

5. Banking sector performance

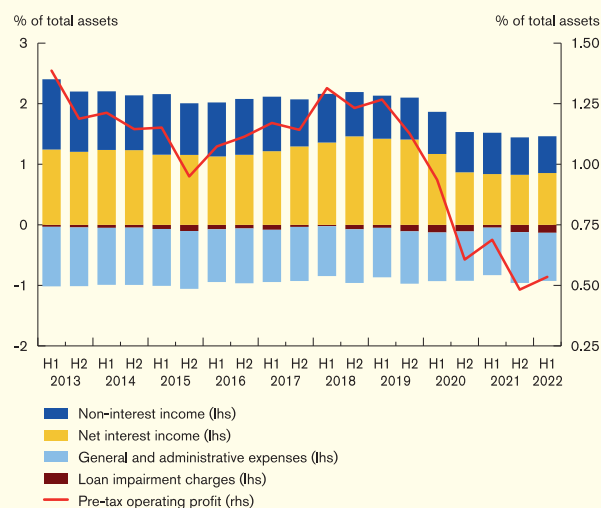
Against the background of the fifth wave of local COVID-19 infections during the first half of 2022, retail banks' profits declined along with a slight deterioration in asset quality. However, the Hong Kong banking sector remained resilient, underpinned by robust capital and liquidity positions. Reflecting upward pressure on the Hong Kong dollar interbank interest rates amid the US interest rate hikes, the Hong Kong dollar funding costs of retail banks increased, albeit remaining relatively low. In the period ahead, the heightened economic uncertainties arising from the pace and magnitude of subsequent US interest rate rises, the evolving local epidemic situation and geopolitical risks, could pose challenges to banks' credit risk management. In particular, as the debt repayment abilities of some households and corporates have been weakened since the fifth wave outbreak, banks should carefully assess the potential impacts of sharp rises in interest rates on their loan portfolios.

5.1 Profitability and capitalisation

Profitability

The aggregate pre-tax operating profit of retail banks⁴³ decreased by 19.5% in the first half of 2022, compared with the same period in 2021. The return on assets fell to 0.54% in the first half of 2022, compared with 0.69% in the same period in 2021 (Chart 5.1). The decline in profit was attributable to a reduction in non-interest income and a pick-up in higher loan impairment charges, which more than offset the mild increase in net interest income.

Chart 5.1
Profitability of retail banks



Note: Annualised semi-annual figures.

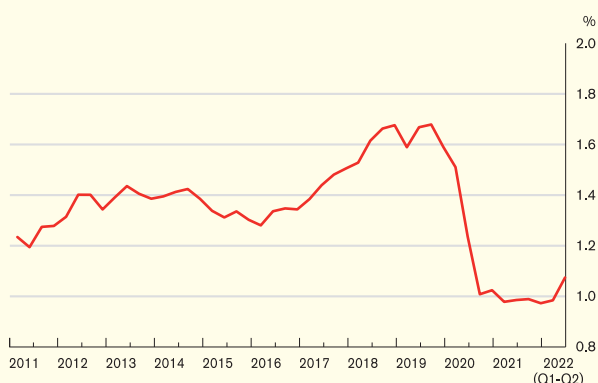
Source: HKMA.

In part reflecting the rising interest rate environment, there was a slight improvement in retail banks' net interest margins (NIMs), with their NIMs edging up to 1.03% in the first half of 2022 from 0.98% a year ago (Chart 5.2).

⁴³ Throughout this chapter, figures for the banking sector relate to Hong Kong offices only, unless otherwise stated.

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Chart 5.2
Net interest margin of retail banks

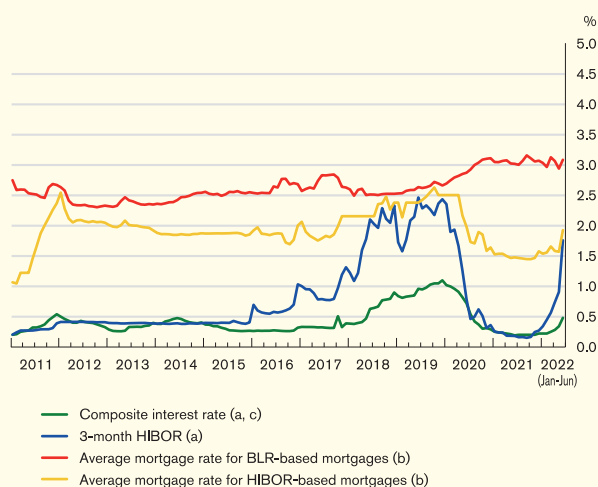


Note: Annualised quarterly figures.
Source: HKMA.

Broadly reflecting the increases in US interest rates and a sizable decline in the Hong Kong dollar interbank liquidity following the triggering of the weak-side Convertibility Undertaking (CU), the interbank funding costs in Hong Kong picked up notably in the second quarter of 2022.⁴⁴ In particular, the three-month Hong Kong Interbank Offered Rate (HIBOR) increased markedly by 120 basis points in the second quarter to 1.75% at the end of June 2022, following a mild increase of 30 basis points in the first quarter (the blue line in Chart 5.3).

On the retail front, while some retail banks have started to offer more attractive time-deposit rates to compete for longer term stable funding as HIBORs increased, the rise in the aggregate Hong Kong dollar funding costs has so far been relatively moderate. Specifically, the composite interest rate, a measure of the average Hong Kong dollar funding costs for retail banks, has increased by 26 basis points over the past six months to 0.47% at the end of June 2022 (green line in Chart 5.3).

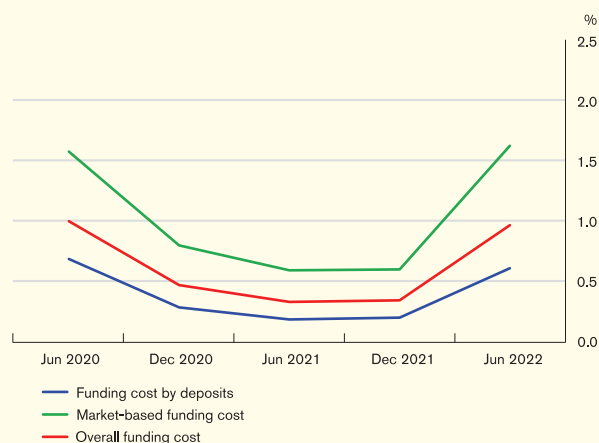
Chart 5.3
Interest rates



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 Hong Kong dollar and US dollar funding costs for licensed banks in Hong Kong increased by 62 basis points during the first half of 2022 (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 which have not been 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.

⁴⁴ The weak-side CU has been triggered multiple times since May 2022, resulting in a sizable reduction in the Aggregate Balance. For details, please refer to Chapter 4.1.

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The faster rise in HIBORs than the overall funding cost of banks may represent a positive development for the margin of banks' HIBOR-based assets. However, the extent of improvement in NIMs may be partially offset by the fact that a significant portion of HIBOR-based mortgage loans has already reached their Best Lending Rate (BLR)-based cap rates.⁴⁵ Although banks have raised their BLRs since late September, the rises have so far been relatively modest. Given the pace and the size of future rises in BLR remain uncertain as it will be determined by banks' own funding cost structure and other relevant considerations, the continued rising trend in banks' funding costs may thus limit the overall improvement in NIMs.

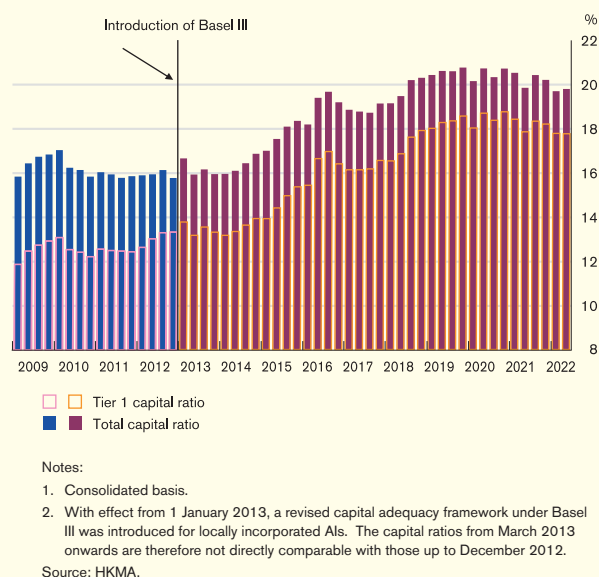
The outlook for banks' profitability will be subject to a host of uncertainties. Externally, uncertainty surrounding the pace of monetary policy tightening in advanced economies and the lingering geopolitical risks arising from the Russia-Ukraine conflict will cloud the global growth prospect and may dampen loan demand. Domestically, while higher interest rates would benefit banks' NIM, a rapid rise in domestic interest rates amid more aggressive US interest rate hikes could pose challenges to banks' credit risk management for their loan portfolios. Should these uncertainties intensify further and lead to a notable decline in lending and worsening asset quality, it could significantly weigh on banks' profitability.

Capitalisation

Capitalisation of the Hong Kong banking sector continued to be strong and well above minimum international standards. The consolidated total capital ratio of locally incorporated authorized institutions (AIs) stood at a high level of 19.8% at the end of June 2022 (Chart 5.5), well above the

international minimum requirement of 8%. The Tier 1 capital ratio was 17.7%, whereby 15.8% was contributed by Common Equity Tier 1 (CET1) capital ratio. In addition, the non-risk-based Leverage Ratio (LR)⁴⁶ of locally incorporated AIs recorded a healthy level of 7.7% at the end of June 2022, exceeding the statutory minimum of 3%.

Chart 5.5
Capitalisation of locally incorporated AIs



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)⁴⁷, remained sound during the review period. The average LCR of category 1 institutions rose to 154.9% in the second quarter of 2022 from 151.9% in the fourth quarter of

⁴⁶ The Basel III non-risk-based LR 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).

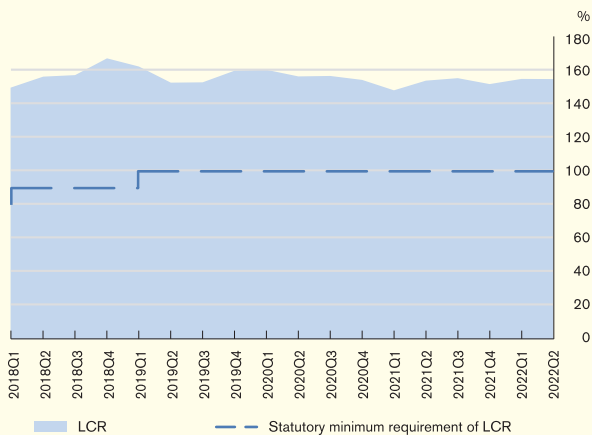
⁴⁷ The Basel III LCR requirement is designed to ensure that banks have sufficient high-quality liquid assets to survive a significant stress scenario lasting 30 calendar days. In Hong Kong, AIs designated as category 1 institutions adopt the LCR; while category 2 institutions adopt the LMR. For details, see the HKMA's Supervisory Policy Manual (SPM) LM-1, "Regulatory Framework for Supervision of Liquidity Risk".

⁴⁵ HIBOR-based mortgage is usually protected by an interest rate cap linked with the BLR (often in the form of a fixed spread below the BLR). Market information showed that many retail banks have raised their BLR-based cap for new mortgage loan applications since June 2022, probably reflecting higher funding cost pressures for these banks.

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2021 (Chart 5.6), staying well above the statutory minimum requirement of 100%. The average Liquidity Maintenance Ratio (LMR) of category 2 institutions was 58.4% during the same period, also well above the statutory minimum requirement of 25%.

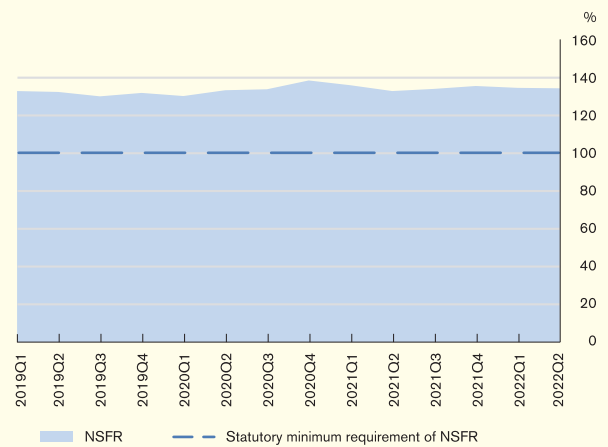
Chart 5.6
Liquidity Coverage Ratio



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

The latest ratios of the Net Stable Funding Ratio (NSFR)⁴⁸ requirement also reflected a stable funding position of AIs. The average NSFR of category 1 institutions remained at a high level of 134.1% in the second quarter of 2022 (Chart 5.7), well above the statutory minimum requirement of 100%. The average Core Funding Ratio (CFR) of category 2A institutions also stayed at a high level of 147.7%, exceeding the statutory minimum requirement of 75%. The strong liquidity and stable funding positions of AIs suggest that the Hong Kong banking sector is well positioned to withstand liquidity shocks.

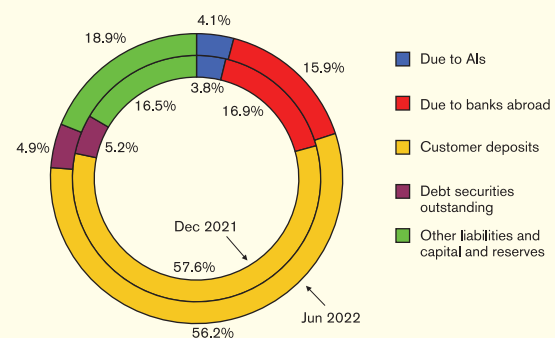
Chart 5.7
Net Stable Funding Ratio



Note: Consolidated basis.
Source: HKMA.

At the end of June 2022, the share of customer deposits to all AIs' total liabilities declined marginally to 56.2% from 57.6% six months ago (Chart 5.8). Despite the mild decrease, customer deposits continued to be the primary source of funding for AIs, underpinning a stable funding structure in the banking system.

Chart 5.8
The liability structure of all AIs



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.

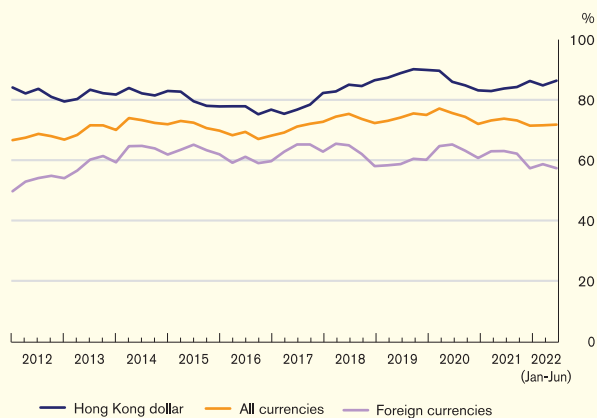
The average all-currency loan-to-deposit (LTD) ratio of all AIs edged up to 72.1% at the end of June this year from 71.8% six months ago (Chart 5.9). It was mainly driven by a slight increase in Hong Kong dollar LTD, as the growth in Hong Kong loans and advances slightly outpaced that of Hong Kong dollar deposits

⁴⁸ The Basel III NSFR requires banks to maintain a stable funding profile in relation to the composition of their assets and off-balance-sheet activities. In Hong Kong, category 1 institutions are required to comply with the NSFR; while category 2 institutions designated as category 2A institutions must comply with the requirements relating to the local CFR. For details, see Banking (Liquidity) Rules (Cap. 155Q).

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during the review period. Meanwhile, the average foreign currency LTD ratio stayed at a level similar to that six months ago.

Chart 5.9
Average loan-to-deposit ratios of all AIs

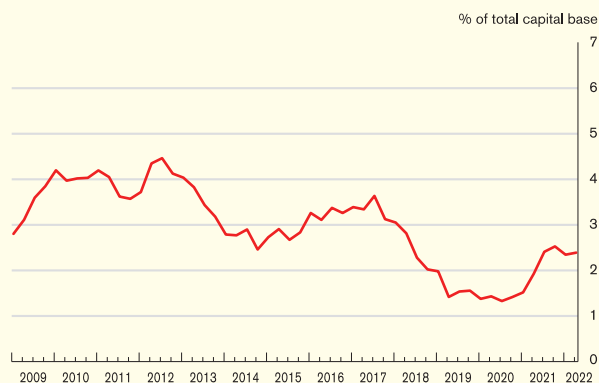


Note: End-of-quarter figures.
Source: HKMA.

Interest rate risk

The interest rate risk exposure of locally incorporated licensed banks remained at a relatively low level in the second quarter of 2022. Under a hypothetical shock of an across-the-board 200-basis-point increase in Hong Kong dollar and US dollar interest rates, the economic value of locally incorporated licensed banks' interest rate positions is estimated to decline by an amount equivalent to 2.39% of their total capital base at the end of June 2022 (Chart 5.10)⁴⁹.

Chart 5.10
Impact of a Hong Kong dollar and US dollar interest rate shock on locally incorporated licensed banks



Notes:

1. Interest rate shock refers to a 200-basis-point parallel increase in both Hong Kong dollar and US dollar yield curves to institutions' interest rate risk exposure. The two currencies accounted for a majority of interest-rate-sensitive assets, liabilities and off-balance-sheet positions for locally incorporated licensed banks at the end of June 2022.
2. The impact of the interest rate shock refers to its impact on the economic value of the banking and trading book⁵⁰, expressed as a percentage of the total capital base of banks.
3. Since June 2019, the interest rate risk exposure has been calculated based on the new local IRRBB framework. As such, the figures for June 2019 onwards are not strictly comparable with those of previous periods.

Source: HKMA.

5.3 Credit risk

Overview

Reflecting the adverse impacts of the fifth wave of local COVID-19 outbreak and the global supply chain disruptions, bank credit growth remained sluggish during the first half of 2022. On a half-yearly basis, total loans and advances of all AIs grew by 0.8%, following a mild decline of 0.6% (excluding initial public offering (IPO) loans straddled at the end of June 2021) in the second half of 2021 (Chart 5.11).⁵¹

The sluggish growth in total loans was due to a decline in loans for use outside Hong Kong by 2.3% during the first half of 2022, which partially

⁴⁹ This estimation does not take into account the effect of any mitigating action by banks in response to the shock. The impact will be smaller if mitigating action is taken.

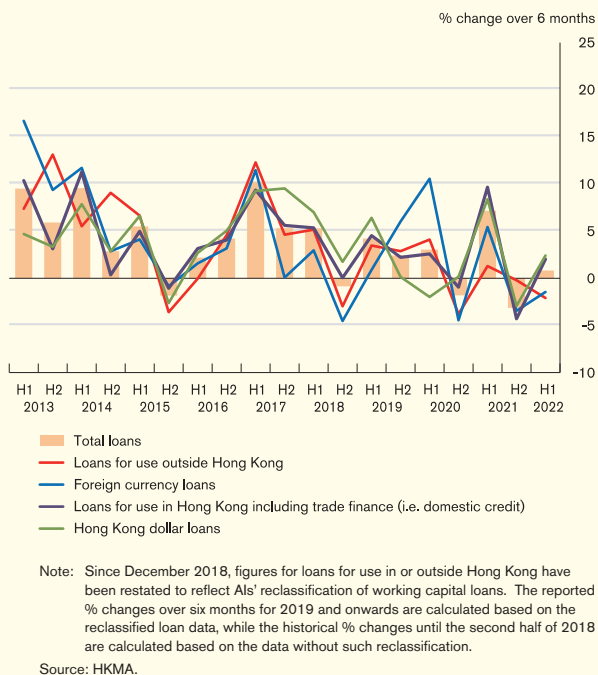
⁵⁰ Locally incorporated AIs subject to the market risk capital adequacy regime are required to report positions in the banking book only. Other locally incorporated AIs exempted from the market risk capital adequacy regime are required to report aggregate positions in the banking book and trading book.

⁵¹ If IPO loans straddled at the end of June 2021 were included, bank credit would have decreased by 3.1% during the second half of 2021.

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offset a modest growth in domestic credit (comprising loans for use in Hong Kong and trade financing) of 2.1% during the review period.

Chart 5.11
Loan growth



The credit demand outlook is likely to be stable in the near term. According to the results of the HKMA Opinion Survey on Credit Condition Outlook in June 2022, 70% of the surveyed AIs expected loan demand to be the same in the following three months, a level same as six months (Table 5.A).

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

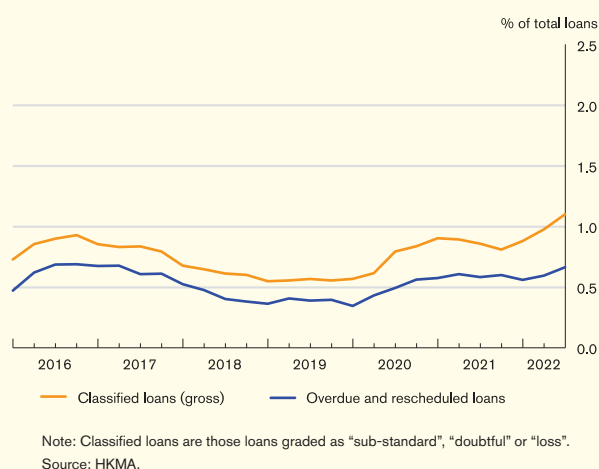
% of total respondents	Sep-21	Dec-21	Mar-22	Jun-22
Considerably higher	3	0	0	0
Somewhat higher	30	23	20	20
Same	60	70	60	70
Somewhat lower	7	7	20	10
Considerably lower	0	0	0	0
Total	100	100	100	100

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

Against the backdrop of a domestic economic downturn and the debt problems surrounding some Mainland property developers, the asset quality of banks' loan portfolios showed a slight

deterioration during the first half of 2022. Specifically, the gross classified loan ratio (CLR) of all AIs increased to 1.10% in June 2022 from 0.88% in December 2021, while the ratio of overdue and rescheduled loans of all AIs also rose to 0.66% from 0.56% (Chart 5.12). Despite the increases, asset quality still remained at a healthy level by both historical and international standards.

Chart 5.12
Asset quality of all AIs⁵²



Household exposure⁵³

Household debt grew by 0.7% in the first half of 2022, visibly slower than the 4.4% increase in the second half of 2021 amid the fifth wave of the local COVID-19 epidemic (Table 5.B). A breakdown of the data shows that the growth of residential mortgage loan moderated to 2.1%, given the lower number of residential property transactions in the first half of 2022. Personal loans reverted to a decline of 2.5%.

⁵² Starting from this issue, this chart will present the asset quality of all AIs, rather than the related figures of all retail banks in previous issues. For retail banks, the gross CLR increased to 1.05%, while the ratio of overdue and rescheduled loans rose to 0.58% at the end of June 2022.

⁵³ Loans to households constitute lending to professional and private individuals, excluding lending for other business purposes. Mortgages account for a 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 2022, household lending accounted for 34.1% of domestic lending.

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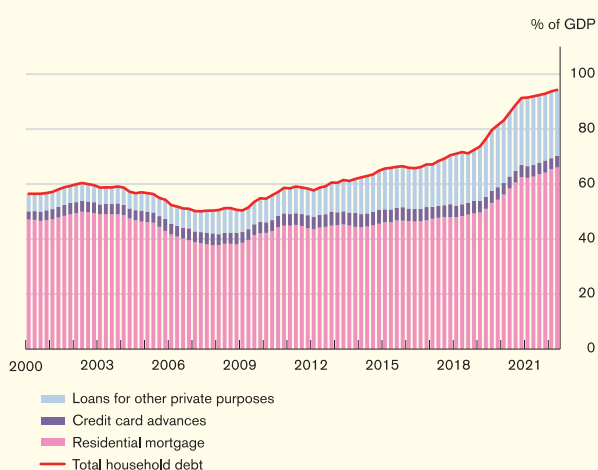
Table 5.B
Half-yearly growth of loans to households of all AIs

(%)	2019		2020		2021		2022
	H1	H2	H1	H2	H1	H2	H1
Residential mortgages	4.7	5.5	3.5	4.7	4.0	5.7	2.1
Personal loans	11.2	5.9	-2.4	2.2	5.3	1.6	-2.5
of which:							
Credit card advances	-3.8	4.1	-9.0	0.0	-0.4	8.1	-5.3
Loans for other private purposes	14.9	6.2	-1.1	2.6	6.4	0.4	-2.0
Total loans to households	6.8	5.6	1.5	3.9	4.4	4.4	0.7

Source: HKMA.

Despite the slower growth of household debt in the first half of 2022, the household debt-to-GDP ratio rose slightly to 94.3% in the first half of 2022 from 92.9% in the second half of 2021 (Chart 5.13). This was mainly driven by the decline in Hong Kong's nominal gross domestic product (GDP) over the same period amid the fifth wave of the local epidemic. Indeed, the contraction in the nominal GDP contributed 0.8 of the 1.4-percentage-point increase in the household debt-to-GDP ratio from the second half of 2021, while the growth in household debt contributed a smaller share (0.6 percentage point) of the increase.

Chart 5.13
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 working capital loans.

Source: HKMA.

It is noteworthy that the household debt-to-GDP ratio is a widely-used measure for gauging the financial soundness of households due to its simplicity. 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 the 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 (instead of the net debts which take into account household assets).

As such, a full and objective assessment of the risks associated with household debt requires the consideration of other factors, 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 36.5% in July 2022. The household net worth has also stayed at a high level. Specifically, both the net worth-to-liabilities ratio and safe asset-to-liabilities ratio of Hong Kong's household sector remained high at 11.3 times and 2.96 times respectively in 2020 (Charts 5.14 and 5.15), which are 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 potential financial and economic shocks.

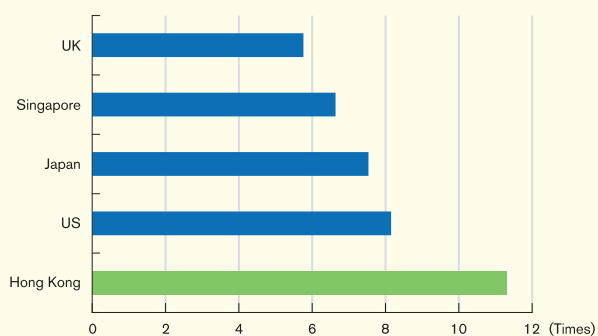
The HKMA has been closely monitoring household indebtedness and regularly collects data from the banks. The majority of the household debts are residential mortgage loans, which are governed by the macroprudential policy framework, as well as collateralised loans to wealth management customers against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

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For residential mortgages, the average loan-to-value (LTV) ratio and average debt-servicing ratio of newly approved mortgage loans have stayed at healthy levels following several rounds of countercyclical macro-prudential measures introduced by the HKMA since 2009. For personal loans to wealth management customers secured by financial assets, the HKMA requires banks to adopt prudent and effective credit risk management measures on 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.

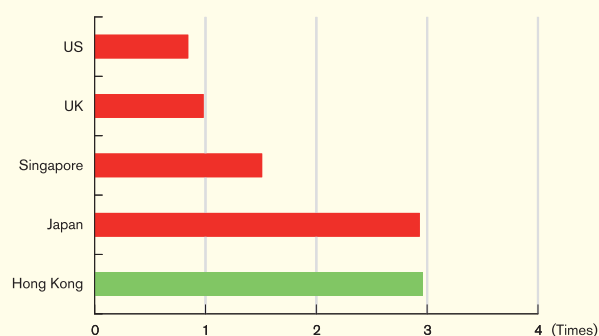
The HKMA also requires banks to adopt prudent underwriting standards for credit card advance and unsecured personal loan businesses. In reviewing credit applications, banks should understand borrowers' credit and financial conditions and carefully assess their repayment ability. As for post-lending,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

Chart 5.14
Household net worth-to-liabilities ratio for selected economies



Note: Japan and Hong Kong figures refer to those at end-2020, while figures for other economies refer to those at end-2021.
Sources: Statistical agencies or central banks of selected economies, and HKMA staff estimates.

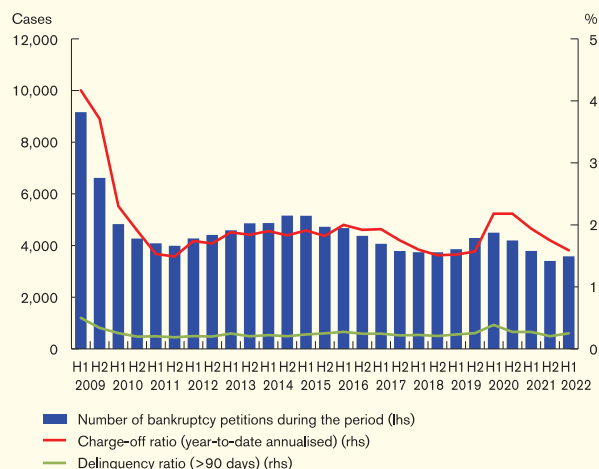
Chart 5.15
Safe assets-to-liabilities ratio for selected economies



Note: Safe assets comprise deposits, as well as currencies if data is available. In the case of Hong Kong, safe assets refer to deposits only. Japan and Hong Kong figures refer to those at end-2020, while figures for other economies refer to those at end-2021.
Sources: Statistical agencies or central banks of selected economies, and HKMA staff estimates.

For unsecured household exposure, the associated credit risk remained contained during the review period. Despite a notable pick up in local unemployment in the first half of 2022, the increase in the number of bankruptcy petitions during the same period has been modest (Chart 5.16). The year-to-date annualised credit card charge-off ratio decreased to 1.59% in the second quarter of 2022 from 1.75% in the fourth quarter of 2021, while the delinquency ratio rose slightly to 0.25% in the same period.

Chart 5.16
Charge-off ratio and delinquency ratio for credit card lending and bankruptcy petitions



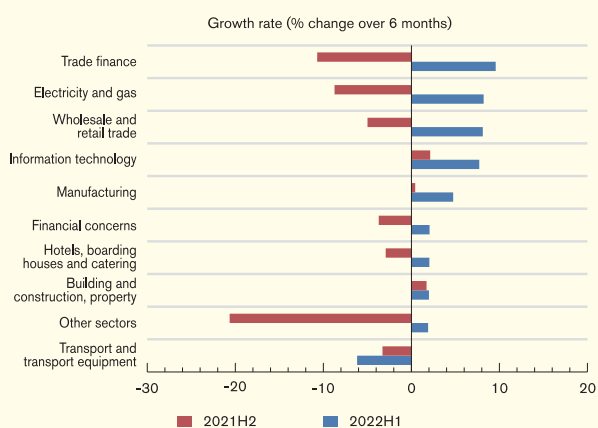
Sources: Official Receiver's Office and HKMA.

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Corporate exposure⁵⁴

Domestic corporate loans rebounded by 3.0% on a half-yearly basis during the first six months of 2022, after decreasing by 3.5% (excluding IPO-related loans straddled at end-June 2021) in the second half of 2021. Except for loans to transportation sector, faster loan growth was observed in most of the economic sectors, compared with the preceding six months (Chart 5.17).

Chart 5.17
Growth in domestic corporate loans by selected sector



Source: HKMA.

Since the COVID-19 pandemic, the HKMA, together with the banking sector, has implemented various support measures with the aim of maintaining a stable flow of bank credits to support corporates (especially small and medium-sized enterprises (SMEs)) and individuals in need. Box 4 analyses whether, and to what extent, bank lending in Hong Kong has been supported by these measures, with a particular focus on the two major support measures: (i) the release of the Countercyclical Capital Buffer (CCyB) and (ii) the SME Financing Guarantee Scheme (SFGS). The findings suggest that not only are these measures found to be effective in supporting lending in times of stress, the complementary roles between measures that are broad-based (e.g. CCyB release) and targeted (e.g.

SFGS) can also enhance the overall effectiveness of policy measures. This supports the view that a combination of different policy measures should be deployed to maintain stable flows of credit during crisis periods.

The demand-side survey on the credit conditions of SMEs showed that SMEs' perception improved in the second quarter of 2022, with 15% of the respondents perceiving credit approval as "more difficult" relative to six months ago, significantly lower than the 25% registered in the previous quarter (Chart 5.18). Of the respondents with existing credit lines, 7% indicated a tighter stance by banks in the second quarter, similar to 8% registered in the previous quarter (Chart 5.19).

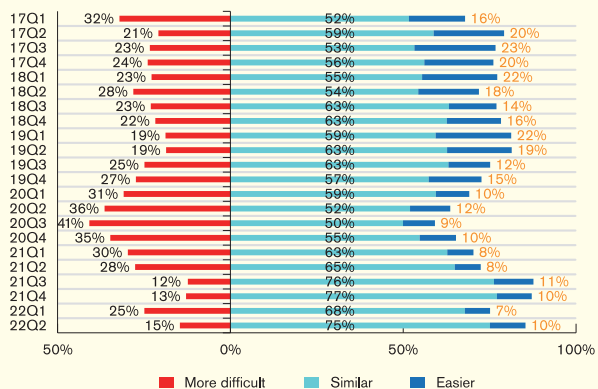
In light of the continued challenges facing SMEs, the HKMA announced in September 2022 an extension of the Pre-approved Principal Payment Holiday Scheme (the Scheme) to the end of January 2023. At the same time, the Scheme offered an option to corporates that are financially capable and willing to resume principal repayment gradually, to repay 20% of the original principal repayment amount over a period of one year on a voluntary basis. By the end of July 2022, over 98,000 credit relief cases had been granted to corporate customers under the Scheme and other initiatives implemented by banks during the pandemic, involving an aggregate amount of over HK\$1 trillion. In addition, The Hong Kong Mortgage Corporation Limited has extended the maximum duration of principal moratorium for the 80% Guarantee Product, the 90% Guarantee Product and the Special 100% Loan Guarantee of the SFGS to a total of 36 months. An option for borrowers to resume partial principal repayment for one year was provided, allowing borrowers to resume normal repayment gradually if they are willing and capable. By the end of July 2022, over 53,000 applications involving around HK\$99 billion in loans had been approved under the Special 100% Loan Guarantee. With the overarching objective of maintaining banking

⁵⁴ Excluding interbank exposure. At the end of June 2022, the share of corporate loans in domestic lending was 65.9%.

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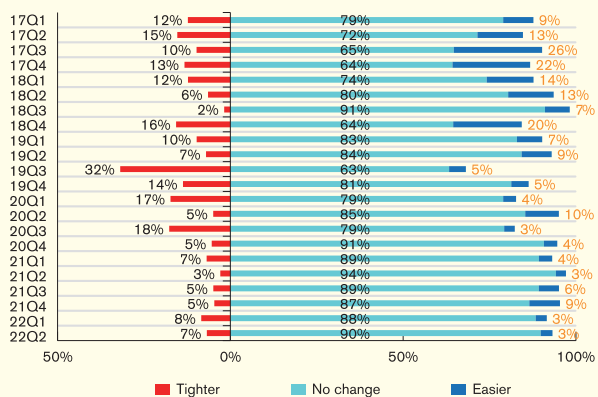
stability, the HKMA will from time to time review the case for further extension of the various relief measures.

Chart 5.18
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 5.19
SMEs' reported change in banks' stance on existing credit lines

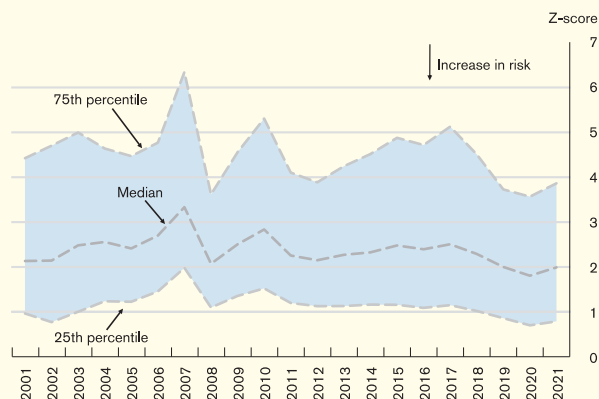


Note: The data covers only respondents with existing credit lines.
Source: HKMA.

The robust economic recovery in 2021 had provided a breathing space for many corporates to recover their financial health. Based on accounting data of listed non-financial corporates in Hong Kong, the Altman's Z-score (a default risk measure for non-financial corporates) saw an across-the-board increase during 2021, suggesting lower default risks for these corporates

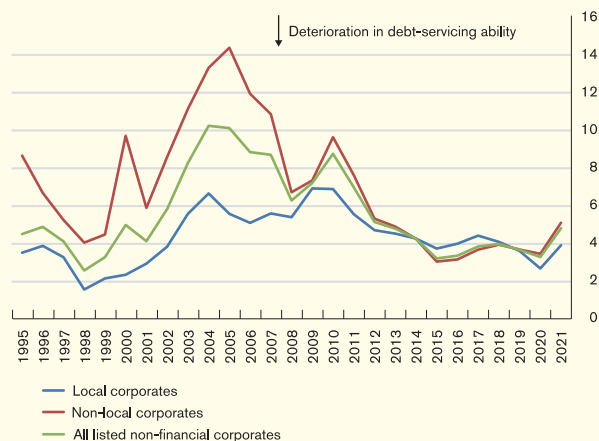
(Chart 5.20). Such an improvement can, in part, be due to a notable recovery in corporates' debt servicing abilities, as indicated by the rise in weighted average interest rate coverage ratios for both local and non-local firms (Chart 5.21).

Chart 5.20
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 are selected.
2. Figures are calculated based on information up to end-August 2022.
Source: HKMA staff calculations based on estimates compiled by Bloomberg.

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

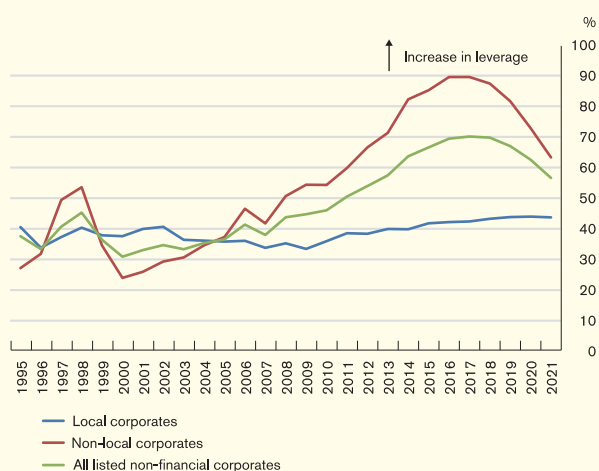


Notes:
1. Weighted average figures.
2. The ICR is calculated by dividing the earnings before interest and tax (EBIT) by total interest expenses. A lower value indicates deterioration of debt servicing ability.
3. All non-financial corporates listed on the Hong Kong Stock Exchange are selected. Local 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 end-August 2022.
Source: HKMA staff estimates based on data from Bloomberg.

Banking sector performance

Meanwhile, the weighted average debt-to-equity ratio (a common measure of corporate leverage) also decreased modestly for the listed non-financial corporates in Hong Kong (Chart 5.22). The decline was mainly driven by non-local corporates (the red line in Chart 5.22), whereas leverage for local firms was largely stable (the blue line in Chart 5.22).

Chart 5.22
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 end-August 2022.
- Source: HKMA staff estimates based on data from Bloomberg.

Nevertheless, due to the time-lagging nature of accounting data, the adverse effects of the fifth wave of the local COVID-19 outbreak and supply chain disruptions that occurred in the first half of 2022 have not been reflected in corporates' fundamentals and thus default risk. Moreover, in view of the rapid increase in US interest rates, the expectation of a higher domestic interest rate environment ahead could further weigh on the loan repayment abilities for corporates. Banks should stay alert to the credit risk of their corporate exposures.

Mainland-related lending and non-bank exposures

The banking sector's total Mainland-related lending increased by 1.7% to HK\$4,806 billion (15.7% of total assets) at the end of June 2022, from HK\$4,725 billion (15.8% of total assets) at the end of December 2021 (Table 5.C). Other non-bank exposures fell by 2.6% to HK\$1,936 billion (Table 5.D).

Table 5.C
Mainland-related lending

HK\$ bn	Sep 2021	Dec 2021	Mar 2022	Jun 2022
Mainland-related loans	4,918	4,725	4,881	4,806
Mainland-related loans excluding trade finance	4,511	4,410	4,495	4,429
Trade finance	407	315	385	377
By type of AIs:				
Overseas incorporated AIs	1,824	1,678	1,771	1,719
Locally incorporated AIs*	2,233	2,172	2,208	2,231
Mainland banking subsidiaries of locally incorporated AIs	861	875	901	855
By type of borrowers:				
Mainland state-owned entities	2,010	1,846	1,961	1,955
Mainland private entities	1,484	1,473	1,500	1,475
Non-Mainland entities	1,425	1,405	1,419	1,375

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 2021	Dec 2021	Mar 2022	Jun 2022
Negotiable debt instruments and other on-balance sheet exposures	1,481	1,497	1,481	1,424
Off-balance sheet exposures	526	490	514	512
Total	2,006	1,987	1,995	1,936

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

Source: HKMA.

The gross CLR of Mainland-related lending of all AIs⁵⁵ increased to 1.50% in June 2022, compared with 0.86% at the end of 2021.

In view of the economic headwinds facing the Mainland economy arising from recurring COVID-19 outbreaks in various provinces, and the property market downturn, banks should continue to stay attentive to the credit risk management of their Mainland-related exposures.

⁵⁵ Figures cover AIs' Hong Kong offices and Mainland branches and subsidiaries.

Banking sector performance

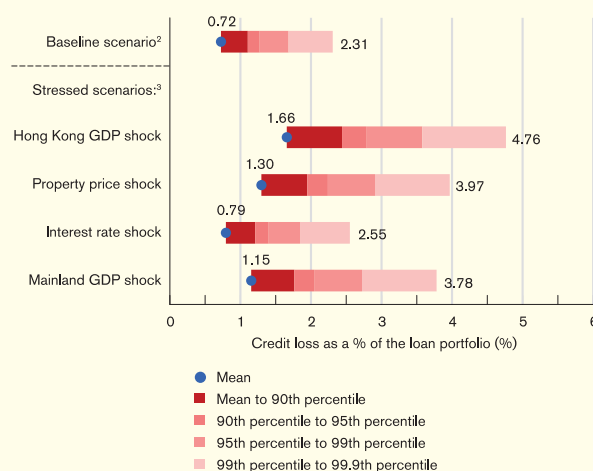
*Macro stress testing of credit risk*⁵⁶

Results of 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 similar to those experienced during the Asian financial crisis. Chart 5.23 presents a simulated future credit loss rate of retail banks in the second quarter of 2024 under four specific macroeconomic shocks⁵⁷ using information up to the second quarter of 2022.

In stressed scenarios, the expected average credit losses two years after different macroeconomic shocks are estimated to be moderate, ranging from 0.79% (Interest rate shock) to 1.66% (Hong Kong GDP shock).

Taking into account tail risk, banks' credit losses (at the confidence level of 99.9%) under the stress scenarios range from 2.55% (Interest rate shock) to 4.76% (Hong Kong GDP shock), which are material but not systemically significant. In any case, the probability of such extreme scenarios actually occurring is rather remote, given that Hong Kong has already experienced a severe economic downturn during the first half of 2022, and the chance of a further sharp fall in GDP from such a low base is very small.⁵⁸

Chart 5.23
The mean and value-at-risk statistics of simulated credit loss distributions¹



Notes:

- The assessments assume the economic conditions in Q2 2022 as the current environment. The Monte Carlo simulation method is adopted to generate the credit loss distribution for each scenario.
 - Baseline scenario: no shock throughout the two-year period.
 - Stressed scenarios:
 - Hong Kong GDP shock:** reductions in Hong Kong's real GDP by 2.7%, 2.4%, 1.7% and 1.6% respectively in each of the four consecutive quarters starting from Q3 2022 to Q2 2023.
 - 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 Q3 2022 to Q2 2023.
 - Interest rate shock:** A rise in real interest rates (HIBORs) by 300 basis points in the first quarter (i.e. Q3 2022), followed by no changes in the second and third quarters, and another rise of 300 basis points in the fourth quarter (i.e. Q2 2023).
 - Mainland GDP shock:** An average year-on-year real GDP growth rate of 2% for the four consecutive quarters starting from Q3 2022.
- Source: HKMA staff estimates.

5.4 Systemic risk

The fifth wave of local COVID-19 infections during the first half of 2022 has adversely affected the economic conditions in Hong Kong. However, partly reflecting the policy effects of various relief measures that have been extended or enhanced by the public sector, systemic risks in the Hong Kong banking sector remained contained during the review period.

Nevertheless, global economic prospects remained highly uncertain due to various downside risk factors including the future pace of US interest rate hikes as well as the lingering geopolitical risk arising from the Russia-Ukraine situation. This, coupled with the economic uncertainty arising from the evolving local epidemic situation, could pose challenges to banks in Hong Kong on various fronts.

⁵⁶ 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 from J. Wong et al. (2006), "A framework for stress testing banks' credit risk", Journal of Risk Model Validation, Vol. 2(1), pages 3–23. All estimates in the current report are not strictly comparable to estimates from previous reports.

⁵⁷ These shocks are calibrated to be similar to those that occurred during the Asian financial crisis, except the Mainland GDP shock.

⁵⁸ Under the Hong Kong GDP shock scenario, where a similar extreme shock to that experienced during the Asian financial crisis is assumed, there would be a chance of less than 0.1% that the loan loss would be higher than that following the Asian financial crisis (i.e. around 4.5%).

Banking sector performance

Indeed, the uncertainty surrounding the subsequent pace and magnitude of US policy rate rises is one key risk factor to monitor. The more persistent inflationary pressure in the US has raised concerns over the risk that the Fed has to raise interest rates to a highly restrictive level to anchor inflation expectations.⁵⁹ Should such an event occur, it could heighten the risk of significant capital outflows in the region on the back of a sharp tightening in global financial condition. This in turn could trigger abrupt rises in interest rates in the region.

While higher interest rates may benefit banks' NIMs, the resulting tighter financial condition would weigh on the debt repayment abilities of borrowers (particularly those highly leveraged) and affect the credit quality of bank loans. Banks should carefully assess the potential impact on the asset quality of their loan portfolios in the event of sharp rises in interest rates.

On the domestic front, while the local epidemic situation showed signs of stabilisation in the second quarter, the business environment and economic conditions remained challenging due to lingering uncertainty over future local epidemic development. This may erode business confidence and potentially delay recovery for corporates. Banks should be mindful of the potential impact of the ongoing development of the local epidemic situation on the financial fundamentals of their corporate borrowers.

Geopolitical risks, particularly the lingering Russia-Ukraine conflict, also warrant close monitoring. While the direct impact of the Russia-Ukraine conflict on banks should be mild given the limited direct exposures of Hong Kong banks to the two jurisdictions, the indirect exposures via lending to borrowers who have significant business linkages to Russia or Ukraine could be a source of losses. In addition, a prolonged or further escalation in the conflict

could intensify supply chain disruptions and aggravate uncertainties in business sentiment, further amplifying the adverse impacts of aforementioned downside risk factors.

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

The countercyclical capital buffer for Hong Kong

The 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 deployed in times of a downturn, allowing banks to continue providing credit to support the real economy. The latest applicable jurisdictional CCyB rate for Hong Kong, announced on 2 August 2022, is 1.0%.⁶⁰

In setting the CCyB, the Monetary Authority considered a series of indicators (Table 5.E), including an “indicative buffer guide” (which is a metric providing a guide for CCyB based on the gap between the ratio of credit-to-GDP and its long term trend, and between the ratio of residential property prices to rentals and its long term trend)⁶¹. The setting of the CCyB for Hong Kong is, however, not a mechanical exercise and the Monetary Authority will always consider a broad range of reference indicators

⁵⁹ For more backgrounds about the latest inflationary pressures in major advanced economies, please read Chapter 2.1.

⁶⁰ For details, see the Announcement of the CCyB to AIs on 2 August 2022 (<https://www.hkma.gov.hk/eng/key-functions/banking/banking-legislation-policies-and-standards-implementation/countercyclical-capital-buffer-ccyb/>).

⁶¹ 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.

Banking sector performance

(“Comprehensive Reference Indicators”) and all relevant information available in addition to the indicative buffer guide ⁶².

In the latest assessment based on the first quarter data of 2022, the indicative buffer guide signals a CCyB of 0%. The projection, based on all available data at the decision date, suggests the indicative buffer guide is likely to continue to signal a similar level of CCyB when all relevant data for the second quarter of 2022 becomes available.

The information drawn from the series of Comprehensive Reference Indicators, along with all relevant information available at the time of the decision in July 2022, suggests that the latest economic indicators point to a stabilisation of economic activities in Hong Kong in the second quarter of 2022, but uncertainties about the global and domestic economic environment have remained high. Therefore, the Monetary Authority considers that it is appropriate to keep the CCyB unchanged at the current level (i.e. 1.0%) and continue to monitor the situation closely.

Table 5.E
Information related to the Hong Kong jurisdictional CCyB

	28-Jan-22	5-May-22	2-Aug-22
Announced CCyB rate	1.0%	1.0%	1.0%
Date effective	28/01/2022	05/05/2022	02/08/2022
Indicative buffer guide	1.6%	1.2%	0.0%
Basel Common Reference Guide	2.5%	2.5%	2.5%
Property Buffer Guide	0.8%	0.5%	0.0%
Composite CCyB Guide	1.6%	1.2%	0.0%
Indicative CCyB Ceiling	None	None	None
<i>Primary gap indicators</i>			
Credit/GDP gap	10.7%	11.2%	19.8%
Property price/rent gap	4.7%	3.6%	1.7%
<i>Primary stress indicators</i>			
3-month HIBOR spread (percentage points)	0.08%	0.32%	0.59%
Quarterly change in classified loan ratio (percentage points)	-0.03%	0.05%	0.10%

Note: The values of all CCyB guides, the Indicative CCyB Ceiling and their respective input variables are based on public data available prior to the corresponding review/announcement date, and may not be the most recent available as of the end of each quarter (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 top of the respective column. If there is no CCyB announcement, the quarter in which a CCyB review takes place (normally close to the end of the quarter) is shown at the top of the column.

Source: HKMA.

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

⁶² These include measures of bank, corporate and household leverage; debt servicing capacity; profitability and funding conditions within the banking sector and macroeconomic imbalances.

Banking sector performance

Table 5.F
Key performance indicators of the banking sector¹ (%)

	Jun 2021	Mar 2022	Jun 2022
Interest rates			
1-month HIBOR fixing ² (quarterly average)	0.09	0.20	0.31
3-month HIBOR fixing (quarterly average)	0.18	0.41	0.88
BLR ³ and 1-month HIBOR fixing spread (quarterly average)	4.91	4.80	4.69
BLR and 3-month HIBOR fixing spread (quarterly average)	4.82	4.59	4.12
Composite interest rate ⁴	0.18	0.24	0.47
All AIs			
Balance sheet developments⁵			
Total deposits	+3.4	+1.1	-0.7
Hong Kong dollar	+4.8	+2.2	+0.1
Foreign currency	+2.0	+0.0	-1.5
Total loans	+4.3	+1.2	-0.4
Domestic lending ⁶	+5.9	+2.0	+0.1
Loans for use outside Hong Kong ⁷	+0.3	-0.6	-1.7
Negotiable instruments			
Negotiable certificates of deposit (NCDs) issued	-4.5	-9.7	+8.1
Negotiable debt instruments held (excluding NCDs)	+2.5	-0.5	-1.2
Asset quality			
As a percentage of total loans ⁸			
Pass loans	97.66	97.37	97.11
Special mention loans	1.48	1.66	1.79
Classified loans ⁹ (gross)	0.86	0.98	1.10
Classified loans (net) ¹⁰	0.47	0.56	0.63
Overdue > 3 months and rescheduled loans	0.59	0.59	0.66
Classified loan ratio (gross) of Mainland related lending ¹¹	0.84	1.15	1.50
Liquidity ratios (consolidated)			
Liquidity Coverage Ratio — applicable to category 1 institutions (quarterly average)	154.0	155.0	154.9
Liquidity Maintenance Ratio — applicable to category 2 institutions (quarterly average)	58.1	58.7	58.4
Net Stable Funding Ratio — applicable to category 1 institutions	132.6	134.3	134.1
Core Funding Ratio — applicable to category 2A institutions	142.7	148.2	147.7
Retail banks			
Profitability			
Loan impairment charges as a percentage of average total assets (year-to-date annualised)	0.05	0.13	0.13
Net interest margin (year-to-date annualised)	0.98	0.98	1.03
Cost-to-income ratio (year-to-date)	51.9	54.7	53.9
Surveyed institutions			
Asset quality			
Delinquency ratio of residential mortgage loans	0.04	0.04	0.05
Credit card lending			
Delinquency ratio	0.27	0.26	0.25
Charge-off ratio — quarterly annualised	1.87	1.50	1.88
— year-to-date annualised	1.94	1.50	1.59
All locally incorporated AIs			
Capital adequacy (consolidated)			
Common Equity Tier 1 capital ratio	15.9	15.8	15.8
Tier 1 capital ratio	17.8	17.8	17.7
Total capital ratio	19.8	19.7	19.8
Leverage ratio	7.9	7.7	7.7

Notes:

- Figures are related to Hong Kong offices only except where otherwise stated.
- The Hong Kong Interbank Offered Rates are released by the Hong Kong Association of Banks.
- With reference to the rate quoted by The Hongkong and Shanghai Banking Corporation Limited.
- 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.
- Quarterly change.
- Loans for use in Hong Kong plus trade finance.
- Including "others" (i.e. unallocated).
- Figures are related to all AIs' Hong Kong offices, as well as locally incorporated AIs' overseas branches and major overseas subsidiaries.
- Classified loans are those loans graded as "substandard", "doubtful" or "loss".
- Net of specific provisions/individual impairment allowances.
- Figures are related to all AIs' Hong Kong offices, as well as locally incorporated AIs' Mainland branches and subsidiaries.

Box 4

The effects of COVID-19 support measures on bank lending: Lessons from the release of CCyB and loan guarantee schemes in Hong Kong

Introduction⁶³

In response to the economic fallout caused by the COVID-19 pandemic, a wide range of policy measures have been implemented on an almost unprecedented scale in many jurisdictions to support stable flows of credit globally. In Hong Kong, the HKMA, together with the banking sector, has also introduced a host of measures to support bank lending towards the domestic economy.⁶⁴ While these measures have so far shown to help limit the economic fallout of the COVID-19 shock, to what extent bank lending is responsive to the measures, and whether a combination of measures may enhance the overall effectiveness, are important policy questions to be answered.

Against this background, this box sheds light on these issues by assessing the effects of two major support measures on bank lending in Hong Kong: (i) the release of the CCyB and (ii) the SFGS. In particular, we attempt to identify these effects by employing a difference-in-differences approach on a panel of 17 locally incorporated licensed banks in Hong Kong over the period between the first quarter of 2018 and the third quarter of 2021.

Overview of the two measures

We first provide a brief overview of the two policy measures considered in this box. Their roles in supporting bank lending will be discussed in the next section.

CCyB is a macro-prudential measure designed to accumulate additional bank capital buffer that can be released in subsequent downturns to absorb losses and support credit supply to the real economy. In view of the deteriorating economic environment in late 2019 and also in view of the COVID-19 outbreak in early 2020, the HKMA reduced the Hong Kong jurisdictional CCyB rate in two steps from 2.5% to 1% between October 2019 and March 2020.⁶⁵

The SFGS is a series of ongoing financing guarantee schemes managed by the Government-owned Hong Kong Mortgage Corporation Limited, devoted to assisting SMEs and non-listed companies to obtain credit. In response to the crisis, the 90% guarantee coverage scheme (SFGS90) and the special 100% loan guarantee scheme (SFGS100) were introduced. SFGS100 particularly aimed at directing banks' lending to SMEs that were hit hard by the pandemic. In this box, we will mainly focus on the effects of SFGS100 due to its lion share among new guaranteed lending.⁶⁶

⁶³ For details, we refer readers to Wong et al. (2022): "The effects of Covid-19 support measures on bank lending: Lessons from the release of CCyB and loan guarantee schemes in Hong Kong", *HKMA Research Memorandum* 03/2022.

⁶⁴ The HKMA webpage (<https://www.hkma.gov.hk/eng/key-functions/banking/banking-regulatory-and-supervisory-regime/riding-out-the-covid-19-challenge/>) provides an overview of the various support measures in Hong Kong. In general, these measures can be broadly categorised into measures that strengthen banks' lending capacity (e.g. release of the CCyB, reducing Regulatory Reserves, launching principal payment holiday scheme for existing loans); while another group of measures was to incentivise banks to lend to targeted borrowers (e.g. SMEs hard-hit by the pandemic) (e.g. the SFGS).

⁶⁵ The Hong Kong jurisdictional CCyB rate was reduced from 2.5% to 2% on 14 October 2019, and was further lowered to 1% on 16 March 2020. It is estimated that the two rounds of CCyB reduction released up to HK \$800 billion of lending capacity.

⁶⁶ In the following, we will interchange the use of the terms SFGS and SFGS100.

Empirical analyses and key findings

Our empirical analyses comprise three parts. First, we assess whether specific balance sheet constraints of banks have reduced their lending by a larger extent (or increase by a smaller extent) relative to their peers after the outbreak of the pandemic. The finding is important as it will inform whether the policy measures taken by the HKMA, such as the CCyB release, have targeted the banks' pain points. It also sets the stage for examining the effectiveness of the CCyB release in the second part of the analysis. Lastly, we examine the effect of the SFGS and assess whether it could serve as an effective complementary support measure in directing bank lending towards hard-hit borrowers.

I. Identifying constraining factors on bank lending in Hong Kong during the crisis

We first assess whether specific balance sheet factors have constrained bank lending during the crisis. Specifically, we conjecture that banks with lower credit loss absorbing capacity (as measured by a lower capital buffer ratio) or thinner liquidity buffers (as measured by a lower liquid asset ratio) before the crisis would tend to curtail lending by more than their peers during the crisis. This can be in part driven by their concern over a deterioration in credit and liquidity risks. To test this empirically, a difference-in-differences (DID) regression model⁶⁷ is adopted to compare the loan growth of relatively more constrained banks with their peers for each exposure variable. Table B4.1 summarises key characteristics of the model, including the definitions of the exposure variable for each of the two constraining factors.

⁶⁷ The DID model assumes and estimates that, during crisis, the average lending responses for the treatment group (i.e. relatively more constrained banks) would be different from the control group (peer banks).

Table B4.1
Key characteristics of the DID model

Model for identifying bank balance sheet constraints

$$\Delta y_{i,t} = \beta_1 Post_t \times Constrained(k)_i + control\ variables + bank\ fixed\ effects + time\ fixed\ effects + error\ term \quad (1)$$

For each bank balance sheet factor k below:

$Constrained(k)_i = 1$ if the average of bank i 's corresponding exposure variable between 2018Q3 and 2019Q2 is below the lower quartile.

Factor k	Exposure variable
Capital buffer ratio ($L.capbuffer_i$)	Banks' Common Equity Tier-1 Capital ratio minus the bank-specific supervisory triggering ratio level.
Liquid asset ratio ($L.liqbuffer_i$)	Banks' liquid asset holding over liability.

$\Delta y_{i,t}$ is the year-on-year growth rate of total lending of the i^{th} bank in quarter t . $Post_t$ is a dummy variable for separating the pre- and post-crisis periods, with a value of one starting from the fourth quarter of 2019⁶⁸ and zero otherwise. The model also includes bank fixed effects and various bank balance sheet variables to control for bank heterogeneity.⁶⁹ It also includes time fixed effects to capture the effect of other time-varying common factors.

The parameter β_1 here reveals whether and to what extent average lending growth of the constrained banks group may differ from their peers during the crisis.⁷⁰ Consistent with our conjectures, we broadly find negative and statistically significant coefficients for β_1 , when either capital or liquidity buffer is taken as the constraining factor. These findings are also consistent with our observations in Chart B4.1, which presents the average lending volume trends between constrained and unconstrained banks over the estimation periods (with capital and liquidity buffers being the constraining factors in panel A and panel B respectively).

⁶⁸ We define the crisis period one quarter earlier than the global COVID-19 pandemic in the first quarter of 2020, as the Hong Kong economy was already facing economic recession in the fourth quarter of 2019.

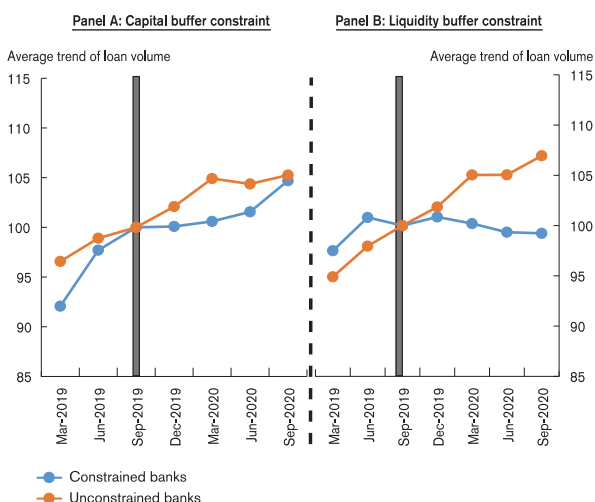
⁶⁹ The control variables include bank size, non-performing ratio, liquid asset ratio, return on assets, and loan-to-asset ratio. They remain the same also for Equation (2).

⁷⁰ It should be noted that the β_1 in Equation (1) absorbed both the effect of the balance sheet constraint factor k during the crisis and the policy effects of support measures. We will further disentangle the two effects in Equation (2).

Banking sector performance

Taken together, the analysis finds that those banks with relatively thinner capital buffers, or lower liquid asset ratios, than their peers before the crisis may be subject to larger lending constraints during the crisis period, relative to other banks.

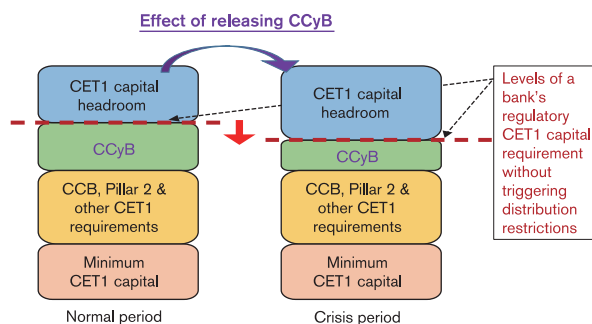
Chart B4.1
Average lending trend between constrained and unconstrained banks across time



Notes:
 1. In panel A and panel B, the balance sheet factor for identifying the lower quartile constrained banks group are capital buffer ratio and liquid buffer ratio respectively.
 2. We first index each banks' loan volume using 2019Q3 as the base (i.e. 2019Q3 = 100 for each bank) and then calculate average value of the individual banks' loan volume across time for the constrained and the unconstrained groups of banks separately.
 Source: HKMA staff estimates.

shift a particular amount of capital sitting in banks' balance sheets from being a "regulatory capital requirement" (i.e. the green box becomes smaller after the CCyB release) to capital headroom that banks can dip into without triggering distribution restrictions (i.e. becomes a larger blue box). The release of CCyB thus provides banks with additional capital headroom and reduces the risk of falling below regulatory capital requirements which may result in costly supervisory consequences (such as dividends distribution restrictions) in the future. This should particularly address the concerns of those banks with a relatively thin capital buffer before entering the crisis, and therefore help support the continued provision of credit by these banks.

Chart B4.2
A graphical illustration for the effect of CCyB release on a bank's CET1 capital position



Note: CET1 and CCB stand for Common Equity Tier-1 and Capital Conservation Buffer respectively. Other requirement includes the higher loss absorbency requirement for designated systemically important AIs.

II. Assessing the policy effect of CCyB release

Given the above findings, a follow-up question is whether the support measures (such as the CCyB release) have helped mitigate banks' lending constraints. In particular, the release of CCyB should mitigate the capital constraint faced by banks, especially those with a relatively thinner capital buffer before the crisis.⁷¹

The immediate effect of CCyB release on bank's CET1 capital holding is graphically illustrated in Chart B4.2. In essence, the release of CCyB requirement effectively leads to a lower regulatory capital requirement faced by a bank (i.e. a lowered red dotted line). As such, it would

Given the period of releasing CCyB almost coincided with the crisis period, we therefore follow Saporta (2021) to identify the effect of CCyB release by exploiting the cross-sectional variations in the pass-through of a change in the CCyB rate in Hong Kong among banks.⁷² Under the CCyB framework, the extent of capital release to a bank from lowering the CCyB rate in a particular jurisdiction is calculated based on the bank's private sector credit exposures (in

⁷¹ In the research memorandum version, based on a similar approach, we do not find strong evidence that CCyB release helped mitigate banks' liquidity constraints of banks.

⁷² One advantage of such approach is that it allows us to disentangle the effect of CCyB release from the effect of the capital-constrained factor during the crisis despite the coinciding time period. See Saporta (2021), "Emerging prudential lessons from COVID Stress", Speech presented at Bank of England Webinar on 21 July 2021, The Bank of England.

Banking sector performance

risk-weighted amount) in that jurisdiction. Therefore, when the CCyB rate is lowered in Hong Kong, a bank with a higher share of credit exposure to Hong Kong over its total credit exposure to all jurisdictions will have a larger reduction in the capital requirements than its peers.⁷³

Accordingly, we construct a new variable, $HKRWA_{i,19Q3}$, that measures the share of bank i 's Hong Kong risk-weighted assets (RWA) for private sector credit exposures over its total credit RWA to all jurisdictions as of the third quarter of 2019 (i.e. before the first release of CCyB in Hong Kong). We then modify Equation (1) to include this exposure variable for CCyB release as the following model:

$$\Delta y_{i,t} = \beta_1 Post_t \times L.capbuffer_i + \beta_2 Post_t \times HKRWA_{i,19Q3} + \beta_3 Post_t \times L.capbuffer_i \times HKRWA_{i,19Q3} + \text{control variables} + \text{bank fixed effects} + \text{time fixed effects} + \text{error term} \quad (2)$$

The parameters of interest here are β_2 and β_3 . A positive β_2 , if found, would suggest that banks more exposed to CCyB release tend to lend relatively more than other banks during the crisis period, thus achieving its intended policy effect; while a positive β_3 would imply that the policy effect tends to be stronger for relatively capital constrained banks than other peers.

As one key objective of the CCyB release is to support the domestic real economy, we will examine the policy effects on domestic lending to non-financial sectors (henceforth referred to as domestic loans), and also on domestic corporate loans. The estimation results are presented in Table B4.2. Three key findings are worth highlighting:

- (i) Focusing on domestic loans (Column 1), there is evidence supporting the intended policy effect from CCyB release, as banks with higher $HKRWA_{i,19Q3}$ tend to provide more domestic loans than their peers during the crisis (i.e. positive and significant β_2).
- (ii) For domestic corporate loans, there is strong evidence that banks with relatively thinner capital headroom before the crisis tend to have lower growth in domestic corporate loans during the crisis (i.e. negative and significant estimated β_1 in Column 2). More importantly, the CCyB release does help mitigate the capital constraints of these banks, thereby supporting their lending to domestic corporates (i.e. positive and significant β_3).
- (iii) As shown in Columns 3 and 4, capital constrained banks tend to deploy the extra capital headroom generated from the release of CCyB to mainly support less risky corporate loans (i.e. lending to non-hard-hit economic sectors) during the crisis period. By contrast, the results were not statistically significant for hard-hit sector loans. This probably reflected banks' concerns over the uncertainty of credit risks amid the crisis.

Table B4.2
Estimation results on the effectiveness of CCyB release on domestic lending

	(1)	(2)	(3)	(4)
Year-on-year growth $\Delta y_{i,t}$	Domestic loans	Corporate loans	Non-hard-hit sectors	Hard-hit sectors
$Post \times L.capbuffer (\beta_1)$	-0.047 (0.095)	-0.413** (0.176)	-0.440** (0.1716)	-0.080 (0.391)
$Post \times HKRWA (\beta_2)$	0.125* (0.071)	-0.0007 (0.111)	0.179 (0.134)	-0.345** (0.147)
$Post \times HKRWA \times L.capbuffer (\beta_3)$	0.083 (0.124)	0.576** (0.227)	0.627*** (0.222)	0.108 (0.493)
Bank Controls	Yes	Yes	Yes	Yes
Bank fixed effect	Yes	Yes	Yes	Yes
Time fixed effect	Yes	Yes	Yes	Yes

Notes:

1. Hard-hit economic sectors include wholesale and retail, trading, transportation, hotel, accommodation and food services sectors.
2. Robust standard errors are reported in parentheses. ***, **, * denote the estimated coefficients being significant at 1%, 5% and 10% levels respectively.

⁷³ Technically, we should also take into account the change in jurisdictional CCyB in other jurisdictions that banks were exposed at the same time. However, as our sampled banks' exposures to those other jurisdictions that have lowered their CCyB around the same time were not significant, we mainly focused on changes in the Hong Kong jurisdictional CCyB in the analysis.

III. Assessing the policy effect of SFGS

As mentioned earlier, SFGS was introduced to incentivise bank lending towards firms (particularly SMEs) that were adversely affected by the pandemic, in order to provide additional financing support to alleviate their cash flow pressures and financial burdens.

In theory, the provision of government guarantees to the approved credit facilities would reduce the credit risk of related loans faced by banks, depending on the guarantee coverage. Thus, banks should be less concerned about extending loans to borrowers from the hard-hit sectors if they are covered by loan guarantee schemes. Therefore, we posit that banks that are more exposed to the SFGS would have more incentives to lend more towards borrowers from the hard-hit sectors (in the form of guaranteed loan) than other banks during the crisis.

To examine the policy effect of the SFGS, a DID model (similar to equation 1) is employed which examines the differences in lending response to hard-hit sectors between banks that were more exposed to the SFGS (i.e. denoted by H_SFGS_i) and other banks.⁷⁴

The estimation results are reported in Table B4.3. It is found that banks which were more exposed to SFGS tended to attain a higher year-on-year growth for loans to hard-hit sectors by 8 percentage points (ppts) than other banks during the crisis (Column 1). Consistently, the share of hard-hit loans to total corporate loans of these more exposed banks is estimated to rise by around 1.7 ppts relative to that of other banks (Column 2). These results show that credit flows to hard-hit sectors have been well supported by the SFGS, which played a complementary role to

the CCyB release by incentivising bank lending more towards these sectors.

Table B4.3
Estimation results on the effect of SFGS on banks' lending towards hard-hit sectors

Variables	(1)	(2)
	Hard-hit sector loan growth (year-on-year growth)	Hard-hit sector loan share
$Post * H_SFGS_i (\beta_1)$	0.080** (0.040)	0.017*** (0.007)
Bank Controls	Yes	Yes
Bank fixed effect	Yes	Yes
Time fixed effect	Yes	Yes

Note: Robust standard errors are reported in parentheses. ***, **, * denote the estimated coefficients being significant at 1%, 5% and 10% levels respectively.

Conclusion

There are three important policy implications learnt from the analysis. First, the release of the CCyB is found to be effective in supporting bank lending in times of stress, thus achieving its policy objective as a countercyclical tool. Secondly, Hong Kong's experience highlights the benefit of maintaining an adequate level of releasable capital buffer to withstand unexpected system-wide shocks. This supports the view that there may be a need to set a positive neutral rate of CCyB even in periods without excessive credit growth. Finally, the findings show the complementary roles between measures that are broad-based (e.g. CCyB release) and targeted (e.g. SFGS) in enhancing the overall effectiveness of policy measures. This echoes the growing view that a combination of different policy measures should be considered to maintain stable flows of credit in times of stress.

⁷⁴ Specifically, we modify equation (1) by replacing $\beta_1 Post_t \times Constrained(k)_i$ with $\beta_1 Post_t \times H_SFGS_i$ for differentiating more SFGS-exposed banks from other banks. H_SFGS_i is a dummy variable with value one if bank i 's share of approved new SFGS loans to the outstanding corporate loans amount is larger than or equal to the upper quantile as of the second quarter of 2020.