5. Banking sector performance

The profitability of retail banks improved notably in the first half of 2018 compared with the same period in 2017 mainly due to higher net interest income and lower loan impairment charges. Capital and liquidity conditions remained sound and robust. Alongside the rise in Hong Kong dollar interbank interest rates following the triggering of the weak-side Convertibility Undertaking, the overall Hong Kong dollar funding costs of retail banks increased notably, albeit remaining relatively low. Credit continued to grow steadily and asset quality remained healthy by historical standards. However, in view of rising uncertainties in global trade tensions, the pace of US interest rate hikes, and geopolitical risks, banks should remain vigilant against the risks of more volatile capital outflows and their impact on local interest rates. In particular, given the rising corporate leverage, banks should also carefully assess the longer-term impact of the US-China trade tensions and the potentially faster-than-expected rise in US interest rates on the credit risk of these exposures.

5.1 **Profitability and capitalisation**

Profitability

The aggregate pre-tax operating profit of retail banks⁴² increased substantially by 24.8% in the first half of 2018, compared with the same period last year. As such, the return on assets of retail banks increased markedly to 1.31% in the first half of 2018 from 1.17% in the same period of 2017 (the red line in Chart 5.1). The improvement in profitability was mainly driven by a significant increase in net interest income boosted by higher net interest margin (NIM) (which widened further to 1.57% in the first half from 1.41% in the same period of 2017 (Chart 5.2)) and a reduction in loan impairment charges, which more than offset a slight decline in non-interest income.



Chart 5.1 Profitability of retail banks

⁴² Throughout this chapter, figures for the banking sector relate to Hong Kong offices only unless otherwise stated.

Chart 5.2 NIM of retail banks



Short-term Hong Kong Interbank Offered Rates (HIBORs) picked up significantly, largely reflecting the reduced Hong Kong dollar interbank liquidity following the triggering of the weak-side Convertibility Undertaking (CU), along with Initial Public Offering (IPO)-related funding demand and seasonal funding demand near the quarter and half-year end.⁴³ Specifically, the three-month HIBOR rose markedly by 79 basis points from the end of December 2017 to the post-crisis high of 2.10% at the end of June 2018. Latest data show that the short-term HIBORs decreased slightly in July after the IPO-related and seasonal demand factors receded.

On the retail front, market information showed that some banks have started lifting their timedeposit rates to secure more long-term Hong Kong dollar stable funding. However, with Hong Kong dollar saving deposit rates still hovering at low levels, the increase in the average retail deposit interest rates was relatively mild. Given retail deposits are the major funding source of retail banks, their overall Hong Kong dollar funding cost, as indicated by the composite interest rate, remained low by historical standards, despite a notable increase of 24 basis points to 0.62% at the end of June 2018, from 0.38% at the end of 2017 (the green line in Chart 5.3). $^{\rm 44}$



More broadly, the aggregate Hong Kong dollar and US dollar funding cost of licenced banks in Hong Kong also showed a similar picture. The banks' average market-based Hong Kong dollar and US dollar funding cost increased notably by 51 basis points during the first half of 2018, while their average deposit funding cost also saw an increase of 31 basis points. Overall, their average overall Hong Kong dollar and US dollar funding cost increased by 40 basis points (the red line in Chart 5.4).

⁴³ The weak-side CU was triggered repeatedly in April, May and August, accumulating capital outflows of HK\$103.5 billion.

⁴⁴ The composite interest rate edged up by one basis point to 0.63% at the end of July 2018, after the tangible rise in June.

Chart 5.4



Hong Kong dollar and US dollar funding cost

The faster rise in HIBORs than the overall funding cost of banks in Hong Kong would likely benefit banks' margins on HIBOR-based assets. However, the improvement in NIMs may be partially offset by the fierce competition in the mortgage market. Market information suggests that some banks had actively promoted fixed rate schemes during the first half of 201845, and offered higher cash rebates to attract new customers even when the average HIBOR-based mortgage rates for new mortgage loans were effectively capped flat at 2.15% during the first half of 2018 (the yellow line in Chart 5.3).⁴⁶ Anecdotal evidence suggests that banks would earn much thinner returns from mortgage business than previously. As signs of upward pressure on banks' funding costs are emerging with further US interest rate hikes anticipated, this could potentially weigh on banks' NIMs if

the increased costs are not fully passed on to their customers eventually.⁴⁷

Looking ahead, the more uncertain external environment could create headwinds for Hong Kong banks' profitability. Specifically, heightened uncertainties in business prospects arising from the US-China trade tensions coupled with US monetary policy normalisation, could put a drag on the demand for bank credit. If this translates into a slowdown in credit growth, it could adversely weigh on banks' net interest income.

Capitalisation

The consolidated total capital ratio of locally incorporated authorized institutions (AIs) edged up to 19.4% at the end of June 2018 (Chart 5.5). The Tier 1 capital ratio also increased to 16.8%, whereby 15.3% was contributed by Common Equity Tier 1 (CET1) capital. Overall, capitalisation of the Hong Kong banking sector continued to be strong and well above the minimum international standards.





⁴⁷ Probably reflecting higher funding cost pressures for banks, many banks have raised their interest rates for new mortgage loan applications by 10 and 20 basis points on BLR-based and HIBOR-based mortgages respectively in early August 2018.

⁴⁵ The shares of new loans approved during the month adopting the fixed rate scheme reached 45.4% in March 2018, compared with only 5.5% in December 2017. However, market share of the fixed rate scheme declined to 5.2% in June as HIBORs went up and put weights on banks' funding costs. Many banks halted the scheme since April 2018.

⁴⁶ 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). So far, during the review period, there has been no movement for the BLRs of banks in Hong Kong since the 2008 global financial crisis.

5.2 Liquidity and interest rate risks

Liquidity and funding

The liquidity position of the banking sector, as measured by the Basel III Liquidity Coverage Ratio (LCR)⁴⁸ requirement, remained sound during the review period. The average LCR of category 1 institutions increased to 156.6% in the second quarter of 2018, from 155.1% in the fourth quarter of 2017 (Chart 5.6), which were well above the statutory minimum requirement of 90% applicable in 2018. The average LMR of category 2 institutions increased slightly to 51.3% in the second quarter of 2017, which were well above the statutory minimum requirement of 2018 from 49.4% in the fourth quarter of 2017, which were well above the statutory minimum requirement of 25%.

The Net Stable Funding Ratio (NSFR), as a part of the Basel III liquidity requirements, came into effect on 1 January 2018. As of June 2018, designated AIs had complied with the minimum requirements of NSFR and the local Core Funding Ratio (CFR)⁴⁹, reflecting a stable funding position in the Hong Kong banking sector. The strong liquidity and stable funding positions of AIs suggest the Hong Kong banking sector will be able to withstand a variety of liquidity shocks.

⁴⁸ The Basel III LCR requirement, phased-in from 1 January 2015, 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 Liquidity Maintenance Ratio (LMR). For details, see the HKMA's Supervisory Policy Manual (SPM) LM-1, "Regulatory Framework for Supervision of Liquidity Risk".

⁴⁹ 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 50% on average in each calendar month of the year. The minimum CFR will rise to 75% on 1 January 2019. For details, see Banking (Liquidity) Rules (Cap. 155Q).



Chart 5.6

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 2018, the share of customer deposits to all AIs' total liabilities declined marginally to 54.5% from 56.2% six months ago (Chart 5.7).



^{1.} Figures may not add up to total due to rounding.

- 2. Figures refer to the percentage of total liabilities (including capital and reserves).
- Debt securities comprise negotiable certificates of deposit and all other negotiable debt instruments.

Source: HKMA.

On a half-yearly basis, the average Hong Kong dollar loan-to-deposit (LTD) ratio of all AIs increased to 85.4% at the end of June 2018 from 82.7% at the end of December 2017, due to faster growth in Hong Kong dollar loans and advances than Hong Kong dollar deposits. Similarly, the average foreign currency LTD ratio of all AIs rose to 65.2% from 63.1% during the same period. Signs of stabilisation in the foreign currency LTD ratio were observed in the second quarter of 2018, as foreign currency-denominated loans declined slightly in the second quarter of 2018, while foreign currency deposits continued to grow. Overall, the average all-currency LTD ratio increased to 75.7% from 73.0% six months ago. Given heightened uncertainties in the external environment related to trade tensions, banks should continue to assess how rises in the LTD ratios affect their liquidity management.

Chart 5.8 Average LTD ratios of all Als



Source: HKMA.

Interest rate risk

The interest rate risk exposure of locally incorporated licensed banks remained stable at a low level. It is estimated that under a hypothetical shock of an across-the-board 200-basis-point increase in interest rates, the economic value of locally incorporated licensed banks' interest rate positions could be subject to a decline equivalent to 3.15% of their total capital base at the end of June 2018 (Chart 5.9).⁵⁰ Nevertheless, with expected further US interest rate hikes and the Federal Reserve's balance sheet reduction, banks should assess the implications for their interest rate risk management.

Chart 5.9 Impact of an interest rate shock on locally incorporated licensed banks



2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018

Notes:

- 1. Interest rate shock refers to a standardised 200-basis-point parallel rate shock to institutions' interest rate risk exposure.
- The impact of the interest rate shock refers to its impact on the economic value of the banking and trading book⁵¹, expressed as a percentage of the total capital base of banks.

Source: HKMA.

5.3 Credit risk

Overview

Despite rising uncertainties in the global environment, total loans and advances of all AIs continued to grow at a steady pace of 5.3% in the first half of 2018, the same as six months ago (Chart 5.10). In particular, both domestic loans (comprising loans for use in Hong Kong and trade financing) and loans for use outside Hong Kong grew by 5.4% and 5.1% respectively, compared with 5.6% and 4.6% in the preceding six months.

⁵⁰ This estimation does not take into account the effects of any mitigating action by banks in response to the shock. The impact will be smaller if mitigating action is taken.

⁵¹ 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.



The expectations of credit growth in the near term have turned less optimistic, possibly reflecting the heightened uncertainties over the trade tensions between the US and Mainland China, the geopolitical risks and the pace of US interest rate normalisation. The results of the HKMA Opinion Survey on Credit Condition Outlook in June 2018 showed that the share of surveyed AIs expecting loan demand to be higher in the next three months had decreased to 18% from 29% in December 2017, while the remaining 82% were expecting loan demand to remain the same (Table 5.A).

Table 5.A

Expectation of loan demand in the next three months

% of total respondents	Sep-17	Dec-17	Mar-18	Jun-18
Considerably higher	0	0	0	0
Somewhat higher	24	29	18	18
Same	71	71	82	82
Somewhat lower	5	0	0	0
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 sound and healthy in the first half of 2018. The gross classified loan ratio and the ratio of overdue and rescheduled loans of all AIs declined to 0.61% and 0.40% at the end of June 2018 respectively, compared with 0.68% and 0.52% at the end of 2017. For retail banks, both the gross classified loan ratio and the ratio of overdue and rescheduled loans also fell to 0.53% and 0.31% respectively (Chart 5.11). Both ratios stayed at low levels by historical standards.

Chart 5.11 Asset quality of retail banks



overseas branches. Starting from December 2015, the coverage was expanded to include the banks' major overseas subsidiaries as well. Source: HKMA.

One of the important debates in banking research that remains inconclusive is the effect of loan concentration on the credit risk of banks' loan portfolio. Due to the possible trade-off between concentration risks and specialisation gains, the potential effect of loan concentration on the credit risk of banks' loan portfolio is theoretically ambiguous. To shed light on this, Box 4 empirically investigates the net effect of loan concentration based on banks in Hong Kong. Our empirical results suggest that banks acquire sector-specific knowledge to improve their selection and monitoring abilities, which buffer the associated concentration risks by focusing lending to certain loan sectors. However, the net impact on the credit risk of banks' loan portfolios depends on how far the

banks allocate their loan portfolio towards riskier sectors. Therefore, changes in both the sectoral concentration and the composition of banks' loan portfolios should be monitored jointly in order to have a more balanced assessment of the credit risk of banks' loan portfolios.

Household exposure⁵²

On a half-yearly basis, growth in household debt slowed to 5.3% in the first half of 2018 from 6.5% in the second half of last year. The slower growth in household debt was largely due to a decelerated growth in personal loans (which comprise credit card advances and loans for other private purposes), which offset the pick up in growth for residential mortgage loans (Table 5.B).

Table 5.B

Half-yearly growth of loans to households of all Als

	20	15	20	16	20	17	2018
(%)	H1	H2	H1	H2	H1	H2	H1
Residential mortgages	4.5	4.0	1.0	3.1	4.1	3.8	4.2
Personal loans of which:	6.2	2.5	-0.5	7.2	7.2	12.4	7.5
Credit card advances Loans for other private purposes	-5.5 10.5	7.1 1.1	-5.7 1.2	8.7 6.8	-7.8 11.9	11.0 12.7	-5.0 10.7
Total loans to households	5.0	3.6	0.5	4.3	5.0	6.5	5.3

Source: HKMA.

Despite the slower growth, household debt still grew faster than the nominal Gross Domestic Product (GDP) in Hong Kong during the review period. As a result, the household debt-to-GDP ratio edged up to 71.2% in the second quarter of 2018 from 70.3% in the fourth quarter last year (Chart 5.12).





While household debt-to-GDP ratio has been a widely used indicator in evaluating household financial vulnerability, one cannot come to a conclusion about an economy's vulnerability by relying solely on this simple measure without taking into account the entirety of household balance sheet, risks to lenders and the associated macroeconomic imbalance.

In order to provide a full assessment by considering all these factors, we recently developed a framework for understanding the conditions under which rising household debtto-GDP poses risks to the economy, and where Hong Kong stands when evaluated under such a framework. The assessment finds that rising household debt should not pose a major threat to Hong Kong's financial and macroeconomic stability. The conceptual framework and full assessment result can be found in Cheung et al. (2018).⁵³

Our findings suggest that from a borrower's perspective, the household sector as a whole has a strong buffer to cushion potential financial and

⁵² 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 end of June, the share of household lending in domestic lending was 28.7%.

⁵³ For more details, see Cheung et al. (2018), "Understanding household indebtedness in Hong Kong", *HKMA Research Memorandum*, 07/2018.

economic shocks associated with rising household debt.⁵⁴ In particular, Hong Kong's households on aggregate have a high net-worthto-liabilities ratio and safe-assets-to-liabilities ratio based on our broad-brush estimates.⁵⁵

Specifically, household assets have grown at a much faster rate than liabilities after the global financial crisis. As such, households' net worth (the difference between assets and liabilities) has increased considerably since 2009, with the household net worth-to-liabilities ratio rising from about 10 times in 2009 to 12.6 times in 2016 (Chart 5.13). In fact, the household net worth-to-liabilities ratio was much higher in Hong Kong than in major advanced economies and other Asian economies, where it was mostly found to be only around 5–6 times (Chart 5.14).





- ⁵⁴ The finding is based on an analysis of aggregate ratios of household balance sheet. One limitation is that it cannot reveal the extent of risks stemming from the distribution of household debt among households. Such risks have been examined by Cheung et al. (2018), and the findings suggest that such risks should be low.
- ⁵⁵ The ratios are compiled using a macro approach, in which estimates of households' assets are compiled by multiplying the aggregate value of assets by the percentage share of household ownership. Data on the aggregate values of property and financial assets (e.g. deposits, debt securities, stocks, life insurance and pension funds) are obtained from various sources through surveys or relevant administrative data. However, in most cases the percentage shares owned by households in these aggregate values are not readily available. As such, estimations and assumptions are made. For the liabilities of households (mainly mortgage and personal loans), estimates are obtained from banking statistics by the HKMA, supplemented by estimates of credit extended by non-banks obtained through surveys. For details, see Cheung et al. (2018).



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

Given that for Hong Kong's households, residential property is the main form of asset for the storage of wealth, a natural question arises as to whether, in the event of a sharp drop in property prices, households on aggregate should still be able to have a strong buffer to cover the rising debt. A conservative approach to assess households' resilience to a shock in the asset market is to look at their holdings of safe assets. We find that even if we consider a very narrow definition of safe assets to include only deposits, the safe assets-to-liabilities ratio for Hong Kong's household sector was very high at around 3.2 times in 2016. This implies that even in the event of a sharp deterioration in households' asset position due to asset price corrections, Hong Kong's households on aggregate still have sufficient safe assets to cover their outstanding debts. Therefore, the risk of a systemic insolvency problem would be low. In addition, the safe assets-to-liabilities ratio of households in Hong Kong is far higher than other economies, including those with relatively wealthy households such as Singapore and Japan (Chart 5.15).



From a lender's perspective, the credit risk of household loans also 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% at the end of June 2018. The average loan-to-value (LTV) ratio of new mortgage loans approved edged down to 47.5% in the second quarter of 2018 from 48.8% in the fourth quarter of 2017 (Chart 5.16), staying well below the ratio of 64% in September 2009, just before the implementation of the first round of countercyclical macro-prudential measures by the HKMA.







Note: The calculation of the index is based on the average interest rate for BLR-based mortgages. Sources: HKMA and staff estimates. However, the debt-service index of new mortgages⁵⁶ edged up to 49.9 in the second quarter of 2018 from 47.0 in the fourth quarter of 2017 (the red line in Chart 5.16), mainly due to an increase in the average size of new mortgage loans (Chart 5.17). Going forward, the continuing US rate hikes and the potential pass through to domestic interest rates could weigh on the household debt-servicing burden. In particular, a sensitivity test suggests that the index could rise significantly to 69.4 in a four-quarter period if interest rates were to increase by 300 basis points⁵⁷, other things being constant. Therefore, the affordability of some households could be under significant pressure if interest rates were to rise rapidly. Banks should stay alert to the risks associated with a rising level of household debt-servicing burden.

Chart 5.17 New mortgage loans of surveyed Als



Source: HKMA Residential Mortgage Survey.

⁵⁶ 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.

⁵⁷ The assumption of a 300-basis-point rise in interest rates is consistent with the prudential measure that requires AIs to have a three-percentage-point mortgage rate upward adjustment for stress testing property mortgage loan applicants' debt servicing ability.

The credit risk of unsecured household exposure remained contained. The annualised credit card charge-off ratio declined to 1.60% in the first half of 2018 and the delinquency ratio was stable at 0.22% at the end of June 2018 (Chart 5.18). In addition, the number of bankruptcy petitions continued to fall.







Sources: Official Receiver's Office and HKMA.

Corporate exposure⁵⁸

Domestic corporate loans (including trade finance) grew by 5.4% (on a half-yearly basis) in the first half of 2018, which was similar to that observed in the second half of last year. Analysed by economic sectors, faster growth in trade financing, loans to manufacturing, and loans to wholesale and retail trade were the major contributors for the steady growth of domestic corporate loans in the first half of 2018 (Chart 5.19). By contrast, loans to financial concerns grew at a slower pace during the first half of 2018 after last year's rapid expansion. The growth in loans to building, construction and property development continued to slow down, partly reflecting the effect of the strengthened risk management for lending to property developers since June 2017.⁵⁹



Growth in domestic corporate loans by selected sectors



The credit risk environment for banks' corporate exposures remained stable during the review period. The number of compulsory winding-up orders of companies was largely unchanged at 149 in the first half of 2018, compared with 150 six months ago. In addition, the latest reading of Altman's Z-score, a credit risk measure for the non-financial corporate sector based on accounting data, showed signs of improvement with the median value picking up marginally, while the score at the 25th percentile (i.e. corporates with higher default risk) remained stable (Chart 5.20). The slight decline in the default risk for the non-financial corporates listed in Hong Kong could be partly due to the improvement in their debt-servicing abilities, as indicated by the increase in interest coverage ratios across both local and non-local corporates (Chart 5.21).

⁵⁸ Excluding interbank exposure. At the end of June, the share of corporate loans in domestic lending was 71.2%.

⁵⁹ For details, see "Circular on Risk management for lending to property developers" issued by the HKMA on 12 May 2017.

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



Notes:

All non-financial corporates listed on the Hong Kong Stock Exchange are selected.
 Figures are calculated based on information up to end-August 2018.

Source: HKMA staff estimates based on data from Bloomberg.

Chart 5.21

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



- Local corporates

- Non-local corporates

- All listed non-financial corporates

Notes:

- The interest coverage ratio is calculated by the earnings before interest and tax divided by the total interest expenses. A lower value indicates deterioration of debt-servicing ability.
- 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 2018.

Source: HKMA staff estimates based on data from Bloomberg.

However, banks should stay alert to the credit risk of their corporate exposure, as the leverage ratio (measured by the weighted average of debt-to-equity ratio) for the corporate sector continued to trend upwards (Chart 5.22).





 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.

Source: HKMA staff estimates based on data from Bloomberg.

In addition, the credit risk outlook is expected to be clouded by the heightened uncertainties over the US-China trade tensions and the continuing US interest rate normalisation. An escalation in trade conflicts between the two countries will inevitably add downside risks to the financial conditions of corporates with significant exposures in the US and Mainland China. The negative impact arising from the trade imbroglio could also spillover to other corporates through the global supply chain channel. This could put the debt-servicing ability of these corporates under significant pressure if the situation intensifies and persists in the longer term. Therefore, banks should carefully assess how escalation in trade conflicts and the potentially faster-than-expected rise in interest rates will affect the credit risk in relation to their corporate exposures.

Corporates' currency mismatches are another key factor that warrants close monitoring. If the trade conflict triggered abrupt capital outflows in the region and resulted in significant volatilities in foreign exchange markets, it could translate

^{1.} Weighted average figures

^{4.} Figures are calculated based on information up to end-August 2018.

into significant losses for corporates that have excessive foreign currency denominated liabilities, but without sufficient foreign currency denominated cash inflow. Banks should therefore stay attentive to corporates' currency mismatch risk.

Mainland-related lending and non-bank exposures

The banking sector's total Mainland-related lending increased by 5.4% to HK\$4,414 billion (16.9% of total assets) at the end of June 2018, from HK\$4,189 billion (16.7% of total assets) at the end of 2017 (Table 5.C).

Other non-bank exposures also edged up by 0.2% to HK\$1,333 billion (Table 5.D).

Table 5.C

Mainland-related lending

HK\$ bn	Sep 2017	Dec 2017	Mar 2018	Jun 2018
Mainland-related loans	4,073	4,189	4,409	4,414
Mainland-related loans excluding trade finance	3,755	3,880	4,068	4,064
Trade finance	318	310	341	350
By type of Als:				
Overseas incorporated Als	1,785	1,853	1,943	1,936
Locally incorporated Als*	1,663	1,692	1,768	1,819
Mainland banking subsidiaries of locally incorporated Als	625	644	699	658
By type of borrowers:				
Mainland state-owned entities	1,672	1,711	1,799	1,818
Mainland private entities	972	1,016	1,123	1,140
Non-Mainland entities	1,429	1,462	1,486	1,456

Notes:

1. * Including loans booked in Mainland branches of locally incorporated Als.

2. Figures may not add up to total due to rounding.

Source: HKMA

Table 5.DOther non-bank exposures

HK\$ bn	Sep 2017	Dec 2017	Mar 2018	Jun 2018
Negotiable debt instruments and other on-balance sheet	871	920	950	916
Off-balance sheet exposures	503	411	415	417
Total	1,374	1,331	1,365	1,333

Note: Figures may not add up to total due to rounding. Source: HKMA. Despite the rising share of banks' Mainlandrelated lending, the associated credit risks should remain manageable. The gross classified loan ratio of Mainland-related lending of all AIs⁶⁰, also decreased further to 0.62% at the end of June 2018 from 0.67% at the end of 2017.

The recent turbulence in the Mainland stock markets, stemming from rising concerns over the US-China trade tensions, may signal a deterioration in the credit risk associated with Mainland-related exposure of banks. The distance-to-default index⁶¹, a market-based default risk indicator, points to a broad-based increase in the credit risk of the Mainland corporate sector since April 2018 (Chart 5.23). Nevertheless, the level of the distance-to-default index remained higher than that during the global financial crisis, suggesting that the likelihood of a large-scale default in the Mainland corporate sector should not be high in the near term.

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



2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 (Jan-Aug)

Note: Distance-to-default 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.

- ⁶⁰ Figures cover AIs' Hong Kong offices and Mainland branches and subsidiaries.
- ⁶¹ The distance-to-default 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.

Nevertheless, the overall corporate leverage in Mainland China was still at a relatively high level (the blue line in Chart 5.24), despite the progress of deleveraging in overcapacity sectors since mid-2016.⁶² Therefore, banks are reminded to maintain prudent credit risk management for their Mainland-related lending.

Chart 5.24





2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

All listed non-financial corporates
 Corporates in overcapacity sectors

Notes:

- 1. The leverage ratio is defined as the ratio of total liabilities to total assets.
- 2. It is calculated based on all non-financial corporates listed on the Shanghai Stock
- Exchange and the Shenzhen Stock Exchange. 3. Overcapacity industries include glass, cement, steel, photovoltaic, aluminium, shipbuilding and coal chemical.
- 4. Figures are calculated based on information up to end-August 2018. Source: HKMA staff estimates based on data from Bloomberg.

Macro stress testing of credit risk63

Results of the latest macro stress testing on retail banks' credit exposure suggest that 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 5.25 presents the simulated future credit loss rate of retail banks in the second quarter of 2020 under four specific

- ⁶² Overcapacity industries include glass, cement, steel, photovoltaic, aluminium, shipbuilding and coal chemical.
- ⁶³ 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.

macroeconomic shocks⁶⁴ using information up to the second quarter of 2018.

Taking account of tail risk, banks' credit losses (at the confidence level of 99.9%) under the stress scenarios range from 0.94% (Interest rate shock) to 2.08% (Hong Kong GDP shock), which are significant, but smaller than the loan loss of 4.39% following the Asian financial crisis.



- 95th percentile to 99th percentile
 99th percentile to 99.9th percentile

Notes:

- The assessments assume the economic conditions in 2018 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 2018 Q3 to 2019 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 2018 Q3 to 2019 Q2.

Interest rate shock: A rise in real interest rates (HIBORs) by 300 basis points in the first quarter (i.e. 2018 Q3), followed by no change in the second and third quarters and another rise of 300 basis points in the fourth quarter (i.e. 2019 Q2). Mainland GDP shock: Slowdown in the year-on-year annual real GDP growth rate to 4% in one year.

Source: HKMA staff estimates.

⁶⁴ These shocks are calibrated to be similar to those that occurred during the Asian financial crisis, except the Mainland GDP shock.

5.4 Systemic risk

Uncertainties in financial markets have been rising as the global trade tensions, the pace of US interest rate hikes, and geopolitical risks continue to cast a shadow over the global economic outlook. Should these uncertainties and risks intensify and persist into the medium to long term, they could pose challenges for banks in Hong Kong on various fronts.

Firstly, the trade conflict between the US and its major trading partners could affect the economic and inflation outlook in the US, thus raising the uncertainty over the pace of US interest rate hikes. With the US economy now operating at its full potential, an increase in inflationary pressure arising from higher import prices could potentially trigger a faster pace of US interest rate normalisation and result in tighter global liquidity conditions.

Secondly, the faster-than-expected US interest rate hikes alongside rising volatilities in financial markets and swings in market sentiment due to global trade tensions could heighten the risks of a significant reversal of Hong Kong dollar fund flows, which could result in interest rates in Hong Kong overshooting.

Thirdly, intensification in the US-China trade tensions would negatively affect the financial conditions of corporates, particularly those with significant exposure in the US and Mainland China. This, combined with the possible fasterthan-expected rises in US interest rates, could put the debt servicing ability of corporates to the test. This could in turn put pressure on banks' credit risk management in view of the rising corporate leverage.

On the back of ample domestic liquidity and strong capital positions, the Hong Kong banking sector has so far remained sound and resilient. Banks, however, should carefully assess the longer-term impact of these risk factors on their liquidity and credit risk management. Across the Atlantic, heightened uncertainty related to the Brexit negotiations is one of the geopolitical risks that merit close monitoring. If the Brexit negotiations lead to abrupt shifts in cross-border banking flows between the UK and euro-area economies, 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.

Despite the rising uncertainties surrounding the Brexit negotiations, there was no major deterioration in interbank funding conditions during the review period. The spread between the three-month US dollar London Interbank Offered Rate (LIBOR) and its corresponding overnight index swap (OIS) rate⁶⁵, a common indicator of systemic liquidity risks in the short-term dollar funding market, declined from the recent peak of around 60 basis points in early April to 22 basis points at the end of August (Chart 5.26).



Chart 5.26 3-month US dollar LIBOR-OIS spreads

⁶⁵ 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.

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 is implementing the CCyB in line with the Basel III implementation schedule. The Monetary Authority announced on 10 January 2018 that the CCyB ratio for Hong Kong will increase to 2.5% with effect from 1 January 2019, from the current 1.875%.⁶⁶ This reflects the fact that, under the Basel III phase-in arrangements, the maximum CCyB under Basel III will increase to 2.5% of banks' risk-weighted assets on 1 January 2019 from 1.875% effective from 1 January 2018.67

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 credit-to-GDP and property price-to-rent gaps⁶⁸). Based on the information up to the latest decision date, the credit-to-GDP gap and the property price-to-rent gap were 15.8% and 12.0% respectively. Both gaps remained at elevated levels and a simple mapping from the indicative buffer guide would signal a CCyB rate of 2.5%, which is the current CCyB ratio absent the Basel III phase-in mechanism. The signal from the indicative buffer guide was, in the view of the Monetary Authority, consistent with the information drawn from other reference indicators.69

- ⁶⁷ 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 reaches 2.5% on 1 January 2019.
- ⁶⁸ 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.
- ⁶⁹ 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.E Information related to the Hong Kong jurisdictional CCyB rate

	27-Jan-17	10-Jan-18	Q2-2018
Announced CCyB rate	1.875%	2.5%	
Date effective	01/01/2018	01/01/2019	
Indicative buffer guide	2.4%	2.4%	2.5%
Basel Common Reference Guide	2.5%	2.5%	2.5%
Property Buffer Guide	2.0%	2.0%	2.5%
Composite CCyB Guide	2.4%	2.4%	2.5%
Indicative CCyB Ceiling	None	None	None
Primary gap indicators			
Credit/GDP gap	11.5%	19.3%	15.8%
Property price/rent gap	8.2%	8.3%	12.0%
Primary stress indicators			
3-month HIBOR spread* (percentage points)	0.75%	0.06%	0.60%
Quarterly change in classified loan ratio (percentage points)	0.01%	-0.06%	0.01%

Notes:

 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.

 * 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.

⁶⁶ Further details of the decision may be found in the press release, "Monetary Authority Announces Countercyclical Capital Buffer for Hong Kong", issued on 10 January 2018 which is available on the HKMA website.

	Jun 2017	Mar 2018	Jun 2018
nterest rates			
1-month HIBOR fixing ² (guarterly average)	0.40	0.84	1.23
3-month HIBOR fixing (quarterly average)	0.83	1.16	1.68
BLR ³ and 1-month HIBOR fixing spread (guarterly average)	4.60	4.16	3.77
BLR and 3-month HIBOR fixing spread (guarterly average)	4.17	3.84	3.32
Composite interest rate ⁴	0.31	0.38	0.62
		All Als	
Balance sheet developments⁵			
Total deposits	2.4	1.2	0.4
Hong Kong dollar	4.0	3.0	0.5
Foreign currency	0.9	-0.6	0.2
Total loans	5.4	3.6	1.6
Domestic lending ⁶	5.2	3.6	1.7
Loans for use outside Hong Kong ⁷	5.9	3.7	1.4
Negotiable instruments	0.0	0.7	
Negotiable certificates of deposit (NCDs) issued	8 1	-5.6	-25
Negotiable debt instruments held (excluding NCDs)	-1.7	5.9	1.1
As a percentage of total loans ⁸			
Pass Joans	97 71	98.07	98.07
Special mention loans	1 / 5	1.08	1 31
Classified leans ⁹ (gross)	0.84	0.65	0.61
Classified loans (gross)	0.04	0.00	0.01
Overdue > 3 menths and rescheduled leaps	0.47	0.34	0.32
Classified loan ratio (gross) of Mainland related lending ¹¹	0.88	0.60	0.40
iquidity ratios (quarterly average, consolidated)			
Liquidity Coverage Ratio — applicable to category 1 institutions	1// 2	1/00	156.6
Liquidity Mointonanco Patio — applicable to category 7 institutions	144.2	50.3	51.2
Elquidity Maintenance Ratio — applicable to category 2 institutions	49.7	50.5	51.5
		Retail banks	
Profitability			
Loan impairment charges as a percentage of average total assets	0.08	-0.01	0.02
(year-to-date annualised)	1 4 1	1 5 0	1 6 7
Net interest margin (year-to-date annualised)	1.41	1.52	1.57
Cost-to-income ratio (year-to-date)	40.7	36.5	37.3
	Surv	veyed institut	ions
Asset quality			
Delinquency ratio of residential mortgage loans	0.03	0.02	0.02
Credit card lending			
Delinquency ratio	0.25	0.22	0.22
Charge-off ratio — quarterly annualised	2.08	1.64	1.65
— year-to-date annualised	1.93	1.64	1.60
	All loca	ally incorpora	ted Als
Capital adequacy (consolidated)			
Common Equity Tier 1 capital ratio	15.1	15.0	15.3
Tier 1 capital ratio	16.1	16.5	16.8
Total capital ratio	18.7	19.1	19.4

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-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. Quarterly change.

Loans for use in Hong Kong plus trade finance. Including "others" (i.e. unallocated). 6.

7.

9.

10. Net of specific provisions/individual impairment allowances.

11. Figures are related to all Als' Hong Kong offices, as well as locally incorporated Als' Mainland branches and subsidiaries.

Figures are related to all Als' Hong Kong offices, as well as locally incorporated Als' overseas branches and major overseas subsidiaries. Classified loans are those loans graded as "substandard", "doubtful" or "loss". 8.

Box 4 Implications of loan portfolio concentration for credit risk of banks in Hong Kong

Introduction

The effects of concentration versus diversification in banks' loan portfolios remain one of the unsettled debates in banking literature. The conventional view in modern finance theory argues that a credit portfolio with higher sectoral concentration tends to increase credit risks due to higher default correlations within those sectors.⁷⁰ However, recent studies find that by focusing their lending in certain industries, banks will acquire industry-specific knowledge and thus improve their screening and monitoring abilities, i.e. reducing banks' credit risks.⁷¹ Due to the possible trade-off between concentration risks and specialisation gains, the net effect of loan concentration is therefore ambiguous. To help shed light on this important policy question, this box uses the Hong Kong banking sector as an example and empirically investigates the net effect of loan sectoral concentration on the credit risk of banks in Hong Kong.

Empirical framework and results

We start the analysis by discussing the measurement of loan concentration for banks. We then estimate econometric models to examine how banks' credit risk (proxied by banks' specific loan loss provision to total loan ratio, $q_{i,t}$) is affected by the measure of loan concentration and other factors.

In this study, we employ the normalised Herfindahl-Hirschman index (HHI), which is a commonly used indicator in literature to measure a bank's loan concentration. To construct the HHI for each bank, we first calculate the share of a bank's loan exposure in each of the sectors to its total loan exposure. Each of the loan shares is then squared and sum across all loan sectors, and the sum is subsequently normalised into a [0, 1] scale.⁷² By construction, HHI is equal to 1 if a bank concentrates its loan portfolio solely in one sector. Conversely, HHI will attain its minimum value of 0 for a fully diversified loan portfolio (i.e. all loan sectors have the same loan share). Chart B4.1 shows the median value of HHI for our sampled banks. As can be seen in the chart, the median HHI has exhibited a rising trend since 2010, suggesting that the loan portfolios of banks in Hong Kong, on average, have become more concentrated after the 2008 global financial crisis.

For empirical studies supporting this view, see Bebczuk and Galindo (2007), "Financial crisis and sectoral diversification of Argentine banks, 1999-2004", *Applied Financial Economics*, Vol. 18(3), pages 199–211, and Rossi et al. (2009), "How loan portfolio diversification affects risk, efficiency and capitalization: A managerial behavior model for Austrian banks", *Journal of Banking and Finance*, Vol. 33(12), pages 2218–2226.

⁷¹ For example, Jahn et al. (2016), "Banks' specialization versus diversification in the loan portfolio: New evidence from Germany", *Schmalenbach Business Review*, Vol. 17, pages 25–48, and Tabak et al. (2011), "The effects of loan portfolio concentration on Brazilian banks' return and risk", *Journal of Banking and Finance*, Vol. 35(11), pages 3065–3076.

 $^{^{72}}$ $HHI_{i,t} = (\sum_j w_{i,j,t}^2 - 1/N)/(1 - 1/N)$, where $w_{i,j,t}$ is bank *i*'s loan share in sector *j* at time *t*, and *N* is the number of sectors that a bank can lend to. In our dataset, *N* is equal to 34 if other loans for use outside Hong Kong is categorised as one of the loan sectors. It is worth noting that a geographical breakdown in loans for use outside Hong Kong is not available. We find that our empirical results remain valid in a robustness analysis which divides the loans for use outside Hong Kong into two sub-groups: (a) loans for use in Mainland China (proxied by external loans to Mainland China) and (b) other loans for use outside Hong Kong and Mainland China. The robustness analysis will be available in a working paper forthcoming in the HKIMR working paper series.



To single out the effect of banks' HHI on $q_{i,t}$, it is also important to control for differences in sectoral composition among banks' loan portfolios. This is because a bank which specialises lending in riskier sectors is likely to result in a higher $q_{i,t}$ than another bank that specialises lending in less riskier sectors, even though the two banks have the same level of HHI. To account for this, we follow the empirical strategy in Jahn et al. (2016) by computing a variable that captures the differences in the credit risk that are solely due to differences in the loan composition among banks' loan portfolios. More specifically, the variable is computed in the following steps. First, a loan loss provision ratio of a hypothetical loan portfolio $(hq_{i,t})$ for a bank is constructed based on the bank's actual loan composition, but the banking-sector's average loan loss provision ratio for each loan sector $(Q_{i,t})$ is applied. Second, $hq_{i,t}$ is subtracted from and scaled by the average overall loan loss provision ratio of the banking sector (i.e. the benchmark portfolio) to construct the composition factor $(\Delta hq_{i,t})$.⁷³ By construction, a positive value of $\Delta hq_{i,t}$ implies that the bank tends to overweigh (relative to the benchmark portfolio) its loan portfolio more towards sectors with higher risks and vice versa.

⁷³ As the hypothetical and benchmark portfolio share the same average loan loss provision ratio for each loan sector, $\Delta hq_{i,t}$ effectively reflects the relative difference in the sectoral composition between the bank's loan portfolio and the benchmark portfolio.

To estimate the net effect of higher loan concentration on $q_{i,t}$, the baseline model includes both bank's HHI and the composition factor as explanatory variables. We also include bank fixed effects and the average overall loan loss provision ratio of the banking sector (Q_{t-1}). The former captures unobservable time-invariant bank characteristics, while the latter accounts for the common risk factor. Chart B4.2 presents the structure of the regression models.⁷⁴

Chart B4.2



Under this baseline model, a negative coefficient for HHI in the regression suggests that a more concentrated loan portfolio is, on average, associated with a lower loan loss provision ratio. This suggests that the specialisation gains arising from improved selection and monitoring abilities more than offset the associated rise in the concentration risk. We also consider a modified model which includes the squared term of HHI to allow for a non-linear relationship between HHI and $q_{i,t}$. In both regression models, we lag all explanatory variables by one quarter to alleviate the potential endogeneity problem.

⁷⁴ The model also includes some control variables including (1) natural logarithm of bank's total assets, (2) deposits to asset ratio and (3) loans to asset ratio.

The regression models are estimated using a quarterly panel dataset of the largest 100 licensed banks by assets size⁷⁵ in Hong Kong, spanning from the first quarter of 2000 to the third quarter of 2017.⁷⁶ The bank-level data are constructed using regulatory data filed by banks in Hong Kong to the HKMA. The estimations results are shown in Table B4.A.

Table B4.A

Estimated impacts of higher loan concentration on q_{ii}

Explanatory variables	(I)	(11)
HHI _{i, t-1}	_***	_***
HHI ² _{i,t-1}		+***
$\Delta hq_{i,t-1}$	+***	+***
Q _{t-1}	+***	+***
Bank control variables	Yes	Yes
Bank fixed effect	Yes	Yes

Note:

+ (-) refers to an estimated positive (negative) relationship between the variables.
 ***, ** and * denote the estimated coefficients are significant at 1%, 5% and 10% levels respectively.

Source: HKMA staff estimates.

Overall, our estimation results indicate that, on average, a bank with a more concentrated loan portfolio tends to have a lower loan loss provision ratio after controlling for differences in loan composition of banks as well as the common risk factor. Meanwhile, the estimated coefficient for the squared HHI is found to be positively significant (i.e. the second column of Table B4.A), suggesting that the marginal impact on the loan loss provision ratio would be smaller if the bank has already held a very concentrated loan portfolio *ex ante*, possibly reflecting a diminishing marginal benefit from improved selection and monitoring abilities.

Other explanatory variables are also found to have the expected signs. In particular, a bank that overweighs its loan portfolio towards riskier sectors relative to the benchmark portfolio (i.e. a positive value of $\Delta hq_{i,t-1}$) would have a higher loan loss ratio given other things being held constant. The estimation results also suggest the existence of a significant positive relationship between the common risk factor (Q_{t-1}) and loan loss provision ratio, suggesting the overall credit risk environment also plays a key role in affecting the credit risk of individual bank's loan portfolio.

Net impact of higher loan concentration on bank's loan loss provision ratio after the crisis While higher HHI *per se* is found to be negatively related with a bank's loan loss ratio, the net impact is also dependent on how far the bank allocates its loan portfolio in riskier sectors (proxied by the composition factor $\Delta hq_{i,t}$). Chart B4.3 presents the development of a median value of HHI and the composition factor for our sampled banks over time. As can be seen in the chart, the median HHI (i.e. the blue line) increased from 0.23 at the end of March 2010 to 0.30 at the end of September 2017, while the median Δhq_{it} (i.e. the red line) rose slightly from 0.30 to 0.38 during the same period. These together suggest that banks in Hong Kong have, on average, increased their loan business focus slightly towards riskier sectors after the global financial crisis.





⁷⁵ Assets size refers to the banks' total assets at the end of 2016.

⁷⁶ The sampled banks accounted for 98% of total loans of all AIs at the end of September 2017.

Based on our estimation results, the rise in loan concentration is estimated to decrease $q_{i,t}$ by 13 basis points which would more than offset the estimated increase in $q_{i,t}$ of five basis points arising from the increase in $\Delta hq_{i,t}$. Overall, the net effect is estimated to decrease $q_{i,t}$ by about eight basis points (Chart B4.4). Taken together, our empirical estimate suggests that the postcrisis increase in banks' loan concentration has, on average, helped improve their asset quality, partially due to improved screening and monitoring abilities.

Chart B4.4





Source: HKMA staff estimates.

Conclusion

Our empirical results suggest that there are potential gains of improved screening and monitoring abilities for banks, which buffer the associated concentration risk, by focusing lending to certain loan sectors. A key implication is that the potential specialisation gains from higher loan concentration should be taken into consideration in order to have a more balanced assessment of banks' risks.

While this finding may partly alleviate the concerns about the rising sectoral concentration in banks' loan portfolios after the crisis, it is important to note that the net impact on their loan loss provision ratios depends on how far the banks allocate their loan portfolios towards riskier sectors. Looking ahead, changes in both the sectoral concentration and the composition in their loan portfolio should be closely monitored. In addition, the common credit risk factor, which is exogenous, is found to be a key driver in affecting the credit risk of the banks' loans. In view of this, it is essential for banks to maintain prudent credit risk management and stringent underwriting standards on their credit businesses.