5. Banking sector performance

The profitability of retail banks improved in the second half of 2016 as compared to the same period of 2015 due to higher net interest income and non-interest income, coupled with lower loan impairment charges. Banks maintained their strong capital positions and sound asset quality. Despite significant rises in Hong Kong dollar interbank rates following the US interest rate hike in December, liquidity conditions remained favourable. Underpinned by a large retail deposit base, retail banks' funding costs stayed low and stable. However, banks should assess the implications of possible faster-than-expected US rate hikes, particularly the risk of significant capital outflows and subsequent impacts on local interest rates. A sharp increase in interest rates could also translate into a significant deterioration in banks' asset quality given the rising levels of leverage among non-local corporates. To strengthen banks' resilience against systemic risks, the countercyclical capital buffer ratio for Hong Kong will rise to 1.875% with effect from 1 January 2018.

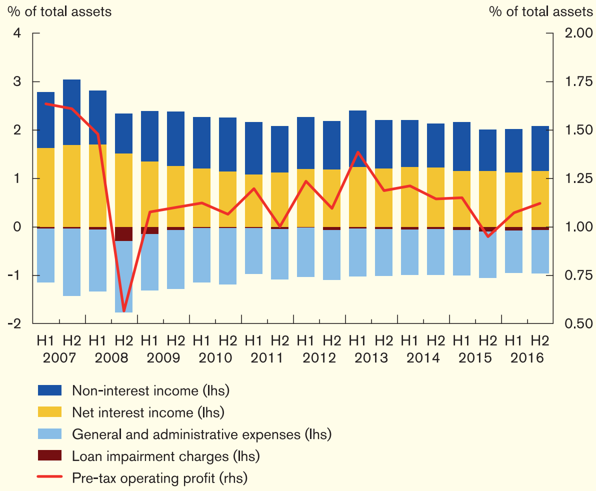
5.1 Profitability and capitalisation

Profitability

The profitability of retail banks[36] improved with the return on assets[37] increasing to 1.12% in the second half of 2016, compared to 0.95% in the second half of 2015 (the red line in Chart 5.1). The improvement was due to an increase in both net interest income and non-interest income as well as a reduction in loan impairment charges.

For 2016 as a whole, the aggregate pre-tax operating profits of retail banks recorded an increase of 8.7% with the return on assets rising to 1.10% from 1.05% in 2015.

Chart 5.1
Profitability of retail banks



Notes:
1. Semi-annually annualised figures.
2. Starting from this issue, non-operating components are excluded from non-interest income. Therefore, figures for non-interest income in Chart 5.1 are not strictly comparable with those in previous issues.

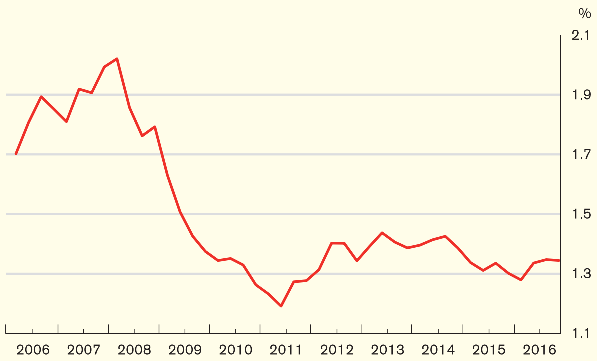
Source: HKMA.

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

[37] Return on assets is calculated based on aggregate pre-tax operating profits.

The net interest margin (NIM) of retail banks continued to improve and reached 1.34% in the fourth quarter of 2016 (Chart 5.2).

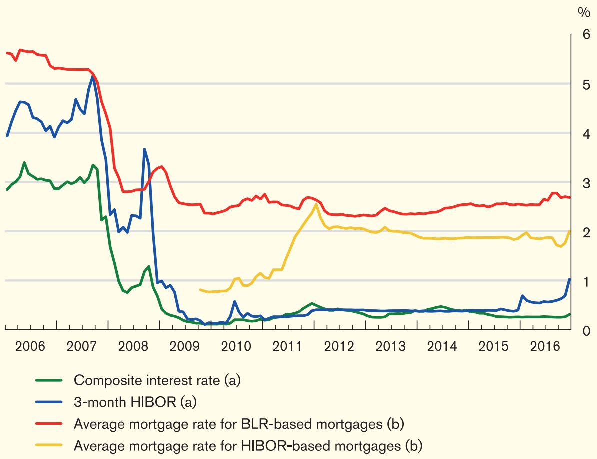
Chart 5.2
NIM of retail banks



Note: Quarterly annualised figures.
Source: HKMA.

Wholesale funding costs in Hong Kong increased significantly after the resumption of US interest rate hikes in December. In particular, the three-month HIBOR increased markedly by 33 basis points in December, although the current level remained low by historical standards (the blue line in Chart 5.3).

Chart 5.3
Interest rates

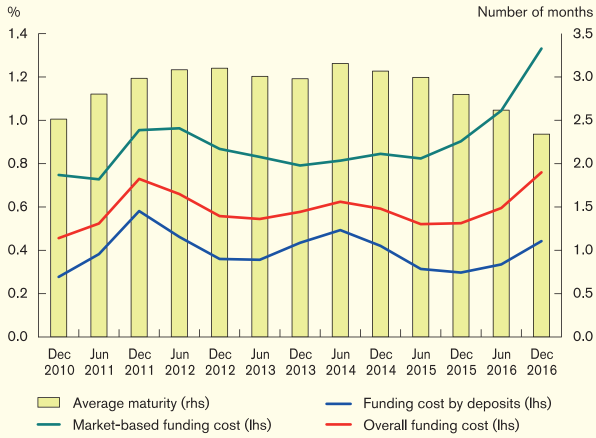


Notes:
(a) End of period figures.
(b) Period-average figures for newly approved loans.
Sources: HKMA and staff estimates.

However, the overall impact of US interest rate hikes on the Hong Kong dollar funding cost of retail banks remained small. This is due to the fact that retail deposits are their major funding source, and that retail deposit rates have remained low and stable despite the rate rises. Reflecting this, the composite interest rate, a measure of the average cost of Hong Kong dollar funds for retail banks, only saw a mild increase of 5 basis points in December to 0.31% after staying low at around 0.26% for more than a year.

More broadly, the aggregate Hong Kong and US dollar funding cost of licensed banks in Hong Kong showed a similar picture. The banks' average market-based Hong Kong and US dollar funding cost[38] increased by 28 basis points during the second half of 2016, but in the retail market, their average deposit funding cost saw a smaller increase of 11 basis points. On the whole, their average overall Hong Kong and US dollar funding cost increased by 17 basis points (the red line in Chart 5.4).

Chart 5.4
Hong Kong and US dollar funding cost and maturity of licensed banks



Source: HKMA.

[38] Market-based funding cost is measured by the interest costs of banks' non-deposit interest-bearing liabilities.

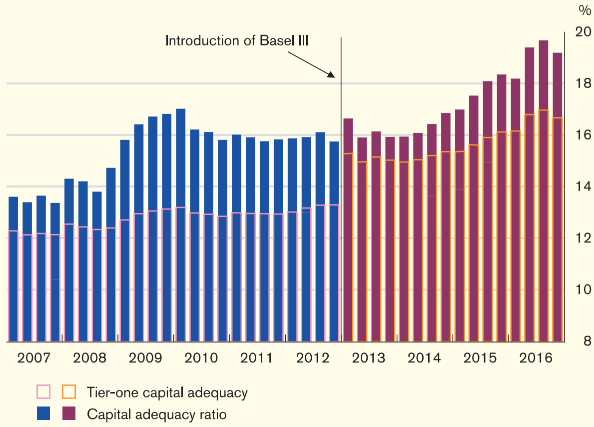
With HIBORs seeing a larger and faster increase than the funding cost of banks in Hong Kong, this may represent a positive development for some retail banks, as their HIBOR-based mortgage lending, which has been promoted actively in the past few years, may help widen their overall NIMs.[39]

However, the improvement in NIMs may be partially offset by keen competition in the mortgage market. Indeed, there are signs that some banks reduced their mortgage rate spreads and/or provided more attractive mortgage terms in order to attract customers. In the longer term, given that further US interest rate rises are in the pipeline, banks may soon face upward pressure on retail deposit rates, which will affect their funding costs and thus NIMs more significantly.

Capitalisation

Capitalisation of the banking sector continued to be strong and well above the minimum international standards. The consolidated capital adequacy ratio (CAR) of locally incorporated AIs stayed high at 19.2% at the end of December (Chart 5.5). The tier-one CAR[40] was 16.4%, of which 15.4% was contributed by common equity tier-one (CET1) capital.[41]

Chart 5.5
Capitalisation of locally incorporated AIs



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

Source: HKMA.

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)[42] requirement, remained favourable during the review period. The average LCR of category 1 institutions edged down to 156.3% in the fourth quarter of 2016 from 158.0% in the second quarter but remained at a high level (Chart 5.6). The average Liquidity Maintenance Ratio (LMR) of category 2 institutions also remained steady at 51.0%. Both ratios remained well above their respective regulatory minimums[43], suggesting that the Hong Kong banking sector is able to withstand liquidity shocks arising from possible capital outflows from Hong Kong.

[39] For instance, the effective average HIBOR-based mortgage rate increased by 24 basis points in December 2016 along with the rise in HIBORs (the yellow line in Chart 5.3), while the composite interest rate (i.e. Hong Kong dollar funding cost) increased by only 5 basis points.

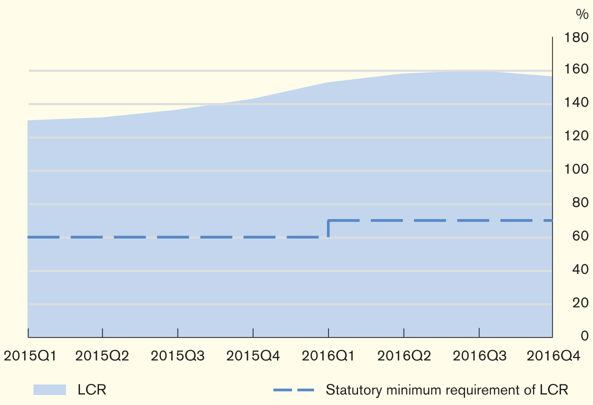
[40] The ratio of tier-one capital to total risk-weighted assets.

[41] CET1 capital comprises the core capital of an AI including ordinary shares and retained earnings. For details of the definition, see the circular "Basel III Implementation – Standard Templates for Disclosures in Relation to Regulatory Capital" published on the HKMA website on 19 August 2013.

[42] 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 LMR, which is a modified form of the original statutory liquidity ratio requirement.

[43] For a category 1 institution, the minimum requirement for LCR began at 60% on 1 January 2015, rising in equal annual steps of 10 percentage points to reach 100% on 1 January 2019. A category 2 institution must maintain an LMR of not less than 25% on average in each calendar month.

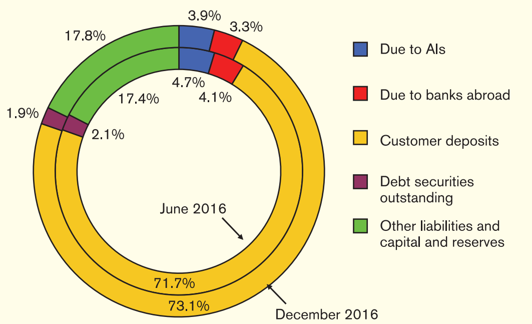
Chart 5.6
LCR



Source: HKMA.

Customer deposits continued to be the primary funding source for retail banks. The share of customer deposits to banks' total liabilities increased to 73.1% at the end of December 2016 from 71.7% at the end of June (Chart 5.7).

Chart 5.7
The liability structure of retail banks

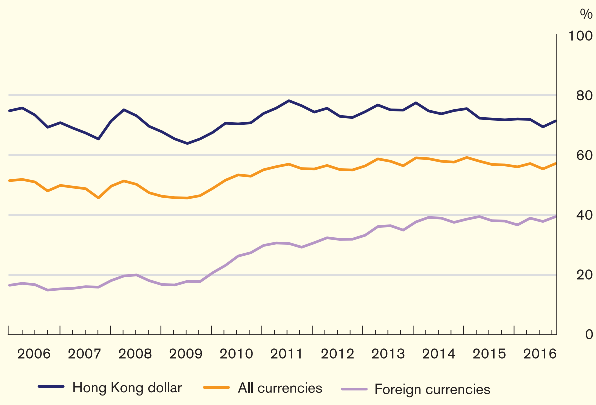


Notes:
1. Figures may not add up to total due to rounding.
2. Figures refer to the percentage of total liabilities (including capital and reserves).
3. Debt securities comprise negotiable certificates of deposit and all other negotiable debt instruments.

Source: HKMA.

As the total loans and advances and the total deposits of retail banks grew at a similar pace during the review period, the all-currency loan-to-deposit (LTD) ratio of retail banks remained steady at 57.0% in December 2016 (Chart 5.8). The Hong Kong dollar and foreign-currency LTD ratios also remained largely unchanged during the same period.

Chart 5.8
Average LTD ratios of retail banks



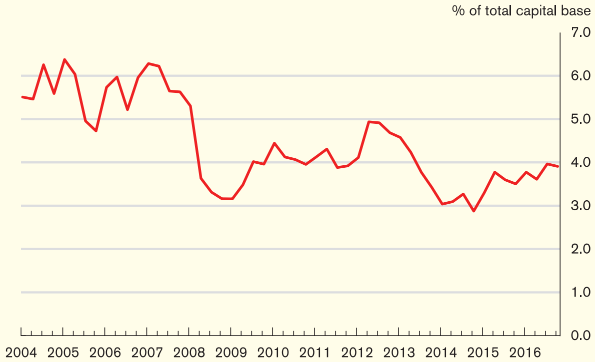
Source: HKMA.

Interest rate risk

Although increasing slightly, the interest rate risk exposure of locally incorporated licensed banks remained low. 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 3.92% of their total capital base as of December 2016 (Chart 5.9).[44] Nevertheless, as the pace of US interest rate normalisation may be faster than expected after the US presidential election, banks should assess the implications for their interest rate risk management.

44 The estimate does not account for the effect from any mitigating actions of banks in response to the shock. The impact would be smaller if mitigating actions are taken by banks in response to the shock.

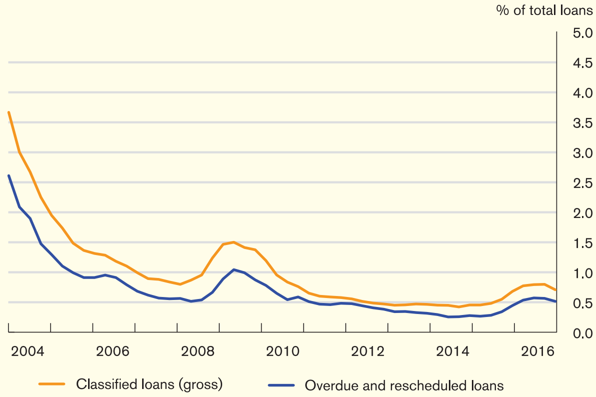
Chart 5.9
Estimated impact of an interest rate shock on locally incorporated licensed banks



Notes:
1. Interest rate shock refers to a standardised 200-basis-point parallel rate shock to institutions' interest rate risk exposure.
2. The impact of the interest rate shock refers to its impact on the economic value of the banking and trading book[45], expressed as a percentage of the total capital base of banks.

Source: HKMA.

Chart 5.10
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.

5.3 *Credit risk*

Overview

The asset quality of retail banks' loan portfolios remained sound during the review period, with the gross classified loan ratio and the ratio of overdue and rescheduled loans staying low at 0.72% and 0.53% respectively at the end of December 2016. Both ratios remained low by historical standards (Chart 5.10).

While the current asset quality is sound by historical standards, banks in Hong Kong should stay alert to the external environment, as the assessment in Box 5 shows that after the global financial crisis (GFC) the banking sector has registered rapid growth in loans for use outside Hong Kong, implying that their asset quality will be more sensitive to the external environment.

Expectations on credit growth in the near term have been mixed. The results of the HKMA Opinion Survey on Credit Condition Outlook in December 2016 showed that, although the majority of surveyed AIs expected no change in the loan demand in the next three months, the surveyed AIs expecting higher loan demand in the next three months increased slightly to 14% (Table 5.A).

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

% of total respondents	Mar-16	Jun-16	Sep-16	Dec-16
Considerably higher	0	0	0	0
Somewhat higher	0	0	5	14
Same	71	62	71	62
Somewhat lower	29	38	24	24
Considerably lower	0	0	0	0
Total	100	100	100	100

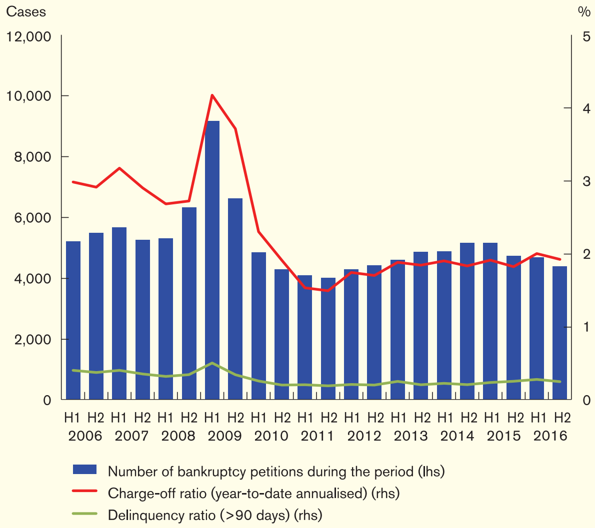
Source: HKMA.

45 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.

Household exposure[46]

The credit risk of unsecured household exposure remained contained in the second half of 2016, with the annualised credit card charge-off ratio and the delinquency ratio edging down to 1.92% and 0.24% respectively (Chart 5.11) at the end of December.

Chart 5.11
Charge-off ratio and delinquency ratio for credit card lending and bankruptcy petitions

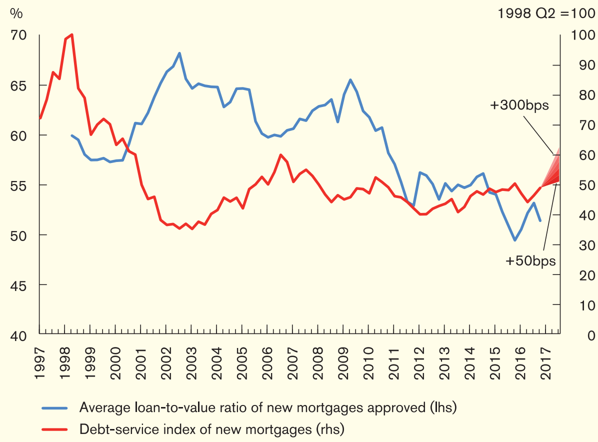


Sources: Official Receiver's Office and HKMA.

Banks' mortgage portfolios stayed healthy with the delinquency ratio hovering at 0.03% at the end of December. The average loan-to-value (LTV) ratio of new mortgage loans approved was 51.3% in the last quarter of 2016 (Chart 5.12). The ratio remained well below the 64% in September 2009, just before the commencement of the implementation of the seven rounds of countercyclical macro-prudential measures by the HKMA.

However, the debt-service index of new mortgages[47] increased to 48.8 in the fourth quarter from 44.0 in the second quarter of 2016 (the red line in Chart 5.12), mainly reflecting an increase in the average size of new mortgage loans (Chart 5.13). The ongoing US interest rate normalisation could further weigh on the household debt-servicing burden, as a sensitivity test suggests that the index could rise significantly to 67.3 in a four-quarter period if interest rates were to increase by 300 basis points, other things being constant.[48] Therefore, banks should stay alert to the risks associated with a rising household debt-servicing burden.

Chart 5.12
Average LTV ratio and household debt-servicing burden for new mortgage loans



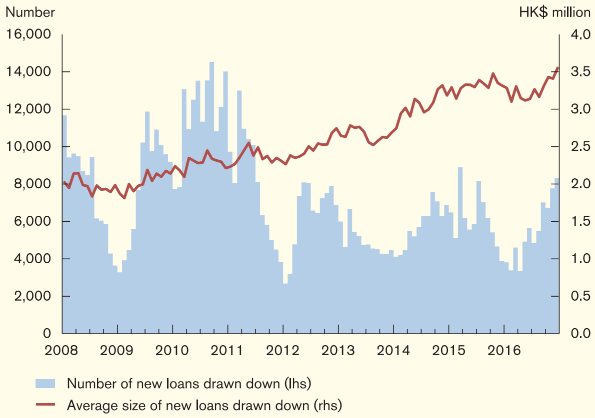
Note: The calculation of the index is based on the average interest rate for BLR-based mortgages.
Sources: HKMA and staff estimates.

46 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 December, the share of household lending in domestic lending was 29.6%.

47 A higher value of the debt-service index indicates that 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 deterioration in the asset quality of household debt.

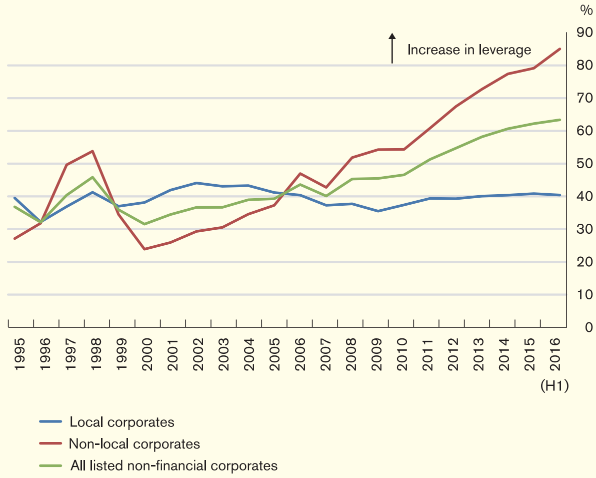
48 The assumption of a 300-basis-point rise in interest rates is consistent with the prudential measure that requires AIs to have a 3-percentage-point mortgage rate upward adjustment for stress testing property mortgage loan applicants' debt servicing ability.

Chart 5.13
New mortgage loans of surveyed AIs



Source: HKMA Residential Mortgage Survey.

Chart 5.14
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-February 2017.

Source: HKMA staff estimates based on data from Bloomberg.

Corporate exposure[49]

The potential pace of US interest rate hikes continued to be one key factor affecting the credit risk of corporate exposures. Nevertheless, how a given bank's asset quality actually fares depends on the characteristics of its corporate loan portfolio. In particular, our assessment, which is based on accounting data of non-financial firms listed in Hong Kong, finds that the leverage of local and non-local corporates exhibited very different developments after the GFC, with non-local corporates being more subject to debt-servicing problems.[50] Banks should assess how interest rate rises will affect the credit risk in relation to their exposure to non-local corporates.

Specifically, the rise in corporate sector leverage after the GFC, as measured by the weighted average of the debt-to-equity ratio, was largely driven by non-local corporates. The leverage of non-local corporates increased to 85% in the first half of 2016 (the red line in Chart 5.14), while the leverage of local corporates remained largely stable.

Corporates' currency mismatch is another key risk factor.[51] Specifically, US interest rate hikes and the concurrent US dollar appreciation are likely to worsen the financial health of those corporates not having significant US dollar revenue, but have accumulated large net US dollar denominated liabilities over past years. Such currency mismatch could translate into significant losses and thus increase their default risk if exchange rates move unfavourably. Banks should remain vigilant to corporates' currency mismatch risk.

---

[49] Excluding interbank exposure. At the end of December, the share of corporate loans in domestic lending was 70.1%.

[50] Local corporates refer to the Hong Kong-listed non-financial corporates that are domiciled in Hong Kong. Non-local corporates are those Hong Kong-listed non-financial corporates that are domiciled outside Hong Kong. For detailed assessment, see "Box 4: Assessing corporate leverage in Hong Kong", *Half-yearly Monetary and Financial Stability Report*, September 2016.

[51] Under the Linked Exchange Rate System, Hong Kong dollars and US dollars are regarded as the same currency in the context of foreign exchange risk. For example, a company that earns mainly Hong Kong dollar-denominated revenues and is funded by US dollar-denominated debt is not regarded as having foreign exchange risk as a result. For details, see section 7 of the HKMA's Supervisory Policy Manual (SPM) TA-2, "Foreign exchange risk management".

Mainland-related lending and non-bank exposures

The banking sector's Mainland-related lending increased further during the review period. Total Mainland-related lending rose by 3.5% to HK$3,564 billion (15.6% of total assets) at the end of December from HK$3,443 billion (15.6% of total assets) at the end of June (Table 5.B).

Other non-bank exposures also increased by 11.4% to HK$1,237 billion (Table 5.C).

Table 5.B
Mainland-related lending

HK$ bn	Mar 2016	Jun 2016	Sep 2016	Dec 2016
Mainland-related loans	3,342	3,443	3,552	3,564
Mainland-related loans excluding trade finance	3,042	3,138	3,258	3,290
Trade finance	300	305	294	273
By type of AIs:				
Overseas incorporated AIs	1,439	1,492	1,550	1,531
Locally incorporated AIs*	1,363	1,413	1,441	1,488
Mainland banking subsidiaries of locally incorporated AIs	540	538	560	545
By type of borrowers:				
Mainland state-owned entities	1,400	1,422	1,481	1,435
Mainland private entities	685	718	771	834
Non-Mainland entities	1,257	1,304	1,300	1,294

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.

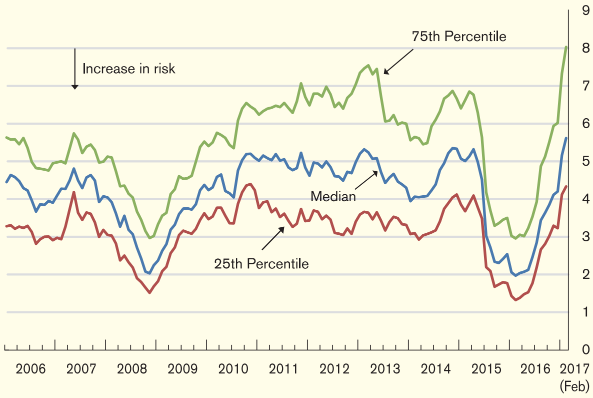
Table 5.C
Other non-bank exposures

HK$ bn	Mar 2016	Jun 2016	Sep 2016	Dec 2016
Negotiable debt instruments and other on-balance sheet exposures	647	685	709	720
Off-balance sheet exposures	413	425	453	517
Total	**1,060**	**1,110**	**1,163**	**1,237**

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

The distance-to-default index,[52] a market-based default risk indicator, shows further improvements in the default risk of the Mainland corporate sector during the second half of 2016 (Chart 5.15). The asset quality of retail banks' Mainland-related lending also improved, with the gross classified loan ratio decreasing to 0.82% at the end of December from 0.92% at the end of June.[53]

Chart 5.15
Distance-to-default index for the Mainland corporate sector



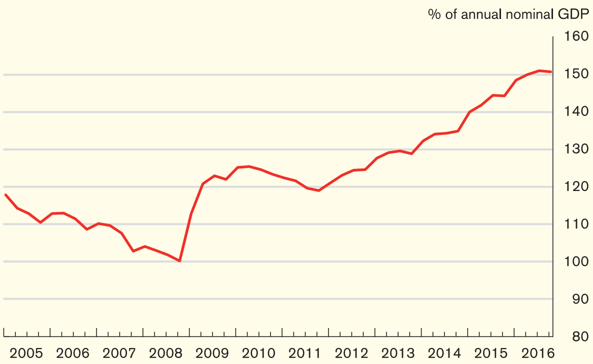
Note: Distance-to-default index is calculated based on the non-financial constituent companies (i.e. excluding investment companies and those engaged in banking, insurance and finance) of the Shanghai Stock Exchange 180 A-share index.
Source: HKMA staff estimates based on data from Bloomberg.

Despite signs of improvement in the default risk of Mainland corporates, banks should maintain prudent credit risk management for their Mainland-related lending in view of the rising trends in credit-to-GDP ratio and corporate sector leverage in the Mainland (Chart 5.16 and Chart 5.17).

52 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.

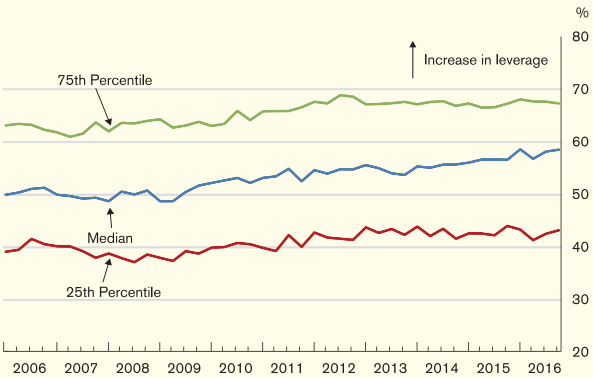
53 Figures cover retail banks' Hong Kong offices and Mainland branches and subsidiaries.

Chart 5.16
Credit-to-GDP ratio in Mainland China



Note: Credit-to-GDP ratio is defined as the ratio of total bank loans (all currencies) to the sum of quarterly nominal GDP for the latest four quarters.
Sources: CEIC and HKMA staff estimates.

Chart 5.17
Leverage ratio for the Mainland corporate sector



Notes:
1. The leverage ratio is defined as the ratio of total liabilities to total assets.
2. It 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.

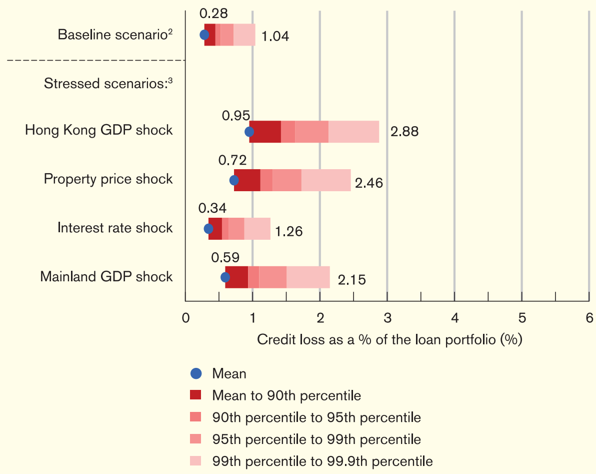
Source: HKMA staff estimates based on data from Bloomberg.

Macro stress testing of credit risk[54]

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 5.18 presents the simulated future credit loss rate of retail banks in the fourth quarter of 2018 under four specific macroeconomic shocks[55] using information up to the fourth quarter of 2016.

Taking account of tail risk, banks' credit losses (at the confidence level of 99.9%) under the stress scenarios range from 1.26% (Interest rate shock) to 2.88% (Hong Kong GDP shock), which are significant, but smaller than the estimated loan loss of 4.39% following the Asian financial crisis.

Chart 5.18
The mean and value-at-risk statistics of simulated credit loss distributions[1]



Notes:
1. The assessments assume the economic conditions in 2016 Q4 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 2017 Q1 to 2017 Q4.
   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 2017 Q1 to 2017 Q4.
   Interest rate shock: A rise in real interest rates (HIBORs) by 300 basis points in the first quarter (i.e. 2017 Q1), followed by no change in the second and third quarters and another rise of 300 basis points in the fourth quarter (i.e. 2017 Q4).
   Mainland GDP shock: Slowdown in the year-on-year annual real GDP growth rate to 4% in one year.

Source: HKMA staff estimates.

---

54 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.

55 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

The policy uncertainty after the US presidential election is an important factor affecting the systemic risk of the Hong Kong banking sector. In particular, financial market indicators generally factored in quicker and larger increases in US interest rates in the coming few years. If this scenario occurs, it could pose challenges for banks in Hong Kong on various fronts.

Firstly, faster-than-expected interest rate hikes could put pressure on banks' credit risk management in view of the rising leverage of corporates, particularly non-local corporates. Secondly, banks' investment portfolios may face higher risks of mark-to-market losses given the increased holding of debt securities after the GFC, notwithstanding that they have allocated more investments to safe-assets. Thirdly, banks are more likely to see a steeper rise in funding costs, particularly when they start competing for retail deposits.

The systemic impact on the Hong Kong banking sector could be severe if any faster-than-expected hikes trigger significant capital outflows from the Hong Kong banking sector, which may result in the overshooting of interest rates in Hong Kong.

Importantly, Trump's other policies will probably lead to higher rather than lower risks of capital outflows from the region. For instance, to the extent that the new trade policy under the Trump administration hampers the export sector performances of the US trading partners thus weakening their growth outlook, disorderly capital outflows from its major trading partners, including Asian emerging economies could occur.

In addition, Trump's policy on financial regulation, which may relax or unwind some regulatory measures in the US that have been designed to help avoid another financial crisis, could also trigger banking flows from jurisdictions where more stringent regulatory measures are adopted.

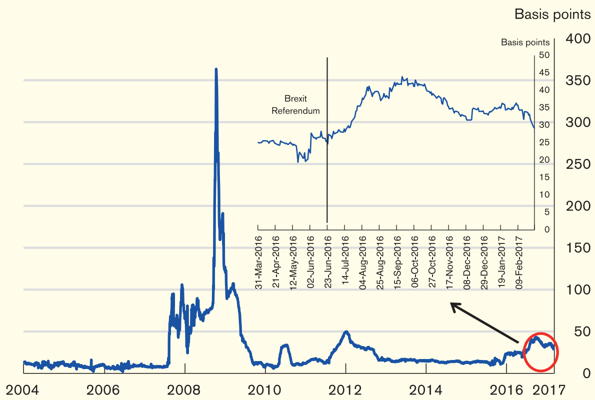
On the back of ample domestic liquidity and strong capital positions, the Hong Kong banking sector has remained sound and stable in the aftermath of the US presidential election. Banks, however, should carefully assess the longer-term impact.

Across the Atlantic, the Brexit process is another risk factor meriting close monitoring. As pointed out in the previous issue of the *Report*, the potential impact of spillover risks to the Hong Kong banking sector should not be underestimated, 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.

However, during the assessment period, there was no apparent deterioration in interbank funding conditions. In particular, the spread between the three-month US dollar LIBOR and its corresponding overnight index swap (OIS) rate[56], which is a common indicator of systemic liquidity risks in the short-term US dollar funding market, has been broadly stable (Chart 5.19).

56 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.

Chart 5.19
3-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 is implementing the CCyB in line with the Basel III implementation schedule. The Monetary Authority announced on 27 January 2017 that the CCyB ratio for Hong Kong will increase to 1.875% with effect from 1 January 2018, from the current 1.25%.[57] This reflects the fact that, under the Basel III phase-in arrangements, the maximum CCyB under Basel III will increase to 1.875% of banks' risk-weighted assets on 1 January 2018 from 1.25% effective from 1 January 2017.[58]

In setting the CCyB rate, the Monetary Authority considered a series of indicators (Table 5.D), 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 gaps[59]). Based on the information considered for the last announcement date, both the credit-to-GDP gap and the property price-to-rent gap widened to 11.5% and 8.2% respectively, compared to 10.4% and 6.0% in the second quarter of 2016. Both gaps remained at elevated levels and the risks associated with credit and property market conditions have not abated. A simple mapping from the indicative buffer guide of 2.4% would signal a CCyB rate of 2.25%,[60] which is close to the upper end of the Basel III range.

In addition, the information drawn from other reference indicators[61] was, in the view of the Monetary Authority, consistent with the signal from the indicative buffer guide.

[57] Further details of the decision may be found in the press release "Monetary Authority Announces Countercyclical Capital Buffer for Hong Kong" issued on 27 January 2017 which is available on the HKMA website.

[58] 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.

[59] The gaps 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.

[60] 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 multiples of 25 basis points.

[61] 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.D
Information related to the Hong Kong jurisdictional CCyB rate

	14-Jan-16	Q2-2016	27-Jan-17
Announced CCyB rate	1.25%		1.875%
Date effective	01/01/2017		01/01/2018
Indicative buffer guide	2.5%	1.9%	2.4%
Basel Common Reference Guide	2.5%	2.5%	2.5%
Property Buffer Guide	2.5%	1.2%	2.0%
Composite CCyB Guide	2.5%	1.9%	2.4%
Indicative CCyB Ceiling	None	None	None
Primary gap indicators			
Credit/GDP gap	15.3%	10.4%	11.5%
Property price/rent gap	13.1%	6.0%	8.2%
Primary stress indicators			
3-month HIBOR spread (percentage points)	0.30%	0.44%	0.75%*
Quarterly change in classified loan ratio (percentage points)	0.07%	0.08%	0.01%

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. * The increase in the interbank market spread, measured as the difference between 3-month HIBOR and 3-month OIS rate, does not appear to be a reflection of market stress, after taking into account other market stress indicators. The HKMA will review the current measure of the interbank market spread.

Source: HKMA.

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

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

	Dec 2015	Sep 2016	Dec 2016
Interest rates			
1-month HIBOR fixing[2] (quarterly average)	0.22	0.25	0.43
3-month HIBOR fixing (quarterly average)	0.39	0.57	0.71
BLR[3] and 1-month HIBOR fixing spread (quarterly average)	4.78	4.75	4.57
BLR and 3-month HIBOR fixing spread (quarterly average)	4.61	4.43	4.29
Composite interest rate[4]	0.26	0.25	0.31
		Retail banks	
Balance sheet developments[5]			
Total deposits	0.1	4.3	0.6
Hong Kong dollar	0.5	4.7	0.5
Foreign currency	-0.4	3.9	0.8
Total loans	-0.1	1.0	3.9
Domestic lending[6]	0.2	1.2	3.3
Loans for use outside Hong Kong[7]	-1.7	0.2	6.6
Negotiable instruments			
Negotiable certificates of deposit (NCDs) issued	3.9	-5.1	-2.8
Negotiable debt instruments held (excluding NCDs)	-0.9	6.3	-3.4
Asset quality			
As a percentage of total loans[8]			
Pass loans	97.87	97.68	97.75
Special mention loans	1.44	1.51	1.53
Classified loans[9] (gross)	0.69	0.81	0.72
Classified loans (net)[10]	0.49	0.55	0.48
Overdue > 3 months and rescheduled loans	0.45	0.57	0.53
Classified loan ratio (gross) of Mainland related lending[11]	0.78	0.89	0.82
Profitability			
Loan impairment charges as a percentage of average total assets[12]	0.09	0.07	0.07
Net interest margin[12]	1.32	1.32	1.32
Cost-to-income ratio[13]	45.3	41.9	43.0
		All AIs	
Liquidity ratios (quarterly average, consolidated)			
Liquidity Coverage Ratio — category 1 institutions	142.9	159.9	156.3
Liquidity Maintenance Ratio — category 2 institutions	53.9	53.2	51.0
		Surveyed institutions	
Asset quality			
Delinquency ratio of residential mortgage loans	0.03	0.04	0.03
Credit card lending			
Delinquency ratio	0.25	0.25	0.24
Charge-off ratio — quarterly annualised	1.86	2.14	1.89
— year-to-date annualised	1.82	2.02	1.92
		All locally incorporated AIs	
Capital adequacy (consolidated)			
Common Equity Tier 1 capital ratio	14.6	16.0	15.4
Tier 1 capital ratio	15.3	16.9	16.4
Total capital ratio	18.3	19.6	19.2

Notes:
1. Figures are related to Hong Kong offices only except where otherwise stated.
2. The Hong Kong Dollar 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 in the HKMA website.
5. Quarterly change.
6. Loans for use in Hong Kong plus trade finance.
7. Including "others" (i.e. unallocated).
8. Figures are related to retail banks' Hong Kong offices, overseas branches and major overseas subsidiaries.
9. Classified loans are those loans graded as "substandard", "doubtful" or "loss".
10. Net of specific provisions/individual impairment allowances.
11. Figures are related to retail banks' Hong Kong offices, Mainland branches and subsidiaries.
12. Year-to-date annualised.
13. Year-to-date figures.

Box 5
Changes in the business models of banks in Hong Kong after the crisis and their implications

Introduction

The global banking environment has changed dramatically since the 2008–09 GFC. The combined impact of the crisis, the subsequent regulatory reforms and recent negative interest rate environments in some economies could drive banks to structurally adjust their business models. Against this background, this box investigates post-crisis developments on business models for banks in Hong Kong[62] and the implications for banking stability.

Retail banks and foreign bank branches

This assessment focuses on licensed banks in Hong Kong. In general, they have heterogeneous business models, as they carry out different functions for their respective banking organisations. However, they can be divided into two groups, retail banks and foreign bank branches. The former comprises mainly locally incorporated licensed banks in Hong Kong, which generally fund their business by local retail deposits.[63] For the group of foreign bank branches, intragroup funding from overseas offices shares a significant part of their liabilities.[64] Given their different funding structures, we analyse these two groups of banks in Hong Kong separately.

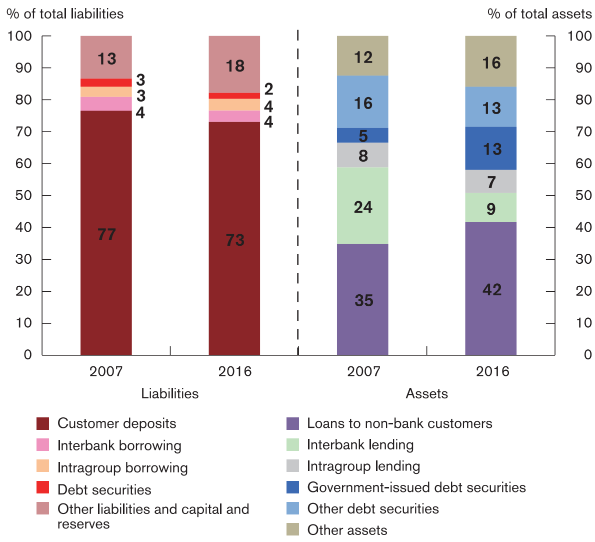
Post-crisis development for retail banks

While the liability structure of retail banks remained broadly unchanged after the crisis (see the left-hand side of Chart B5.1), retail banks witnessed notable changes in their asset compositions (see the right-hand side of Chart B5.1).

For lending, the aggregate share of interbank lending to total assets reduced by more than half from 24% at the end of 2007 (that is, before the crisis) to 9% at the end of 2016. The reduction in their interbank lending may be driven by various factors, including lower demand for interbank loans amid ample liquidity conditions, significant counterparty risks and wafer-thin profit margins.

By contrast, the share of loans to non-bank customers to total assets increased significantly from 35% before the crisis to 42% after the crisis (the purple bars in Chart B5.1).

Chart B5.1
The asset-liability structure of retail banks



Notes:
1. Year-end positions. Figures may not add up to total due to rounding.
2. Intragroup lending (borrowing) refers to lending to (borrowing from) connected banks in Hong Kong or overseas offices of the bank. Interbank lending (borrowing) refers to lending to (borrowing from) unconnected banks in Hong Kong and overseas.

Source: HKMA.

---

62 Throughout the box, figures for the banks in Hong Kong relate to their Hong Kong offices only, unless otherwise specified.

63 Retail banks include a few overseas incorporated licensed banks (i.e. foreign bank branches) which operate similarly to a typical locally incorporated licensed bank in Hong Kong.

64 Foreign bank branches here include all overseas incorporated licensed banks in Hong Kong, except those already included as retail banks.

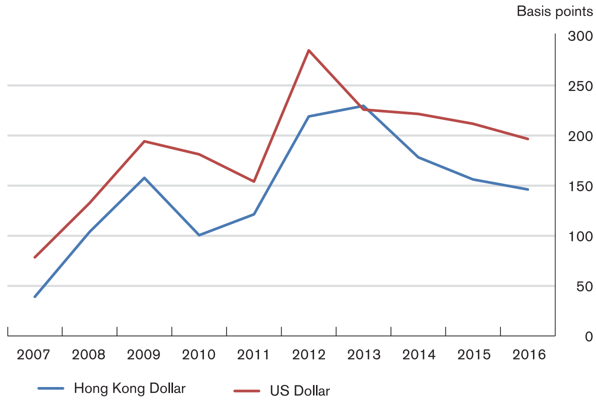
A breakdown of statistics for loans to non-bank customers suggests that the increased share of loans to non-bank customers is driven by an increase in loan demand from corporate borrowers after the crisis (Chart B5.2). In particular, retail banks registered a higher share of corporate loans to non-property sectors which went up by 3 percentage points. Loans for use outside Hong Kong (which are most likely borrowed by corporates to finance their overseas operations) recorded an even larger increase in its share of total assets by 5 percentage points.

Chart B5.2
Composition of loans to non-bank customers for retail banks

Note: Year-end positions.
Source: HKMA.

Anecdotal evidence from data of syndicated loans in Hong Kong suggests that the average spread of corporate loans intermediated by Hong Kong banks has increased significantly since 2008. The average spread of Hong Kong dollar syndicated loans in Hong Kong reached a peak of around 228 basis points in 2013 (the blue line in Chart B5.3). Although the spread has narrowed since then, it remains significantly higher than pre-crisis levels. The expansion of the corporate loan portfolios of retail banks, coupled with the rising spread, helped them to sustain stable profits after the crisis (Charts 5.1 and 5.2 for retail banks' return on assets and NIMs respectively).

Chart B5.3
Average spread of syndicated loans in Hong Kong



Notes:
1. Annual average figures.
2. The spread for Hong Kong dollar syndicated loans refers to the average spread over HIBOR for HIBOR-based syndicated loans.
3. The spread for US dollar syndicated loans refers to the average spread over US dollar LIBOR for US dollar LIBOR-based syndicated loans intermediated in Hong Kong.

Source: HKMA staff estimates based on data from LoanConnector.

Although the expansion of corporate loan portfolios may incur higher credit risk, such risk may be counterbalanced somewhat by recent changes in retail banks' investment portfolios. In particular, their holdings of government-issued debt securities increased significantly, which accounted for around 13% of their total assets at the end of 2016 compared to 5% before the crisis (dark blue bars in Chart B5.1). While credit risk management may be one factor driving retail banks to hold more safe-assets, their internal liquidity management needs and the Basel III regulatory liquidity requirements may also be contributors.

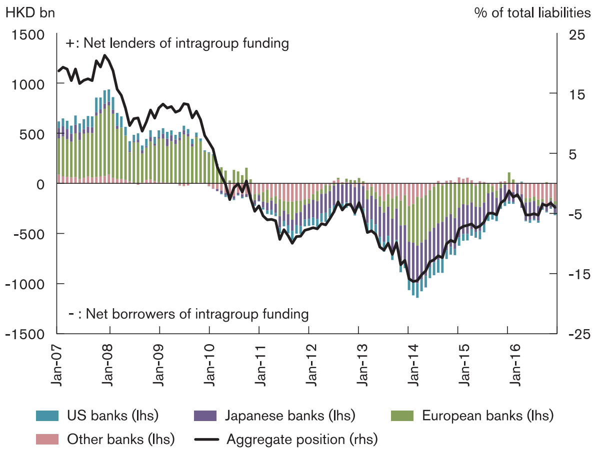
Post-crisis development for foreign bank branches

Our previous assessment based on data up to June 2012 found that some US and European bank branches had changed their business models after the crisis by shifting from intragroup funding centres to regional lending units.[65] Largely reflecting this development, foreign bank branches in Hong Kong on aggregate switched from a net lender of intragroup funding to become a net borrower.

[65] See "Box 6: Changing business models of Hong Kong branches of US and European global banks", *Half-yearly Monetary and Financial Stability Report*, March 2013.

Latest statistics show that although foreign bank branches as a whole remained a net borrower of intragroup funding (Chart B5.4), the net borrowing position reduced significantly from the peak of around 16% of their liabilities in February 2014 to just 4% of their liabilities at the end of 2016.

Chart B5.4
Net intragroup position for foreign bank branches

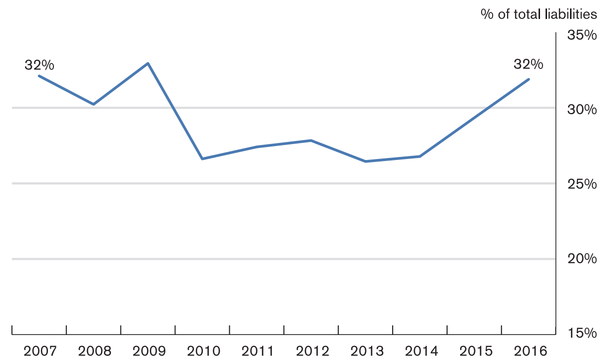


Notes:
1. Intragroup lending (borrowing) refers to lending to (borrowing from) connected banks in Hong Kong or overseas offices of the bank.
2. A positive (negative) position indicates net lenders to (borrowers of) the rest of their respective banking group.

Source: HKMA.

One contributing factor to their reduced reliance on intragroup funding since the last assessment is the fact that they raised more retail deposits to fund their business.[66] As a result, the aggregate share of retail deposits to total liabilities of foreign bank branches in Hong Kong has recovered gradually since 2013, reaching the pre-crisis level of 32% at the end of 2016 (Chart B5.5).

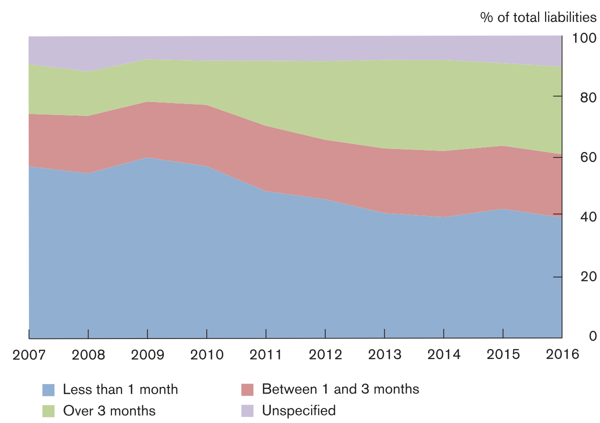
Chart B5.5
Share of funding by retail deposits for foreign bank branches



Note: Year-end positions.
Source: HKMA.

The maturity profile of liabilities for foreign bank branches also shows healthy development. In particular, the share of their liabilities with maturities longer than three months increased from 16% at the end of 2007 to 29% at the end of 2016 (green area in Chart B5.6). This partly reflects the policy effect of the Stable Funding Requirement introduced by the HKMA in 2013.[67] Taken together, foreign bank branches in Hong Kong have developed a more stable funding structure since the last assessment.

Chart B5.6
Maturity profile for foreign bank branches' liabilities



Note: Year-end positions.
Source: HKMA.

66 This may be partially supported by significant lower default risks of international banks as the negative impact of the global financial crisis and the European sovereign debt crisis recede.

67 See a reference note on the Stable Funding Requirement available at http://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2014/20141128e2a5.pdf

On the asset side, loan portfolios of foreign bank branches in Hong Kong exhibited a similar development to that of retail banks. Foreign bank branches' loans to non-bank customers accounted for around 34% of their total assets at the end of 2016 compared to less than 20% before the crisis (Chart B5.7). Loans for use outside Hong Kong are the main source of growth, while corporate loans used locally also registered a higher share.

Chart B5.7
Composition of loans to non-bank customers by foreign bank branches in Hong Kong

Note: Year-end positions.
Source: HKMA.

Implications for banking stability

Recent developments relating to banks in Hong Kong have three implications for banking stability. Firstly, for retail banks, although the expansion of their corporate loan portfolios in general incurs higher credit risk, such risk may be counterbalanced by their higher share of holdings of safe assets. Importantly, the expansion of their corporate loan portfolios may generate higher returns, which help them to sustain stable profits when net interest margins have been generally compressed in low interest rate environments. With stable profit and strong capital positions, retail banks are well placed to meet the capital requirements under the Basel III framework.

Secondly, foreign bank branches in Hong Kong have developed a more stable funding structure, which should enhance their resilience against liquidity and funding shocks. In addition, their active participation in the loan market after the crisis could improve the availability of diversified sources of loan supply in the Hong Kong banking sector, thus reducing the risk of systemic loan curtailment in times of stress.

Nevertheless, the Hong Kong banking sector should stay particularly alert to the external environment, as both retail banks and foreign bank branches have registered rapid growth in loans for use outside Hong Kong since the crisis, implying that their asset quality will be more sensitive to the external environment.