5. Banking sector performance

The profitability of retail banks improved moderately in the first half of 2024 compared with the same period in 2023 due to higher income from investments held for trading. However, bank credit declined modestly during the review period, partly reflecting subdued credit demand amid the high interest rate environment. The classified loan ratio increased during the first half of 2024, but remained at a manageable level. Overall, the Hong Kong banking sector remained robust and resilient, underpinned by strong capital and liquidity buffers. Looking ahead, uncertainties over the future path of the US policy rate and geoeconomic fragmentation will continue to pose challenges to the Hong Kong banking sector, with the classified loan ratio expected to edge closer to the long-term historical average of 2%. Banks should stay vigilant against the impacts of these risk factors on the asset quality of their loan portfolios and continue to maintain sufficient provisioning coverage, particularly in view of the impact of the high interest rate environment on the debt servicing ability of corporates.

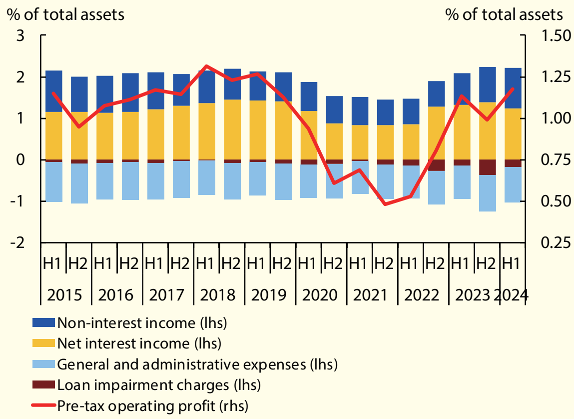
5.1 Profitability and capitalisation

Profitability

The aggregate pre-tax operating profit of retail banks[53] grew moderately by 6.2% in the first half of 2024 compared with the same period in 2023. The improvement in profit was driven by an increase in income from investments held for trading, which more than offset the decline in net interest income and increases in total operating expenses and loan impairment charges. As a result, the return on assets increased slightly to 1.18% from 1.13% (Chart 5.1).

Reflecting faster growth in interest expenses than in interest income, the net interest margin (NIM) of retail banks narrowed to 1.51% in the first half of the year compared with 1.62% for the same period last year (Chart 5.2).

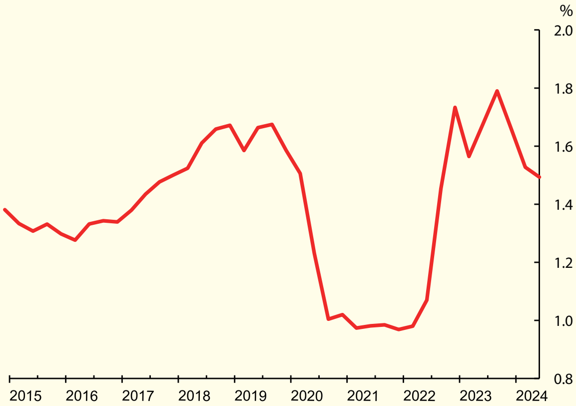
Chart 5.1
Profitability of retail banks



Note: Annualised semi-annual figures.
Source: HKMA.

53 Throughout this chapter, figures for the banking sector relate to Hong Kong offices only, unless otherwise stated.

Chart 5.2
Net interest margin of retail banks

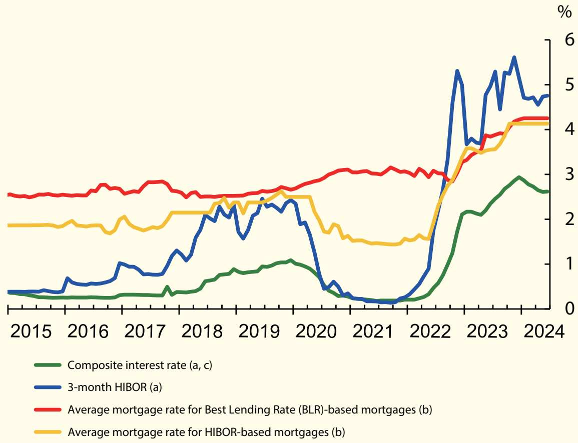


Note: Annualised quarterly figures.
Source: HKMA.

The Hong Kong dollar (HKD) interbank interest rates retreated moderately in the first half of 2024, but still stood at relatively elevated levels. For instance, the three-month Hong Kong Interbank Offered Rate (HIBOR) declined by 40 bps in the first half of 2024 to stand at 4.75% at the end June 2024 (blue line in Chart 5.3).

On the retail front, HKD deposit funding costs also decreased, in part reflecting that banks adjusted their HKD time deposits rates alongside declines in HIBORs. Reflecting a decline in both wholesale and retail funding costs, the composite interest rate (a measure of the average cost of HKD funds for retail banks) decreased by 32 bps in the first half to 2.62% at the end of June 2024 (green line in Chart 5.3).

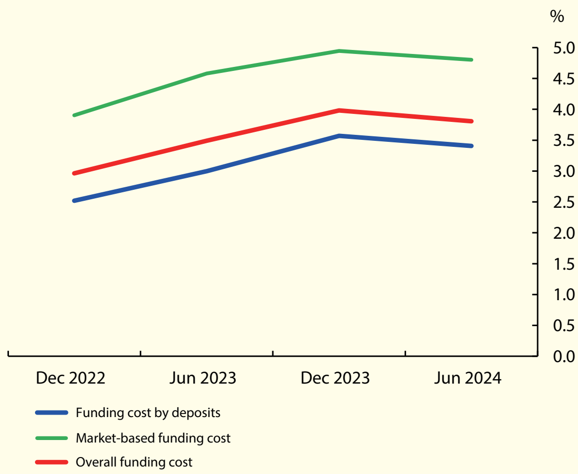
Chart 5.3
Interest rates



Notes:
(a) End-of-period figures.
(b) Period-average figures for newly approved loans.
(c) Since June 2019, the composite interest rate has been calculated based on the new local "interest rate risk in the banking book" (IRRBB) framework. As such, figures from June 2019 onwards are not strictly comparable with those of previous months.
Sources: HKMA and staff estimates.

More broadly, the overall HKD and US dollar funding cost for licensed banks in Hong Kong edged down by 17 bps in the first half of 2024 (red line in Chart 5.4).

Chart 5.4
Hong Kong dollar and US dollar funding costs of licensed banks

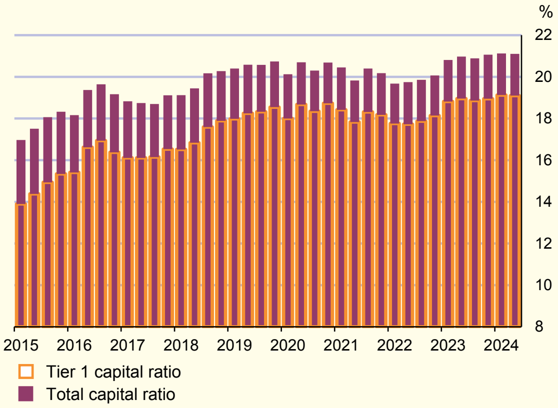


Note: Since June 2019, licensed banks not exempted from the new local IRRBB framework report under the new framework, while exempted licensed banks continue to report under the existing interest rate risk exposure framework. The overall funding cost has been calculated as the weighted averages of the respective funding costs for these two groups of licensed banks. As such, figures from June 2019 onwards are not directly comparable with those of previous periods.
Source: HKMA.

Capitalisation

Capitalisation of the Hong Kong banking sector continued to be strong and well above international minimum standards. The consolidated total capital ratio of locally incorporated authorized institutions (AIs) stood at a high level of 21.1% at the end of June 2024 (Chart 5.5), well above the international minimum requirement of 8%. The Tier 1 capital ratio and the Common Equity Tier 1 (CET1) capital ratio were 19.1% and 17.5% respectively. In addition, the non-risk-based Leverage Ratio[54] of locally incorporated AIs stood a healthy level of 7.9% at the end of June 2024, exceeding the statutory minimum of 3%.

Chart 5.5
Capitalisation of locally incorporated authorized institutions



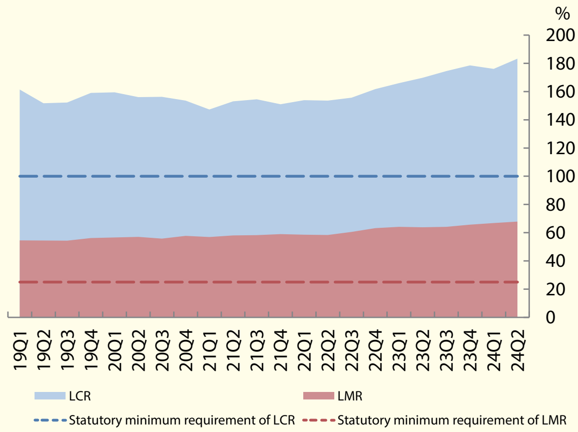
Note: Consolidated basis.
Source: HKMA.

5.2 Liquidity and interest rate risks

Liquidity and funding

The liquidity positions of the banking sector, as measured by the Basel III Liquidity Coverage Ratio (LCR),[55] remained sound during the review period. The average LCR of category 1 institutions and the average Liquidity Maintenance Ratio (LMR) of category 2 institutions were 183.3% and 67.9% in the second quarter of 2024 respectively (Chart 5.6), staying well above their corresponding statutory minimum requirement of 100% and 25%.

Chart 5.6
Liquidity Coverage Ratio and Liquidity Maintenance Ratio



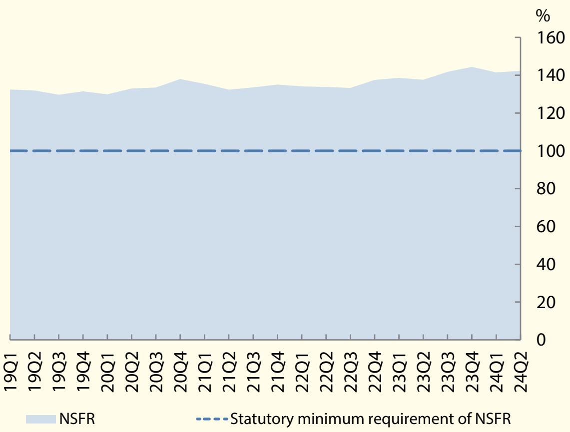
Notes:
1. Consolidated basis.
2 Quarterly average figures.
Source: HKMA.

[54] The Basel III non-risk-based leverage ratio requirement acts as a "backstop" to restrict the build-up of excessive leverage in the banking sector. For details, see Banking (Capital) Rules (Cap. 155L).

[55] The Basel III LCR requirement is designed to ensure that banks have sufficient high-quality liquid assets to survive a significant stress scenario lasting 30 calendar days. In Hong Kong, AIs designated as category 1 institutions adopt the LCR; while category 2 institutions adopt the LMR. For details, see the HKMA's Supervisory Policy Manual (SPM) LM-1, "*Regulatory Framework for Supervision of Liquidity Risk*".

Funding positions of AIs remained stable. The average Net Stable Funding Ratio (NSFR) of category 1 institutions remained at a high level of 142.3% in the second quarter of 2024 (Chart 5.7), well above the statutory minimum requirement of 100%. The average Core Funding Ratio of category 2A institutions also stayed at a high level of 174.7%, exceeding the statutory minimum requirement of 75%. The strong liquidity buffers and stable funding positions of AIs suggest that the Hong Kong banking sector is well positioned to withstand liquidity shocks.

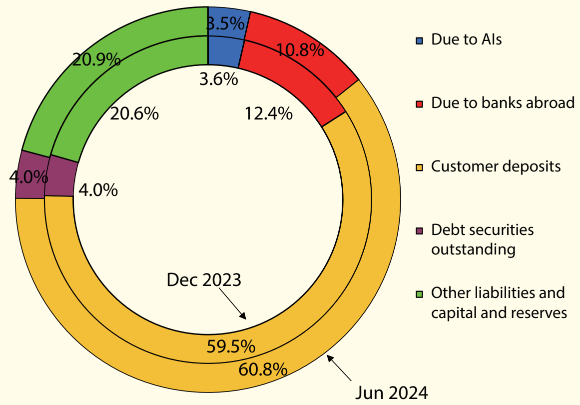
Chart 5.7
Net Stable Funding Ratio



Note: Consolidated basis.
Source: HKMA.

Customer deposits continued to be the primary source of funding for AIs, underpinning a stable funding structure in the banking system. At the end of June 2024, the share of customer deposits to all AIs' total liabilities had increased slightly to 60.8% compared to 59.5% six months earlier (Chart 5.8).

Chart 5.8
The liability structure of all authorized institutions

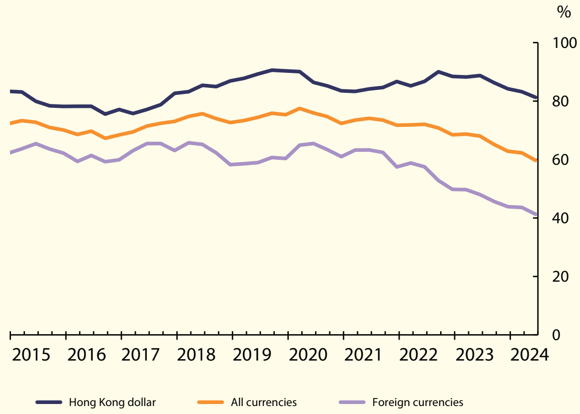


Notes:
1. Figures may not add up to total due to rounding.
2. Figures refer to the percentage of total liabilities, including capital and reserves.
3. Debt securities comprise negotiable certificates of deposit and all other negotiable debt instruments.

Source: HKMA.

The average all-currency loan-to-deposit (LTD) ratio of all AIs lowered to 59.7% at the end of June 2024 from 62.8% at the end of December 2023 (Chart 5.9). The decrease in the ratio was attributable to a decrease in total lending while total deposits increased during the same period. The HKD and foreign-currency LTD ratios declined to 81.3% and 41.3% at the end of June 2024 respectively, compared with 84.2% and 43.9% six months ago.

Chart 5.9
Average loan-to-deposit ratios of all authorized institutions



Note: End-of-quarter figures.
Source: HKMA.

Interest rate risk

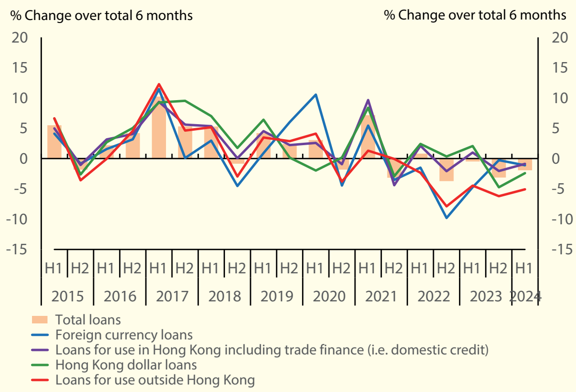
The interest rate risk exposure of banks in Hong Kong remained at a relatively low level in the second quarter of 2024. Under a hypothetical shock of an across-the-board 200-basis-point increase in HKD and US dollar interest rates,[56] the economic value of locally incorporated licensed banks' interest rate positions is estimated to decrease by an amount equivalent to 2.33% of their total capital base at the end of June 2024.[57] This relatively moderate impact suggests that banks in Hong Kong should be well positioned to withstand interest rate shocks.

5.3 Credit risk

Overview

With borrowing costs remaining high, demand for bank credit continued to be weak in the first half of 2024. On a half-yearly basis, the total loans and advances of all AIs declined by 1.9% in the first half of 2024 (Chart 5.10), driven by decreases in both domestic loans (comprising loans for use in Hong Kong and trade financing) and loans for use outside Hong Kong. Specifically, domestic loans and loans for use outside Hong Kong decreased further by 0.9% and 5.1% during the first half of 2024, after recording 2.0% and 6.2% declines respectively in the second half of 2023.

Chart 5.10
Loan growth



Note: Since December 2018, figures for loans for use in or outside Hong Kong have been restated to reflect AIs' reclassification of working capital loans. The reported percentage changes over six months for 2019 and onwards are calculated based on the reclassified loan data, while the historical percentage changes until the second half of 2018 are calculated based on the data without such reclassification.
Source: HKMA.

56 The impact of the interest rate shock refers to its impact on the economic value of the banking and trading book, expressed as a percentage of the total capital bases of banks.

57 This estimation does not take into account the effects of any mitigating actions taken by banks in response to the shock. The impact will be smaller if mitigating action is taken.

Credit demand is expected to remain subdued in the near term. According to the results of the HKMA Opinion Survey on Credit Condition Outlook in June 2024, 77% of the surveyed AIs expect loan demand to be the same in the coming three months (Table 5.A), while 17% respondents expect weaker loan demand.

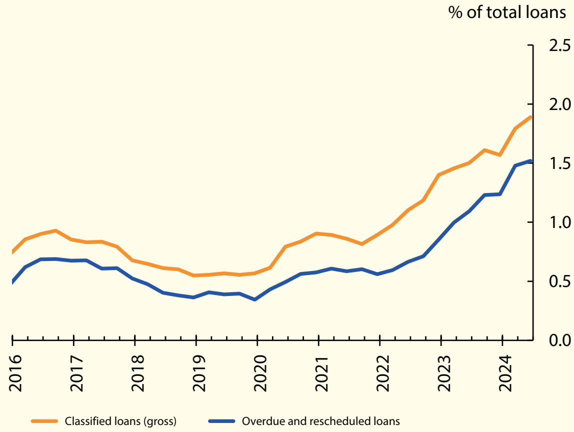
Table 5.A
Expectations of loan demand in the next three months

% of total respondents	Sep-23	Dec-23	Mar-24	Jun-24
Considerably higher	0	0	0	0
Somewhat higher	20	17	10	7
Same	57	70	77	77
Somewhat lower	20	10	13	17
Considerably lower	3	3	0	0
Total	100	100	100	100

Note: Figures may not add up to total due to rounding.
Source: HKMA.

The asset quality of banks' loan portfolios deteriorated in the first half of 2024. The gross classified loan ratio (CLR) of all AIs rose to 1.89% at the end of June 2024 from 1.57% at the end of 2023. Similarly, the ratio of overdue and rescheduled loans of all AIs rose from 1.24% at the end of 2023 to 1.52% at the end of June 2024 (Chart 5.11). Despite this deterioration, the asset quality of the Hong Kong banking sector remained healthy.

Chart 5.11
Asset quality of all authorized institutions



Note: Classified loans are those loans graded as "sub-standard", "doubtful" or "loss".
Source: HKMA.

Household exposure[58]

Household debt remained virtually unchanged in the first half of 2024, after growing by 0.5% in the second half of 2023 (Table 5.B). A breakdown of the data shows that the growth of residential mortgage loans remained steady at 0.8% in the first half of 2024, compared to the second half of 2023. Over the same period, personal loans contracted further by 1.7%, after decreasing by 0.3% in the second half of 2023.

[58] Loans to households constitute lending to professional and private individuals, excluding lending for other business purposes. Mortgages account for the major proportion of household loans, while the remainder comprises mainly loans to private banking and wealth management customers secured by financial assets, credit card advances and unsecured personal loans. At the end of June 2024, household lending accounted for 36.7% of domestic lending. In this section, household debt is also referred to as loans to households.

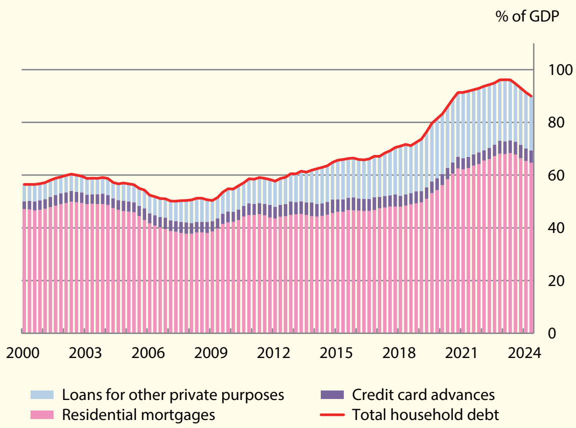
Table 5.B
Half-yearly growth of loans to households by all authorized institutions

(%)	2021 H1	2021 H2	2022 H1	2022 H2	2023 H1	2023 H2	2024 H1
Residential mortgages	4.0	5.7	2.1	1.9	2.6	0.8	0.8
Personal loans	5.3	1.6	–2.5	–2.2	1.4	–0.3	–1.7
of which:							
Credit card advances	–0.4	8.1	–5.3	14.4	0.2	10.5	-5.3
Loans for other private purposes	6.4	0.4	–2.0	–5.1	1.6	–2.6	–0.9
Total loans to households	4.4	4.4	0.7	0.7	2.2	0.5	0.0

Source: HKMA.

The household debt-to-GDP ratio decreased to 90.0% in the first half of 2024 (Chart 5.12), from 93.0% in the second half of 2023. This 3.0-percentage-point decrease in the household debt-to-GDP ratio was driven primarily by the expansion of Hong Kong's nominal gross domestic product (GDP) during the period, while household debt remained virtually unchanged and made a negligible contribution to the ratio.

Chart 5.12
Household debt-to-GDP and its components



Notes:
1. Only borrowings from AIs are covered.
2. GDP refers to the annualised GDP, which is the sum of the quarterly GDP in the trailing four quarters.
3. Since December 2018, the figure for household debt has been restated to reflect AIs' reclassification of their working capital loans.

Source: HKMA.

Due to its simplicity, the household debt-to-GDP ratio is a widely-used measure for gauging the financial soundness of households. When interpreting this ratio, it is important to take into account that: (i) the denominator of the ratio uses nominal GDP as a proxy for household income for ease of comparison across economies, and is thus not the actual income of the households with borrowings. Therefore, the household debt-to-GDP ratio does not reflect the actual debt servicing burden of households in the economy; and (ii) the numerator takes into account only the gross debts of households (rather than the net debts, which also reflect household assets).

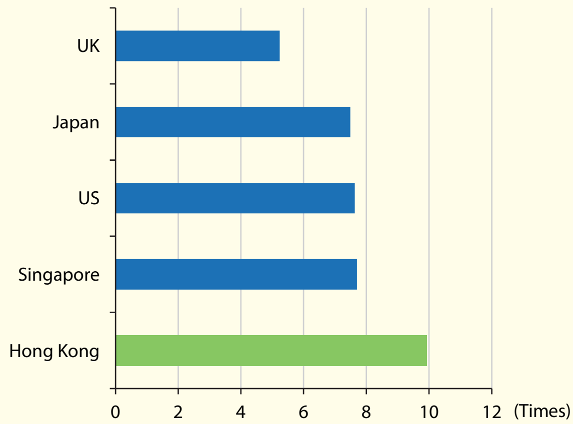
Consequently, a full and objective assessment of the risks associated with household debt requires other factors to be considered, including the actual debt servicing ratio and the asset side of the household balance sheet. In fact, the average debt servicing ratio of new mortgages remained at a healthy level of 40.5% in July 2024. Household net worth has also stayed at a high level. Specifically, both the net worth-to-liabilities ratio and the safe asset-to-liabilities ratio of Hong Kong's household sector remained high at 9.9 times and 2.9 times respectively in 2022 (Charts 5.13 and 5.14), much higher than those of most other developed economies. This suggests that Hong Kong's households, on aggregate, are financially sound and have a strong buffer to cushion against potential financial and economic shocks.

The HKMA has been closely monitoring household indebtedness and regularly collects relevant data from the banks. The majority of household debts are residential mortgage loans, which are governed by the macroprudential policy framework, as well as collateralised loans to wealth management customers against financial assets. Coupled with the fact that household net worth has stayed at a high level, the HKMA considers that the household balance sheet being healthy and the associated credit risk manageable.

For residential mortgages, the average loan-to-value (LTV) ratio and the average debt servicing ratio of newly approved mortgage loans have stayed at healthy levels following several rounds of countercyclical macroprudential measures introduced by the HKMA since 2009.[59] For personal loans to wealth management customers secured by financial assets, the HKMA requires banks to adopt prudent and effective credit risk management measures for this type of business. Such measures include imposing a cap on LTV ratios for financial assets pledged as collateral, issuing prompt margin calls, and adopting forced liquidation mechanisms where necessary.

The HKMA also requires banks to adopt prudent underwriting standards for credit card advance and unsecured personal loan businesses. In reviewing credit applications, banks should understand borrowers' credit and financial conditions and carefully assess their repayment ability. As for post-lending, banks should implement effective monitoring that includes regular assessment of the asset quality of their loan portfolios.

Chart 5.13
Household net worth-to-liabilities ratio for selected economies

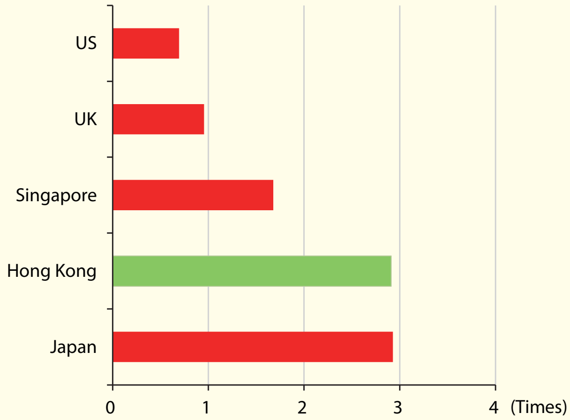


Note: Figures for Singapore, the UK and the US refer to end-2023, while figures for other economies (including Hong Kong) refer to end-2022.

Sources: Statistical agencies or central banks of selected economies, and HKMA staff estimates.

[59] After taking into account a range of factors including recent changes in market conditions, the HKMA adjusted the countercyclical macroprudential measures and other related supervisory requirements in February 2024, which included increasing the maximum LTV ratios for both residential and non-residential properties, and suspending the interest rate stress testing requirement for mortgage loans. For details, see the press release "Countercyclical Macroprudential Measures for Property Mortgage Loans" on 28 February 2024 (https://www.hkma.gov.hk/eng/news-and-media/press-releases/2024/02/20240228-3/). Further technical adjustments to the countercyclical macroprudential measures were made in June 2024, which broadened the applicability of the measures to include mortgage applications for residential properties under construction for self-occupation where the provisional sale and purchase agreements were signed before 28 February 2024 and the properties are scheduled for completion on or after 28 February 2024. For details, see the press release "Countercyclical Macroprudential Measures for Property Mortgage Loans" on 14 June 2024 (https://www.hkma.gov.hk/eng/news-and-media/press-releases/2024/06/20240614-4/).

Chart 5.14
Safe assets-to-liabilities ratio for selected economies

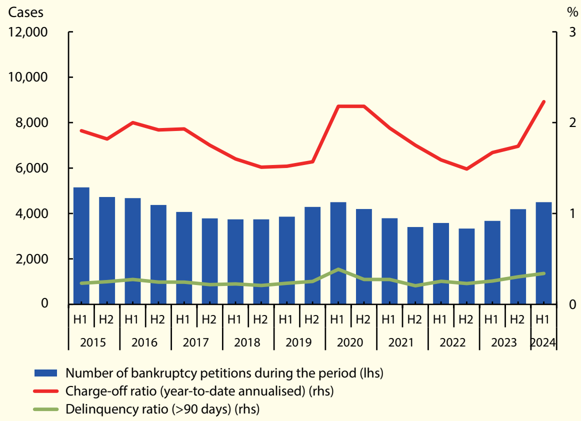


Note: Safe assets comprise deposits, as well as currencies if data is available. In the case of Hong Kong, safe assets refers to deposits only. Figures for Singapore, the UK and the US refer to end-2023, while figures for other economies (including Hong Kong) refer to end-2022.

Sources: Statistical agencies or central banks of selected economies, and HKMA staff estimates.

For unsecured household exposure, credit risk remained contained during the review period despite signs of deterioration. The number of bankruptcy petitions presented increased by around 7.4% in the first half of 2024 compared with the preceding six months. The year-to-date annualised credit card charge-off ratio rose from 1.74% in the fourth quarter of 2023 to 2.23% in the second quarter of 2024, and the delinquency ratio also increased slightly to 0.34% in June 2024 (Chart 5.15).

Chart 5.15
Charge-off ratio and delinquency ratio for credit card lending and bankruptcy petitions



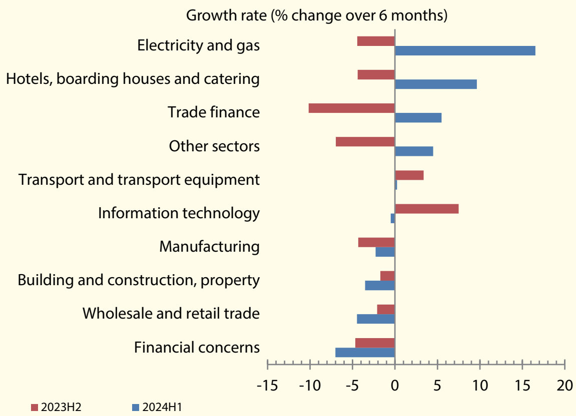
Sources: Official Receiver's Office and HKMA.

Corporate exposure[60]

Domestic corporate loans continued to contract by 1.4% during the first half of 2024, following a decline of 3.4% in the second half of 2023. Although there was growth in lending to some sectors in the first half of 2024, such as the electricity and gas and the hotels and catering sectors, loans to some other sectors, such as the wholesale and retail trade, building and construction, and property sectors, continued to decline (Chart 5.16).

[60] Excluding interbank exposure. At the end of June 2024, the share of corporate loans in domestic lending was 63.2%.

Chart 5.16
Growth in domestic corporate loans by selected sectors



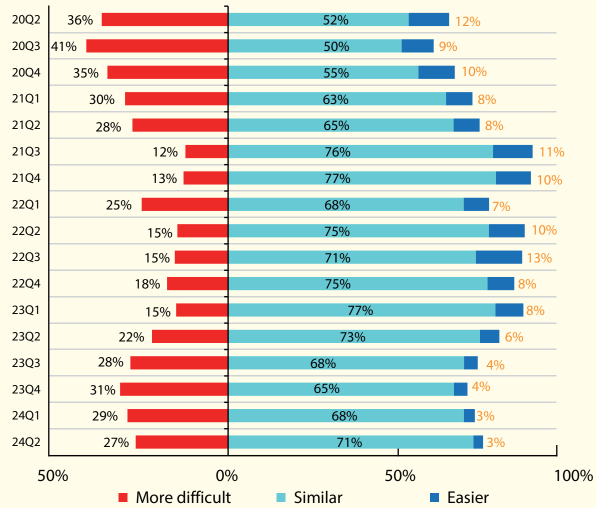
Source: HKMA.

The demand-side survey on the credit conditions of small and medium-sized enterprises (SMEs) showed that SMEs' credit conditions remained stable. The SMEs' perception of banks' credit approval stance improved in the second quarter of 2024, with 27% of respondents perceiving more difficult credit approval (Chart 5.17).

Of respondents with existing credit lines, 2% reported a "tighter" stance by banks in the second quarter of 2024, significantly down from 12% in the previous quarter (Chart 5.18). As a tighter stance on existing credit lines denotes a range of possible measures or arrangements (e.g. reducing unused and used credit lines, raising the interest rate, imposing additional collateral requirements, or shortening the loan tenor), respondents' indication of banks' stance on existing credit lines may not directly reflect banks' actual supply of credit to SMEs.

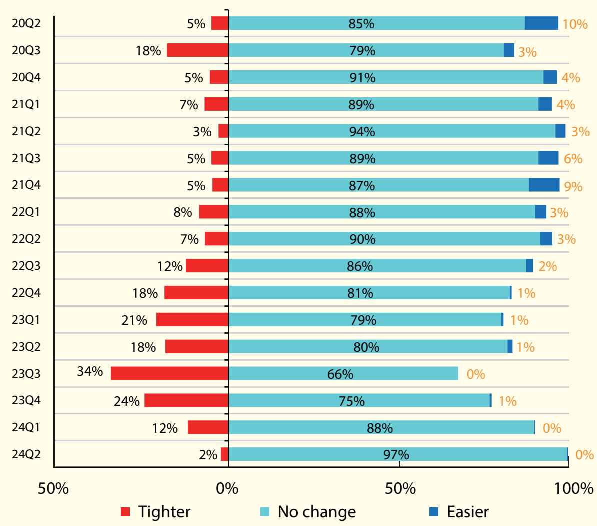
The HKMA has encouraged banks to be sympathetic in supporting the financing needs of corporates which are facing cash flow pressure, subject to prudent risk-management principles. In March 2024, the HKMA, together with the Banking Sector SME Lending Coordination Mechanism, announced nine support measures to assist SMEs in obtaining bank financing and to support their expansion, upgrade and transformation. In August 2024, the HKMA and the Hong Kong Association of Banks established a joint Taskforce on SME Lending to further strengthen the related work at both the individual case and the industry levels.

Chart 5.17
SMEs' perception of banks' credit approval stance relative to six months ago



Note: Excluding respondents who answered "no idea/don't know".
Source: HKMA.

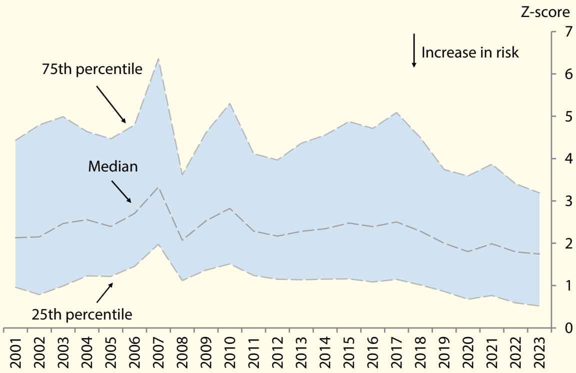
Chart 5.18
SMEs' reported change in banks' stance on existing credit lines



Note: The data covers only respondents with existing credit lines.
Source: HKMA.

The latest available financial information indicates some signs of deterioration in the financial health of listed corporates. Based on accounting data for all non-financial corporates listed in Hong Kong up to the end of 2023, the Altman's Z-score (a default risk measure for non-financial corporates based on accounting data) declined slightly (Chart 5.19).

Chart 5.19
Altman's Z-score of listed non-financial corporates in Hong Kong

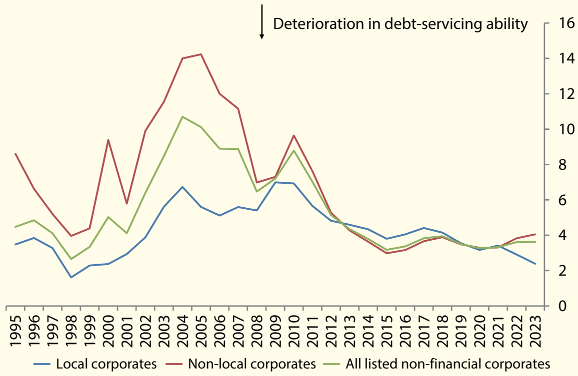


Notes:
1. All non-financial corporates listed on the Hong Kong Stock Exchange have been selected.
2. Figures are calculated based on information up to mid-August 2024.

Source: HKMA staff calculations based on estimates compiled by Bloomberg.

Although the debt servicing ability of listed non-financial corporates, as indicated by the weighted average interest coverage ratio (ICR), remained stable overall, the ICR of local corporates continued to fall amid the high interest rate environment (Chart 5.20). Meanwhile, corporate leverage, as indicated by the weighted average debt-to-equity ratio, remained largely stable in 2023 (Chart 5.21).

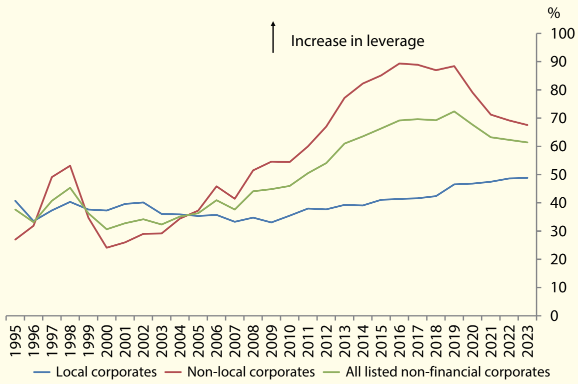
Chart 5.20
Interest coverage ratio of listed non-financial corporates in Hong Kong



Notes:
1. Weighted average figures.
2. The ICR is calculated by dividing the earnings before interest and tax (EBIT) by total interest expenses. A lower value indicates a deterioration in debt servicing ability.
3. All non-financial corporates listed on the Hong Kong Stock Exchange are selected. Local and non-local corporates refer to listed firms that are domiciled in and outside Hong Kong, respectively.
4. Figures are calculated based on information up to mid-August 2024.

Source: HKMA staff estimates based on data from Bloomberg.

Chart 5.21
Leverage ratio of listed non-financial corporates in Hong Kong



Notes:
1. Weighted average figures.
2. The leverage ratio is defined as the ratio of debt to equity. A higher value indicates higher leverage.
3. All non-financial corporates listed on the Hong Kong Stock Exchange are selected. Local and non-local corporates refer to listed firms that are domiciled in and outside Hong Kong, respectively.
4. Figures are calculated based on information up to mid-August 2024.

Source: HKMA staff estimates based on data from Bloomberg.

Mainland-related lending and non-bank exposures

The banking sector's total Mainland-related lending decreased by 4.4% to HK$4,042 billion (13.0% of total assets) at the end of June 2024, from HK$4,226 billion (13.7% of total assets) at the end of 2023 (Table 5.C). Other non-bank exposures decreased by 0.5% to HK$2,000 billion (Table 5.D). The gross CLR of Mainland-related lending of all AIs[61] increased to 2.78% at the end of June 2024 from 2.58% at the end of 2023.

Table 5.C
Mainland-related lending

HK$bn	Sep 2023	Dec 2023	Mar 2024	Jun 2024
Mainland-related loans	4,291	4,226	4,140	4,042
Mainland-related loans excluding trade finance	4,025	3,978	3,891	3,797
Trade finance	266	247	249	245
By type of AIs:				
Overseas incorporated AIs	1,516	1,490	1,399	1,373
Locally incorporated AIs*	2,010	1,964	1,968	1,886
Mainland banking subsidiaries of locally incorporated AIs	765	771	773	783
By type of borrowers:				
Mainland state-owned entities	1,822	1,841	1,798	1,779
Mainland private entities	1,300	1,256	1,248	1,199
Non-Mainland entities	1,169	1,128	1,093	1,063

Notes:
1. *Including loans booked in Mainland branches of locally incorporated AIs.
2. Figures may not add up to the total due to rounding.

Source: HKMA.

Table 5.D
Other non-bank exposures

HK$bn	Sep 2023	Dec 2023	Mar 2024	Jun 2024
Negotiable debt instruments and other on-balance sheet exposures	1,409	1,468	1,452	1,466
Off-balance sheet exposures	532	542	508	534
Total	**1,941**	**2,011**	**1,959**	**2,000**

Note: Figures may not add up to the total due to rounding.
Source: HKMA.

Macro stress testing of credit risk[62]

Results from the latest macro stress testing on retail banks' credit exposure suggest the Hong Kong banking sector remains resilient and should be able to withstand severe macroeconomic shocks. Table 5.E presents a simulated future credit loss rate of retail banks in the second quarter of 2026 under four specific macroeconomic shocks[63] and one corporate sector shock using information up to the second quarter of 2024.

In stressed scenarios, the average expected credit losses two years after different macroeconomic shocks are estimated to be moderate, ranging from 1.07% (Interest rate shock and Property price shock) to 1.55% (Hong Kong GDP shock).

Taking into account tail risk, the Value-at-risk (VaR) at 99% confidence level (CL) of bank credit loss would increase in all four scenarios, ranging from 2.82% (Property price shock) to 3.88% (Hong Kong GDP shock).

61 Figures cover AIs' Hong Kong offices and Mainland branches and subsidiaries.

62 Macro stress testing refers to a range of techniques used to assess the vulnerability of a financial system to "exceptional but plausible" macroeconomic shocks. The credit loss estimates presented in this report are obtained based on a revised framework presented in Box 4 of the *Half-Yearly Monetary and Financial Stability Report* published in September 2023. All estimates in the current report are not strictly comparable to estimates from previous reports.

63 These shocks are calibrated by referencing to the extreme episodes observed in the past. For instance, the Hong Kong GDP shock scenario replicates the severe economic downturn recorded between the third quarter of 2019 and the second quarter of 2020.

Table 5.E
The mean and value-at-risk statistics of simulated credit loss distributions[1]

Scenario	Estimated credit loss (% of the loan portfolio) Mean	VaR at 99% CL
Baseline[2]	0.82	2.17
Stressed scenarios[3]		
Hong Kong GDP shock	1.55	3.88
Property price shock	1.07	2.82
Interest rate shock	1.07	2.83
Mainland GDP shock	1.33	3.29
Corporate Shock	1.46	3.54

Notes:
1. The assessments assume the economic conditions in 2024 Q2 as the current environment. The Monte Carlo simulation method is adopted to generate the credit loss distribution for each scenario.
2. Baseline scenario: no shock throughout the two-year period.
3. Stressed scenarios:
   Hong Kong GDP shock: reductions in Hong Kong's real GDP by 3.2%, 3.6%, 9.3% and 9.4% respectively in each of the four consecutive quarters starting from 2024 Q3.
   Property price shock: Reductions in Hong Kong's real property prices by an average of 12% in each of the four consecutive quarters starting from 2024 Q3.
   Interest rate shock: A rise in real interest rates by 0.1, 0.9, 1.8 and 3.2 percentage points respectively each of the four consecutive quarters starting from 2024 Q3.
   Mainland GDP shock: An average year-on-year real GDP growth rate of 2% for the four consecutive quarters starting from 2024 Q3.
   Corporate shock: Liquidity and earning shocks on listed corporates in Hong Kong are assumed such that all short-term debts of the corporates could not be rolled over together with a reduction in revenue for the corporates by 50% year-on-year in the first year of the stressed period. The impact of these shocks on the median default probability of corporates is estimated to serve as an input for the stress-testing exercise.

Source: HKMA staff estimates.

5.4 *Risks and resilience*

As shown in the previous sections, the Hong Kong banking sector remained resilient during the review period. Nonetheless, a number of downside risk factors could present challenges for the Hong Kong banking sector on multiple fronts going forward.

First, uncertainty over the future path of the US policy rate remains a significant risk factor. While the US Federal Reserve has begun lowering US policy interest rate in September 2024, the timing and size of any future subsequent changes, as well as their impact on domestic interest rates, remain uncertain. Uncertainties surrounding future US and domestic interest rates could pose pressures on banks' management of funding costs, which in turn could weigh on their profitability.

Banks should also stay alert in their credit risk management and closely monitor the financial fundamentals of corporate borrowers, particularly in the scenario where interest rates remain high for longer. While the additional cash buffers accumulated by corporates in Asia during the pandemic have helped them to absorb the impact of higher funding costs, these cash buffers have been depleting alongside a general declining trend in firms' interest rate coverage ratios. Thus, corporate borrowers could face debt servicing challenges if the current high interest rate environment persisted.

Rising geoeconomic fragmentation, including escalating trade disputes in multiple jurisdictions, is another important risk factor that warrants close monitoring. Any intensification of these disputes could increase economic fragmentations, thereby weakening the outlook for global growth.

That said, the robust capital and liquidity positions of the Hong Kong banking sector should provide strong buffers to withstand shocks arising from these risk factors.

From a medium-term perspective, recent advances in technology and the rising adoption of digital innovations in the banking industry may help enhance banks' fundamentals and performance. Based on a sample of globally listed banks and the use of textual analysis, Box 4 provides some fresh empirical evidence to support the benefits of digital innovations. Notably, banks with a higher degree of digitalisation adoption, as reflected by a textual measure derived from banks' earnings call transcripts, tend to exhibit better performance and improved market valuations than other banks.

Notwithstanding the benefits, new challenges and risks (such as cyber-security threats) will inevitably emerge as technologies continue to evolve. To harness the benefits of innovation in a safe and sustainable manner, it is essential for banks and regulators to collaborate closely to ensure that key risk management principles are upheld appropriately.

The countercyclical capital buffer for Hong Kong

The countercyclical capital buffer (CCyB) is part of the internationally agreed Basel III standards and is designed to enhance the resilience of the banking sector against system-wide risks. This buffer can be reduced in times of a downturn, allowing banks to continue providing credit to support the real economy. The latest applicable jurisdictional CCyB for Hong Kong is 1.0%.[64]

In setting the CCyB, the Monetary Authority considered a series of indicators (Table 5.F), including an "indicative buffer guide" produced by the Initial Reference Calculator (IRC). The IRC is a metric that provides a guide for the CCyB by combining information from the gap between the ratio of credit-to-GDP and its long term trend, the gap between the ratio of residential property prices to rentals and its long term trend[65], and the Positive Neutral CCyB[66]. The setting of the CCyB for Hong Kong is, however, not a mechanical exercise and the Monetary Authority will consider a broad range of reference indicators ("Comprehensive Reference Indicators") and all relevant information available in addition to the indicative buffer guide produced by the IRC.[67]

[64] For details, see the section of "Historical CCyB for Hong Kong". (https://www.hkma.gov.hk/eng/key-functions/banking/banking-legislation-policies-and-standards-implementation/countercyclical-capital-buffer-ccyb/).

[65] The credit-to-GDP gap is the gap between the ratio of credit to GDP and its long-term trend, while the property price-to-rent gap is the gap between the ratio of residential property prices to rentals and its long-term trend.

[66] The Positive Neutral CCyB, currently at 1% in Hong Kong effective from 1 April 2024, is a floor for the IRC and helps ensure the availability of sufficient buffer against possible exogenous system-wide shocks. Under the Positive Neutral CCyB approach, authorities aim for a positive CCyB when risks are judged to be neither subdued nor elevated. See https://www.bis.org/publ/bcbs_nl30.htm for more information.

[67] These include measures of bank, corporate and household leverage; debt servicing capacity; profitability, asset quality and funding conditions within the banking sector and macroeconomic imbalances.

In the latest assessment based on the first quarter data of 2024 and the Positive Neutral CCyB according to the revised IRC formula[68], the IRC signalled a CCyB of 1%. The projection based on all available data at the decision date suggests that the IRC would likely signal a CCyB of 1% when all relevant data for the second quarter of 2024 become available.

When the information drawn from the series of Comprehensive Reference Indicators and all relevant information available at the time of the decision in the third quarter of 2024 is also taken into account, the quantitative indicators suggest that overheating risks in Hong Kong are well contained. Under the framework that has incorporated the Positive Neutral CCyB, the Monetary Authority considers that it is appropriate to keep the CCyB ratio at the current level for the time being and continue to monitor the situation closely.

Table 5.F
Information related to the Hong Kong jurisdictional countercyclical capital buffer

	03-May-24	Q3-2024
Announced CCyB	1.0%	
Date effective	03-May-24	
Initial Reference Calculator	1.00%	1.00%
Basel Common Reference Guide	0.00%	0.00%
Property Buffer Guide	0.00%	0.00%
Composite CCyB Guide	0.00%	0.00%
Positive Neutral CCyB	1.00%	1.00%
Primary gap indicators		
Credit/GDP gap	–24.3%	–32.8%
Property price/rent gap	–21.5%	–21.5%

Notes:

1. The values of all CCyB guides and their respective input variables are based on public data available prior to the corresponding review/announcement date, and may not be the most recently available as of each quarter end (refer to SPM CA-B-1 for explanations of the variables). If there is a CCyB announcement, the date of the announcement is shown at the left of the respective row. Otherwise, the quarter in which a CCyB review takes place (normally close to quarter end) is shown at the left of the row.
2. Following the revised CCyB framework effective from 1 April 2024, the 2.5% cap is applied on the Composite CCyB Guide instead of the Basel Common Reference Guide and Property Buffer Guide (refer to SPM CA-B-1 for details of the formula and explanation).

Source: HKMA.

Key performance indicators of the banking sector are provided in Table 5.G.

68 Under the new CCyB framework effective from 1 April 2024, the IRC will be the higher of two constituent components: a Composite CCyB Guide based on the credit-to-GDP gap and the property price-to-rent gap, and a Positive Neutral CCyB that sets a floor for the IRC.

Table 5.G
Key Performance Indicators of the Banking Sector[1] (%)

	Jun 2023	Mar 2024	Jun 2024
Interest rates			
1-month HIBOR fixing[2] (quarterly average)	3.98	4.63	4.39
3-month HIBOR fixing (quarterly average)	4.28	4.73	4.65
BLR[3] and 1-month HIBOR fixing spread (quarterly average)	1.72	1.25	1.49
BLR and 3-month HIBOR fixing spread (quarterly average)	1.42	1.15	1.23
Composite interest rate[4]	2.35	2.73	2.62
		All AIs	
Balance sheet developments[5]			
Total deposits	–0.3	–0.2	3.4
Hong Kong dollar	–0.9	0.1	1.0
Foreign currency	0.2	–0.4	5.5
Total loans	–1.3	–1.0	–0.9
Domestic lending[6]	–0.4	–1.2	0.3
Loans for use outside Hong Kong[7]	–4.1	–0.5	–4.6
Negotiable instruments			
Negotiable certificates of deposit (NCDs) issued	–5.4	–0.9	5.2
Negotiable debt instruments held (excluding NCDs)	0.8	2.7	2.1
Asset quality			
As a percentage of total loans[8]			
Pass loans	96.57	96.16	96.18
Special mention loans	1.93	2.05	1.93
Classified loans[9] (gross)	1.50	1.79	1.89
Classified loans (net)[10]	0.84	1.02	1.09
Overdue > 3 months and rescheduled loans	1.09	1.48	1.52
Classified loan ratio (gross) of Mainland related lending[11]	2.41	2.77	2.78
Liquidity ratios (consolidated)			
Liquidity Coverage Ratio — applicable to category 1 institutions (quarterly average)	169.8	176.1	183.3
Liquidity Maintenance Ratio — applicable to category 2 institutions (quarterly average)	63.8	66.8	67.9
Net Stable Funding Ratio — applicable to category 1 institutions	137.6	141.5	142.3
Core Funding Ratio — applicable to category 2A institutions	154.0	169.0	174.7
		Retail banks	
Profitability			
Loan impairment charges as a percentage of average total assets (year-to-date annualised)	0.14	0.11	0.18
Net interest margin (year-to-date annualised)	1.62	1.53	1.51
Cost-to-income ratio (year-to-date)	38.8	38.1	38.3
		Surveyed institutions	
Asset quality			
Delinquency ratio of residential mortgage loans	0.07	0.09	0.10
Credit card lending			
Delinquency ratio	0.26	0.33	0.34
Charge-off ratio — quarterly annualised	1.76	2.20	2.33
— year-to-date annualised	1.67	2.20	2.23
		All locally incorporated AIs	
Capital adequacy (consolidated)			
Common Equity Tier 1 capital ratio	17.0	17.4	17.5
Tier 1 capital ratio	19.0	19.1	19.1
Total capital ratio	21.0	21.1	21.1
Leverage ratio	8.0	8.0	7.9

Notes:
1. Figures are related to Hong Kong offices only except where otherwise stated.
2. The Hong Kong Interbank Offered Rates are released by the Hong Kong Association of Banks.
3. With reference to the rate quoted by The Hongkong and Shanghai Banking Corporation Limited.
4. The composite interest rate is a weighted average interest rate of all Hong Kong dollar interest-rate-sensitive liabilities, which include deposits from customers, amounts due to banks, negotiable certificates of deposit and other debt instruments, and all other liabilities that do not involve any formal payment of interest but the values of which are sensitive to interest rate movements (such as Hong Kong dollar non-interest bearing demand deposits) on the books of banks. Further details can be found on the HKMA website.
5. Quarterly change.
6. Loans for use in Hong Kong plus trade finance.
7. Including "others" (i.e. unallocated).
8. Figures are related to all AIs' Hong Kong offices, as well as locally incorporated AIs' overseas branches and major overseas subsidiaries.
9. Classified loans are those loans graded as "substandard", "doubtful" or "loss".
10. Net of specific provisions/individual impairment allowances.
11. Figures are related to all AIs' Hong Kong offices, as well as locally incorporated AIs' Mainland branches and subsidiaries.

Box 4
Assessing the impact of digitalisation adoption on banks' financial performance: New evidence based on textual analysis

Introduction[69]

The pace of digitalisation in the banking industry has accelerated over the last decade. In particular, with the emergence of fintech and other digital technologies (e.g. artificial intelligence), banks have been increasingly adopting various digital innovations in their business operations with the aim of improving their operating efficiency, enhancing customer experience and creating new business opportunities. In Hong Kong, banks are also actively adopting digital innovations in their services, as reflected by the rising proportions of banking services (such as mortgage applications and time deposit placements) now being conducted via digital channels.[70]

As digital innovations offer immense potential to enhance operational efficiency and productivity, their adoption is likely to remain a key strategy for banks. To better understand the implications of this trend, it is essential to evaluate the impact of digital innovation adoption on the performance of banks to date. Despite the significance of this issue, empirical evidence remains relatively limited.[71] One major challenge is the absence of readily available metrics for quantifying the degree of digitalisation adoption among banks, as such metrics are not typically captured by conventional financial data.[72]

Against this background, this box employs textual analysis on banks' earnings call transcripts to construct a measure of their digitalisation adoption.[73] The constructed textual measure has also been used to shed light on the potential impacts of digitalisation adoption on the performance indicators of a large sample of global listed commercial banks.[74]

Textual measure of banks' digitalisation adoption based on earnings call transcripts

We first briefly describe how the measure of banks' digitalisation adoption was constructed.

Recent literature has shown that a bank's earnings call transcripts provide timely and rich qualitative information about its current and future corporate strategy, including its management's stance on digitalisation adoption. Therefore, a greater extent of discussion on topics related to digital innovations within these transcripts may indicate that the bank management is more actively embracing digitalisation. To extract this information, a novel topic modelling algorithm *Top2Vec* from the machine learning literature was applied to the earnings call transcripts of banks to measure the frequency and prominence of discussions related to digital technologies within these transcripts.

[69] For details, see Wong et al. (2024): "Assessing the impacts of digitalisation adoption on banks' financial performance: New evidence based on textual analysis", *HKIMR Working Paper*, No. 07/2024.

[70] Related statistics are reported on page 13 of *Hong Kong Banking Sector — 2023 Year-end Review and Priorities for 2024*, published by the HKMA on 31 January 2024. (https://www.hkma.gov.hk/media/eng/doc/key-information/speeches/s20240131e1.pdf)

[71] While there are many survey analyses that evaluate the impact of digital innovations on financial institutions, most of them are one-off ad hoc analyses that are specific to particular jurisdictions. Internationally comparable empirical time-series analyse on this topic remains scant.

[72] Additionally, the diverse digital strategies and applications employed by different banks make it difficult to develop a consistent and comparable measure for empirical analysis.

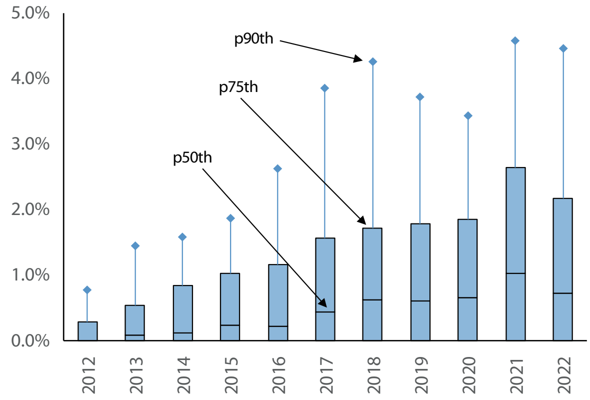
[73] The textual transcripts record the contents of discussions in earnings conference call events, which are held between the board of a publicly listed bank, investors, analysts and the press to discuss financial results over a financial period. The relevant textual and financial data employed in this project are sourced from S&P Capital IQ.

[74] The final sample includes 219 publicly listed commercial banks globally. Around 40%, 30% and 20% of the sample banks are located in North America, Europe and the Asia Pacific regions respectively.

Using over a million paragraphs from transcripts as inputs, the *Top2vec* algorithm first derived numerical embedding vector representations of each individual paragraph and their associated words. Then the algorithm constructed latent topic vectors based on clustering of documents and words vectors. This step was followed by the calculation of documents' similarity with the latent topics representing our keywords of interest, namely, "digital" and "fintech". This process enabled us to identify which paragraphs were mostly related to digital and fintech issues. We then derived a score (denoted as DFscore) from the proportion of paragraphs related to "digital" and "fintech" over the total number of paragraphs in each transcript, to quantify the banks' digital transformation focus over time.[75]

The boxplot in Chart B4.1 displays the DFscore distributions of sample banks over time. The chart reveals a rising trend in the discussion of digitalisation-related contents among the sample banks over the past decade, suggesting that the topic has gained increasing attention among relevant bank stakeholders.

Chart B4.1:
Distribution of banks' DFscore between 2013 and 2022



Note: The p50th, p75th and p90th values represent the median, 75th, and 90th percentile values of the distribution of the DFscore in each calendar year.

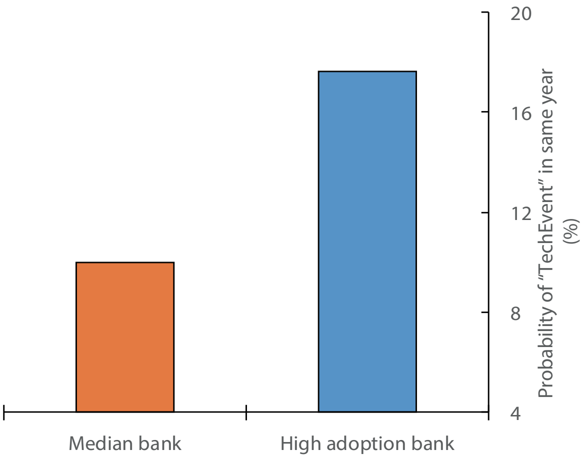
Source: HKMA staff estimates based on sample banks' earnings call transcripts obtained from S&P Capital IQ.

To verify the effectiveness of the DFscore in capturing the degree of digitalisation adoption by banks, a probit regression model was employed to examine the relationship between the value of the DFscore and the likelihood of our sample banks announcing a launch of new digital products or expanding new business segments with a technological focus (denoted as "TechEvent")[76] in the same year.

[75] This illustration paragraph is a high-level summary of the textual analytical method applied. For detailed technical discussions of the textual analytical approach, we refer readers to the HKIMR working paper version.

[76] To identify relevant events, we collected "products-related announcements" or "business expansion" type events for sample banks from S&P Capital IQ, and identified 663 out of more than 5,000 events between 2012-2022 directly related to banks' technological adoption by manually reviewing the headlines of these events containing banking technology related terms (such as, "digital", "fintech", "blockchain", "app", etc.).

Chart B4.2:
Estimated probability of "TechEvent" for a high adoption bank and a median bank



Note: Estimated probability of an occurrence of a "TechEvent" for high DFscore banks (i.e. with a p90th value) relative to the median bank based on a probit regression.

Source: HKMA staff estimates based on data from S&P Capital IQ.

Chart B4.2 shows the estimated results for two hypothetical banks: a high adoption bank (blue bar, with a DFscore at the 90th percentile) and a median bank (orange bar, with a DFscore at the median). The estimated probability of a high adoption bank experiencing a "TechEvent" is around seven ppts higher than that for a median bank. This suggests that banks with a higher DFscore are more likely to experience TechEvents in a given year. This finding corroborates the claim that the DFscore can serve as a useful proxy for gauging the extent of digitalisation adoption by banks.

Impacts of digitalisation adoption on banks' financial performances

To examine the potential impacts of digitalisation adoption on banks' financial performance, a panel regression model was employed by regressing banks' DFscore against five banking performance indicators separately. These indicators included total capital ratio (CapR), return-on-assets (ROA), non-performing loan (NPL) ratio, cost efficiency (costEff) ratio[77] and loan-to-deposit (LTD) ratio. We mainly focused on the effects on these indicators in our analysis because recent market intelligence suggests that banks are increasingly leveraging digital innovations in areas such as risk analytics, streamlining workflows, and forecasting regulatory capital and liquidity needs planning.[78]

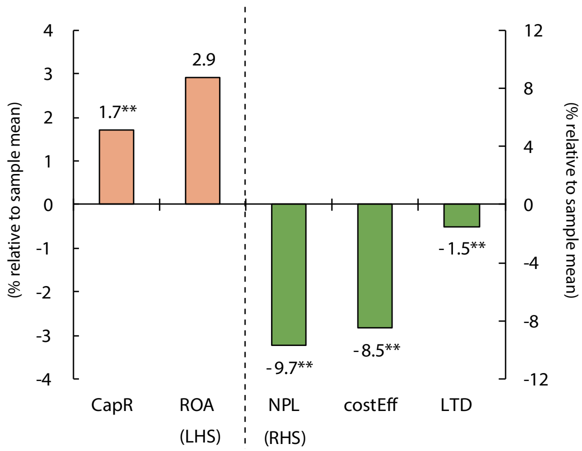
The regression model also included a set of bank- and macro-level controls, as well as various fixed effects dummies, to control for heterogeneity across banks and years. The estimated coefficient on the DFscore thus reflects the impact of higher digital technology adoption on each of the five financial performance indicators.

77 It is defined as the ratio of total non-interest expenses to total revenue minus interest expenses.

78 These examples of innovation applications are mentioned in the report "Digitalisation of finance" produced by the Basel Committee on Banking Supervision in May 2024.

Chart B4.3 presents the estimated impacts of digitalisation adoption by a high adoption bank on various performance indicators, compared to the estimated impacts for a median bank. To facilitate comparability across the five indicators, the estimated impacts have been further scaled by the sample mean of each respective indicator.

Chart B4.3: Estimated difference in the impacts on performance indicators between a high adoption bank and a median bank

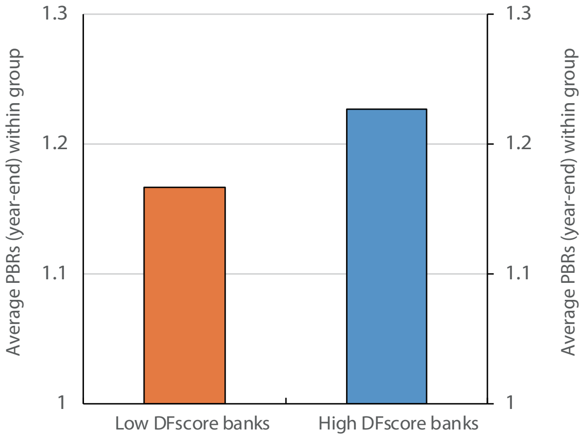


Note: ** denotes statistical significance at the 5% level.
Source: HKMA staff estimates.

Our findings suggest that a higher DFscore is positively correlated with improved cost efficiency, better asset quality and stronger capital and liquidity positions. These effects are not only statistically significant, but also economically meaningful. For instance, a high adoption bank is estimated to have an NPL ratio that is 0.24 ppts lower than the median bank. Given that the sample mean of NPL ratio is 2.47%, the impact of higher digitalisation adoption (i.e. an increase in the DFscore from the median to the 90th percentile) is equivalent to a 9.7% improvement in asset quality.

In addition to accounting-based financial indicators, we also assessed the potential impact on banks' market-based indicator. Ongoing advances in digital innovation have opened up significant potential for banks to enhance their future productivity and profitability. This could lead to higher bank valuations and improvements in their price-to-book ratios (PBRs), should investors perceive banks with higher levels of digitalisation adoption as having better future growth opportunities than their peers.

Chart B4.4
Average price-to-book ratios for high DFscore banks and low DFscore banks between 2020 and 2022



Note: The high DFscore group is defined as the group of banks with DFscore above the median value every year, while low DFscore group is defined as those banks with DFscore below the median.

Source: HKMA staff estimates based on S&P Capital IQ.

Chart B4.4 shows that banks with a higher DFscore (above the median) exhibited higher average PBRs than other banks.[79] This suggests that a higher degree of technological adoption by banks is associated with a more positive perception of their profitability prospects by investors, further echoing the beneficial role of digitalisation adoption for banks.[80]

Conclusion

Based on a sample of global listed commercial banks and the use of textual analysis, this box provides some fresh findings that can help broaden our understanding of the potential implications of digitalisation adoption for bank performance. Notably, banks with a higher degree of digitalisation adoption, as reflected by our textual measure, tend to exhibit better performance and improved market valuations compared to other banks. These findings provide strong support for decisions by banks to press ahead with digital transformation in order to improve their competitiveness.

Despite the benefits of digital innovations, new challenges and risks (such as cyber-security threats) will inevitably emerge as technologies continue to evolve. To harness the benefits of innovation in a safe and sustainable manner, it is essential for banks and supervisory bodies to stay abreast of the latest technological developments and assess their associated risks. They should also collaborate closely to ensure that key risk management principles are upheld appropriately.

---

79 The observed pattern is also consistent with our empirical finding that a high adoption bank (i.e. with a DFscore at the 90th percentile) displayed a 6.1% higher PBR than the mean value in the same period between 2020 and 2022.

80 However, caution should be exercised when interpreting the estimation results, because the rapid advances in technology mean that the longer-term benefits of digitalisation may not yet be fully reflected in the estimates. Also, impacts may differ significantly across banks, depending on the specific digital innovations adopted by individual banks.