarta Branch (formerly known as the Melawai Sub-Branch), and proceeded with other branch relocations as planned. In order to further enhance its Southeast Asian regional operations, it steadily centralised and gradually accelerated the relocation of its regional operations to the Regional Operation Centre in Nanning, Guangxi.

The Group's Southeast Asian entities* recorded steady business growth. As at the end of June 2022, deposits from customers and advances to customers amounted to HK$67,291 million and HK$54,349 million respectively, up 6.8% and 3.0% from the end of last year, excluding the impact of foreign exchange rates. Driven by improvement in net interest margin and increase in income from foreign exchange business, net operating income before impairment allowances stood at HK$1,507 million, an increase of 22.8% year-on-year, excluding the impact of foreign exchange rates. As at the end of June 2022, the non-performing loan ratio was 2.53%, up 0.14 percentage points from the end of 2021.

* Referring to the nine Southeast Asian entities of BOC Thailand, BOC Malaysia, Ho Chi Minh City Branch, Manila Branch, Jakarta Branch, Phnom Penh Branch, Vientiane Branch, Brunei Branch and Yangon 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 strengthen regional capabilities

The Group continued to strengthen its regional risk management during the pandemic. It adhered to the implementation of the "Three Lines of Defence" control mechanism and provided professional guidance to its Southeast Asian entities. It closely monitored and regularly evaluated the impact of the ongoing pandemic on its Southeast Asian entities and their respective markets, and adopted responsive counter-measures to ensure robust risk management and maintain safe operations. It further strengthened its Southeast Asian entities' credit risk management by prudently calibrating their credit schemes, regularly monitoring and optimising the mix and quality of their credit portfolios, and enhancing ad-hoc risk reviews and non-performing loan evaluation, restructuring, collection and recovery, so as to ensure stable asset quality and strengthen the synergistic mechanism between business development and risk management. Moreover, it continuously enhanced its Southeast Asian entities' risk management capabilities in market risk, interest rate risk and liquidity risk to ensure their operations were in compliance with local regulatory requirements, and made use of system and technical upgrades to further strengthen risk management and control capabilities in compliance, anti-money laundering and anti-fraud.

According to World Bank predictions, most Southeast Asian countries will experience a stronger economic recovery following the increase in vaccination rates and relaxation of pandemic containment measures. The overall prospects of the Southeast Asian region remain positive, with numerous development opportunities ahead. The establishment of the Bilateral Comprehensive Strategic Partnership will create tremendous business opportunities and great potential for China and Southeast Asian countries to collaborate in different fields, including but not limited to RCEP, infrastructure interconnectivity and the digital economy.

DIGITAL TRANSFORMATION DEVELOPMENT

In the first half of 2022, the Group continuously improved the core support capacity of its technological foundations, pushed forward digital transformation and established a robust mechanism to optimise workflows, so as to promote high-quality and sustainable development. Aligned with its five-year digital transformation plan, the Group upheld its customer-centric philosophy and deepened digital transformation driven by data, intelligence and ecologies. It facilitated the development of ecological, open and scenario-based banking services, integrated its products and services, and provided seamless processes. At the same time, the Group refined its policies and regime related to digitalisation, optimised agile methodologies, deepened technological empowerment, cultivated digital talents and fostered an innovative culture, thus providing its customers with high-quality digital services and experiences while laying a solid foundation for its long-term development.

Actively developing open banking and expanding e-payment business

The Group actively promoted open banking services, drew on different customer groups and ecologies to construct innovative business models, consolidated its open banking ecosystems and accelerated data interconnection, so as to achieve mutual growth through collaboration. It launched the third phase of Open API applications related to corporate and personal customers to meet the requirements of different customers, introducing more than 100 Open APIs with a peak daily usage recording a significant year-on-year growth of 291%. In addition, the Group launched more than 100 corporate APIs for existing corporate customers, covering a range of services and businesses, including payment, supply chain, enquiry, payment collection, treasury and factoring. As a result, it achieved a market-leading position in terms of API quantity and was able to enhance the user experience of corporate customers. It enhanced its financial services reach in the local market through the use of innovative fintech in scenario-based applications, including its major home purchase, education and wellness ecosystems. The Group stepped up its efforts to further promote green buildings and encourage low-carbon living through educational activities jointly organised with the Hong Kong Green Building Council. Its Home Expert mobile application has been downloaded around 150,000 times, up 6.1% from the previous year-end, and the number of instant mortgage applications made through the application during the period reached around 7,000. In respect of its education ecosystem, the Group enhanced stickiness of users and deepened its business relationships with all stakeholders so as to increase its market share. During the period, the number of e-payment transactions at universities reached 180,000, and 17 entities and 21 schools were added as cooperating institutions. Regarding its wellness ecosystem, the total number of "Live Young" reward programme users exceeded 50,000 and external partners reached 50 as at the end of June 2022. The Group continuously used innovative technology and aligned with the latest digitalisation trends in consumer spending and business models to provide customers and merchants with ease and convenience when making and receiving digital payments, thus contributing to the development of mobile payments in the local market. During the period, BoC Pay participated as one of the operators of the HKSAR Government's Consumption Voucher Scheme (Phase II) ("CVS"), offering customers a variety of rebates and promotions while providing integrated payment collection services to BoC Bill merchants, thus facilitating SMEs' digital transformation and helping them to capture business opportunities from the CVS. All of the above contributed to Hong Kong's economic recovery. During Chinese New Year, the Group optimised its e-LaiSee service, with the total amount of electronic red packets distributed through mobile banking and BoC Pay increasing by nearly 40% year-on-year. As at the end of June 2022, the number of BoC Pay users increased by 9% from the end of the prior year, reaching over a million customers in total. Meanwhile, the Group recorded a year-on-year increase of 9% and 6% in the total transaction volume of BoC Pay and the total settlement amount of BoC Bill respectively.

Facilitating the integration of personal and corporate banking services and products through mobile banking

The Group strengthened integration between products and services along the value chain, with the aim of providing its customers with one-stop product and service solutions. Grasping the integrated needs of corporate customers that underpin its existing products, it launched an exclusive online loan application service for corporate clients that enables them to submit loan applications by entering information and uploading documents through online platforms, including iGTB NET and iGTB MOBILE. The Group expanded the service coverage of its iGTB platform to eight Southeast Asian countries, including Thailand, Malaysia, Vietnam, the Philippines, Cambodia, Laos, Brunei and Myanmar, and launched more than 70 online products and functions with a view to providing a full range of digital corporate financial services to local enterprises and corporates with business in the region while also enhancing the operational efficiency of its regional businesses. To further enhance service experience for its personal customers, it endeavoured to offer end-to-end services featuring a seamless omnichannel experience. During the period, the Group implemented around 50 functional enhancements to its mobile banking, including new features for trading, registration services and user interface design. In line with young customers' preference for digital banking, the Group constantly optimised the mobile banking experience and introduced various digital wealth planning, investment and insurance services, with the aim of aligning the financial needs and lifestyles of the younger generation.

Moving towards intelligent operations that drive operational efficiency

The Group accelerated the expansion of intelligent technology applications and further enhanced its Optical Character Recognition (OCR) technology so as to improve data input and processing efficiency. It stepped up efforts to promote digitalised operations and incorporated ESG elements into its business processes, including reinforcing paperless green operations. At the same time, the Group pushed forward the expansion of the Regional Operation Centre in Nanning, Guangxi, so as to achieve a more cost-effective operating model. It introduced a variety of agile tools, including those related to agile project management, content collaboration and automation, to improve staff experience and operational efficiency. It also hosted the "BOCHK Challenge 2021-22" with the theme of "Take the Lead, Drive the Future". Co-organised by the HKMA and Hong Kong Science and Technology Parks Corporation, this attracted nearly 500 tertiary students and members of start-up companies to participate in groups and explore groundbreaking business models with the aim of enhancing customers' digital experiences and improving banks' operational efficiency.

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 to ensure 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 comprehensive risk and 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 senior management is responsible for the implementation of comprehensive risk management and various types of risk management. The Chief Executive ("CE") is responsible for managing the Group's comprehensive and various types of risks, and approving material risk exposures or transactions within his authority delegated by the Board of Directors. The Deputy Chief Executives ("DCEs") assist the CE in fulfilling his responsibilities on the day-to-day management of various types of risk, and are responsible for approving material risk exposures or transactions within their authorities delegated by the CE. The Chief Risk Officer ("CRO") together with the Deputy Chief Executive in charge of legal, compliance, operational risk and anti-money laundering assist the CE in fulfilling his responsibilities on day-to-day management of various types of risks and internal control; 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 and responsible for reviewing material risk exposures or transactions within the delegated authority. In accordance with the principle of setting the hierarchy of risk management policies approved by the Board, senior management is responsible for approving the detailed risk management policies of their 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 subjected 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, etc. 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 or counterparty. The Group monitors changes to every counterparties 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, the obligor ratings or external credit ratings 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, loan commitments and financial guarantees are classified in one of the three stages.

Stage 1: if the financial instruments are not credit-impaired during origination and their credit risk has not increased significantly since origination, and the impairment allowance is measured at an amount up to 12-month ECL;

Stage 2: if the financial instruments are not credit-impaired during origination but their credit risk has increased significantly since origination, and the impairment allowance is measured at an amount equal to the lifetime ECL;

Stage 3: if the financial instruments are credit-impaired and their future cash flows of that financial instruments are adversely affected by one or more events, and the impairment 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 Internal Ratings-Based ("IRB") rating, low credit risk threshold and the watchlist.

The customer credit ratings in the internal model are classified into 27 grades. The lowest (27th) credit grading equates to defaulted customers while the others are assigned to non-defaulted customers. The quantitative and qualitative criteria considered in determining significant credit deterioration include:

MANAGEMENT DISCUSSION AND ANALYSIS

Quantitative criteria

- Failure to make payments of principal or interest 30 days after the contractual due dates;
- At the reporting date, the credit risk is deemed to increase significantly when the remaining lifetime PD rises by more than a certain range from initial recognition, reflected as drop in credit rating by corresponding level according to the different PD at initial recognition.

Qualitative criteria

- Significant adverse change in debtor's operations or financial status;
- Customers with sign of credit deterioration are put into watchlist for staging review.

The Group leverages the parameters implemented under Basel II 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.

The Baseline scenario is prepared by our Economics & Strategic Planning Department. Historical data, economic trend, external forecast from governmental and non-governmental organisation, etc. are also used as benchmarks to ensure the scenario is reasonable and supportable. For the Good and Bad scenarios, the Group makes reference to the historical macroeconomics data.

The core macroeconomic factor in the major countries/regions the Group operates such as Gross Domestic Product growth, and other key macroeconomic factors such as Consumer Price Index, Property Price Index and Unemployment Rate are applied in the economic scenarios. These macroeconomic factors are considered to be important to the Group's ECL in statistical analysis and business opinion.

The probability weight assigned for each scenario reflects the Group's view for the economic environment, which implements the Group's prudent and consistent credit strategy of ensuring the adequacy of impairment allowance. A higher probability weight is assigned to the Baseline scenario to reflect the most likely outcome and a lower probability weight is assigned to the Good and Bad scenarios to reflect the less likely outcomes. As of June 2022, the probability weight of the Group's Baseline scenario is higher than the sum of probability weight of Good and Bad scenarios.

The core macroeconomic factor used by the Group to assess ECL:

Macroeconomic Factor	Bad Scenario	Baseline Scenario	Good Scenario
2022 Hong Kong GDP Growth	-5.88%	+2.00%	+6.77%

The calculation of ECL is affected by macroeconomic factors and economic scenarios. If more pessimistic macroeconomic factors are applied in ECL assessment or a higher probability weight is assigned to the Bad scenario, it would result in an increase in ECL. The Group reviews the macroeconomic factors used in the ECL model and the probability weight of economic scenarios on a quarterly basis according to the established mechanism.

As at 30 June 2022, the ECL will be increased by 4.06% if 5% of the probability weight is shifted from Baseline scenario to Bad scenario; and will be decreased by 2.36% if 5% of the probability weight is shifted from Baseline scenario to Good 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 three levels, and are approved by the RMC, senior management 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 ("EVE"), 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 EVE 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 and stressed 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 2022, 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 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 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) as defined under the Insurance Ordinance 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 and fund price risk, currency risk and compliance 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.

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 unpaid insurance contract 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 or issuer. Such limits are subject to review by the Management at least once a year.

MANAGEMENT DISCUSSION AND ANALYSIS

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. Management of 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.

Equity and fund price risk management

BOC Life's equity and fund 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 management framework includes managing the adverse impact due to exchange rate movement through stress test, exposure limit and risk limit.