5. Banking sector performance

Despite subdued economic growth, retail banks in Hong Kong registered a steady level of profit in the first half of 2019, compared with the same period in 2018. Capital and liquidity positions of the Hong Kong banking sector remained strong and robust by international standards. Banks' loan portfolios resumed expansion in the first half of the year while asset quality remained healthy by historical standards. Reflecting upward pressure on Hong Kong dollar interbank interest rates and keener competition in the retail deposit market, the average Hong Kong dollar funding costs for retail banks increased significantly in June, albeit remaining relatively low. Nevertheless, Hong Kong dollar liquidity remained ample underpinned by the stable level of deposits, with no noticeable outflow of funds from the Hong Kong dollar or from the banking system in the second quarter.

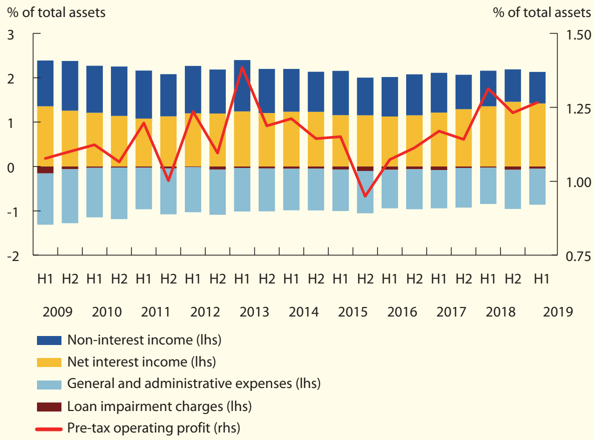
Looking ahead, the Hong Kong banking sector will face multiple headwinds, including the worsening of the US-China trade tensions, increased downside risks to the global economy, rising uncertainty over the timing and magnitude of monetary accommodation by some major central banks, and increased geopolitical risks. In view of the rising corporate leverage and household debt burden, banks should stay alert to the credit risk of their corporate and household exposures to any further deterioration in the external environment.

5.1 Profitability and capitalisation

Profitability

The year-on-year growth of aggregate pre-tax operating profit of retail banks[49] moderated to 0.6% in the first half of 2019. This was mainly due to a reduction in non-interest income and increases in impairment charges and operating expenses, which almost offset the growth in net interest income. Reflecting relatively slower growth in profits than assets, the return on assets reduced slightly to 1.27% in the first half of 2019, compared with the recent peak of 1.31% in the same period last year (Chart 5.1).

Chart 5.1
Profitability of retail banks

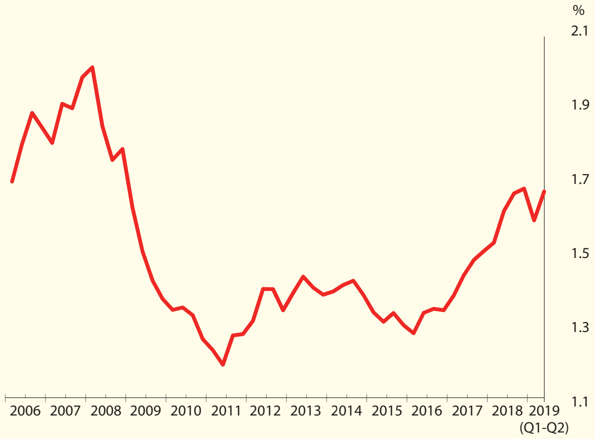


Note: Semi-annually annualised figures.
Source: HKMA.

The net interest margin (NIM) of retail banks widened to 1.66% in the second quarter compared with 1.61% for the same period last year (Chart 5.2).

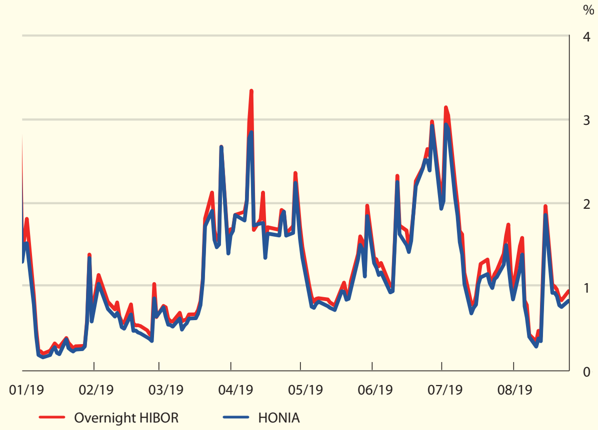
[49] Throughout this chapter, figures for the banking sector relate to Hong Kong offices only unless otherwise stated.

Chart 5.2
NIM of retail banks



Note: Quarterly annualised figures.
Source: HKMA.

Chart 5.3
Hong Kong dollar overnight interbank interest rates



Note: Daily figures.
Sources: TMA and HKMA.

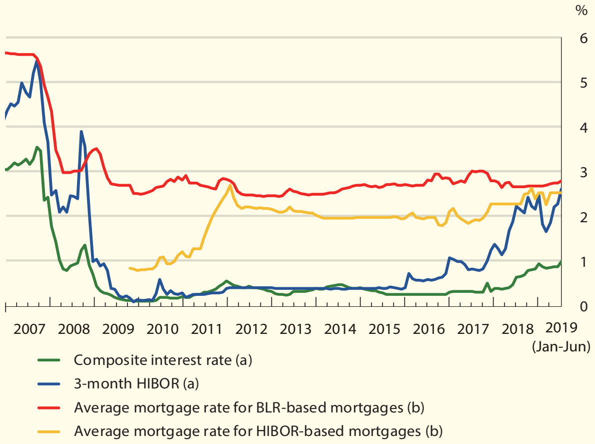
Despite some softening in the short-term Hong Kong dollar interbank rates in the first two months of 2019, interbank rates climbed notably in the second quarter due to a host of factors including seasonal funding needs and anticipated liquidity demand for large initial public offerings (IPOs) and dividend distributions by listed companies. Both the overnight Hong Kong Interbank Offered Rate (HIBOR) and the Hong Kong Dollar Overnight Index Average (HONIA)[50] saw upward movements with significantly higher volatility in the second quarter (Chart 5.3). The three-month HIBOR also reached a new post-crisis peak of 2.46% at the end of June (blue line in Chart 5.4).

Despite the fluctuations in HIBORs, the average Hong Kong dollar funding costs for retail banks, as measured by the composite interest rate, remained largely steady at around 0.82% during the first five months of 2019 (green line in Chart 5.4). However, retail banks were more active to source their funding from the retail deposit market towards the end of June. Partly reflecting keener competition for retail deposits, the composite interest rate picked up to 0.95% at the end of June, albeit remaining relatively low by historical standards.[51]

50 The Treasury Markets Association (TMA) had earlier proposed adopting the HONIA as the alternative reference rate for HIBOR. In line with the Financial Stability Board's recommendation, HONIA is an overnight interbank funding rate based solely on transaction data. The details of HONIA are available on the TMA's website (https://www.tma.org.hk/gb_newsevents_n1.aspx?NewsId=290).

51 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, the June figure is not strictly comparable with those of previous months.

Chart 5.4
Interest rates



Notes:
(a) End of period figures.
(b) Period-average figures for newly approved loans.
Sources: HKMA and staff estimates.

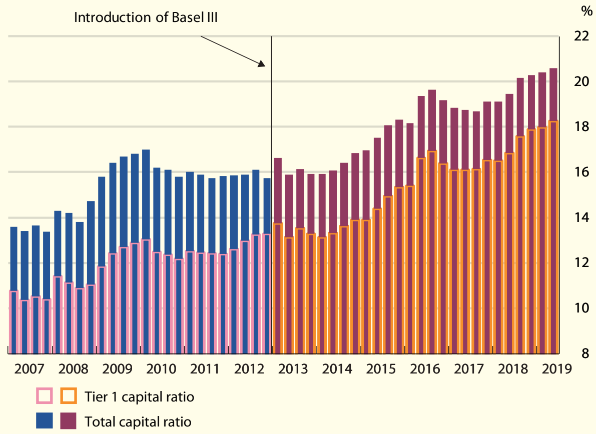
With a larger portion of HIBOR-based mortgage loans reaching their best-lending rate (BLR) cap rates amid the rising funding costs for banks in Hong Kong (see Chart 5.4), the improvement in NIMs brought about by a faster rise in HIBORs may become more limited going forward. Indeed, market information suggests that some banks have reduced the cash rebates for refinance mortgage loans and marked up the level of BLR cap rates for new mortgage lending.

The outlook for banks' profitability in the period ahead continues to be clouded by heightened uncertainties in both the local and external environments. The worsening US-China trade relations coupled with the weakening of local economic conditions and the recent social incidents in Hong Kong could dampen business confidence and reduce demand for bank credit. Meanwhile, the uncertainty over the timing and magnitude of monetary accommodation by some major central banks could also complicate the outlook of banks' NIM.

Capitalisation

Capitalisation of the Hong Kong banking sector continued to be strong and well above the minimum international standards. The consolidated total capital ratio of locally incorporated authorized institutions (AIs) increased to 20.6% at the end of June 2019 (Chart 5.5). The Tier 1 capital ratio also increased to 18.2%, with 16.3% being contributed by Common Equity Tier 1 (CET1) capital.

Chart 5.5
Capitalisation of locally incorporated AIs

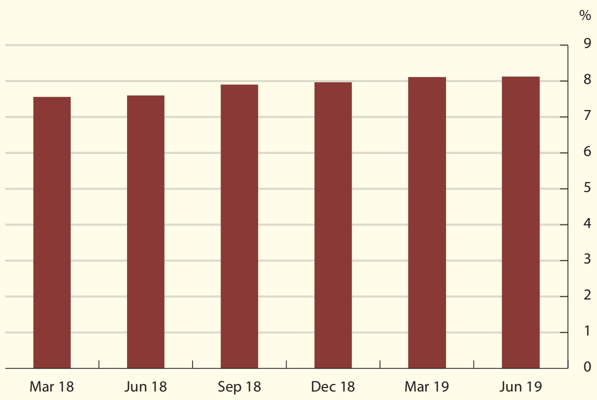


Notes:
1. Consolidated basis.
2. With effect from 1 January 2013, a revised capital adequacy framework (under Basel III) was introduced for locally incorporated AIs. The capital ratios from March 2013 onwards are therefore not directly comparable with those up to December 2012.
Source: HKMA.

Alongside the risk-based capital adequacy ratio, there is a Basel III non-risk-based Leverage Ratio (LR) requirement acting as a "back-stop" to restrict the build-up of excessive leverage in the banking sector.[52] The LR of locally incorporated AIs stood at a healthy level of 8.1% at the end of June 2019, exceeding the 3% statutory minimum (Chart 5.6).

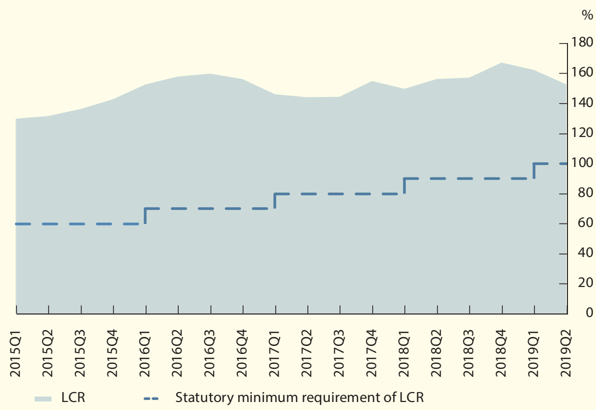
[52] LR is calculated as the ratio of Tier 1 capital to an exposure measure, where the exposure measure includes both on-balance sheet and off-balance sheet exposures. For details, see "Frequently asked questions on the Basel III leverage ratio framework" published by the Basel Committee on Banking Supervision (https://www.bis.org/bcbs/publ/d364.pdf).

Chart 5.6
Leverage Ratio of locally incorporated AIs



Note: Consolidated basis.
Source: HKMA.

Chart 5.7
Liquidity Coverage Ratio



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

5.2 Liquidity and interest rate risks

Liquidity and funding

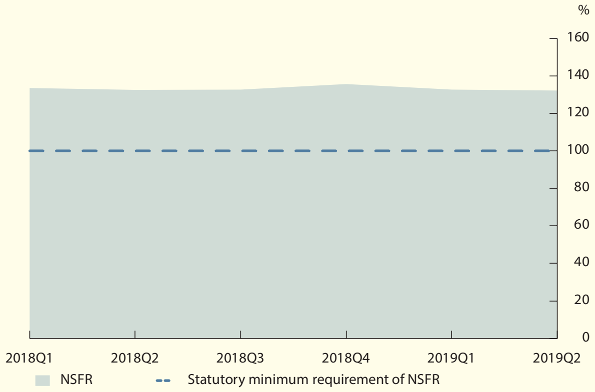
The liquidity positions of the banking sector, as measured by the Basel III Liquidity Coverage Ratio (LCR)[53], remained sound during the review period. Although the average LCR of category 1 institutions decreased to 152.8% in the second quarter of 2019, from 167.3% in the fourth quarter of 2018 (Chart 5.7), the ratio was well above the statutory minimum requirement of 100%. The average Liquidity Maintenance Ratio (LMR) of category 2 institutions edged up to 54.6% in the second quarter of 2019 from 54.3% in the fourth quarter of 2018, also well above the statutory minimum requirement of 25%.

The Net Stable Funding Ratio (NSFR)[54] , as part of the Basel III liquidity requirements, indicates a stable funding position of AIs. The average NSFR of category 1 institutions remained at a high level of 132.1% in the second quarter of 2019 (Chart 5.8), well above the statutory minimum requirement of 100%. The average Core Funding Ratio (CFR) of category 2A institutions stood at a high level of 135.8%, which also exceeded the statutory minimum requirement of 75% applicable in 2019. The strong liquidity and stable funding positions of AIs suggest the Hong Kong banking sector is well positioned to withstand a variety of liquidity shocks.

[53] 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".

[54] 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. According to the Banking (Liquidity) Rules, a category 1 institution must at all times maintain an NSFR of not less than 100%. A category 2A institution must maintain a CFR of not less than 75% on average in each calendar month in 2019. For details, see Banking (Liquidity) Rules (Cap. 155Q).

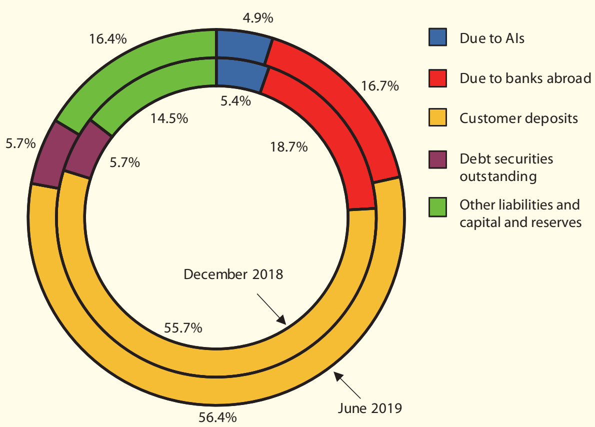
Chart 5.8
Net Stable Funding Ratio



Note: Consolidated basis.
Source: HKMA.

Customer deposits continued to be the primary funding source for AIs, underpinning a stable funding structure in the banking system. At the end of June 2019, the share of customer deposits to all AIs' total liabilities edged up to 56.4% from 55.7% six months ago (Chart 5.9).

Chart 5.9
The liability structure of all AIs

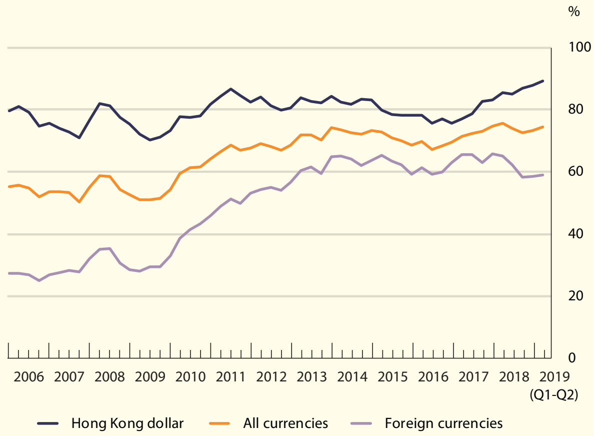


Notes:
1. Figures may not add up to total due to rounding.
2. Figures refer to the percentage of total liabilities (including capital and reserves).
3. Debt securities comprise negotiable certificates of deposit and all other negotiable debt instruments.

Source: HKMA.

With faster growth for Hong Kong dollar loans and advances than deposits, the average Hong Kong dollar loan-to-deposit (LTD) ratio of all AIs increased to 89.3% at the end of June 2019 from 86.9% at the end of 2018 (Chart 5.10). The average foreign currency LTD ratio also edged up to 58.9% from 58.3% during the same period. As a result, the average all-currency LTD ratio of all AIs rose to 74.5% from 72.6% six months ago. Nevertheless, the liquidity conditions remained ample, underpinned by the broadly stable level of deposits, and with no noticeable outflow of funds from the Hong Kong dollar or from the banking system in the second quarter.

Chart 5.10
Average LTD ratios of all AIs



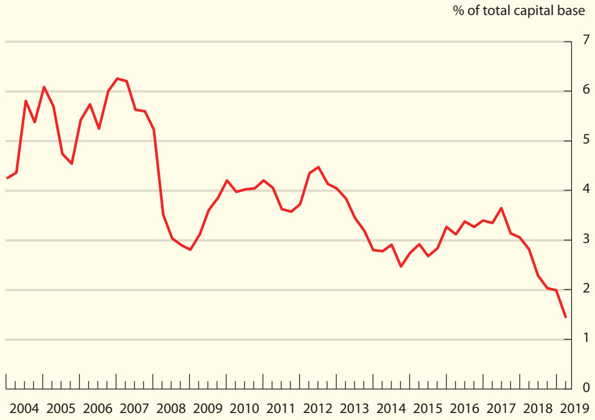
Note: Quarter-end figures.
Source: HKMA.

Interest rate risk

The interest rate risk exposure of locally incorporated licensed banks remained at a low level in the second quarter of 2019. It is estimated that 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 could be subject to a decline equivalent to 1.45% of their total capital base at the end of June 2019 (Chart 5.11).[55]

[55] 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.

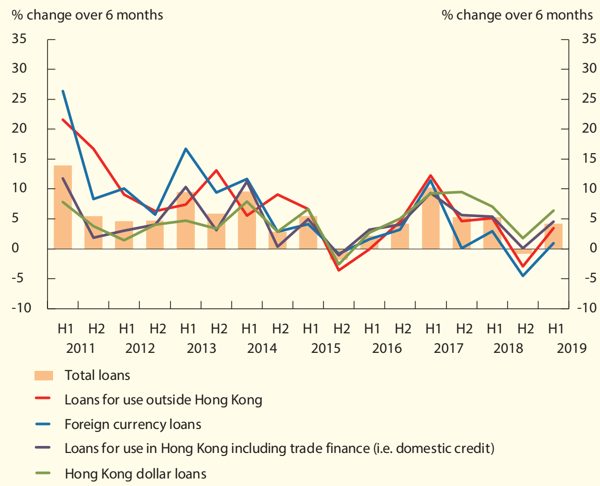
Chart 5.11
Impact of a Hong Kong dollar and US dollar interest rate shock on locally incorporated licensed banks



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 2019.
2. The impact of the interest rate shock refers to its impact on the economic value of the banking and trading book[56], 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 figure for June 2019 is not strictly comparable with those of previous periods.

Source: HKMA.

Chart 5.12
Loan growth



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

Source: HKMA.

5.3 *Credit risk*

Overview

Bank credit resumed expansion in the first half of 2019. On a half-yearly basis, total loans and advances of all AIs increased moderately by 4.2% in the first half, following a 0.9% decline in the second half of 2018 (Chart 5.12).

Both domestic loans (comprising loans for use in Hong Kong and trade financing) and loans for use outside Hong Kong expanded in the review period. Growth in domestic loans quickened to 4.5% in the first half of 2019 from 0.1% in the second half of last year, in part reflecting an accelerated growth in household loans. Loans for use outside Hong Kong rebounded by 3.5%, after contracting by 3.0%.

The demand for credit is likely to be stable in the near term. According to the results of the HKMA Opinion Survey on Credit Condition Outlook in June 2019, 91% of the surveyed AIs expected loan demand to remain the same in the next three months, while the share of AIs expecting somewhat lower demand decreased to 5% from 18% in December 2018 (Table 5.A).

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

% of total respondents	Sep-18	Dec-18	Mar-19	Jun-19
Considerably higher	0	0	0	0
Somewhat higher	9	0	9	5
Same	77	82	86	91
Somewhat lower	14	18	5	5
Considerably lower	0	0	0	0
Total	100	100	100	100

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

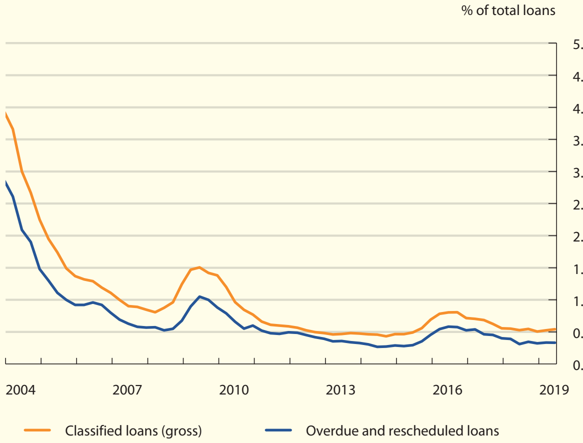
Source: HKMA.

The asset quality of banks' loan portfolios remained healthy in the first half of 2019. The gross classified loan ratio and the ratio of overdue and rescheduled loans of all AIs edged up to 0.56% and 0.39% at the end of June 2019, respectively, compared with 0.55% and 0.36% at the end of 2018. For retail banks, the gross

56 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.

classified loan ratio and the ratio of overdue and rescheduled loans increased slightly to 0.54% and 0.33% respectively (Chart 5.13). Both ratios remained low by historical standards.

Chart 5.13
Asset quality of retail banks



Notes:
1. Classified loans are those loans graded as "sub-standard", "doubtful" or "loss".
2. Figures prior to December 2015 are related to retail banks' Hong Kong offices and overseas branches. Starting from December 2015, the coverage was expanded to include the banks' major overseas subsidiaries as well.

Source: HKMA.

Household exposure[57]

On a half yearly basis, growth in household debt accelerated to 6.7% in the first half of 2019 from 3.9% in the second half of last year. This mainly reflected strong growth in loans for other private purposes, while stable growth in residential mortgage loans also contributed (Table 5.B).

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

(%)	2016 H1	2016 H2	2017 H1	2017 H2	2018 H1	2018 H2	2019 H1
Residential mortgages	1.0	3.1	4.1	3.8	4.2	4.5	4.7
Personal loans	-0.5	7.2	7.2	12.4	7.5	2.6	11.0
of which:							
Credit card advances	-5.7	8.7	-7.8	11.0	-5.0	10.6	-3.8
Loans for other private purposes	1.2	6.8	11.9	12.7	10.7	0.9	14.5
Total loans to households	0.5	4.3	5.0	6.5	5.3	3.9	6.7

Note: Since December 2018, figures for loans to households have been restated to reflect AIs' reclassification of working capital loans. The reported half-yearly growth for the first half of 2019 is calculated based on the reclassified loan data, while the historical growth rates until the second half of 2018 are calculated based on the data without such reclassification.

Source: HKMA.

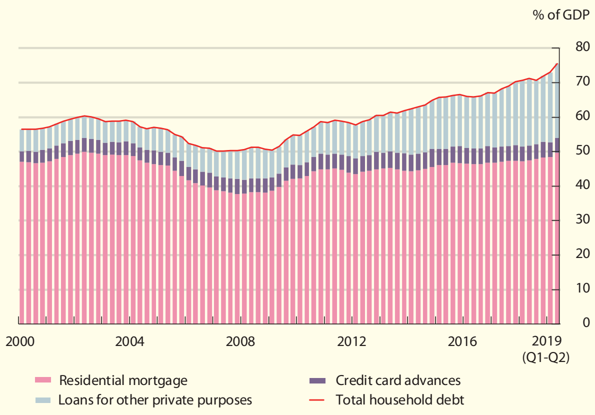
The key driver of the strong growth in loans for other private purposes in the first half of 2019 was the loans to private banking and wealth management customers, which were secured by various financial assets (including stocks, mutual funds and insurance policies). These loans have continued to grow at a fast pace in recent years. Since such loans were underwritten with prudent risk management and conservative collateral valuation, the risks of these loans are assessed to be manageable by the HKMA.[58]

With household debt growing faster than the nominal gross domestic product (GDP) in Hong Kong, the household debt-to-GDP ratio rose further to 75.5% in the second quarter of 2019 from 72.0% in the fourth quarter of 2018 (Chart 5.14).

[57] Loans to households constitute lending to professional and private individuals, excluding lending for other business purposes. Mortgage lending accounts for a major proportion of household loans, while the remainder comprises mainly unsecured lending through credit card lending and other personal loans for private purposes. At the second quarter of 2019, the share of household lending in domestic lending was 30.8%.

[58] For details, see a recent assessment by Cheung *et al.* (2018) "Understanding Household Indebtedness in Hong Kong", *HKMA Research Memorandum*, 07/2018.

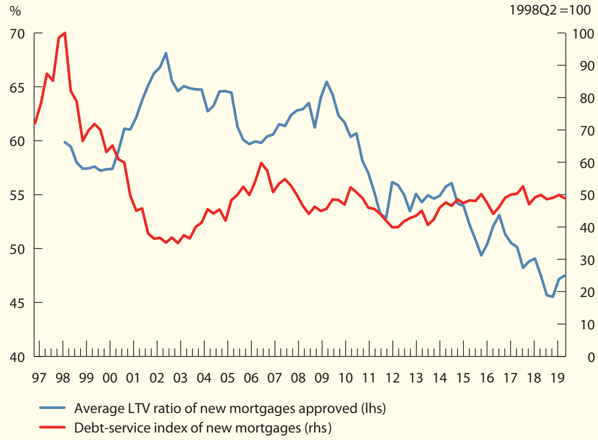
Chart 5.14
Household debt-to-GDP and its components



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.

Chart 5.15
Average LTV ratio and household debt-servicing burden for new mortgage loans



Note: The calculation of the index is based on the average interest rate for BLR-based mortgages.

Sources: HKMA and staff estimates.

The credit risk of household loans stayed low during the review period. In particular, banks' mortgage portfolios remained healthy, with the delinquency ratio hovering at a low level of 0.02% in the second quarter of 2019. The average loan-to-value (LTV) ratio of new mortgage loans approved increased to 47.5% in the second quarter of 2019 from 45.5% six months earlier (Chart 5.15). Despite the slight rise in the average LTV ratio, the figure was still well below the ratio of 64% in September 2009, just before the implementation of the first round of the HKMA's countercyclical macro-prudential measures.

The debt-service index of new mortgages[59] edged down to 48.9 in the second quarter of 2019 compared with 49.0 in the fourth quarter of 2018 (the red line in Chart 5.15), suggesting the household repayment ability remained stable.

While the 25-basis-point cut in the US policy rate in July may mark the beginning of a series of moves towards monetary accommodation, whether interest rates in Hong Kong will follow suit is uncertain. Indeed, various domestic factors, such as the decline in the Aggregate Balance of the banking system and strong demand for the Hong Kong dollar due to seasonal factors and IPO-related activities may suggest that domestic interest rates, particularly HIBORs may not immediately follow the move in US dollar interest rates. As such, the impact on household debt servicing burdens may be limited in the near term.

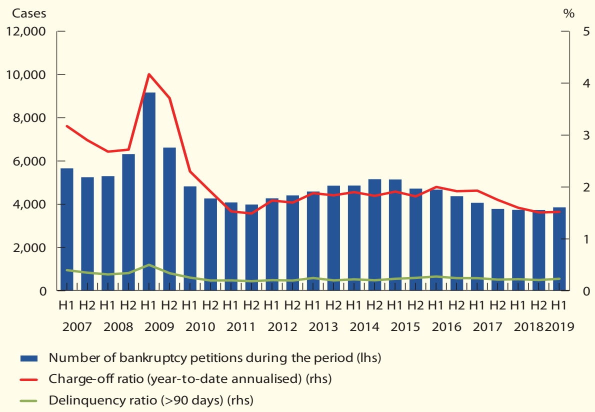
However, if the sluggish growth in the Hong Kong economy continues, it could significantly weaken the household debt servicing ability, as household income may be adversely affected. A

59 A higher value of the debt-service index indicates there is either a drop in household income, or an increase in interest rates, or an increase in the average mortgage loan amount drawn by households. Historical movements in the index suggest that a sharp rise in the index may lead to a deterioration in the asset quality of household debt.

sensitivity test suggests the debt-service index could rise notably to 54.3 from the current level of 48.9 if household income were to decrease by 10%, other things being constant.[60] Therefore, banks should remain alert to the risks associated with a rising level of household debt-servicing burden.

The credit risk of unsecured household exposure remained contained. The annualised credit card charge-off ratio edged up to 1.52% in the second quarter of 2019 and the delinquency ratio edged up to 0.23% at the end of June 2019 (Chart 5.16). In addition, the number of bankruptcy petitions edged up, albeit remaining at a relatively low level.

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

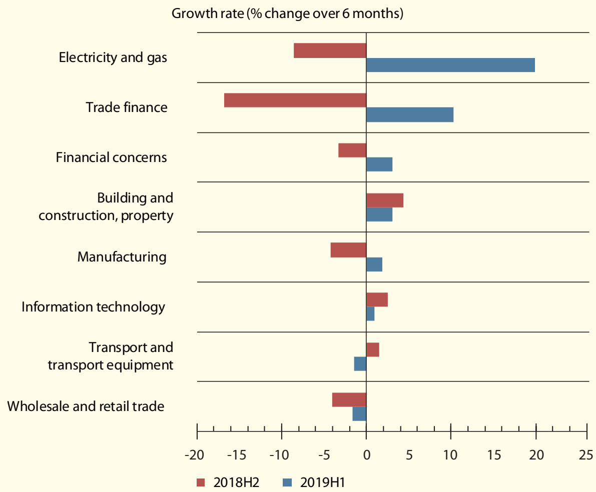


Sources: Official Receiver's Office and HKMA.

Corporate exposure[61]

Domestic corporate loans (including trade finance) resumed growth by 3.6% in the first half of 2019, after declining by 1.5% in the second half of 2018. Analysed by economic sectors, loans for the electricity and gas sector saw a notable rebound (Chart 5.17). Trade financing also recorded strong growth in the first quarter of 2019, but its growth momentum slowed in the second quarter amid rising US-China trade tensions.

Chart 5.17
Growth in domestic corporate loans by selected sectors



Note: Since December 2018, figures for loans for use in/outside Hong Kong have been restated to reflect AIs' reclassification of working capital loans. The reported % change over six months for the first half of 2019 is calculated based on the reclassified loan data, while the % changes for the second half of 2018 are calculated based on the data without such reclassification.

Source: HKMA.

For financial intermediation for small and medium-sized enterprises (SMEs), the demand-side survey on their credit conditions[62] for the second quarter of 2019 shows that their perception of the stance by banks on credit approvals, relative to six months ago, remained largely stable (Chart 5.18). Some 81% of the

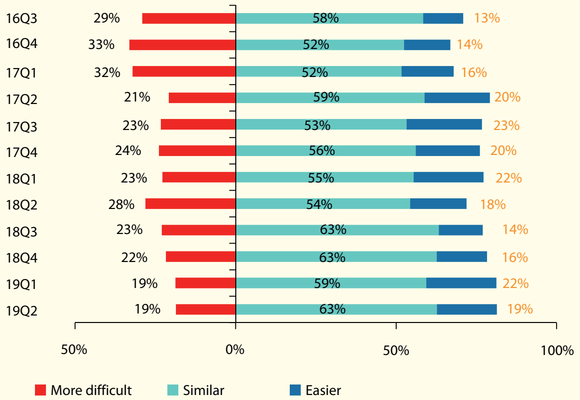
[60] The assumption of a 10% decrease in household income resembles what happened during the Asian financial crisis.

[61] Excluding interbank exposure. At the end of second quarter of 2019, the share of corporate loans in domestic lending was 69.1%.

[62] This Survey is conducted quarterly, covering some 2,500 SMEs from different economic sectors.

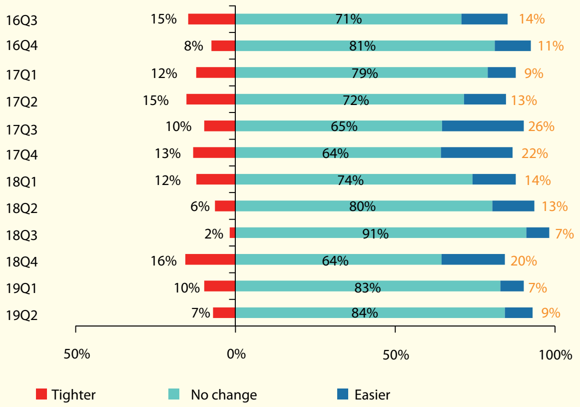
respondents perceived a similar or easier credit approval stance, whereas 19% of respondents perceived a more difficult stance, broadly similar to the results of the previous quarter. Of those respondents with existing credit lines, a slightly smaller proportion of SMEs reported a tighter stance by banks compared with the first quarter of 2019 (Chart 5.19).

Chart 5.18
SMEs' perception of banks' credit approval stance relative to 6 months ago



Source: HKMA.

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



Note: Only covers respondents with existing credit lines.
Source: HKMA.

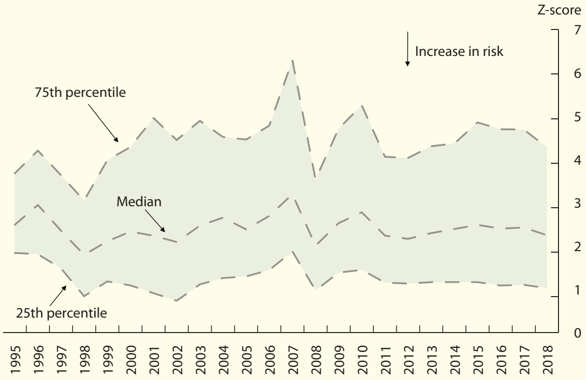
The Basel III regulatory reforms and the Hong Kong Mortgage Corporation (HKMC)'s SME Financing Guarantee Scheme (SFGS), which were introduced after the global financial crisis, may significantly affect credit conditions for SMEs in Hong Kong. Box 5 empirically assesses their effects on the supply of bank loans to SMEs in Hong Kong. The assessment finds that despite more stringent regulatory requirements under Basel III, there has not been a persistent negative effect on the supply of SME loans by banks in Hong Kong, probably due to their strong capital and liquidity positions. The assessment also finds that the public sector's loan guarantee schemes can effectively reduce funding difficulties facing SMEs.

Some indicators suggested that the credit risk of corporate exposures may increase slightly. In particular, the Altman's Z-score, a credit risk measure for the non-financial corporate sector based on accounting data, edged down for both the median and 75th percentile, suggesting a mild deterioration in the financial health of these corporates (Chart 5.20).

In addition, the weighted average debt-to-equity ratio, a common measure of corporate leverage, increased modestly to 65% in 2018 from 64% in 2017 (the green line in Chart 5.21), driven mainly by higher leverage by local corporates. Nevertheless, there were tentative signs of improvement for non-local corporates, as their average leverage reduced to 80% in 2018 from the peak of 83% in 2017 (the red line in Chart 5.21).

Despite the rise in corporate leverage, corporates saw a mild improvement in their debt servicing ability as indicated by a moderate rise in the weighted average interest coverage ratio (ICR) (the green line in Chart 5.22). The rise in the ratio was mainly driven by the improvement in the ICR of non-local corporates. By contrast, the weighted average ICR of local corporates saw a slight deterioration.

Chart 5.20
Altman's Z-score of listed non-financial corporates in Hong Kong

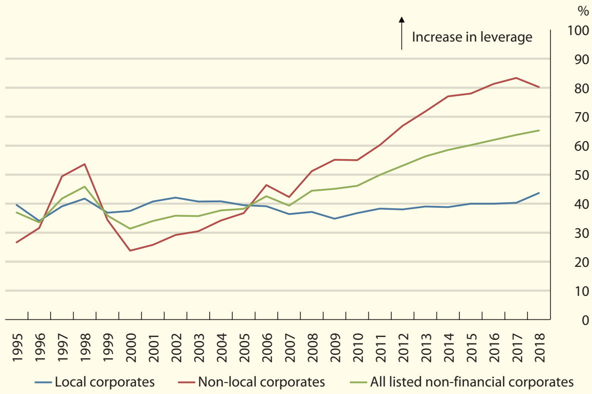


Notes:

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 2019.

Source: HKMA staff estimates based on data from Bloomberg.

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

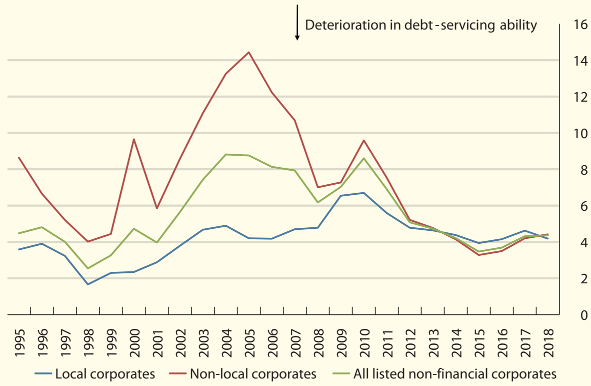


Notes:

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 end-August 2019.

Source: HKMA staff estimates based on data from Bloomberg.

Chart 5.22
Interest coverage ratio of listed non-financial corporates in Hong Kong



Notes:

1. Weighted average figures.
2. The ICR is calculated by the earnings before interest and tax divided by the 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 2019.

Source: HKMA staff estimates based on data from Bloomberg.

Looking ahead, the intensification of the US-China trade disputes and the increased downside risks to the global economy may lead to a deterioration in corporates' fundamentals and thus, undermine their debt-servicing ability. Therefore, banks should prudently manage the credit risk of their corporate exposures.

Mainland-related lending and non-bank exposures

The banking sector's total Mainland-related lending resumed positive growth in the first half of 2019. At the end of June 2019, total Mainland-related lending increased by 7.5% to HK$4,568 billion (17.1% of total assets), from HK$4,251 billion (16.1% of total assets) at the end of 2018 (Table 5.C).[63] Trade finance loans rebounded notably by 29.3% at the end of June 2019, compared with six months earlier. Other non-bank exposures increased by 7.9% to HK$1,507 billion (Table 5.D).

[63] Around one-third of the growth of Mainland-related lending in the first half of 2019 was attributable to the internal transfer of ownership of a bank's Mainland branch to its locally incorporated Hong Kong office in June 2019. Excluding the effect of this transfer of ownership, total Mainland-related lending would have increased by 4.9% during the period.

Table 5.C
Mainland-related lending

HK$ bn	Sep 2018	Dec 2018	Mar 2019	Jun 2019
Mainland-related loans	4,321	4,251	4,415	4,568
Mainland-related loans excluding trade finance	4,010	3,987	4,103	4,227
Trade finance	311	264	312	341
By type of AIs:				
Overseas incorporated AIs	1,860	1,800	1,873	1,897
Locally incorporated AIs*	1,832	1,828	1,896	1,920
Mainland banking subsidiaries of locally incorporated AIs	629	622	646	750
By type of borrowers:				
Mainland state-owned entities	1,734	1,690	1,811	1,858
Mainland private entities	1,211	1,203	1,230	1,276
Non-Mainland entities	1,377	1,358	1,375	1,433

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

Table 5.D
Other non-bank exposures

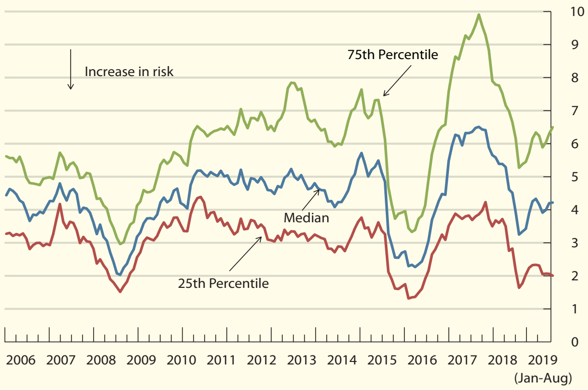
HK$ bn	Sep 2018	Dec 2018	Mar 2019	Jun 2019
Negotiable debt instruments and other on-balance sheet exposures	956	977	1,039	1,068
Off-balance sheet exposures	430	420	409	439
Total	**1,386**	**1,397**	**1,448**	**1,507**

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

The gross classified loan ratio of Mainland-related lending of all AIs[64] increased to 0.70% at the end of June 2019 from 0.55% at the end of 2018. Despite the deterioration in asset quality, the associated credit risk should be contained as the ratio remained lower than the recent high of 0.89% in March 2016.

Meanwhile, a forward-looking market-based indicator showed a slight improvement in the default risk for the Mainland corporate sector. The distance-to-default (DTD) index[65] rebounded in the first quarter of 2019 from a recent low in November 2018 (Chart 5.23), partly reflecting the buoyant performance of the Mainland stock markets. However, there have been tentative signs of deterioration in the index for the lower-tier corporates since early May, probably reflecting a less optimistic view by market participants about resolving the US-China trade dispute.

Chart 5.23
Distance-to-default index for the Mainland corporate sector



Note: DTD index is calculated based on the non-financial constituent companies (i.e. excluding investment companies and those engaged in banking, insurance and finance) of the Shanghai Stock Exchange 180 A-share index.
Source: HKMA staff estimates based on data from Bloomberg.

In view of the downside risk to the Mainland economy and the worsening of the US-China trade dispute, banks should stay alert to the credit risk management of their Mainland-related exposure.

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

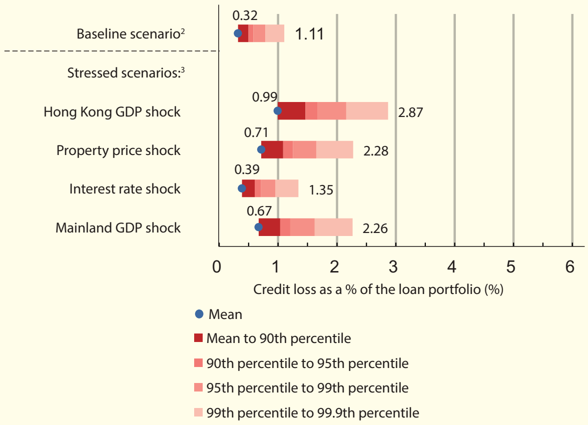
65 The DTD is a market-based default risk indicator based on the framework by R. Merton (1974), "On the pricing of corporate debt: the risk structure of interest rates", *Journal of Finance*, Vol. 29, pages 449–470, in which equity prices, equity volatility, and companies' financial liabilities are the determinants of default risk. In essence, it measures the difference between the asset value of a firm and a default threshold in terms of the firm's asset volatility.

Macro stress testing of credit risk[66]

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 rather severe macroeconomic shocks similar to those experienced during the Asian financial crisis. Chart 5.24 presents the simulated future credit loss rate of retail banks in the second quarter of 2021 under four specific macroeconomic shocks[67] using information up to the second quarter of 2019.

Taking account of tail risk, banks' credit losses (at the confidence level of 99.9%) under the stress scenarios range from 1.35% (Interest rate shock) to 2.87% (Hong Kong GDP shock), which are significant, but smaller than the estimated loan loss of 4.39% following the Asian financial crisis.

Chart 5.24
The mean and value-at-risk statistics of simulated credit loss distributions[1]



Notes:

1. The assessments assume the economic conditions in 2019 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 2.3%, 2.8%, 1.6%, and 1.5% respectively in each of the four consecutive quarters starting from 2019 Q3 to 2020 Q2.

   Property price shock: Reductions in Hong Kong's real property prices by 4.4%, 14.5%, 10.8%, and 16.9% respectively in each of the four consecutive quarters starting from 2019 Q3 to 2020 Q2.

   Interest rate shock: A rise in real interest rates (HIBORs) by 300 basis points in the first quarter (i.e. 2019 Q3), followed by no change in the second and third quarters and another rise of 300 basis points in the fourth quarter (i.e. 2020 Q2).

   Mainland GDP shock: Slowdown in the year-on-year annual real GDP growth rate to 4% in one year.

Source: HKMA staff estimates.

5.4 Systemic risk

Against the backdrop of heightened downside risks to the global economy, the intensification of the US-China trade dispute, the recent social incidents in Hong Kong, uncertainty over the timing and magnitude of monetary accommodation by some major central banks and rising geopolitical risks, the Hong Kong banking sector is expected to face challenges on various fronts.

Although US-China trade talks resumed after the June G20 Summit, signs of intensification of the dispute emerged in early August. If conflicts between the world's two largest economies deepen, business confidence and corporates' financial conditions could be adversely affected, particularly for those with significant exposure to the two economies. This, coupled with weakening global economic conditions, could

[66] 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 those estimates from previous reports.

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

put the debt servicing ability of corporates to the test and pose challenges to banks' credit risk management in view of the rising corporate leverage in recent years.

Some central banks in major advanced economies have signalled or already moved towards monetary accommodation, partly in response to increased downside risks to the global economy. However, the timing and magnitude of monetary accommodation remain uncertain, as they hinge on the future path of economic growth. As such, there is a risk of an abrupt repricing of interest rate expectations which, in turn, could heighten the volatility of domestic interest rates.

Across the Atlantic, geopolitical risks related to Brexit still merit close monitoring. The outcome of Brexit remained highly uncertain due to the political gridlock in the UK surrounding the issue. If a larger-than-expected disruption stemming from a "no-deal" Brexit occurs, there could be abrupt shifts in cross-border banking flows from the UK. The subsequent spillover risks to the Hong Kong banking sector could be large, given the unmatched role of the UK banking system in distributing international banking flows and the significant interbank linkage between Hong Kong and the UK.[68]

Nevertheless, there has been no notable deterioration in interbank funding conditions so far during the review period. The spread between the three-month US dollar London Interbank Offered Rate (LIBOR) and its corresponding overnight index swap (OIS) rate[69], a common indicator of systemic liquidity risks in the short-term dollar funding market, has remained broadly stable (Chart 5.25).

Chart 5.25
Three-month US dollar LIBOR-OIS spreads

Source: Bloomberg.

The countercyclical capital buffer (CCyB) 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 associated with excessive aggregate credit growth. Hong Kong has been implementing the CCyB in line with the Basel III implementation schedule through the phased-in arrangements, which were completed on 1 January 2019.[70]

[68] At the end of June 2019, external claims on banks in the UK accounted for 8% of the Hong Kong banking sector's total external claims on banks outside Hong Kong.

[69] An OIS is an interest rate swap in which the floating leg is linked to an index of daily overnight rates. The two parties agree to exchange at maturity, on an agreed notional amount, the difference between interest accrued at the agreed fixed rate and interest accrued at the floating index rate over the life of the swap. The fixed rate is a proxy for expected future overnight interest rates. As overnight lending generally bears lower credit and liquidity risks, the credit risk and liquidity risk premiums contained in the OIS rates should be small. Therefore, the LIBOR-OIS spread generally reflects the credit and liquidity risks in the interbank market.

[70] Under the Basel III phase-in arrangements, the maximum CCyB rate was capped at 0.625% on 1 January 2016, with the cap rising by 0.625 percentage points each subsequent year until it reached 2.5% on 1 January 2019.

In setting the CCyB rate, 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 rates 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)[71]. The latest indicative buffer guide, calculated based on the first quarter of 2019 data, is slightly less than 2% which signalled a CCyB of 1.75%, lower than the current rate.[72] This is mostly due to the recent narrowing of the credit to GDP gap from more than 12% in the previous quarter to about 9%, reflecting the recent slowdown in loan growth. The property price to rental gap, however, has widened again, reflecting the recent recovery in residential property prices.

However, the setting of the CCyB is not a mechanical exercise. In considering whether there is a build-up of systemic risk, the Monetary Authority will consider a broad range of reference indicators in addition to the indicative buffer guide.[73] These indicators suggested that system-wide risks in Hong Kong associated with a period of excessive credit growth have not subsided. Housing affordability remains highly stretched and household debt-to-GDP ratio has risen to a new high. Given these conditions the Monetary Authority considered that it is appropriate to maintain the CCyB at 2.5% at this juncture.

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

	Q4-2018	15-Apr-19	09-Jul-19
Announced CCyB rate		2.5%	2.5%
Date effective		15/04/2019	09/07/2019
Indicative buffer guide	2.5%	0.9%	2.0%
Basel Common Reference Guide	2.5%	2.5%	2.2%
Property Buffer Guide	2.5%	0.3%	1.5%
Composite CCyB Guide	2.5%	0.9%	2.0%
Indicative CCyB Ceiling	None	None	None
Primary gap indicators			
Credit/GDP gap	9.8%	12.5%	9.1%
Property price/rent gap	10.0%	2.8%	6.7%
Primary stress indicators			
3-month HIBOR spread* (percentage points)	0.42%	0.23%	0.22%
Quarterly change in classified loan ratio (percentage points)	0.01%	-0.04%	0.02%

Notes:
1. 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 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 top of the respective column. If there is no CCyB announcement, the quarter in which a CCyB review takes place (normally close to quarter end) is shown at the top of the column.
2. *Following a review of the appropriate risk-free rate benchmark (previously identified as the 3-month OIS rate), the HKMA has decided to amend the definition of the interbank market spread to the difference between the 3-month HIBOR and 3-month Exchange Fund Bill yield, effective from April 2017.

Source: HKMA.

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

[71] 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.

[72] According to section 3.2.5 of the HKMA's SPM CA-B-1, the CCyB rate will be expressed in multiples of 25 basis points (without rounding up). Thus the indicative buffer guide would signal an extant CCyB rate to increase or decrease in multiple of 25 basis points.

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

Table 5.F
Key performance indicators of the banking sector[1] (%)

	Jun 2018	Mar 2019	Jun 2019
Interest rates			
1-month HIBOR fixing[2] (quarterly average)	1.23	1.29	2.04
3-month HIBOR fixing (quarterly average)	1.68	1.74	2.11
BLR[3] and 1-month HIBOR fixing spread (quarterly average)	3.77	3.83	3.09
BLR and 3-month HIBOR fixing spread (quarterly average)	3.32	3.38	3.01
Composite interest rate[4,5]	0.62	0.82	0.95
		All AIs	
Balance sheet developments[6]			
Total deposits	0.4	1.3	0.4
Hong Kong dollar	0.5	2.4	1.1
Foreign currency	0.2	0.1	–0.4
Total loans	1.6	2.3	1.8
Domestic lending[7]	1.7	2.2	2.3
Loans for use outside Hong Kong[8]	1.4	2.7	0.8
Negotiable instruments			
Negotiable certificates of deposit (NCDs) issued	–2.5	–4.1	1.1
Negotiable debt instruments held (excluding NCDs)	1.1	3.9	1.1
Asset quality			
As a percentage of total loans[9]			
Pass loans	98.07	98.17	98.15
Special mention loans	1.31	1.28	1.29
Classified loans[10] (gross)	0.61	0.56	0.56
Classified loans (net)[11]	0.32	0.28	0.25
Overdue > 3 months and rescheduled loans	0.40	0.41	0.39
Classified loan ratio (gross) of Mainland related lending[12]	0.62	0.63	0.70
Liquidity ratios (consolidated)			
Liquidity Coverage Ratio — applicable to category 1 institutions (quarterly average)	156.4	162.4	152.8
Liquidity Maintenance Ratio — applicable to category 2 institutions (quarterly average)	51.3	54.7	54.6
Net Stable Funding Ratio — applicable to category 1 institutions	132.5	132.7	132.1
Core Funding Ratio — applicable to category 2A institutions	127.3	134.1	135.8
		Retail banks	
Profitability			
Loan impairment charges as a percentage of average total assets (year-to-date annualised)	0.02	0.04	0.05
Net interest margin (year-to-date annualised)	1.57	1.58	1.62
Cost-to-income ratio (year-to-date)	37.3	38.4	38.0
		Surveyed institutions	
Asset quality			
Delinquency ratio of residential mortgage loans	0.02	0.02	0.02
Credit card lending			
Delinquency ratio	0.22	0.21	0.23
Charge-off ratio — quarterly annualised	1.65	1.52	1.58
— year-to-date annualised	1.60	1.52	1.52
		All locally incorporated AIs	
Capital adequacy (consolidated)			
Common Equity Tier 1 capital ratio	15.3	16.1	16.3
Tier 1 capital ratio	16.8	18.0	18.2
Total capital ratio	19.4	20.4	20.6
Leverage ratio	7.6	8.1	8.1

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-bearing liabilities, which include deposits from customers, amounts due to banks, negotiable certificates of deposit and other debt instruments, and Hong Kong-dollar non-interest-bearing demand deposits on the books of banks. Further details can be found on the HKMA website.
5. Since June 2019, the composite interest rate has been calculated based on the new local IRRBB framework. As such, the June figure is not strictly comparable with those of previous months.
6. Quarterly change.
7. Loans for use in Hong Kong plus trade finance.
8. Including "others" (i.e. unallocated).
9. Figures are related to all AIs' Hong Kong offices, as well as locally incorporated AIs' overseas branches and major overseas subsidiaries.
10. Classified loans are those loans graded as "substandard", "doubtful" or "loss".
11. Net of specific provisions/individual impairment allowances.
12. Figures are related to all AIs' Hong Kong offices, as well as locally incorporated AIs' Mainland branches and subsidiaries.

Box 5
Evaluation of the effects of bank regulatory reforms and loan guarantee schemes on small and medium-sized enterprise loans

Introduction

Small and-medium sized enterprises (SMEs) are key contributors to the Hong Kong economy. At the end of 2018, they accounted for more than half the total private sector employment. Anecdotal evidence suggests that although many SMEs in Hong Kong rely mainly on internal financing, bank credit is the most important external funding source. So, bank credit conditions for SMEs could have a significant impact on the performance of both SMEs and the broader economy.

Two key developments after the global financial crisis (GFC), namely the introduction of Basel III reforms and the launch of SME Financing Guarantee Scheme (SFGS)[74] by the Hong Kong Mortgage Corporation (HKMC) may have important implications for the bank credit conditions for SMEs in Hong Kong. On one hand, the more stringent regulatory requirements under Basel III may arguably induce negative impact on SME loans or bank lending in general.[75] On the other hand, the SFGS helps reduce the credit risk of SME loans, thus providing stronger incentive for banks to lend to SMEs. In view of the counteracting effects of these two key developments, it is therefore important to evaluate how far SME financing in Hong Kong may have changed after the GFC. This box empirically quantifies their effects on the supply of bank loans to SMEs in Hong Kong with a view to understanding the overall impact of these two key developments.

[74] For details, see http://www.hkmc.com.hk/eng/our_business/sme_financing_guarantee_scheme.html.

[75] For instance, less-capitalised banks may be incentivised to shift away from SME loans to other corporate loans under the more stringent Basel III capital requirements, as the capital requirement for SME loans may be higher than that of other corporate loans.

The empirical model and data

The assessment of the effect of Basel III regulatory reforms on SME loans is based on the econometric model developed by the Financial Stability Board's working group on evaluation of the effects of financial regulatory reforms on SME financing.[76] Basically, a difference-in-difference model is specified to explain banks' quarterly growth of SME loans with a dummy variable separating the pre- and post-reform periods.[77] The model further assumes that during the post-reform period, the average growth rate of SME loans for the group of banks that are more exposed to the reform (i.e. the treatment group) would be different from other banks (i.e. the control group). The difference can be taken as the cross-sectional effect of the regulatory reform. The model specification can be adjusted to test whether the regulatory effects are persistent or transitory.

The model is applied to estimate the effect of different regulatory reforms under Basel III, namely the risk-based capital (RBC), liquidity coverage ratio (LCR) and domestic systemically important banks (D-SIB).[78] For each regulatory reform, a specific balance sheet variable (i.e. exposure variable) is adopted to identify the group of "more exposed banks". For example, when assessing the effect of RBC, "more exposed banks" refer to those banks with the average ratio

[76] The working group contains 16 jurisdictions including Hong Kong. The consultation report is available at https://www.fsb.org/2019/06/fsb-publishes-consultation-on-sme-financing-evaluation.

[77] The pre- and post-reform periods are defined based on the announcement date of the reform in Hong Kong.

[78] Leverage ratio and net stable funding ratio are excluded from the analysis, as they were implemented very recently, and therefore the sample in the post-reform period may be too small to obtain reliable estimates.

of Tier 1 capital over risk-weighted assets (RWA) in the pre-reform period lower than the bottom quartile. This assumes that less-capitalised banks tend to be more responsive to the RBC reform. Table B5.A summarises major characteristics of the model, including the definitions of the exposure variable for each of the regulatory reforms considered.

Table B5.A
Key characteristics of the model

Model for estimating the effects of the reforms

Dependent variable =
a (Pre/post-regulation dummy variable)* Dummy (Exposure variable) +*
b control variables for bank characteristics +*
bank fixed effects + time fixed effects + error term

For RBC and LCR:
Dummy (Exposure variable) = 1
if the exposure variable is below the bottom quartile

Reforms	Exposure variable
RBC	Tier 1 capital / RWA
LCR	(Cash + Due from Exchange Fund + Government bills, notes and bonds) / Total assets
D-SIB	Bank identified as D-SIB

The model includes bank fixed effects and various bank balance sheet variables to control for bank heterogeneity. It also includes time fixed effects to capture the effect of loan demand and other time-varying common factors.[79]

Apart from examining the effects on SME loans, this analysis considers two additional dependent variables, the quarterly growth of total corporate loans (including SME loans) and the share of SME loans in total corporate loans. These additional estimation results can provide a fuller picture and also facilitate robustness checks.

Data for estimations are mainly obtained from regulatory banking returns filed by banks in Hong Kong to the HKMA. Data of SME loans and corporate loans are from *the return of capital adequacy ratio*. The former is defined as the sum of on-balance sheet exposure to SMEs and small business reported under the internal ratings-based approach (IRB approach), and the amount of qualifying exposures to small businesses reported under the standardized (credit risk) approach (STC approach).[80] Corporate loans refer to the sum of SME loans defined above and all other corporate exposure under the IRB and STC approaches.

Other bank balance sheet variables are sourced from various banking returns.[81] These variables include size (measured by the natural logarithm of total assets), loan-to-asset ratio, loan-to-deposit ratio, ratio of liquid assets[82] to total assets, gross classified loan ratio, ratio of Tier 1 capital to RWA, return on assets, and ratio of Tier 1 capital to total assets. The dataset for estimations includes 19 locally incorporated licensed banks in Hong Kong, covering the period from the first quarter of 2010 to the third quarter of 2018.

Empirical findings on the effects of bank regulatory reforms

We first discuss the empirical findings on the effect of RBC, which can be summarised by the following three points. First, the growth of SME loans of less-capitalised banks is estimated to be not statistically different from that of other banks after the RBC reform. Second, for total corporate loans, less-capitalised banks are found to register higher growth by around 2.5

[79] This may capture the effect of SFGS (will be discussed later).

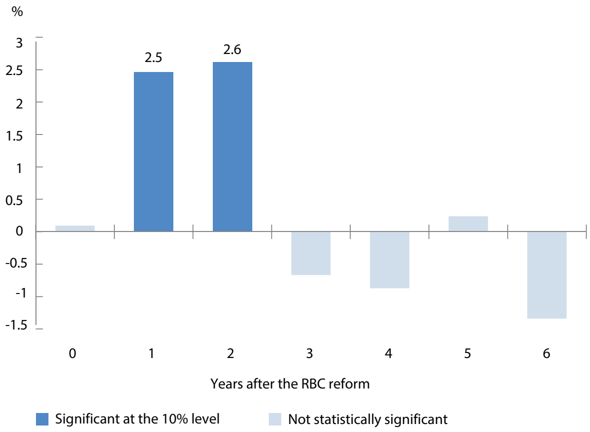
[80] For the IRB approach, SMEs are defined as corporates with an annual revenue equal or smaller than HK$500 million; small businesses refer to exposures to those corporates where the total exposure amount to the corporate is less than HK$10 million.

[81] These include *the return of assets and liabilities, the return of capital adequacy ratio, the quarterly analysis of loans and advances and provisions and the return of current year's profit and loss account.*

[82] Liquid assets are defined as the sum of cash, due from the Exchange Fund, and government bills, notes and bonds.

percentage points relative to that of other banks in the first two years after the RBC reform (Chart B5.1). These two findings together suggest that less-capitalised banks adjusted their corporate loan portfolios by shifting towards non-SME corporate loans after the RBC reform, which is in line with economic intuitions. But this portfolio adjustment effect is found to be transitory. Finally, consistent with the two findings above, the share of SME loans to total corporate loans of less-capitalised banks is estimated to decrease by around 1.4 percentage points relative to that of other banks, with the estimate being statistically significant.

Chart B5.1
Estimated effects of the RBC reform on growth of corporate loans



We repeated the same exercise for other aforementioned regulatory reforms. The estimation results, however, show that they do not generate any significant transitory or persistent effect on SME loans and corporate loans.

Empirical findings on the effect of SFGS

Before discussing the empirical findings on the effect of HKMC's SFGS, we highlight two features of the SFGS that influence the choice of the empirical method to estimate the effect of SFGS. First, the scheme was introduced in 2011, followed by refinements in 2012, 2016 and 2018 (see Table B5.B).[83] As the introduction of the scheme and the first two refinements occurred during the sample period, these events make the estimation of the effect of SFGS possible.

Second, the scheme has drawn positive responses from banks in Hong Kong. Indeed, all sample banks in this study are found to be participating banks of the scheme. As a result, empirically it is difficult to identify the cross-sectional effect of SFGS using the same estimation approach we did previously unless a suitable exposure variable can be identified to separate the treatment and control groups of banks. However, in this case, it appears that there is no ideal candidate for the exposure variable.

Table B5.B
HKMC's SFGS and its refinement

Effective since	1 Jan 2011	31 May 2012	1 Jun 2016	19 Nov 2018
Max. guarantee ratio	70%	80%		
Max. annual guarantee fee	4.2%	1.44%	1.3%	0.65%
Min. annual guarantee fee	0.5%		No minimum	
Max. credit amount (HK$ million)	12			15
Max. guarantee amount (HK$ million)	8.4	9.6		12
Max. guarantee period	5 years			7 years

Source: HKMC.

[83] The scheme aims to help SMEs to obtain financing from participating lenders for meeting their business needs to enhance their productivity and competitiveness in the rapidly changing business environment. The current scheme remains effective until the end of June 2022.

With these considerations, we aim at estimating the average effect of SFGS among banks. To this end, a time series model is specified to explain the estimate of time fixed effects obtained from the previous model for examining the effect of the RBC on SME loans. We choose to examine this estimate, as it captures time-varying common factors among banks. In theory, if the SFGS generates a significant homogenous effect across banks, the effect can be revealed from the estimate of time fixed effects after controlling for other common macroeconomic factors.

The model contains five explanatory variables, including a dummy variable that takes the value of one since the first quarter of 2011 and zero otherwise to capture the effect of the introduction of SFGS, and a step variable to capture the effects of the subsequent two refinements.[84] Two macroeconomic variables, the real GDP growth rate and the three-month HIBOR are included to control for changes in demand for SME loans over time. Finally, a dummy variable defined as one after the announcement of the RBC reform and zero otherwise is added in order to capture a potential homogenous effect of the RBC reform across banks.

The estimation result (Table B5.C) shows that the introduction of the SFGS significantly increases the supply of SME loans, with an average of seven percentage points increase in the quarterly growth of the loans.

Table B5.C
Estimation result for the effect of SFGS

Dependent variable	Estimates of time fixed effects from the RBC model
Introduction of SFGS	7.056***
Refinements of SFGS	-1.073
Real GDP growth	1.668***
3-month HIBOR	-2.466
Announcement of RBC	-3.845
R^2	0.551
Observation	35

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

Conclusion

This analysis found that the more stringent regulatory requirements under Basel III have not generated a persistent negative effect on the supply of SME loans by banks in Hong Kong.[85] This may be due to the fact that banks in Hong Kong are generally highly capitalised with strong liquidity positions. The analysis also found that loan guarantee schemes by the public sector can effectively reduce funding difficulties facing SMEs. In sum, despite the potential counteracting effects, these two key developments after the GFC is likely to generate a net positive impact on bank credit conditions for SMEs in Hong Kong. Nevertheless, given that SMEs are particularly vulnerable to funding shocks, credit conditions of SMEs merit close monitoring, particularly in view of the recent worsening of domestic economic conditions.

[84] The step variable takes an initial value of zero up to the first quarter 2012, then a value of one from the second quarter of 2012 to first quarter of 2016, and a value of two afterwards to reflect the two enhancements in 2012 and 2016 respectively.

[85] There is a caveat that the estimates in this box mainly reflect the impact of earlier Basel III reform measures. Since the final package of Basel III reform includes other measures that specifically affect corporate loans, there may be a need to revisit this issue again after the implementation of the final package to ascertain the impact.