HONG KONG MONETARY AUTHORITY
香港金融管理局

HALF-YEARLY MONETARY AND FINANCIAL STABILITY REPORT

September 2015

This Report reviews statistical information between the end of February 2015 and the end of August 2015.

Half-Yearly Monetary and Financial Stability Report
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1. Summary and overview

Global financial markets underwent a period of turbulence amid a re-pricing of global economic growth prospects triggered by concerns over a slowdown in the Mainland economy. Equity markets worldwide witnessed sharp sell-offs, while commodity prices and emerging market currencies were under significant pressure following the depreciation of the renminbi after the refinement to its central parity rate fixing mechanism announced in August. Higher financial market volatility is likely to stay given increased uncertainty in the timing and pace of US interest rate normalisation and increasing downside risks in the global economy, particularly in the emerging market economies.

Despite heightened volatility in the global and domestic financial markets, the Hong Kong dollar exchange rate remained broadly stable and continued to stay close to the strong-side Convertibility Undertaking level. Loan growth in Hong Kong has moderated, but household indebtedness increased further. The local property market remained stretched and downward pressure has increased in the face of heightened financial market volatility both globally and domestically.

Looking ahead, the recent financial market turmoil coupled with possible deterioration in the business environment may weaken corporates' fundamentals. This, together with the expected interest rate rises in the US, could put the credit quality of corporate loans of Hong Kong's banks to the test given the rising trend of the corporate sector's leverage and debt servicing burdens. Meanwhile, the increasing share of Mainland-related lending amid slower economic growth in Mainland China remains a key risk factor to watch for.

The external environment

Global financial markets saw turbulent times in recent months. Market volatility started to increase in July on concerns over a potential Greek exit from the euro area and sharp fall in Mainland's A-share index. Subsequently, markets witnessed wild swings in August amid a re-pricing of global growth prospects triggered by concerns over Mainland's economic prospects. Equity markets worldwide underwent sharp sell-offs, while commodity prices and emerging market currencies were under tremendous pressure along with the depreciation of the renminbi following the refinement of the renminbi central parity rate fixing mechanism.

While the risk of a Greek exit seems to have diminished after Greece and its international creditors managed to hammer out a three-year bailout, concerns about Mainland's economic slowdown, together with uncertainties surrounding the US Federal Reserve's (Fed) monetary normalisation process, downward pressure on commodity prices and growing risks in the emerging markets, would continue to cast a shadow over the global financial markets.

Although ongoing economic and labour market recovery in the US remains in line with the Fed rhetoric of a rate lift-off by the end of this year, the recent global financial market turmoil has increased the uncertainty on the timing of US interest rate hikes. Meanwhile, the weakness in commodity prices and financial market volatilities would also complicate monetary policies in Europe and Japan by intensifying deflationary pressure and slowing growth. Growth and inflation are already subdued in the euro area amid ongoing deleveraging in both the public and private sectors, and market-based long-term inflation expectations have already eased quite notably since July on global financial market turbulence. As such, market participants expect the European Central Bank (ECB) would fully implement its current asset purchase programme if not further expand it. Similarly in Japan, in view of the still-stagnant wage growth and structural headwinds from a rapidly ageing population, downside risks for the Bank of Japan (BoJ) to achieve its 2% inflation target have increased. Therefore, markets generally expect the BoJ to maintain or further expand its quantitative and qualitative easing programme.

In Mainland China, uncertainties over domestic economic prospects have increased following the sharp equity market sell-off and depreciation of the renminbi after the change in the renminbi central parity rate fixing mechanism in August. Despite the interest rate and reserve requirement ratio (RRR) cuts by the People's Bank of China (PBoC) to cushion growth and shore up market confidence, monetary conditions have not eased significantly with elevated real interest rates and a relatively strong real effective exchange rate of the renminbi. As rebalancing and deleveraging are still underway, economic growth is likely to continue to moderate in the near term. While the direct effect of the recent equity market turbulence on financial stability in Mainland China is likely to be limited given the relatively small exposure of Mainland households and banks to the equity market, leveraged trading activities and equity-backed financing would pose credit risks to certain segments of the Mainland financial system. The recent global equity market sell-off also shows that concerns about Mainland's economic and financial market developments could have significant spill-over effect to the rest of the world. The resultant tightening in global financial conditions in turn would indirectly affect the Mainland economy and its financial markets. Box 2 (see page 29) discusses the risks associated with margin financing amid the sell-off in the Mainland equity market and its implications for macroeconomic and financial stability.

Concerns over Mainland 's economic prospects, together with falling global commodity prices and the uptrend of the US dollar, have piled further downward pressures on the already weakening economic growth and falling exchange rates in emerging market economies. With the upcoming US interest rate up-cycle and persistent weakness in global commodity prices, emerging markets, particularly those with weaker fundamentals and greater domestic and external vulnerabilities, could continue to face significant economic challenges and heightened risks of capital outflows.

In East Asia, economic growth remained weak in the first half of 2015 amid increasingly broad-based weakening of export performance and modest domestic demand. Moderated intraregional trade and sluggish demand from Mainland China and some advanced economies were major drivers of the broad-based deterioration in the region's export performance. Meanwhile, reflecting concerns about Mainland's economic outlook, cautious attitude towards risk has dominated financial markets in the region, with most regional currencies weakening against US dollar in recent months. Reduction of bond market liquidity is another issue that warrants greater attention, given the increasingly important role of these markets in the region's financial system. Box 1 (see page 16) examines the recent trends in bond market liquidity conditions and discusses the determining factors as well as the implications for financial stability.

Looking ahead, the region's economic prospects hinge very much on capital outflow pressure stemming from concerns about Mainland's economic prospects and normalisation of US monetary policy, and how that would interact with domestic vulnerabilities such as the brisk expansion of household indebtedness in the region. The region's central banks would continue to face a difficult dilemma in calibrating their policies to balance between supporting growth and preventing further build-up of vulnerabilities and capital outflows.

The domestic economy

In Hong Kong, the economy continued to grow moderately in the first half of 2015, with robust domestic demand offset partly by the weak trade performance. Real GDP growth turned out to be 0.4% quarter on quarter in the second quarter, compared with 0.7% in the first quarter. Private consumption held up solidly, while private and public investment activities improved, particularly in the second quarter. Inventory destocking however posed a drag. Exports of goods and services contracted, with the latter reflecting weaknesses in inbound tourism, offshore trade and logistics, which more than offset the stronger performance in financial services exports. Overall, net exports became a drag on GDP growth in the second quarter.

Local inflation momentum moderated in the first seven months of 2015, with the annualised three-month-on-three-month underlying inflation rate retreating to 2.8% in July from 3.6% last December, attributable to easing services inflation and housing rentals. Looking ahead, inflationary pressure will likely remain contained, in view of the modest import price inflation and the moderate pace of local economic growth.

For the rest of the year, it is expected that the Hong Kong economy would see some growth moderation. On the domestic front, private consumption growth is expected to soften amid the negative wealth effect stemming from the recent stock market sell-off. While private and public sector building activities are expected to gather pace in the second half, weaker business sentiment and uncertain business prospects amid financial market volatility could weigh on capital investment. External demand is also facing headwinds amid continued weakness in tourist spending and some softening in financial services exports. The Government now forecasts the 2015 real GDP growth in the range of 2–3%, while private-sector analysts project an average rate of 2.3%. The HKMA in-house composite index of leading indicators also points to growth moderation in the second half of 2015. This growth outlook is subject to downside risks amid volatility in global financial markets, uncertainty surrounding Mainland's economic growth, US interest rate normalisation and the uptrend of the US dollar.

In fact, economic growth in Hong Kong has moderated from an average rate of 5% before the global financial crisis to around 2–3% over the past three years. Box 3 (see page 37) examines the drivers behind the slower trend growth in Hong Kong by analysing developments in the total factor productivity of key business sectors to shed light on the future prospects of Hong Kong's potential growth.

Monetary conditions and capital flows

The Hong Kong dollar exchange rate remained broadly stable, trading in a narrow range near 7.75 against the US dollar despite fickle global financial market conditions, the Mainland stock market corrections and depreciation of the renminbi following the new exchange rate fixing mechanism. Mainly reflecting equity-related demand for Hong Kong dollars, the strong-side Convertibility Undertaking (CU) was triggered repeatedly during 9–24 April involving inflows of HK$71.5 billion. More recently, the stock market corrections in Mainland China and Hong Kong and renminbi depreciation resulted in some reversal of equity flows but the Hong Kong dollar exchange rate remained firm, with the strong-side CU being triggered again in September.

Hong Kong's monetary environment stayed accommodative and the low interest rate environment continued in the first half of 2015 and recent months. The Monetary Base picked up after the triggering of the strong-side CU, and the broad money supply (HK$M3) also increased noticeably. With abundant liquidity in the banking system, the wholesale funding costs continued to stay at low levels. The overnight and three-month HIBOR fixing rates were little changed at around 0.06% and 0.39% respectively. On the retail front, the composite interest rate declined to a recent low of 0.29% in June, down 10 basis points from six months earlier, while the mortgage interest rate remained steadily low at around 1.95%.

Total loan growth moderated slightly to an annualised rate of 11.0% in the first half of 2015 from 12.7% in 2014. The moderation was due to softer growth in domestic credit, while loans for use outside Hong Kong continued to increase at a relatively fast pace. In regard to domestic credit, sectoral performance was quite mixed, however. Trade finance picked up in the first half from a low recorded late last year and loans to stockbrokers rose notably faster due to vibrant equity IPOs and trading activities. But alongside weak performance in retail sales, loans to wholesale and retail trade declined. Meanwhile, household debt edged higher to 66.0% of GDP in the second quarter due to fast growth in personal loans and mortgage loans, although the latter slowed after the HKMA introduced the seventh round of prudential measures on mortgage loans in late February and early March. The Hong Kong dollar loan-to-deposit ratio declined slightly while the US dollar loan-to-deposit ratio edged up.

The offshore renminbi (CNH) exchange rate held steady between April and July while closely tracking the stable path of its onshore counterpart (CNY), but saw more depreciation pressure after the change in the renminbi exchange rate fixing mechanism on 11 August. The discount of CNH vis-à-vis the CNY however widened to as high as 1,000 pips in late August. The CNH interbank liquidity also tightened along with the rise in renminbi depreciation pressure, with the three-month CNH HIBOR moving up by around 130 basis points from the end of June, to 4.6% at the end of August.

The renminbi liquidity pool in Hong Kong (including outstanding renminbi customer deposits and certificates of deposits) levelled off in the first quarter before picking up again in the second quarter. Meanwhile, renminbi trade settlement handled by banks in Hong Kong decreased, showing net outflows from Hong Kong to Mainland China. On the other hand, renminbi bank lending rose by 25.7% from a low base in the first half. Moreover, Hong Kong's position as a global hub for offshore renminbi clearing and settlement has strengthened further, with the average daily turnover of renminbi real time gross settlement (RTGS) rising to RMB890.3 billion in the first half. In the near term, market expectation of renminbi depreciation, if persistent, could potentially slow down growth in renminbi liquidity pool. Yet, at the same time, the liquidity pressure might be partially offset by banks offering higher interest rates to lure customer deposits. Going forward, the Mainland-Hong Kong Mutual Recognition of Funds (MRF) is expected to enrich the types of fund products offered in the two places and facilitate cross-border investment between Mainland China and the rest of the world through Hong Kong.

Asset markets

Hong Kong equities have taken a roller coaster ride over the past six months, with the Hang Seng Index once surging to a seven-year high but ending up sharply lower in the end. Despite increased connectivity between the Hong Kong and Mainland markets, the price premium of A-shares over H-shares remained tangible in view of significant discrepancies in equity valuation between the investors of the two markets. Looking ahead, the performance of Hong Kong equities, including H-shares, is likely to remain highly susceptible to external market conditions. Concerns of a slowdown in the Mainland economy and uncertainties over US monetary normalisation will continue to cast a shadow over the local equity market for the remainder of the year.

The domestic debt market has expanded only slightly as the reduction in issuance gathered pace. The public sector saw a decline in issuance on a year-on-year basis in the first half of the year, which was more than offset by the double-digit growth in private sector issuance. However, the second quarter figures suggest that the private sector might also begin to lose momentum. Whether or not the market could attract issuers and investors in the foreseeable future depends on how quickly the dust can settle after the recent turmoil and how smooth the path of US monetary normalisation will be. Meanwhile, after years of phenomenal growth, the offshore renminbi debt market in Hong Kong also slowed down. Reduced investor appetite for offshore renminbi debt securities following the weakening of the renminbi and the launch of the Shanghai-Hong Kong Stock Connect, as well as lower onshore funding costs following a series of monetary easings, have probably all contributed to the slower activities. Looking forward, while the long-term outlook remains positive, market growth is likely to take a breather in the period ahead in view of increased economic and policy uncertainties.

The residential property market showed some signs of consolidation in March after the HKMA introduced the latest round of prudential tightening, but market activities picked up gradually in April–June before softening again in July–August. Housing prices rose rapidly in the first two months but the pace of increase has decelerated since then. Still, with the rapid increase early in the year, housing prices picked up by 9.1% in the first seven months, led by the mass market segment. Housing affordability also remained highly stretched, with the housing price-to-income ratio rising to a record level and the income-gearing ratio climbing further above its long-term average.

Banking sector performance

The banking sector continued to post healthy performance, characterised by stable earnings growth, strong capital positions and sound asset quality. In the first half of 2015, retail banks' pre-tax operating profits grew by 5.4% from the second half of the previous year. The improvement in earnings was mainly driven by robust growth in non-interest income which more than offset decreases in net interest income. However, reflecting faster growth in assets than income, the return on assets of retail banks edged down to 1.14% in the first half of this year.

The banking sector saw a smooth implementation of the new Basel III liquidity standards, which became effective from 1 January 2015. The liquidity positions of the banking sector continued to be favourable in the second quarter, with both the average Liquidity Coverage Ratio of category 1 institutions and the average Liquidity Maintenance Ratio for category 2 institutions staying well above the regulatory minimum.

To strengthen banks' risk management, the HKMA implemented another round of prudential measure on mortgage lending in February 2015. Reflecting partly the policy effect, the number and amount of new mortgages as well as the average loan-to-value ratio of newly approved mortgages were reduced in the second quarter.

While macro-prudential policies (MPPs) have been increasingly adopted by policymakers globally to contain systemic risks after the global financial crisis, their implementations may come with unintended international spillover effects. Findings in Box 4 (see page 72) show that the Hong Kong banking sector is not immune to the spillover effect from the home countries of foreign banks in Hong Kong. The study further shows that both the pattern and the extent of the spillover effect of MPPs are crucially dependent on banks' balance sheet characteristics and types of MPP instruments being adopted. These findings suggest that policymakers may face significant challenges in achieving a coordinated implementation of MPPs among policymakers in different jurisdictions.

Looking ahead, the recent financial market turmoil coupled with possible deterioration in the business environment may weaken corporates' fundamentals. This together with the expected interest rate rises in the US could exert upward pressure on corporates' financing costs, which could put the credit quality of corporate loans of Hong Kong's banks to the test in view of the rising trend of the corporate sector's debt leverage and debt servicing burdens. Meanwhile, the increasing share of Mainland-related lending amid slower economic growth in Mainland China remains a key risk factor to watch for. Banks should continue to maintain prudent risk management on their credit exposures.

The *Half-Yearly Report on Monetary and Financial Stability* is prepared by the staff of the Research Department of the Hong Kong Monetary Authority.

2. Global setting and outlook

Global financial markets have recently experienced sharp sell-offs amid fears that sharper economic slowdown in Mainland China, continued weakness in global commodity prices and the resultant stress on emerging market economies could result in a deeper and more protracted global economic slowdown. The recent turbulence in global financial markets and its potential impact on global growth and inflation have increased the uncertainty of the timing of interest rate hikes by the US Federal Reserve, and reinforced market expectation that the European Central Bank and the Bank of Japan would maintain, if not further expand, their asset purchase programmes.

In East Asia, growth momentum was weaker than expected in the first half of 2015. Concerns over the dimmer growth prospect and the depreciation of the renminbi have heightened selling pressure and volatility in regional currencies and financial markets. The continued rise in household indebtedness also raises concerns over growing vulnerabilities in some regional economies. Striking a balance between supporting growth and preventing capital outflows would become an increasing challenge to policymakers in the region.

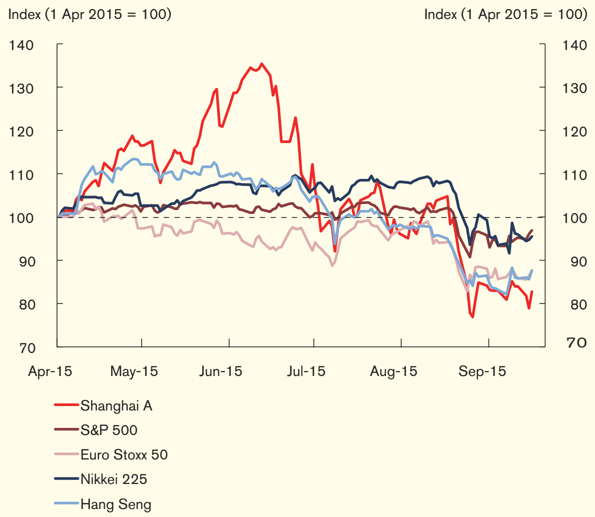
In Mainland China, economic activities stabilised in the second quarter from weak levels, and the growth momentum appeared to remain soft entering into the third quarter. Despite the interest rate and reserve requirement ratio cuts by People's Bank of China, monetary conditions have not eased significantly with elevated real interest rate and relatively strong effective exchange rate of renminbi. As rebalancing and deleveraging are still underway, economic growth is likely to moderate over the near term. On a positive note, the successful launch of the debt swap program has reduced the risk of local government debt, while progress in financial liberalisation will improve efficiency of resource allocation.

2.1 External environment

Global financial market volatility started to increase in July after the Greek people voted against further austerity in the proposed bailout in a national referendum. As Greece was teetering on the brink of crashing out of the euro area, major European stock markets came under significant selling pressure before eventually stabilising after Greece and its international creditors agreed an €86 billion three-year bailout deal. At the same time, global markets were also plagued by the equity market turmoil in Mainland China. Market sentiments stabilised for a while after the Mainland authorities rolled out supportive measures, but global market volatility has spiked markedly again since mid-August.

Concerns about depreciation of the renminbi exchange rate after the People's Bank of China (PBoC) refined its onshore renminbi fixing mechanism, together with the August release of the weakest Chinese Purchasing Manager's Index (PMI) reading in more than 6 years, triggered concerns over Mainland's economic slowdown and a re-pricing of global growth prospects. As a result, the Shanghai Stock Exchange A-Share Index along with major stock market indices around the world fell sharply before selling pressure abated in late-August after the PBoC lowered interest rates and the reserve requirement ratio (RRR) (Chart 2.1).

Chart 2.1
Major stock market indices

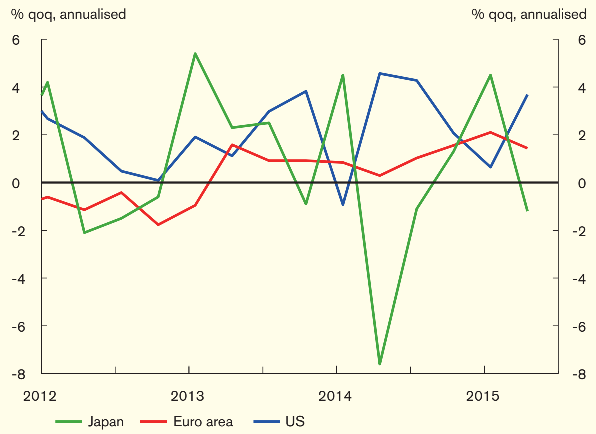


Source: Datastream.

Looking ahead, amid the recent financial market turbulence, the global economic and financial market outlook has become more uncertain. While risks on the Greek exit appear to have diminished, at least temporarily, concerns about Mainland's economic slowdown, together with uncertainties surrounding the US Federal Reserve's (Fed) monetary normalisation process, downward pressure on commodity prices and growing risks in the emerging markets, would continue to cloud the global economic outlook and heighten volatility in the global financial markets.

In advanced economies, despite unconventional monetary easing over the past few years, growth has remained steady but far from spectacular. The recent financial market sell-offs and the likelihood of slower global economic growth may pose further headwinds of tightening financial conditions and weakening exports. The adverse impacts are likely to be smaller for the US where the recovery has been more resilient and domestically driven, whereas the euro area and Japanese economies would be under greater pressure given their fragile recoveries. Indeed, in the US, despite the weather-related slowdown in the first quarter, economic activities rebounded strongly in the second quarter, partly driven by robust domestic demand, with growth in final sales to domestic purchasers (which excludes inventories and net exports and better reflects underlying domestic demand) rising to 3.2% from 1.7% in the first quarter, resulting in a solid average of 2.4% (0.6% quarter on quarter) over the first half of 2015. In contrast, in the euro area, despite the launch of an asset purchase programme, real GDP growth moderated to 0.4% in the second quarter, down from 0.5% in the first quarter, as the boosting effect from the earlier plunge in oil prices and weakening of the euro began to dissipate. Similarly in Japan, despite the continued quantitative and qualitative easing, real GDP slumped to a 0.3% contraction in the second quarter, down sharply from 1.1% growth in the first quarter, due to lagging exports and sluggish consumer spending (Chart 2.2).

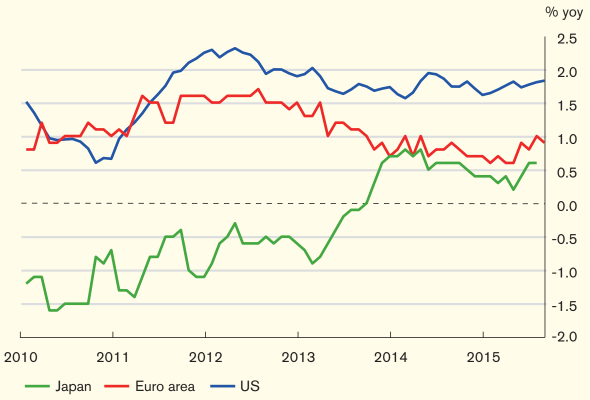
Chart 2.2
Real GDP growth of major advanced economies



Source: Bloomberg.

As a result of moderate recovery and falling global commodity prices, inflation has remained subdued across advanced economies. In particular, the recent renewed plunge in global oil prices has started to exert downward pressure on headline inflation with consumer prices rising slowly by 0.2% in the US in August, 0.1% in the euro area in August and 0.2% in Japan in July. While there are now risks that the tightening in financial conditions linked to the recent financial market turmoil and weakening in external demand and global commodity prices may pose further downward pressure on inflation, such disinflationary pressure is again likely to have a smaller impact on the US given its stronger domestic demand driven recovery than on the euro area and Japan. Indeed, while core consumer prices (i.e. excluding both food and energy) have been rising slowly by 0.9% in the euro area in August and by 0.6% in Japan in July, US core inflation has been significantly higher and holding steadily at 1.8% in August (Chart 2.3).

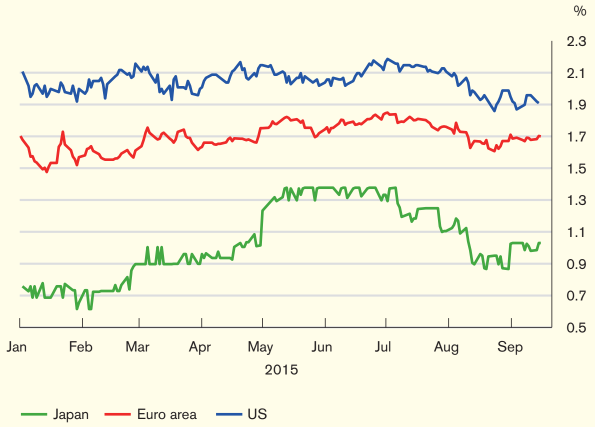
Chart 2.3
Core CPI inflation in major advanced economies



Sources: CEIC and Datastream.

Although the ongoing economic and labour market recovery in the US remains in line with the Fed rhetoric of an interest rate lift-off this year, the recent global financial market turbulence and weakness in commodity prices have increased the uncertainty of the timing of US interest rate lift-off. The Fed held monetary policy unchanged at the September Federal Open Market Committee (FOMC) meeting, citing concerns that recent global economic and financial developments may restrain economic activity and put further downward pressure on inflation in the US in the near term. Nevertheless, as the underlying strength of domestic demand in the US economy remains solid and as a result, the disinflationary impact on US inflation may not be long-lasting compared to other major advanced economies, recent global developments would only delay but unlikely derail the monetary policy normalisation process in the US. Indeed, as recently admitted by the Fed Vice Chairman Stanley Fischer that because monetary policy influences real activity with a substantial lag, the Fed should not wait until inflation is back to 2% to begin tightening. Meanwhile, the weakness in commodity prices and financial market volatilities could complicate monetary policies in Europe and Japan further by intensifying deflationary pressure and slowing growth. Growth and inflation are already and would likely continue to remain subdued in the euro area amid ongoing deleveraging in both the public and private sectors, and market-based long-term inflation expectations have already eased quite notably since July on global financial market turbulence (Chart 2.4). Market participants therefore expect the European Central Bank (ECB) to fully implement its current asset purchase programme if not further expand it. Similarly in Japan, the still-stagnant wage growth and structural headwinds from a rapidly ageing population mean that downside risks for the Bank of Japan (BoJ) to achieve its 2% inflation target have increased. As such, markets generally expect the BoJ to maintain or even expand its quantitative and qualitative easing programme.

Chart 2.4
Inflation expectations in major advanced economies

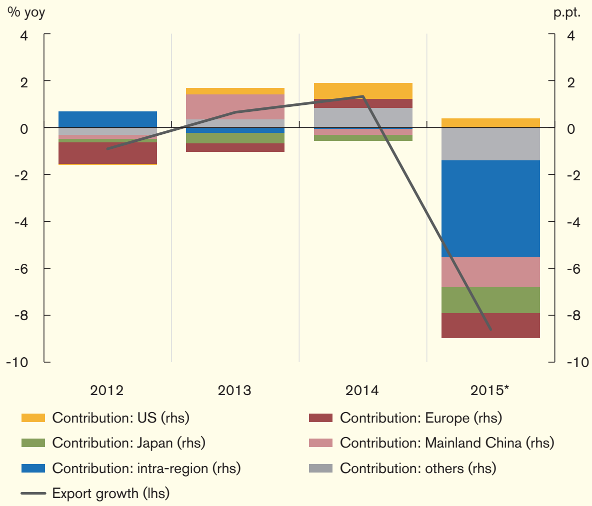


Note: Data used for the US is the 5-year/5-year forward inflation expectation rate. Data used for the euro area is the inflation-linked swap rate at 5-year forward 5-year ahead. Data used for Japan is the 5-year/5-year inflation swap rate.
Sources: Bloomberg, Datastream and St Louis Fed.

In emerging market economies, the economic slowdown in Mainland China, falling global commodity prices and strengthening of the US dollar have continued to pile further downward pressures on the already weakening economic growth and falling exchange value of their currencies. Countries such as Brazil and Russia have been particularly hard hit with deepening recession, much higher-than-desired inflation and sharp currency depreciation. In the face of lingering concerns over the growth prospect of the Mainland economy, the upcoming US interest rate up-cycle and with little prospect of an immediate turnaround in global commodity prices, emerging markets, particularly those with weaker fundamentals and greater domestic and external vulnerabilities, are set to face significant economic challenges and heightened risks of capital outflows.

In East Asia[1], economic growth was weaker than expected in the first half of 2015 amid disappointing export performance and modest domestic demand. Weak intraregional trade and moderated demand from Mainland China and some advanced economies such as Japan and Europe continued to haul the region's external sector performance, significantly outdoing the contribution by the demand from the US (Chart 2.5).

Chart 2.5
Asia: Export growth contributed by major destinations



Note: (*) January to May figures for 2015.
Sources: CEIC and HKMA staff calculations.

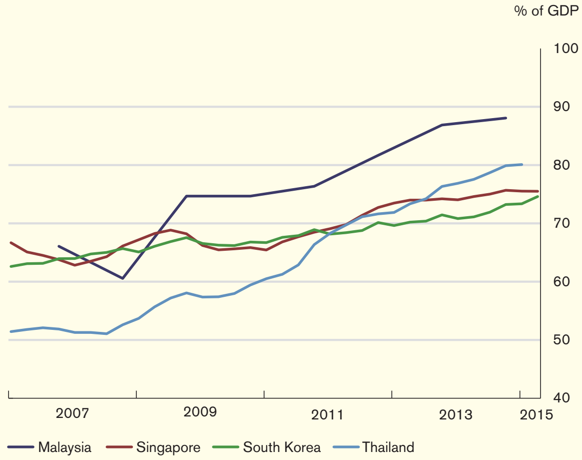
Selling pressure and volatility in the region's financial market have increased, driven by the worries over the dimmer growth prospect in the region and the depreciation of the renminbi in August. In fact, most regional currencies have stayed on a weakening trend against the US dollar since September 2014 amid expectation of an impending US interest rate hike (Chart 2.6). The trend was further exacerbated by the unexpected depreciation of the renminbi on 11 August. Meanwhile, equity prices in the region have also been under pressure. Caution towards risk has dominated the market. The swings in the Mainland market since July and the market correction in the US in August have turned investors' sentiment to the risk-off mode and weighed on the region's equity prices. The tightening in financial conditions has also become more evident in terms of borrowing cost in the region. In particular, the yield spreads between the sovereign bonds in many economies in the region and the US treasuries widened in recent months. Reduction of bond market liquidity is another issue that warrants greater attention, given the increasingly important role of these markets in the region's financial system. Box 1 takes a closer look at the bond market liquidity conditions in emerging Asia. In particular, it examines the recent trends and discusses the determining factors as well as the implications for financial stability.

[1] East Asian economies refer to Indonesia, Malaysia, the Philippines, Singapore, South Korea, Taiwan and Thailand.

Chart 2.6
Bloomberg — JP Morgan Asia Currency Index

Source: Bloomberg.

Chart 2.7
Asia: Household credit-to-GDP ratio of selected Asian economies



Source: CEIC.

Looking ahead, the economic prospect of the region hinges very much on how macroeconomic and financial market developments in Mainland China evolve and the pace of interest rate normalisation in the US. In the face of heightened uncertainty, any general risk aversion towards emerging market economies as a result of economic problems in the weaker counterparts could cause investor sentiment towards the region to turn rapidly.

Meanwhile, there are rising concerns over the growing private-sector indebtedness in the region. In particular, the brisk expansion in household credit in some regional economies has pushed their household credit-to-GDP ratio to multi-year high (Chart 2.7). An increase in interest rates alongside the normalisation of US monetary policy could challenge borrowers' debt repayment ability and weigh on asset prices, increasing the risk of an abrupt market correction.

In the face of moderated growth momentum, weakened investor sentiment and increased domestic vulnerabilities, the region's policymakers will face an increasingly difficult dilemma in conducting monetary policy to balance between supporting growth and preventing capital outflows. In particular, monetary easing to support growth could exacerbate the macro-financial imbalances built up in the past few years. At the same time, further rate cuts would widen the interest rate differential between regional economies and the US, which would further reduce investors' appetite for holding assets in these economies and increase the risk of capital outflows.

Box 1
Bond market liquidity in emerging Asia

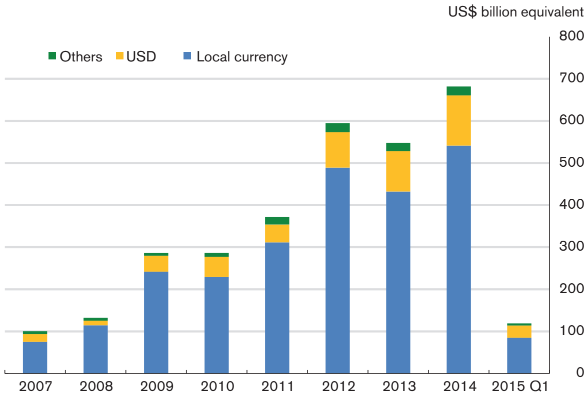
Introduction

In view of the fast expansion of global bond markets, reduced liquidity has increasingly come under the spotlight of macro-surveillance internationally. The emergence of the so-called "flash crashes" — steep price corrections in a short and non-eventful period of time — suggests that liquidity risk looms large even in some of the largest and most liquid bond markets of the world.[2] Against this backdrop, this box takes a closer look at the liquidity conditions of the bond markets in emerging Asia.[3] In particular, it examines the recent trends and discusses the determining factors as well as the implications for financial stability.

Expansion of bond markets

Since the global financial crisis, bond markets around the world have expanded rapidly, in particular, those in emerging market economies characterised by relatively higher yields. This is due partly to investors searching for yields in a low interest rate environment and partly to improved fundamentals of emerging market economies as well as a host of other factors.[4] Emerging Asia is no exception, with the total amount of new issuance of non-bank corporate debt securities skyrocketing to US$681.7 billion in 2014, nearly a seven-fold increase from the US$100.4 billion in 2007 (Chart B1.1). Much of the growth was accounted for by bonds issued in local currencies (79.4% of total in 2014), followed by those in US dollar (17.5%) and other currencies (3.1%).

Chart B1.1
New issuance of local non-bank corporate debt securities in emerging Asian economies



Notes:

1. Deal nationality is based on the nationality of the issuer parent if there is a credit support or guarantee for the issuing subsidiary. For deals without that support or guarantee, the nationality of the deal refers to that of the issuing subsidiary.
2. Debt securities here refer to bonds, medium term notes and preference shares with original tenor greater than or equal to 18 months.

Sources: Dealogic and HKMA staff estimates.

Trends and drivers of liquidity

With the bond market playing an increasingly important role in the financial system, reduced liquidity could pose major risks to financial stability. Generally speaking, liquidity refers to the condition of the market characterised by how easy it is for market participants to buy and sell an asset in a timely manner, at a low transaction cost and at a price close to the prevailing level.[5] Given this rather abstract and multi-dimensional concept, there is no single best measure. Two popular yardsticks, namely, bid-ask spread and turnover ratio, are thus employed to assess the recent trends in the bond markets in emerging Asia.

[2] On 15 October, 2014, for example, the 10-year US Treasury yield plunged and rebounded within minutes in the absence of any obvious triggers. While the market closed only 6 bps below from the previous close, the unusually large intraday swing of 37 bps was a clear sign of strained liquidity condition. More recently, flash crashes also occurred in the German bund market on 7 May and 4 June of this year.

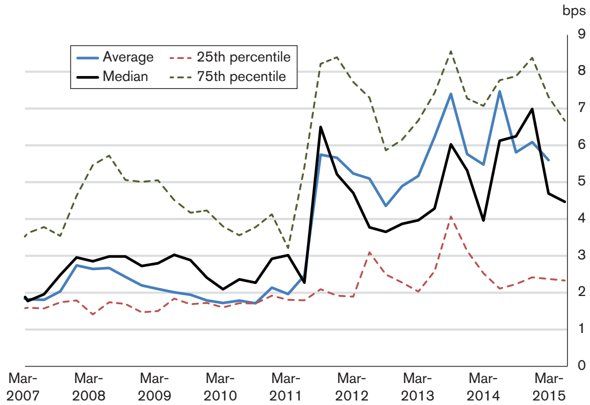
[3] Emerging Asia in this box refers to Mainland China, Hong Kong, Indonesia, Malaysia, the Philippines, Singapore, South Korea and Thailand, unless otherwise specified.

[4] See Box 3 of *Half-Yearly Monetary and Financial Stability Report* (September 2013) for more details about these factors.

[5] Transaction costs include both explicit costs (e.g. commission, bid/ask spread) and implicit cost, i.e. the loss from impacting on the market price by placing a large-size order.

As can be seen, the weighted average of the bid-ask spreads in the government bond markets in the region stayed at relatively low levels before it shot up in 2011 (Chart B1.2). It then narrowed in 2012 but has since widened again. It is now more than double of where it was before 2011. The average turnover ratio in government bond markets increased sharply in the second half of 2000s (Chart B1.3). This was followed by a sharp downward adjustment in the ratio in 2011 and a moderate decline between 2012 and now. The turnover ratio of corporate bonds in emerging Asia as a whole followed similar trends, although the steep fall occurred in 2013 instead of 2011. On balance, bid-ask spread and turnover ratio data suggest that liquidity has generally declined in the bond markets in emerging Asia.

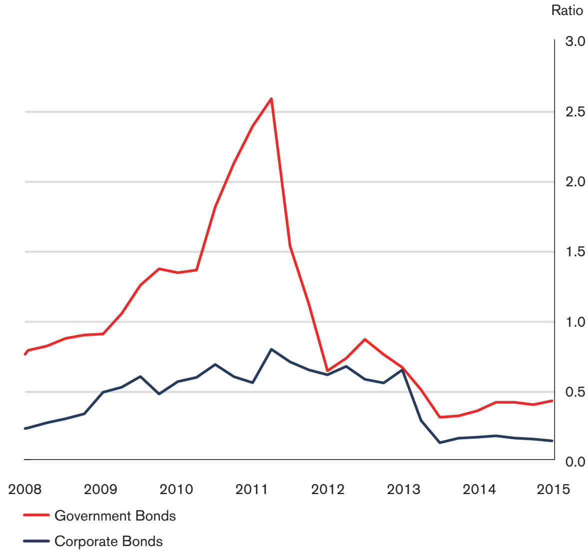
Chart B1.2
Bid-ask spreads of government bonds in emerging Asia



Note: The bid-ask spread for emerging Asia is a weighted average of those of individual economies, with the weights being their outstanding amount of government bonds. The Philippines is excluded in the calculation since its bid-ask spreads of government bonds are not frequently available.

Sources: AsiaBondsOnline, Bloomberg and HKMA staff estimates.

Chart B1.3
Turnover ratio of government and corporate bonds in emerging Asia

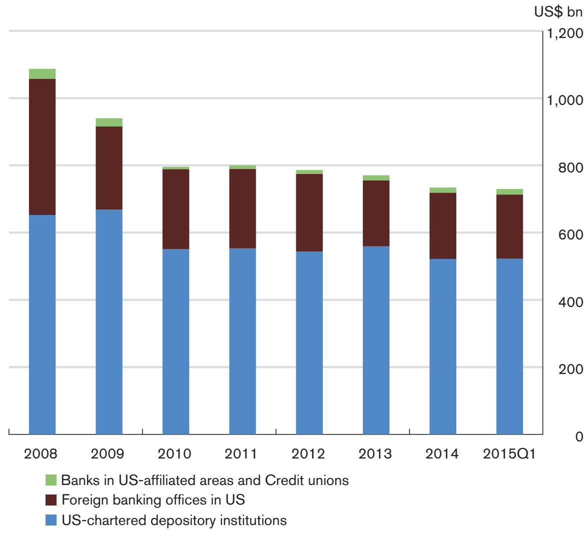


Notes:
1. Turnover ratio is defined as the ratio of the value of local-currency bonds traded and the average amount of bonds outstanding.
2. The turnover ratio for emerging Asia is a weighted average of those of individual economies, with the weights being the outstanding amount of respectively economies.
3. The Philippines and Singapore are excluded in the calculation of the turnover ratio of corporate bonds due to data unavailability.

Sources: AsianBondsOnline and HKMA staff estimates.

Broadly speaking, the reduction in bond market liquidity is attributable to three factors. The first is the reduction in risk appetite of bond dealers resulting from a reappraisal of risk tolerance following the global financial crisis. Since bonds are predominantly traded over the counter through these dealers, their market making capacity is vital in generating market liquidity. However, the risk management models commonly employed by these dealers have since the crisis become more sensitive to volatility, causing a reduction in their bond holdings. For instance, the corporate and foreign bonds held by US banks have fallen by 32% since the end of 2008 (Chart B1.4). While there is no similar data available for emerging Asia, the markets in the region are likely to suffer a similar constraint.

Chart B1.4
Holdings of corporate and foreign bonds by US banks



Notes:
1. Corporate and foreign bonds here refer to debt obligations of US financial and non-financial corporations and foreign entities respectively.
2. Debt obligations here include bonds, notes, debentures, mandatory convertible securities, long-term debt, private mortgage-backed securities, and unsecured debt.
3. Outstanding holdings are shown at book value.

Source: US Federal Reserve.

Moreover, some derivatives markets (e.g. credit default swaps) that had traditionally facilitated bond trading have become less effective after the crisis, thus reducing the capability of these dealers to hedge the risks of taking positions in the bond market.[6] The resulting decline in the ability of bond dealers to make market was reportedly a major hurdle for them to create liquidity in the market.

Second, bond ownership has become more concentrated, directly reducing the need to trade. For instance, the five largest mutual fund families now hold more than 50% of the bonds issued by a number of leading emerging market corporations.[7] As the number of players falls, liquidity naturally also reduces.

The third factor stems mainly from regulatory changes. Regulators have in recent years introduced new capital and liquidity rules to strengthen the resilience of the financial system to shocks, which should positively impact market liquidity in the long run by reducing the likelihood of future financial crisis. However, there are increasing concerns that these rules might discourage market making due to increased costs of holding bond inventories although the overall effects are hard to evaluate and remain controversial at this stage.[8]

Policy implications

In sum, market data show that liquidity has declined due to a combination of market and non-market factors in the bond markets in emerging Asia in recent years. The decline has raised some eyebrows in international policy fora, as it means that the ability of the bond market to absorb and weather shocks may have weakened. As the bond market becomes more volatile than otherwise in times of adversity, the impact could spill over to other financial markets and filter through to the real economy in the end. For instance, when liquidity dries up and large swings in bond prices occur, investors may have to resort to selling other financial instruments to raise funds or rebalance their portfolios. In an erratic market, corporations and even sovereigns would find it more costly to borrow and may even, in extreme situations, be shut off from capital markets.

[6] See CGFS Papers No. 52 "Market-making and proprietary trading: industry trends, drivers and policy implications", November 2014, published by the BIS.

[7] See *Global Financial Stability Report* (October 2014) published by the IMF.

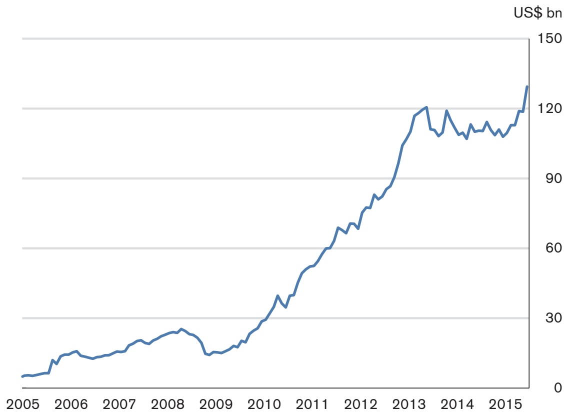
[8] See *Global Financial Stability Report* (April 2015) published by the IMF and CGFS Papers No 52 "Market-making and proprietary trading: industry trends, drivers and policy implications", November 2014, published by the BIS.

What is more worrying is that there has recently been a fundamental change in the investor base of bonds. In the past, institutional investors such as pension funds and insurance firms dominated the market. In recent years, there has been increasing participation of retail investors in the market in search for yields, as reflected by the strong growth in bond mutual funds and exchange traded funds (ETFs). In emerging Asia, the asset value of these funds increased at an annual rate of 38.4% between 2008 and 2014, outpacing those of government bonds (9.9%) and corporate bonds (31.1%) (Chart B1.5). As retail investors have a stronger tendency of running the market in times of stress, volatility is bound to be higher than before for any given shock.[9]

Increased concentration of bond ownership is also potentially another source of market volatility. Liquidity risk is larger since selling by one fund would *ceteris paribus* have a greater impact on the market than otherwise. Indeed, a recent IMF study finds that larger mutual fund holdings and greater ownership concentration could adversely affect bond spreads in times of stress (Chart B1.6). For instance, during the taper tantrum in 2013, emerging market bonds with over 10% held by the largest five mutual fund investors saw their spreads widen by as much as 63 basis points. In contrast, for those bonds with less than 2% held by these funds, spreads widened by a more moderate 8–11 basis points.[10]

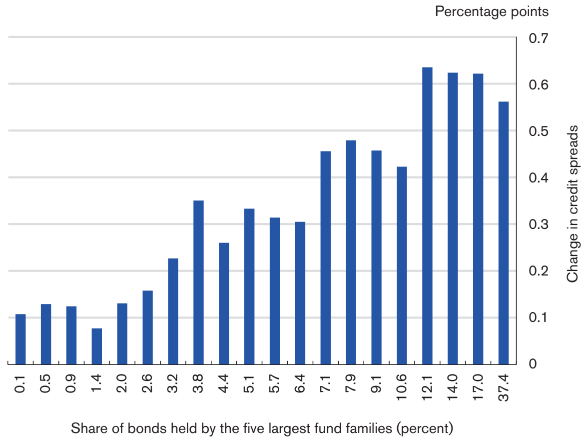
In view of the risk to financial stability posed by the reduction of bond market liquidity and the new developments that could aggravate the risk in the event of market stress, the liquidity condition of the bond markets in the region warrants greater attention by policymakers.

Chart B1.5
Outstanding bond mutual funds and ETFs investing in emerging Asian bonds



Source: EPFR Global.

Chart B1.6
Increase in credit spreads of bonds issued by emerging market and developing economies during stress periods in 2013



Notes:
1. Bonds are sorted in different buckets on the horizontal axis according to the share of holdings by the five largest fund families.
2. The vertical axis shows the average change in the yields of bonds in each bucket over their respective benchmark government bond yields with similar maturity between 2013 Q1 and 2013 Q2.

Source: IMF.

9 Mutual bond funds and ETFs often offer on-demand liquidity, which enables their investors to redeem in short notice. In times of stress, there is a potential risk that the investors, may rush to redeem, forcing fund managers to unload their holdings.

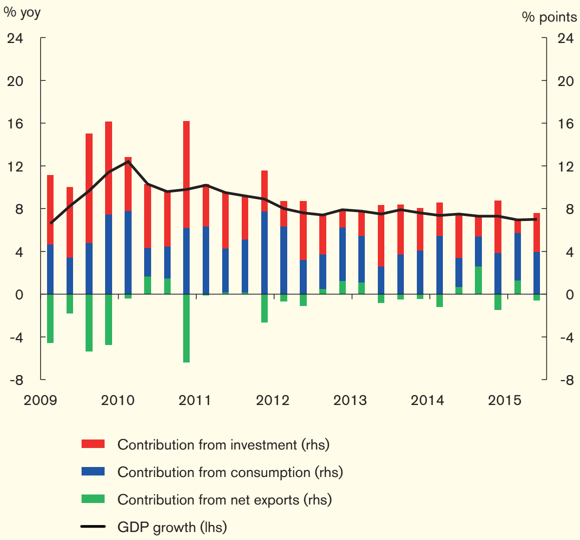
10 See *Global Financial Stability Report* (April 2015) published by the IMF.

2.2 Mainland China

Real sector

The Mainland economy grew by 7.0% year on year in the second quarter, the same pace as the first quarter (Chart 2.8).[11] Consumption contributed to more than half of GDP growth in the second quarter, while growth in gross capital formation also picked up as public spending on infrastructure boosted capital investment. However, economic activities remained at low levels and there is little sign of a strong turnaround given the softening domestic demand and sluggish trade flows.

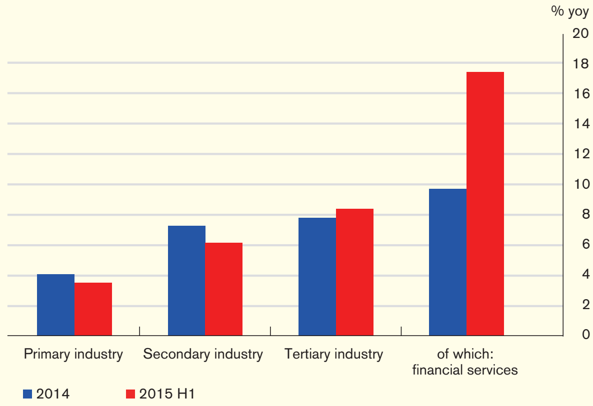
Chart 2.8
Mainland China: contribution to GDP growth by demand component



Sources: CEIC, NBS and HKMA staff estimates.

In value-added terms, growth in the services sector picked up in the first half thanks to vibrant expansion in financial services (Chart 2.9). The tertiary industry now accounts for almost half of GDP compared to 40% a decade ago. Facing overcapacity and falling producer prices, contribution from the industrial sector to GDP continued to shrink.

Chart 2.9
Mainland China: growth in value-added by economic sector



Sources: NBS and HKMA staff estimates.

Forward looking indicators point to softening manufacturing activities, while inventory overhang would continue to weigh on real estate investment. The marked decline in equity prices and increased uncertainties in the external environment will continue to weigh on business confidence. As such, infrastructure spending appears to be a bright spot that serves as a stabiliser to capital investment, as the authorities announced new projects to be conducted in the remainder of the year. Market consensus is that GDP growth would moderate to 6.8% for this year, implying that the pace of economic expansion may ease to 6.6% in the second half.

Softening domestic demand would keep consumer price inflation below the official target of 3% for this year. The recent pick-up in headline CPI inflation, from 1.2% year on year in the first quarter to 1.4% in the second quarter, largely reflected the spike in pork prices, which could be transitory due to supply bottleneck. Falling commodity prices and softening global demand continued to weigh on producer prices, with year-on-year PPI inflation staying negative for more than three years.

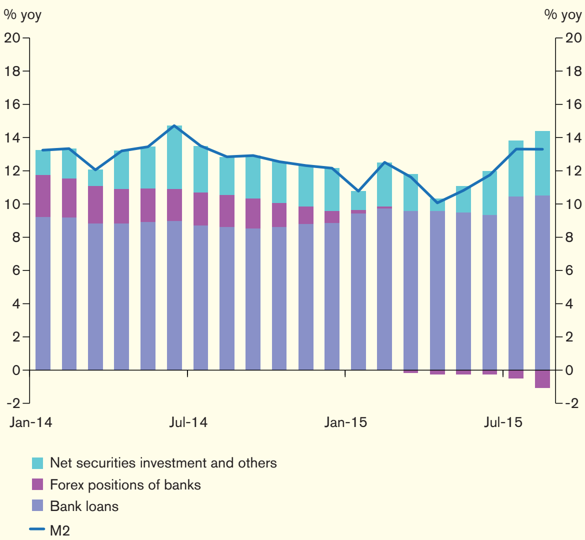
[11] Market consensus on China's GDP growth for the second quarter is 6.8%.

Fiscal and monetary policy

To achieve the growth target of around 7% in the face of increased downward pressure, policymakers rolled out targeted fiscal policy by increasing infrastructure spending on strategically important sectors such as railways, water conservation facilities and affordable housing. In August, the central government stepped up fiscal supportive measures by upgrading the national underground pipe system and allowing policy banks to issue new bonds to finance infrastructure projects.

On monetary policy, the PBoC cut benchmark lending and deposit rates by 25 basis points in August to lower borrowing cost, and lowered RRR by 50 basis points to stabilise liquidity conditions in the banking sector.[12] Despite the five interest rate cuts and three reductions in the RRR, overall monetary conditions have not eased significantly. This can be seen from still elevated real interest rate and relatively strong appreciation of real effective exchange rate of renminbi.[13] Meanwhile, the reduction in RRR should be viewed as a policy response to offset the impact of capital outflows on M2 growth, rather than boosting liquidity in the banking system (Chart 2.10).

Chart 2.10
Mainland China: contribution to M2 growth by asset component



Sources: CEIC and HKMA staff estimates.

While effective bank lending rate has come down following the rate cuts, small business owners still find it hard to obtain credit from banks. For example, company level data show that the borrowing cost of small listed companies is higher than their larger counterparts even after controlling for the risk profiles of borrowers within the same industry. To alleviate financing difficulty faced by small firms, policymakers offered additional cut in RRR to banks with significant lending to small and micro-sized enterprises, and allowed newly established internet-based banks to extend credit to small firms and new start-ups.

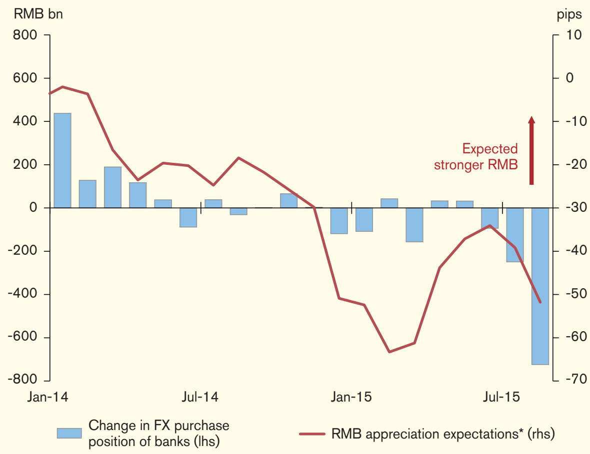
Exchange rate and money market

The PBoC refined the fixing of the central parity rate with reference to the closing onshore renminbi (CNY) exchange rate of previous day to make the exchange rate regime more market driven. Subsequently, the renminbi depreciated by 2.8% against US dollar during the week of 10 August before stabilising at around 6.38 by the month-end. While the depreciation of renminbi would reduce the price pressure faced by manufacturers, this helps little in turning around the weak export performance given subdued external demand and Mainland's relatively large share of processing trade that is less sensitive to exchange rate changes. Meanwhile, the weaker renminbi has increased outflow pressure with PBoC stepping up liquidity injection in the banking sector in the second half of August (Chart 2.11).

12 The PBoC cut interest rates five times since November 2014, with 1-year lending and deposit rates lowering to 4.60% and 1.75% respectively in August. The RRR was also reduced to 17.5% effective in September.

13 Real interest rate measured by effective bank lending rate minus CPI inflation, stayed elevated at 4.7% in the second quarter, higher than the historical average of about 3%. Over the past 12 months (July 2014–July 2015), RMB REER appreciated by 15% against currencies of major trading partners.

Chart 2.11
Mainland China: change in forex positions of banks and RMB appreciation expectations

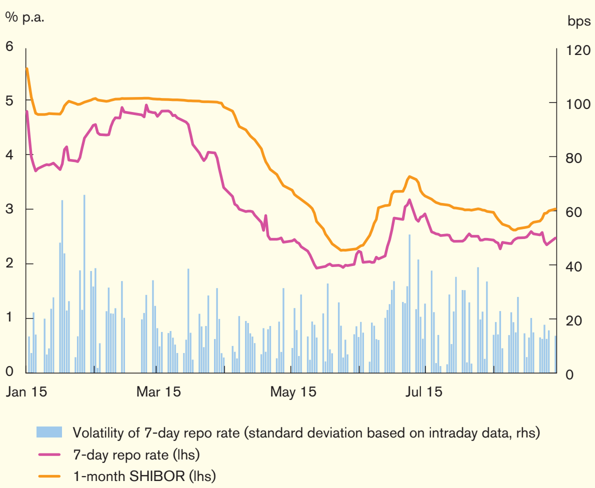


* 1-year NDF minus central parity rate expressed in USD per RMB.

Sources: PBoC, Bloomberg and HKMA staff estimates.

The depreciation of renminbi appeared to have little impact on money market interest rates, as the PBoC used reverse repo and other quantitative tools such as medium-term lending facility (MLF) to smooth out short-term fluctuation in interbank liquidity. The 7-day repo rate and 1-month Shanghai Interbank Offered Rate (SHIBOR) remained largely stable following the refinement to the fixing of the central parity rate, trading at 2.5% and 3.0% respectively at end-August, little changed from the levels seen before the policy change (Chart 2.12).

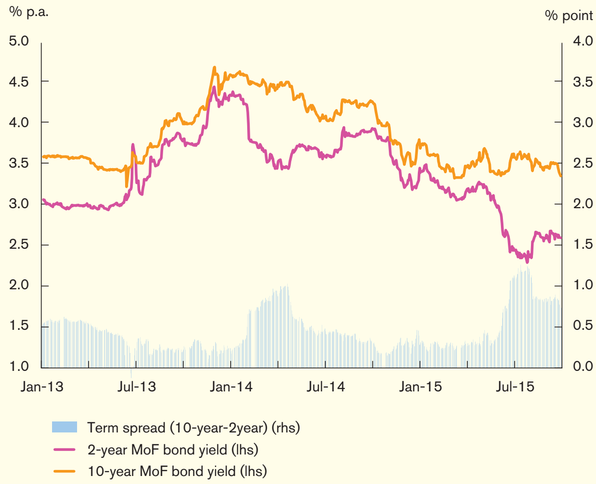
Chart 2.12
Mainland China: interbank interest rates



Sources: Bloomberg, CEIC and HKMA staff estimates.

While lower interbank interest rates help ease the funding cost for banks reliant on the wholesale market, long-term interest rates continued to stay high with 10-year Ministry of Finance (MoF) bond yield trading at around 3.5%, nearly 100 basis points higher than the 2-year bond yield (Chart 2.13). The steepening of the yield curve and elevated long-term interest rate may discourage investment in long-term projects such as real estate developments.

Chart 2.13
Mainland China: MoF bond term spread

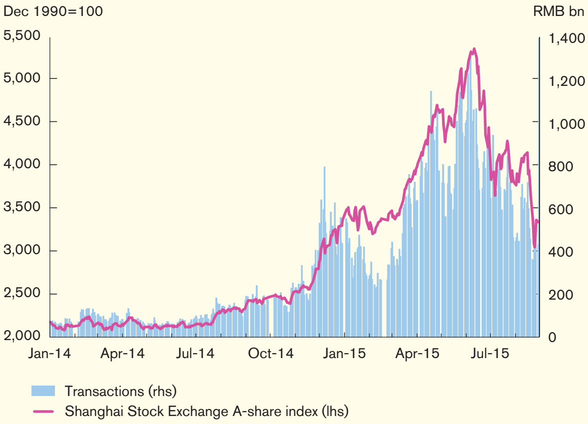


Sources: CEIC and HKMA staff estimates.

Asset markets

Equity markets underwent a turbulent period during the summer. The Shanghai A-share index suffered from a heavy sell-off in the second half of June, losing 32% from the peak in mid-June to close at 3,676 on 8 July. The market turbulence in part reflected a correction from relatively high valuation in A-shares, with investors rushing to unwind their leveraged investment positions which exacerbated sell-off in the stock market. To shore up investor confidence, the China Securities Regulatory Commission (CSRC) relaxed margin financing requirements, tightened the rules on short-selling through securities lending and temporarily suspended IPO activities. Meanwhile, a number of funds have been set up to stabilise the stock markets. While stock markets showed some stabilisation following the introduction of these supportive measures, market sentiment weakened notably again in the second half of August in the face of weaker-than-expected economic reports and expectations of the exit of government intervention. As a result, the Shanghai A-share index fell markedly again by around 20% in the second half of August to 3,359 at end-August, with the daily turnover of the Shanghai A-share market dwindling to an average of RMB513 billion in August from the peak of RMB952 billion in June (Chart 2.14).

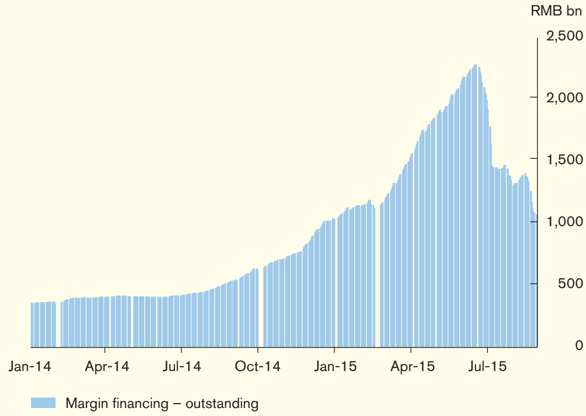
Chart 2.14
Mainland China: Shanghai A-share index and turnover



Sources: CEIC and HKMA staff estimates.

With investors becoming more risk averse, outstanding margin loans shrank from the peak of RMB2.3 trillion in mid-June to RMB1.1 trillion at end-August (Chart 2.15). While the stock market turbulence would inevitably pose some negative impacts on real activities, it has yet to develop into a scale that threatens systemic stability. Box 2 discusses the role of margin financing in the decline of stock market and its implications for macroeconomic and financial stability.

Chart 2.15
Mainland China: margin financing provided by securities companies

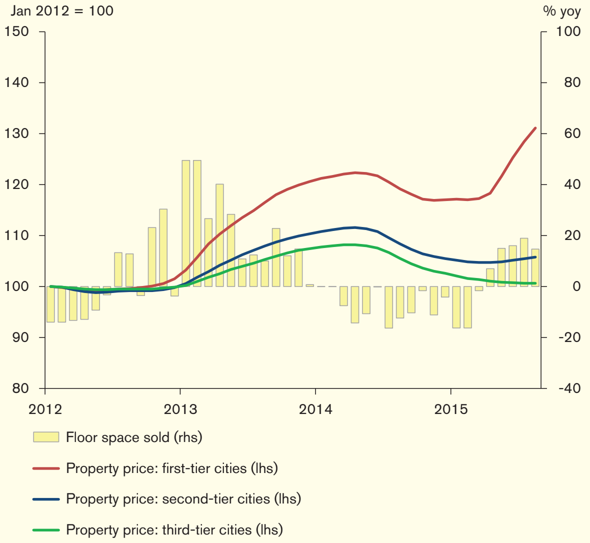


Sources: CEIC and HKMA staff estimates.

In the property market, activities picked up underpinned by the relaxation of restrictive measures and lower mortgage rates.[14] Reflecting robust underlying demand and relatively limited supply, house prices picked up in first-tier cities with notable increases in Shenzhen and Shanghai, and bottomed out in some second-tier cities (Chart 2.16). Encouraged by revival of turnover in the property market, new construction activities picked up somewhat in the second quarter.

14 Except for using housing provident fund, the minimum down payment ratio for first-home buyers remained at 30%, while that for second-home buyers was reduced from 60%–70% to 40%. Minimum down payment ratio for purchases of a second home using housing provident fund was reduced to 20% from 30% in most cities, for home buyers who have fully repaid the mortgage loans of their first properties. The authorities also shortened the holding period of residential units that could be exempted from property transaction tax, from 5 years to 2 years.

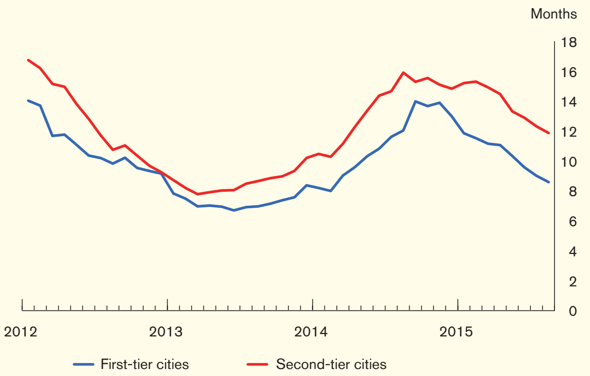
Chart 2.16
Mainland China: house prices and floor space sold



Sources: NBS and HKMA staff estimates.

Given different demand and supply conditions, the recovery in property market is likely to remain uneven between big and small cities. For lower-tier cities, oversupply and weak demand have kept housing inventory at relatively high level. In a number of third-tier cities, on average it would take about 30 months to digest housing inventory given the current pace of floor space sold (Chart 2.17).[15]

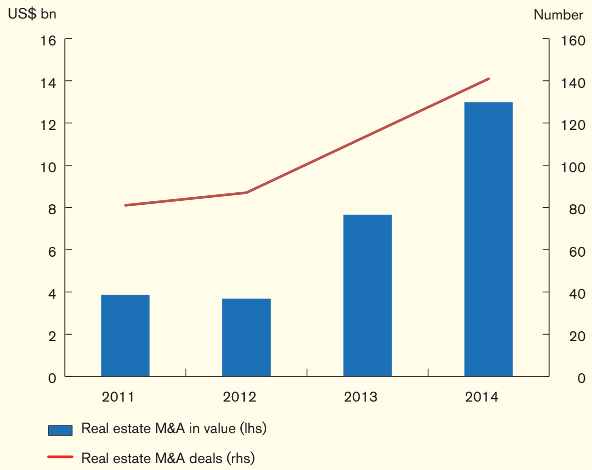
Chart 2.17
Mainland China: housing inventory to sales ratio



Sources: WIND and HKMA staff estimates.

Elevated housing inventory will exert liquidity pressures on developers with business concentrating in lower-tier cities. Those with weak financial positions will inevitably exit the market or be acquired by peers, which can be seen from the marked increase in the number and transaction value of mergers and acquisitions in the real estate sector (Chart 2.18). While ongoing consolidation will have negative impact on investment and employment, this helps promote a more healthy and sustainable development of the real estate sector.

Chart 2.18
Mainland China: mergers and acquisitions in the real estate sector



Sources: WIND and HKMA staff estimates.

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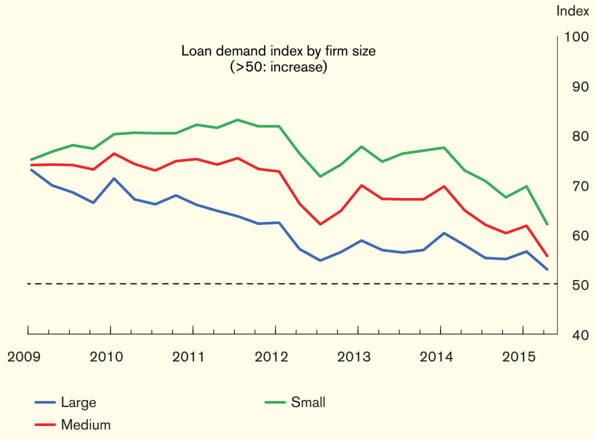
[15] For example, on average it would take more than 30 months to clear housing inventory in Jiangyin city in the Jiangsu province and Linyi city in the Shandong province.

Bank lending and asset quality

Elevated real interest rate and less favourable business environment continued to weigh on loan demand, with flows of aggregate financing and new yuan loans extended to households and corporates softening in July before stabilising in August. Survey conducted by the PBoC also shows weakening borrowing needs by large and small enterprises alike (Chart 2.19).

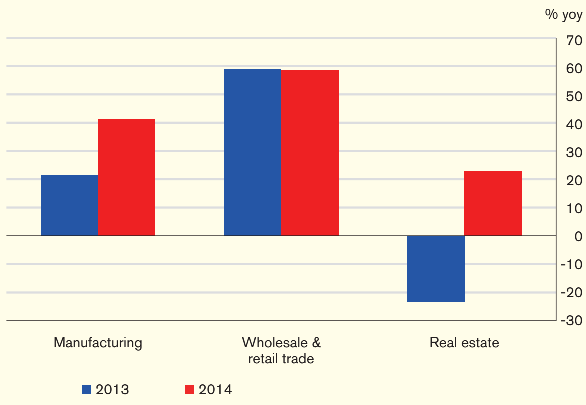
Chart 2.19
Mainland China: loan demand by firm size



Sources: CEIC and PBoC.

Against the backdrop of a slowdown in economic activities, bank asset quality remained under pressure. Non-performing loans (NPLs) increased by 11% quarter on quarter to reach RMB1.1 trillion in the second quarter, pushing up the NPL ratio to 1.50% from 1.39% in the first quarter. Breakdown by sector shows that NPLs picked up at a fast pace in manufacturing and wholesale/retail trade sectors, as subdued external demand and falling producer prices weighed on profitability in these two segments (Chart 2.20). Meanwhile, NPLs increased notably in the real estate sector following house price correction and shrinking sales last year. With increased write-off of bad debt, the provision coverage ratio came down to 198% in the second quarter from 212% in the first quarter.

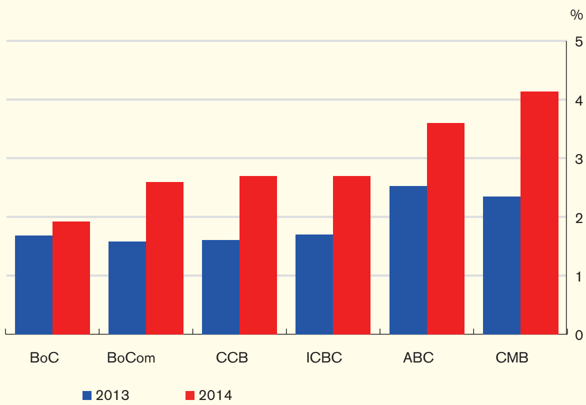
Chart 2.20
Mainland China: growth of NPLs by sector



Sources: CEIC and CBRC.

The operating environment remains challenging for Mainland banks. First, slowdown in profit growth and business activities continue to undermine repayment ability of corporate borrowers, suggesting that NPLs are likely to climb higher in the second half of this year. The board-based increase in the loan migration rates among major banks suggests that more write-offs are likely for this year (Chart 2.21).[16]

Chart 2.21
Mainland China: loan migration rates for major listed banks

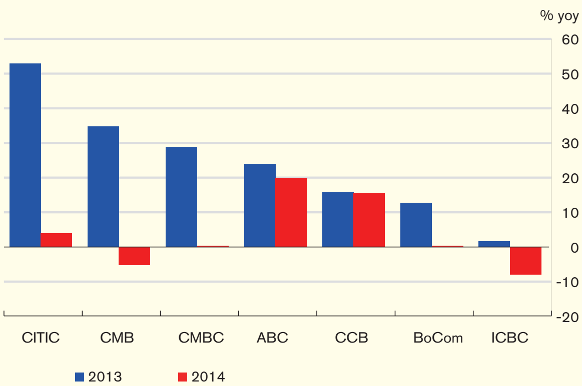


Sources: WIND and financial reports of listed banks.

[16] Loan migration rate refers to the percentage of deterioration in loan classification over a certain period.

Second, keener competition and relaxation of deposit rates tend to squeeze the interest margins earned by banks. Smaller banks with thin capital buffer may need to shore up their CARs and restrain lending in the face of rising NPLs. This will tighten financing constraints faced by small firms as they obtain most of their credit from small banks. Bank level data show that lending to small firms slowed notably in 2014, which is contrary to the intention of policymakers to alleviate financing difficulty of small and micro-sized enterprises (Chart 2.22).

Chart 2.22
Mainland China: bank lending to small firms by major listed banks



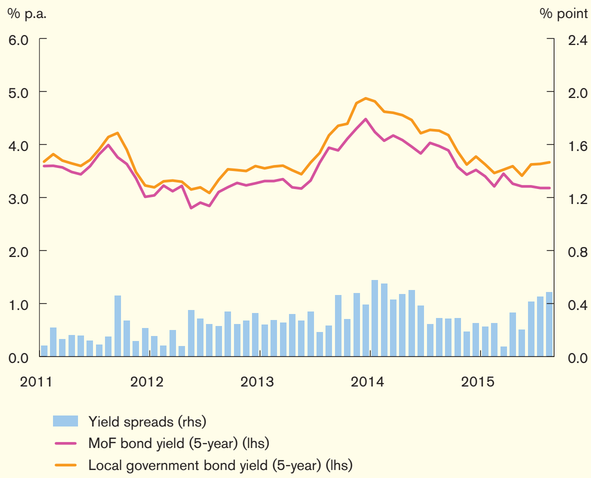
Note: Loans to small enterprises for CITIC and CMB. Loans to small- and micro-sized enterprises for ABC, CCB, CMBC and ICBC. Loans to medium-, small-and micro-sized enterprises for BoCom.

Sources: Financial reports of listed banks.

Local government finance

Concerns over the risk of local government debt have eased as the RMB3.2 trillion debt-for-bond swap program helps reduce interest burden and refinancing risk of local governments. On top of this, local governments may issue bonds to finance new infrastructure projects subject to a quota of RMB600 billion for this year. By the end of August, 34 local governments issued bonds amounting to RMB1.9 trillion.[17] Most local government bonds are priced at 5–60 basis points above the corresponding MoF bonds at the time of issuance, but their yield spreads over corresponding MoF bonds have widened as increased supply of local government bonds exerted downward pressure on their prices (Chart 2.23).

Chart 2.23
Mainland China: yield spread between local government and MoF bonds

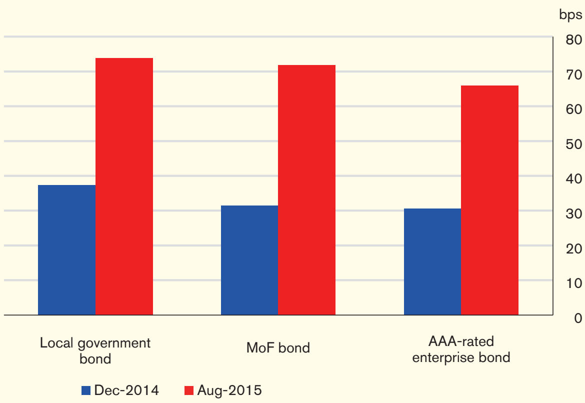


Sources: CEIC, WIND and HKMA staff estimates.

[17] Major issuers include the provincial governments of Hubei, Jiangsu, Shandong, Sichuan and Hebei.

The pilot debt swap program improves local government finances in two ways. First, it helps instil discipline on, and increases the transparency of, debt raised by local governments. Second, the longer tenor of the fund raised, mostly of 5 years or above, better matches the needs of provincial governments to finance infrastructure projects that span over a number of years. However, the side effect of the program is that the sizable issuance of local government bonds has kept long-term bond yields high even for private issuers with good credit quality, which can be seen from the broad-based widening of the term spreads for both public and private issuers (Chart 2.24).[18]

Chart 2.24
Mainland China: term spreads by type of bond issuer (10-year minus 2-year yields)



Sources: CEIC, WIND and HKMA staff estimates.

While the debt swap program reduces the refinancing risk of provincial governments, there is still strong funding need for starting new infrastructure projects. The bond quota of RMB600 billion for financing new projects appears to be small compared with the value of infrastructure projects planned for this year.[19] To fill the funding gap, the MoF advocates public-private partnership (PPP) in carrying out new projects that will reduce the financing burden of local governments and increase efficiency of investment.[20] To improve water conservation and essential public facilities, policy banks are allowed to issue new bonds to provide liquidity support to infrastructure projects.[21]

The One Belt One Road initiatives

The blueprint of One Belt One Road (OBOR) is a development strategy to enhance economic ties between Mainland China and its neighbouring economies. One key initiative is to boost bilateral trade and investment flows by improving the linkage of infrastructure among countries along the path of OBOR. To this end, Mainland's enterprises can utilise their expertise in building infrastructure such as railways, highways, power station and network, and provide financial support in the form of joint venture or public-private partnership.

18 Local governments are allowed to issue bonds up to RMB3.8 trillion for this year, much higher than the issuance size of RMB400 billion last year.

19 NDRC approved 38 infrastructure projects with total investment of RMB830 billion in January–July 2015.

20 During the first half of this year, NDRC identified 1,043 projects that could be conducted in the form of PPP, with projected investment size of RMB2 trillion.

21 A first batch of RMB300 billion infrastructure bond will be issued by China Development Bank and Agriculture Development Bank of China to support new infrastructure projects.

Successful implementation of OBOR initiatives will not only satisfy the development needs of neighbouring countries through better infrastructure, but will also encourage outward direct investment and participation in overseas projects by Mainland's enterprises. It is foreseeable that Chinese construction firms and companies facing overcapacity such as steel and cement makers would benefit from the commencement of new infrastructure projects under the plan of OBOR. Stronger economic and financial link between Mainland China and the economies along the path of OBOR would also increase the external use of renminbi in cross-border trade and investment.

Box 2
Leveraged trading and the stock market turmoil in Mainland China

The Mainland stock markets went into a turbulent period during the summer, with the Shanghai Stock Exchange A-share index dropping by 32% in four weeks from its peak of 5,411 in mid-June. The sharp fall in stock prices was in part driven by heightened concerns on the adverse feedback loop between stock price declines and possible forced selling of margin positions, as leveraged trading activities had increased at a rapid rate since late-2014. In response, the Mainland authorities rolled out a series of measures to alleviate the downward pressures on the markets around late-June and early-July. Sentiments stabilised for a while afterwards, but market volatility increased notably in the second half of August and Shanghai Stock Exchange A-share index fell by another 20% to 3,359 at end-August. This box discusses the major forms of leveraged trading activities in the Mainland equity markets and the impacts of the recent equity market turmoil on Mainland's macroeconomic and financial stability.

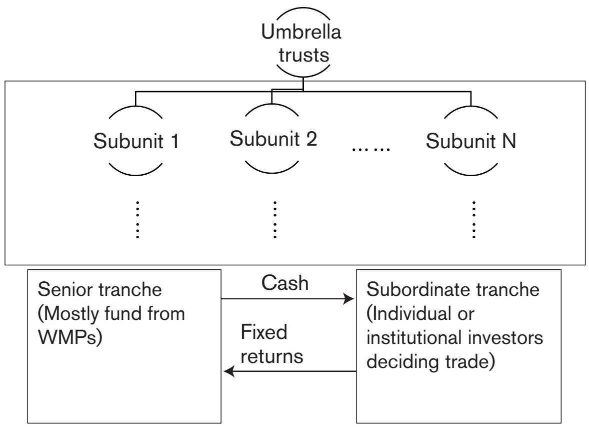
How large are the leveraged trading activities?

Leveraged trading activities have been widely cited as one of the major factors in amplifying the stock market swings over the past few months. Leveraged trading includes margin financing activities through both formal and informal channels, which have been mainly conducted in the following three forms:

- Margin financing provided by securities companies — It has been the *formal* form of leveraged trading activities in Mainland China, which is under the supervision of the CSRC. The leverage of margin financing activities is confined by the margin ratio (保證金比例), as well as the discount rates (折算率) of assets provided by the investors.[22] Currently, major securities companies set the margin ratios from 55–80%, while the discount rates were below 70%.

- Umbrella trusts (傘型信託) — It is a structured trust product consisting of a number of subunits (Chart B2.1). Each subunit contains investors of senior tranche and subordinate tranche. In essence, investors of subordinate tranche enjoy leverage by borrowing money from investors of senior tranche in return for a specific rate of interest expenses. It has been one of the major forms of *informal* margin financing activities.

Chart B2.1
Structure of umbrella trust products



Sources: Various news reports.

- OTC "fund matching"(場外配資) — It has been another major form of *informal margin* financing activities. It allows investors to conduct leveraged trading through the stock accounts that are set up and monitored by the fund-providers. One major platform for conducting the "fund matching" activities is the HOMS system.

[22] Margin ratio is the proportion of capital to stocks that can be purchased through margin financing. The value of capital is determined by the amount of cash and the adjusted values of securities held in the margin account based on the corresponding discount rates.

Along with the buoyant market conditions, margin financing through the formal channel increased sharply from the second half of 2014 to peak at RMB2.3 trillion in mid-June 2015. Leveraged trading via informal channels also expanded vibrantly during the period. While information on the informal leveraged trading was limited given the opaque nature of these financing activities, market estimates had pitched the size at around RMB1–2 trillion before the sharp plunge in stock prices in mid-June. These suggest that the overall size of leveraged trading activities could have reached around RMB3–4 trillion at peak in mid-June, equivalent to 4–5% of overall market capitalisation or 10–13% of free-float market capitalisation.

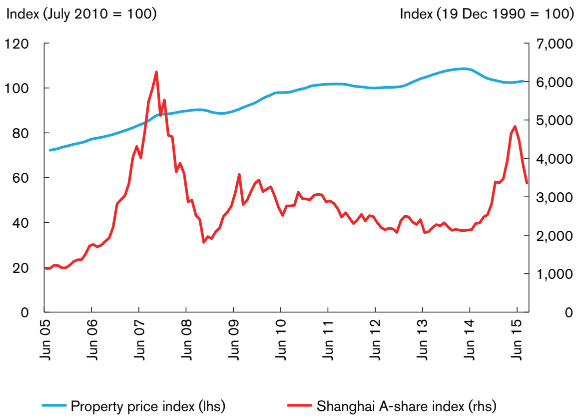
With the sizeable leveraged trading activities, market confidence had collapsed when decline in stock prices deepened, as concerns on possible forced liquidation of the margin positions escalated. In an effort to restore market confidence, the Mainland authorities undertook a multi-pronged approach to stabilise the markets around late-June and early-July. These measures included, among others, relaxing rules on margin financing activities, limiting short-selling activities and slowing down the approval of IPO activities. Meanwhile, the China Securities Finance Corporation Ltd. and the Central Huijin Investment Ltd. purchased stocks in the secondary markets, and a RMB120 billion market stabilisation fund was set up by 21 major securities companies to support the markets in early July. These measures provided some support initially and the market temporarily stabilised in late July and early August. However the market subsequently has experienced another big sell-off since mid-August in part due to weaker-than-expected economic data releases.

What are the implications of the turmoil in the stock markets for macroeconomic and financial stability?

The sharp volatility in the equity markets, together with the building up of leveraged trading in earlier periods, has raised market concerns on the impacts on real activities and financial stability. However, our analysis suggests that systemic risks posed by the turbulent market conditions should remain contained, particularly in view of the relatively small exposure of the real economy to the stock markets and limited direct impact on the banking sector. However, the equity market sell-off has increased credit risks in selected segments of the Mainland financial system, and its spill-over effect on global financial markets has also tightened global financial conditions, which in turn would have indirect impact on the real economy and financial system of Mainland China.

With the relatively small share of equities in household wealth, the impact of the stock market price drops on the net worth of Mainland's households is likely to be limited. For example, equity-related financial assets, including direct stock holdings, equity-related mutual funds and collaterals for margin financing, accounted for less than 4% of Mainland's household total assets in 2014, according to the estimates by the Chinese Academy of Social Sciences. As such, household consumption and investment decisions such as housing purchase hinge little on the boom and bust of stock markets. Indeed, historical experience suggests that the correlation between property markets and stock markets were low over the past decade (Chart B2.2).

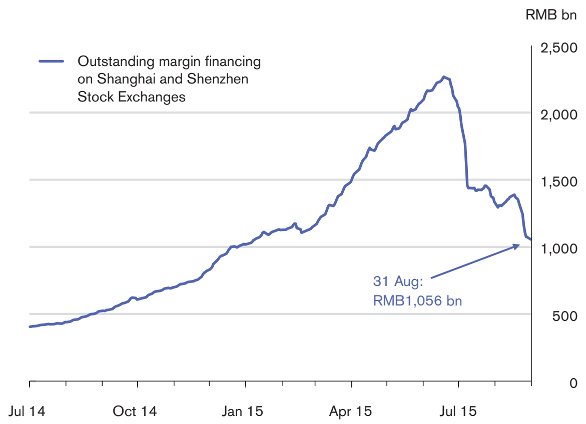
Chart B2.2
Property markets and stock markets in Mainland China



Sources: CEIC and HKMA staff estimates.

Meanwhile, as Mainland's investors are not allowed to borrow from banks to buy shares, there is little direct exposure of banks to the recent market turmoil. Following several rounds of deleveraging of investors, the indirect exposure of banks to margin financing also came down significantly. In particular, margin financing provided by securities companies contracted notably from RMB2.3 trillion in mid-June to RMB1.1 trillion at end-August, equivalent to 0.7% of overall commercial bank assets at end-June (Chart B2.3).

Chart B2.3
Outstanding margin loans provided by securities companies

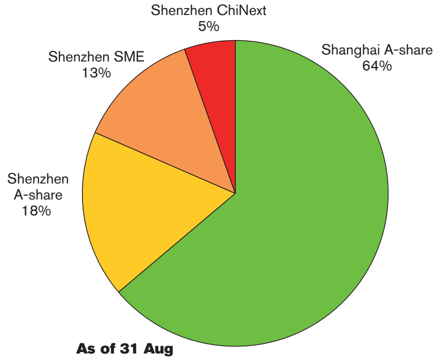


Sources: CEIC and HKMA staff estimates.

Although the equity market turmoil would pose limited systemic risk, it would still exert pressures on the financial system, particularly by (1) heightening credit risks of financial institutions with exposure to leveraged trading activities, as well as (2) those involved in equity-backed financing activities:

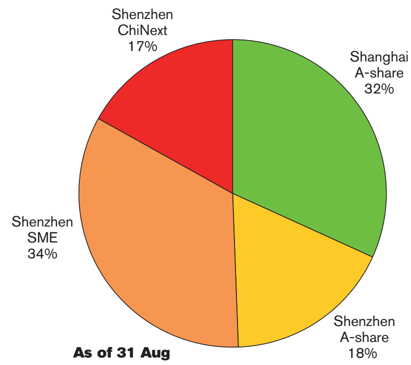
- Credit risks of financial institutions with exposure to leveraged trading activities — The sharp volatility in the stock markets would raise the risk of financial institutions providing margin financing, despite the fact that both formal and informal leveraged trading activities had already fallen sharply following the market plunge and government efforts to strengthen regulations on informal financing activities. For instance, as a significant share of the regulated margin loans had been channelled to valuation-rich sectors such as to the SME and ChiNext boards in Shenzhen, the credit risks of securities companies — the formal margin loan provider — should not be understated (Chart B2.4).

Chart B2.4
Outstanding margin loans provided by securities companies — by market



Sources: CEIC, Shenzhen Stock Exchange and HKMA staff estimates.

Chart B2.5
Collateralised shares — by market



Sources: WIND and HKMA staff estimates.

- Credit risks of financial institutions involved in equity-backed financing activities — The equity-backed lending, with the outstanding size of the pledged shares reaching RMB2.7 trillion at end-August, may be jeopardised amid market price decline. In particular, with much greater exposure to valuation-rich small cap stocks (Chart B2.5), banks or other creditors such as trust and securities companies may face losses if such loans turn sour and the collateral value drops significantly along with falling stock prices. That said, the risk associated remains limited, as the size of the equity offered as collateral (end-August) reached only around 1.8 % of commercial bank assets (end-June).

Although the A-share market turmoil would not pose significant systemic risk to the Mainland financial system because of the aforementioned reasons, the recent global financial market sell-off shows that volatility in the Mainland financial markets could have significant spill-over effect to the rest of the world. The high sensitivity of global financial markets to Mainland's economic and financial developments reflects the importance of Mainland China in supporting moribund global growth. So even a small degree of perceived deterioration in Mainland's economic prospects would prompt market participants to significantly re-appraise their assessment on global growth prospect and trigger abrupt re-pricing of global risk assets. The tightening in global financial conditions because of the market sell-offs would in turn affect global economic growth and inevitably have an indirect impact on the Mainland real economy and financial system.

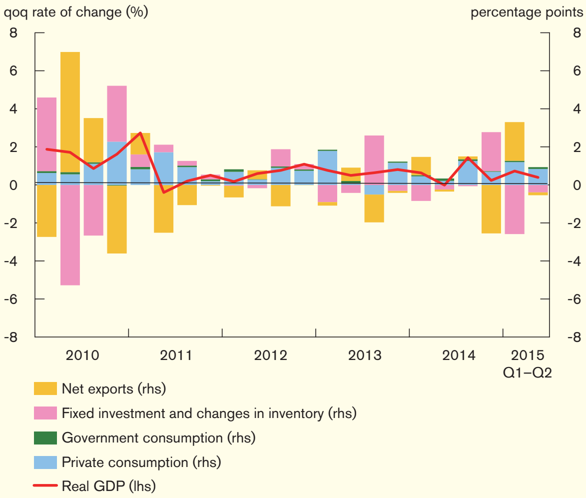
3. Domestic economy

The Hong Kong economy continued to grow at a moderate pace in the first half of 2015, with robust domestic demand offset partly by weak trade performance. Growth momentum in the second half may soften amid increased financial market volatility and risks to global economic and monetary conditions. Local inflationary pressure will likely remain contained on the back of soft import prices and the moderate domestic growth momentum.

3.1 Real activities

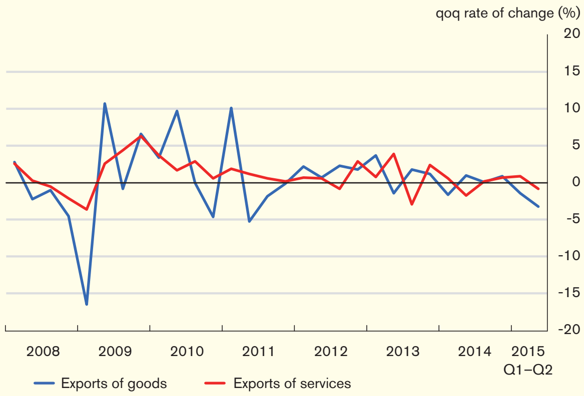
The Hong Kong economy continued to grow moderately in the first half of 2015. On a seasonally adjusted quarter-on-quarter basis, real GDP grew by 0.4% in the second quarter, following a 0.7% growth in the first quarter (Chart 3.1). Private consumption held up on the back of stable labour market conditions and strong spending on financial services amid the stock market rally in the second quarter. While building and construction activities were robust and capital investment improved, inventory destocking has been significant. Overall investment spending thus posed a drag on GDP growth in the first half. Net exports also turned to a drag on growth in the second quarter as both exports of goods and services contracted (Chart 3.2). The latter reflected weaknesses in inbound tourism, offshore trade and logistics, which more than offset the stronger performance in financial services exports. Meanwhile, imports of goods declined along with weak re-export activities, but imports of services increased.

Chart 3.1
Real GDP growth and contribution by major expenditure components



Sources: Census and Statistics Department (C&SD) and HKMA staff estimates.

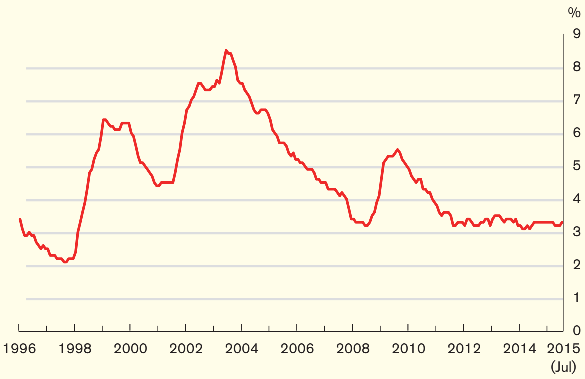
Chart 3.2
Exports of goods and services in real terms



Source: C&SD.

The year-on-year real GDP growth remained moderate at 2.4% and 2.8% respectively in the first and the second quarter. In fact, Hong Kong's real GDP growth has slowed to around 2–3% a year since 2012. Box 3 explains this development by examining the productivity performance of the key business sectors and shows that the moderated growth in total factor productivity of the import-export trade sector and the non-bank financial sector after the global financial crisis was the main driver. In the first half of 2015, labour market conditions remained broadly stable. The seasonally adjusted unemployment rate edged down to 3.2% in the second quarter after staying at 3.3% for three consecutive quarters (Chart 3.3). This mainly reflected a small decline in the unemployment rate of the higher-skilled segment. However, the employment situation in the retail and other tourism-related sectors has softened due to weaker inbound tourism.

Chart 3.3
Unemployment rate

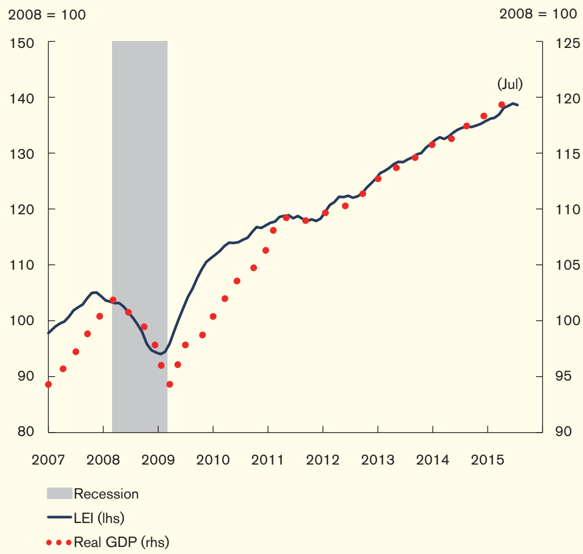


Source: C&SD.

Looking ahead, growth momentum of the Hong Kong economy could see some moderation in the second half of 2015. On the domestic front, while still supported by the broadly stable labour market conditions, private consumption growth is expected to soften amid the negative wealth effect driven by the recent stock market sell-off. Meanwhile, private and public sector building activities are expected to gather pace in the second half, but weaker business sentiment and uncertain prospects amid financial market volatility could weigh on capital investment. External demand is also facing headwinds, with continued weakness in tourist spending and softening in financial services exports due to increased financial market volatility. Exports of goods are expected to remain sluggish amid the weak global growth prospects.

The HKMA in-house composite index of leading indicators points to growth moderation of the Hong Kong economy in the remainder of the year (Chart 3.4). The Government's range forecast of real GDP growth for 2015 has been narrowed to 2–3%, while the Consensus Forecasts project the economy to grow at an average rate of 2.3%.

Chart 3.4
Real GDP and leading economic indicator



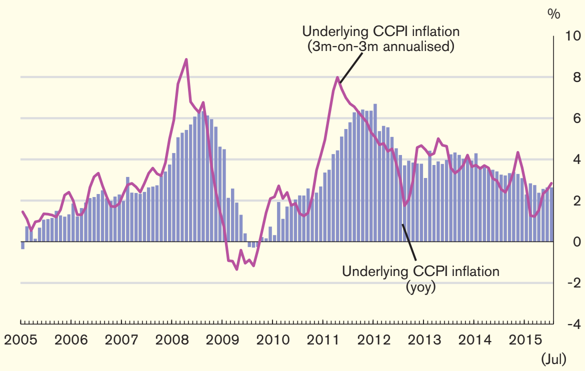
Sources: C&SD and HKMA staff estimates.

This growth outlook is subject to a number of uncertainties and downside risks amid volatility in global financial markets, uncertainty surrounding Mainland's economic growth, US interest rate normalisation and the uptrend of the US dollar. In particular, greater financial stress and a further weakening in market sentiments towards Mainland China and emerging market economies could have considerable spillover effects on Hong Kong by subjecting the domestic asset markets to a re-pricing of risks and putting fund flows under strain. The resulting tightening in monetary conditions and negative wealth effect would adversely affect Hong Kong's economic outlook under such a scenario.

3.2 Consumer prices

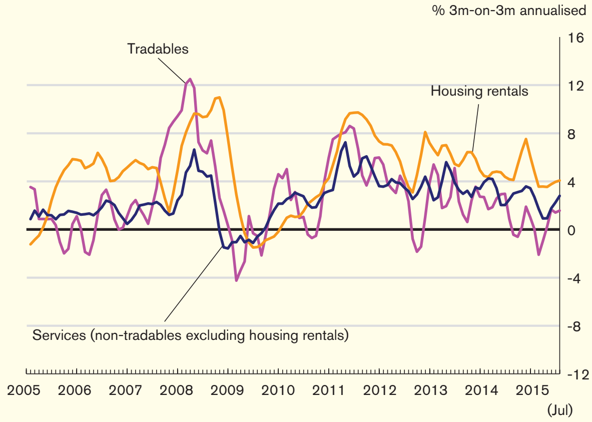
The year-on-year underlying inflation rate eased to 2.6% in July 2015 from 3.1% last December, thanks to abating external and domestic cost pressures. Inflation momentum, as measured by the annualised three-month-on-three-month underlying inflation rate, also moderated to 2.8% from 3.6% over the same period, indicating some softening of price pressures (Chart 3.5). In particular, services inflation came down from 3.4% last December to 2.7% in July 2015, while the housing rental component also retreated visibly from 6.0% to 4.0% over the same period, both of which helped offset the modest pick-up in prices of tradables (Chart 3.6).

Chart 3.5
Different measures of consumer price inflation



Sources: C&SD and HKMA staff estimates.

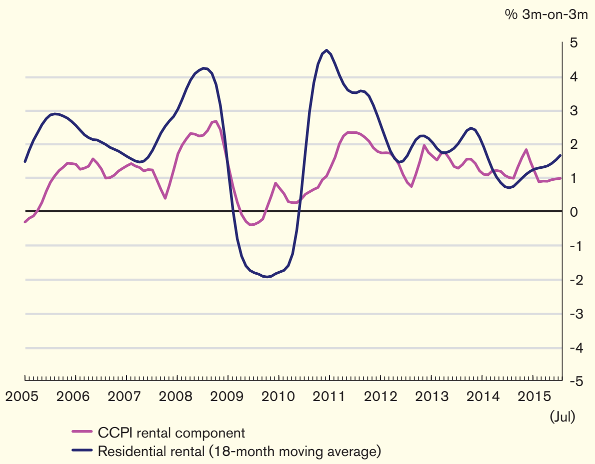
Chart 3.6
Consumer price inflation by broad component



Sources: C&SD and HKMA staff estimates.

Looking ahead, the sequential inflation momentum will likely remain moderate. Import price inflation should remain capped by the strong Hong Kong dollar and subdued global commodity prices. Locally, while the renewed uptrend of fresh-letting residential rentals since the second quarter of 2014 will likely translate into a faster increase in the housing rental component of consumer price inflation going forward, the extent of feed-through is expected to be mild (Chart 3.7). Moreover, easing business cost pressures along with the recent slowdown in retail property rental growth and the modest increases in real labour costs, coupled with the moderate domestic growth momentum in the midst of an expected slightly negative output gap, should help contain the rise in services inflation as well. On the whole, the annual inflation rate for 2015 is likely to be lower than that of 2014, with the latest Government forecast projecting an underlying inflation rate of 2.6%, down from 3.5% in 2014.

Chart 3.7
CCPI rental component and market rentals



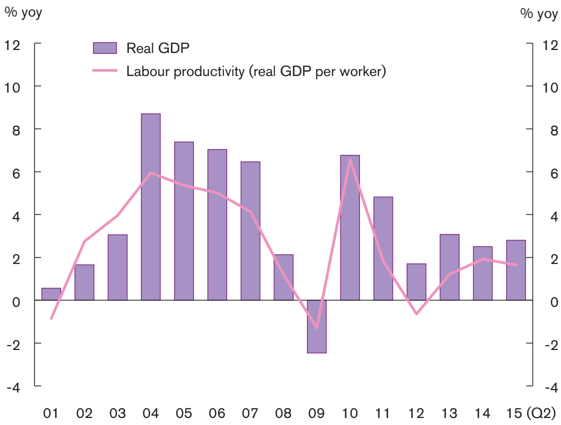
Note: The CCPI rental component has excluded the effects of the Government's one-off relief measures.
Sources: Rating and Valuation Department, C&SD and HKMA staff estimates.

The outlook for inflation is subject to uncertainties, although the balance of risks has tilted more to the downside in view of a number of considerations. For one, the risks of further growth moderation in Mainland China and subdued growth momentum in the euro area and Japan could dampen Hong Kong's near-term growth and cloud the inflation outlook. Moreover, local mortgage rates may be subject to uncertainties going forward, contingent upon the future paths of US monetary policy. Such uncertainties, coupled with expanding housing supply, could trigger a downswing in the property market and weigh on housing rental growth. Separately, the recent slowdown in inbound tourism, if continued, could spill over to the local labour market and the retail property market, while the recent sell-offs in global equity markets may also have weighed on local consumer sentiment. These developments could exert a dampening effect on services inflation.

Box 3
Productivity growth in Hong Kong: Sectoral patterns and drivers

After staging a strong and swift recovery from the global financial crisis (GFC) in 2009–2011, the Hong Kong economy has been growing moderately for some time, progressing at around 2–3% a year since 2012 (Chart B3.1). This was in sharp contrast with the pre-GFC period when the economy grew at about 5% a year on average. Similarly, real output per worker — a measure of labour productivity — has also increased at a gentler annual pace of 0.8% in recent years, compared with an average of 3.6% before the GFC. This raises the question of whether the recent moderate growth path has become a new normal. This box analyses the factors behind slower trend growth in Hong Kong, and in particular, the total factor productivity (TFP) growth of selected major business sectors in Hong Kong for the period since 2000. This may shed light on the medium-term prospects of the major business sectors and potential growth of the Hong Kong economy.

Chart B3.1
Growth in real GDP and output per worker

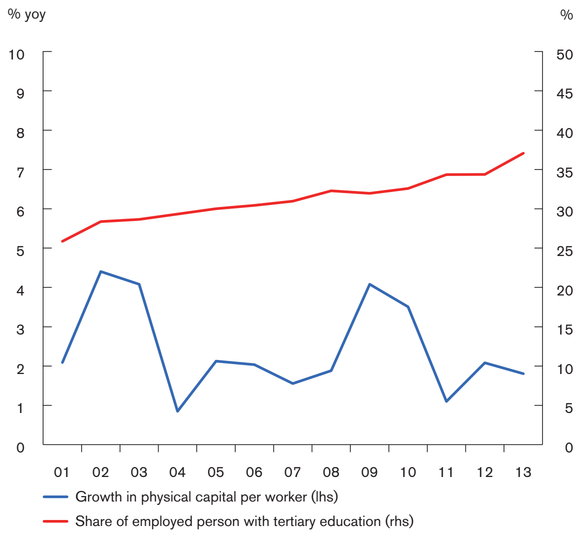


Sources: C&SD and HKMA staff estimates.

Economic growth and total factor productivity

Growth in real output per worker depends on physical and human capital accumulations as well as TFP growth. A cursory look at the data suggests that physical and human capital accumulations in Hong Kong have progressed steadily and they cannot explain the growth slowdown of real output per worker in the post-GFC period. For example, physical capital per worker has continued to increase moderately at an average annual rate of around 2% between 2001 and 2013 (Chart B3.2), while the sharp increase after the dotcom bubble burst and the GFC appeared to be transitory, mainly reflecting firms' tendency to hold back hiring of workers during recessions. Moreover, worker skills seemed to have continued to pick up, as the overall share of higher educated workers (with educational attainment at the tertiary level or above) rose to 37.1% in 2013 from 30.4% in 2006 and 25.9% in 2001.

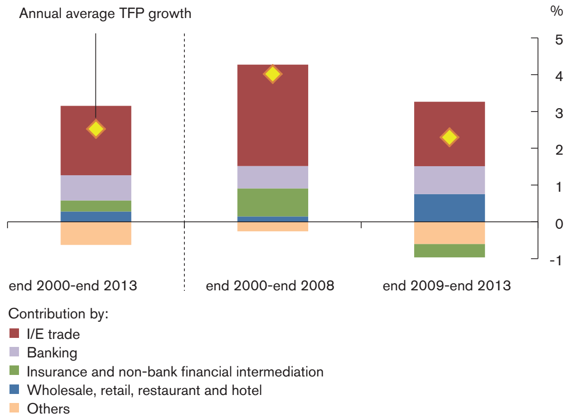
Chart B3.2
Indicators of physical and human capital accumulations



Note: The perpetual inventory method is used to construct capital stock.
Sources: C&SD and HKMA staff estimates.

Rather, the important factor for growth slowdown of real output per worker after the GFC appeared to be slower TFP growth, which is the portion of output increases not directly produced by measured inputs. Chart B3.3 provides an estimate of TFP growth in Hong Kong during 2000–2013 and a breakdown of overall TFP growth in terms of contribution by key business sectors. It is derived based on the estimated TFP of key business sectors using the method of Data Envelopment Analysis.[23] This measure of overall TFP grew by an average 2.7% a year for the whole period of 2000–2013. Using 2009 as a watershed, the average annual TFP growth was remarkably high at 4.0% before 2009. But after 2009, it receded to an average annual growth rate of 2.6%. The major contributor to overall TFP growth moderation was the import/export (I/E) trade sector. After the GFC, contribution by the I/E trade sector has declined notably while that by the wholesale, retail, restaurant and hotel sector increased.[24] In the financial sector, banks' contribution remained fairly stable and resilient throughout 2000–2013, while the non-bank financial corporations' contribution was relatively volatile.

Chart B3.3
Total factor productivity growth and contribution by major economic sectors



Source: HKMA staff estimates.

Drivers of sectoral total factor productivity

But what are the reasons behind the change in the TFP growth pattern in Hong Kong during 2000–2013? Conceptually, TFP hinges on a host of supply-side factors that capture productivity benefits from various sources. These include (1) technology advancement and efficiency gains, (2) product and service innovation, and (3) trade liberalisation and reform measures. The following is an analysis on the possible underlying drivers of TFP developments in the key business sectors.

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23 Due to data availability, this study only considers some selected key business sectors, which together account for over 90% of GDP in Hong Kong. For details on the estimation method, please refer to Leung, Han and Chow (2009), "Financial services sector as a driver of productivity growth in Hong Kong," HKMA Working Paper 14/2009.

24 Ideally, the tourism sector should be a focus of the study but no reliable data are available for estimation of TFP growth, so the broader wholesale, retail, restaurant and hotel sector is considered.

Table B3.A
TFP growth of major economic sectors

	TFP growth (%)		
	2000-2008	2009-2013	2000-2013
Overall	**4.0**	**2.6**	**2.7**
of which:			
I/E trade	**9.3**	**6.1**	**6.6**
Financial	**6.3**	**1.3**	**4.2**
Banking	5.1	5.0	5.2
Non-bank financial	11.6	-7.1	3.7
Wholesale, retail, restaurant & hotel	**1.4**	**7.1**	**2.5**
Wholesale & retail	2.8	9.1	4.4
Restaurant & hotel	0.1	2.6	0.1

Note: Compound annual growth rates are used. In this table, the TFP growth rates of the financial sector and the wholesale, retail, restaurant and hotel sector are estimated by first grouping the inputs and outputs in their subsectors. The insurance sector is not shown here as its contribution to overall TFP growth is small.

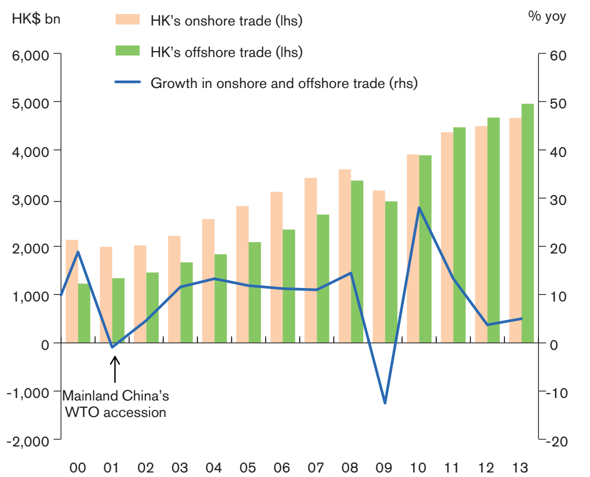
Source: HKMA staff estimates.

a) The I/E trade sector

Among all the selected sectors, the I/E trade sector recorded the fastest annual TFP growth of 6.6% during 2000–2013 (Table B3.A). Indeed, this sector's TFP growth was extraordinarily fast before the GFC, at an annual average of 9.3%. This overall fast TFP growth was boosted by trade liberalisation in Mainland China (including its accession to the World Trade Organisation in 2001), which in turn led to relatively brisk growth in Hong Kong's onshore and offshore trade (Chart B3.4). In particular, the fast TFP growth was driven by efficiency gains from the continued expansion of Hong Kong's manufacturing base to Mainland China and other lower cost areas and the rise of offshore trade business, as well as product and service innovation as traders climbed up the global value chain.[25]

After the GFC, the I/E trade sector's TFP growth has moderated to an annual average of 6.1%, but still high compared with other business sectors. The TFP moderation was probably attributable to the longer-term impact of the GFC, which has taken a toll on world output growth and international trade flows. It could be difficult for traders in Hong Kong to reallocate efficiently their productive resources that once geared towards the advanced economies to production for final demand of other higher growth emerging markets. Continued weakness in the advanced economies would put at least some of the productive resources (such as machinery and skilled labour) idle and would not be conducive to the progress and evolution of technological innovation for the production process.

Chart B3.4
Onshore and offshore trade value of Hong Kong



Note: Onshore trade is the sum of merchandise exports and retained imports. For the period before 2002, official offshore trade data are not available, and figures in the chart are imputed based on margins and commissions earned.

Sources: C&SD and HKMA staff estimates.

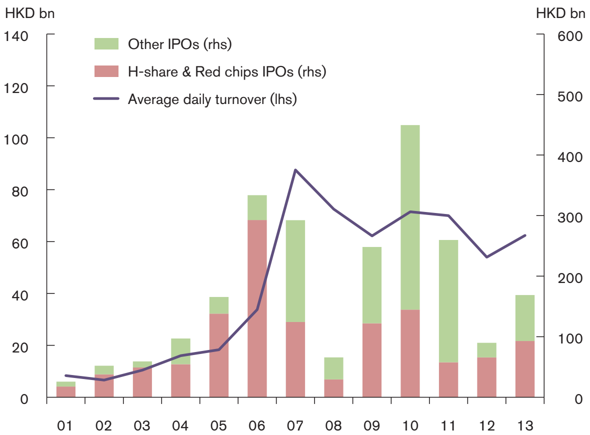
b) The financial sector

The financial sector as a whole was also a key growth spot, recording above-average TFP growth of 4.2% between 2000 and 2013 (Table B3.A). This sector's TFP growth was markedly higher before the GFC but declined afterwards due to volatile TFP performance of the non-bank financial sector, although the TFP growth of the banking sector remained resilient.

[25] The climbing-up of the global value chain included provision of more value-added services such as sourcing, design, production and its management, compliance of quality standards and logistics arrangement, etc. For further details, see Leung, Chow, Szeto and Tam (2008), "Service exports: the next engine of growth for Hong Kong?" HKMA Working Paper 04/2008.

The TFP growth of the non-bank financial sector[26] surged in the pre-GFC period amid booming H-share fund-raising activities and robust equity market trading (Chart B3.5). The underlying TFP growth driver included the Mainland financial market reforms that facilitated the listing of Mainland enterprises in Hong Kong. There was also product innovation with the taking-off of the derivatives and exchange-traded funds (ETFs) markets. However, this sector experienced a period of TFP decline after the GFC, as stock market turnover tapered off from a high level and the H-share fund-raising activities also levelled off. Taking both the financial upcycle and downcycle as a whole during the period of 2000–2013, the non-bank financial sector recorded TFP growth of about 3.7%, still higher than the 2.7% overall TFP growth of the whole economy.

Chart B3.5
IPOs and stock market turnover on Main Board and Growth Enterprise Market



Source: HKEx.

The banking sector's TFP growth has remained resilient, at around 5% a year in both the pre- and post-GFC periods. Similar to the non-bank financial sector, financial reforms in Mainland China that bolstered H-share IPOs and equity market trading have helped raise this sector's TFP growth in the pre-GFC period. Banks have diversified their sources of income and secured fast growth in business, as evidenced by the sharp rise in the share of non-interest income from around 36% in 2000 to 57% in 2007. Meanwhile, the launch of RMB banking business in Hong Kong since 2004 and the banking liberalisation measures under the Mainland and Hong Kong Closer Economic Partnership Arrangement (CEPA) have opened up new business opportunities and stimulated development of new financial products and services (including Mainland-related lending, and RMB deposits, loans, trade settlements and dim sum bonds), thereby supporting TFP growth. Throughout the period of 2000–2013, the banking sector also raised their efficiency by outsourcing and/or relocating labour intensive processes (e.g. data processing) to low-cost areas, and promoting electronic and internet banking.

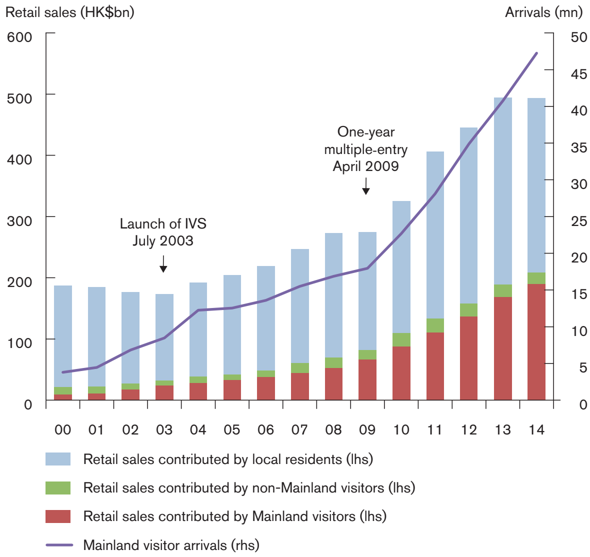
c) The wholesale, retail, restaurant and hotel sector

The TFP growth of the wholesale, retail, restaurant and hotel sector was relatively low in the pre-GFC period particularly before 2003, but it has picked up considerably afterwards (Table B3.A). The main driver behind the acceleration of TFP growth was the launch of the Individual Visit Scheme (IVS) in 2003, its progressive extension in later years, and particularly the introduction of the one-year multiple-entry endorsements in 2009 for eligible Shenzhen residents (until the one-trip-one-week cap took effect from mid-April 2015).[27] The enhanced ease of travel brought by IVS, together with other positive factors such as the increasing affluence of Mainland residents and the RMB appreciation, led to a phenomenal increase in Mainland visitor arrivals and solid business growth of the local wholesale, retail, restaurant and hotel sector (Chart B3.6).

26 It includes stock brokerage, asset management, finance leasing, and investment and holding companies.

27 The IVS was first implemented in four Guangdong cities and later expanded several times to cover more cities and municipalities. It allows eligible Mainland residents to visit Hong Kong in their individual capacity, whereas in the past, they could only travel to Hong Kong under business visas or by joining organised group tours.

Chart B3.6
Mainland's visitor arrivals and their share in terms of retail sales value



Note: Retail sales contributed by tourists refer to the shopping expenses of overnight and same-day visitors. Due to data availability, only the shopping expenses of overnight visitors were covered for the period before 2007.

Sources: C&SD, Hong Kong Tourism Board and HKMA staff estimates.

Concluding remarks

Our analysis shows that the I/E trade and financial sectors have provided the major support to Hong Kong's overall TFP growth during 2000–2013, with extra boost from the wholesale, retail, restaurant and hotel sector over the past few years. But the contribution of the I/E trade sector has somewhat weakened after the GFC. On the other hand, banks' TFP growth has remained highly resilient and lent a stable support to overall TFP growth of the economy. Going forward, the financial sector is likely to remain a major driver behind Hong Kong's overall TFP growth. Continued financial reforms in Mainland China (including the Shanghai-Hong Kong Stock Connect and the recent initiatives of mutual recognition of funds) would continue to support TFP growth in the financial sector through efficiency gains and innovation. While the I/E trade sector would likely continue to contribute to overall TFP growth, it could be restrained by the slow-growing international trade flows amid weak global growth and import absorption from the advanced economies. Meanwhile, the tourism-related sector's contribution to TFP growth is expected to weaken after traversing a high-growth stage.

4. Monetary and financial conditions

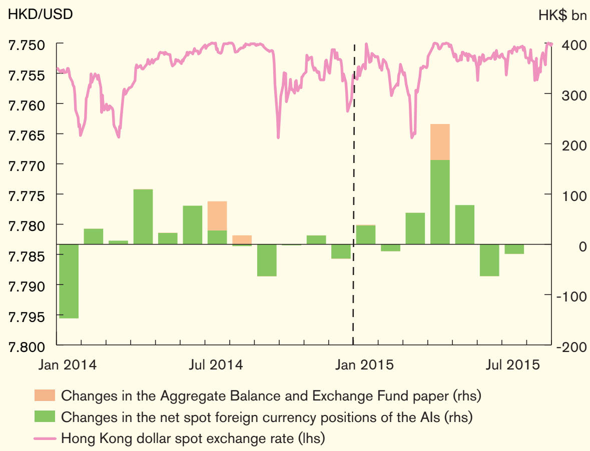
Exchange rate, capital flows and monetary developments

The Hong Kong dollar exchange rate remained broadly stable despite fickle global financial market conditions, the Mainland stock market corrections and the aftershocks of renminbi depreciation following the change in the central parity rate fixing mechanism. Bank liquidity remained abundant while loan growth moderated slightly compared with last year. Looking ahead, the uncertainty surrounding global financial markets and the US interest rate normalisation process will be the major risks to fund flows and the monetary and financial stability of Hong Kong.

4.1 Exchange rate and capital flows

Despite bouts of external shocks and increased fund flow volatilities, the Hong Kong dollar spot exchange rate remained broadly stable against the US dollar, hovering between 7.7500 and 7.7657 in the first half of 2015 and recent months (Chart 4.1). After some weakening in early 2015 on concerns about lift-off of the US interest rate, the Hong Kong dollar exchange rate strengthened towards the 7.75 level as inflow pressures increased again in late March through May. In particular, the strong-side Convertibility Undertaking (CU) was triggered repeatedly during 9–24 April. This prompted the HKMA to passively purchase a total of US$9.2 billion from banks in exchange for HK$71.5 billion, leading to a corresponding increase in the Aggregate Balance (Chart 4.2). The inflows were largely driven by a surge in equity-related demand for Hong Kong dollars, buoyed by the Mainland new rules which allow qualified Mainland China mutual funds and insurance companies to invest in the Hong Kong stock market under the Shanghai-Hong Kong Stock Connect (SHKSC) without having to obtain the Qualified Domestic Institutional Investor status. Banks' net spot foreign currency positions also increased noticeably between March and May, signalling considerable net Hong Kong dollar inflows into the non-bank private sector alongside a buoyant local stock market during the period.

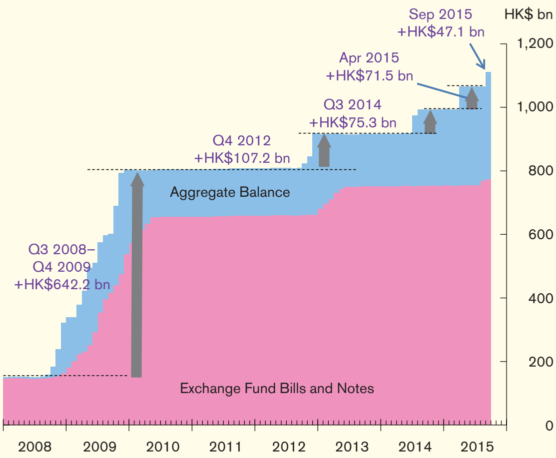
Chart 4.1
Exchange rate and fund flow indicators



Note: For fund flow indicators, a positive value indicates inflows. The data for changes in the net spot foreign currency positions in July are tentative estimates only, and there are no estimates for August.

Sources: HKMA and staff estimates.

Chart 4.2
Fund flow indicators

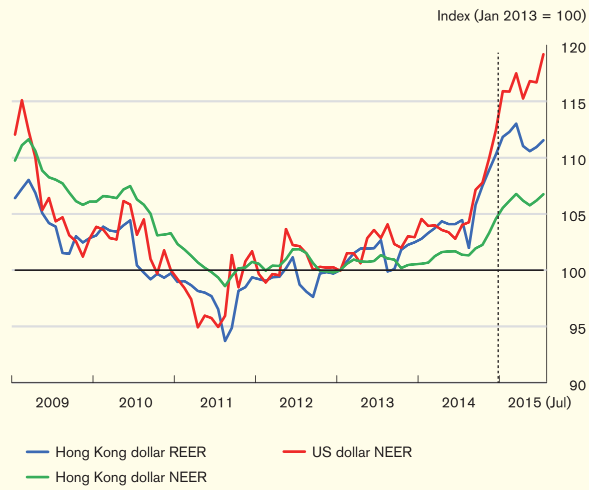


Note: Data up to 15 September.
Source: HKMA.

Between June and August, despite heightened volatility across global financial markets, the Hong Kong dollar spot exchange rate remained broadly stable. There were some net Hong Kong dollar outflows from the non-bank private sector in June and July, as revealed by the decreases in banks' net spot foreign currency positions. The Hong Kong dollar spot exchange rate eased moderately, but then strengthened to close to 7.75 in late July amid strong merger and acquisition and dividend distribution related Hong Kong dollar buying interests. In August, expectations of higher US policy rates and rising concerns over the outlook of Mainland China and renminbi depreciation following changes in the mechanism for determining central parity rate, have fuelled significant depreciation of Asian currencies and sharply lower prices in commodities and many emerging market assets. The perceived dimmer prospects for global growth have triggered sharp corrections in stock markets worldwide. Nonetheless, domestic monetary stability and the credibility of the Linked Exchange Rate system remained intact. In late August and early September, the Hong Kong dollar spot exchange rate touched 7.75 and the strong-side CU was triggered multiple times in September, possibly because of asset reallocations following the renminbi depreciation.

Because of the broad strength of the US dollar, the Hong Kong dollar also strengthened against other currencies in the first half and recent months. The trade-weighted Hong Kong dollar nominal effective exchange rate index (NEER) picked up by 2.1% in the year to July after rising by 4.0% in 2014 (Chart 4.3). Meanwhile, the Hong Kong dollar real effective exchange rate index (REER) recorded a smaller increase of 1.2% during the first seven months due to slightly lower inflation in Hong Kong relative to its trading partners.

Chart 4.3
Nominal and real effective exchange rates



Note: The real effective exchange rate index is seasonally adjusted.
Sources: C&SD and HKMA staff estimates.

Portfolio investment flows relating to Hong Kong have also seen more fluctuations so far this year. The Balance of Payments (BoP) statistics showed sizable equity portfolio outflows in the first quarter, as Hong Kong residents increased their holdings of foreign equities and non-residents reduced their holdings of Hong Kong stocks (Table 4.A).[28] In regard to debt portfolio investments, Hong Kong residents acquired more long-term foreign debt securities while foreigners continued to invest in Hong Kong debt

[28] At the time of writing, the BoP statistics for the second quarter of 2015 were not yet available.

securities. Generally speaking, the net portfolio investment outflows in the first quarter partly reflected market concerns about outflows from emerging markets amid a prospective US interest rate hike and increased attractiveness of US assets for international investors.[29]

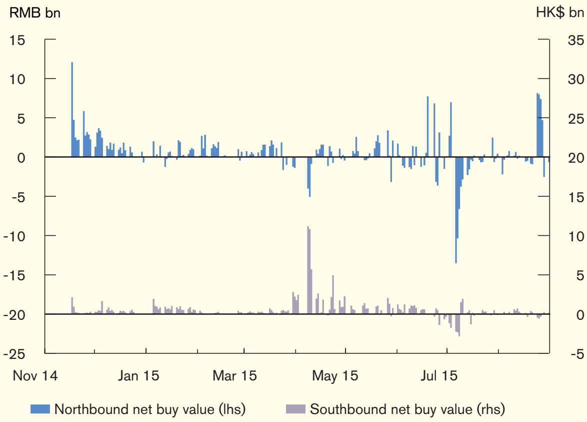
Table 4.A
Cross-border portfolio investment flows

(HK$ bn)	2013	2014	2014 Q1	Q2	Q3	Q4	2015 Q1
By Hong Kong residents							
Equity and investment fund shares	-179.4	-109.4	-75.7	10.7	32.9	-77.3	-105.4
Debt securities	-335.2	71.7	63.3	-100.3	40.3	68.4	-81.0
By non-residents							
Equity and investment fund shares	67.6	136.9	-8.5	24.7	160.3	-39.6	-119.4
Debt securities	61.0	57.9	9.4	11.4	11.9	25.2	23.0

Note: A positive value indicates capital inflows.
Source: C&SD.

According to market data and information, it appears that capital flow volatility has further increased since the second quarter. In particular, under the SHKSC, net southbound stock purchases surged to HK$27.7 billion during 8–10 April, with the southbound quota being exhausted on 8 and 9 April (Chart 4.4).[30] But later in June and July, there were strong selling pressures on both A-shares and Hong Kong-listed shares. Meanwhile, EPFR survey of global mutual funds also showed oscillations in portfolio investments relating to Hong Kong in the second quarter and recent months, particularly with signs of outflows since mid-June.

Chart 4.4
Market trading under the Shanghai-Hong Kong Stock Connect



Source: HKEx.

In the near term, the direction and size of fund flows will remain largely dependent on developments in the global financial markets and the process of US interest rate normalisation. There is a risk that a sudden rise in risk-off sentiment could lead to negative spillovers in Hong Kong through the financial channels. The future developments in the renminbi and other regional currencies may also affect market sentiment and put pressures on Hong Kong dollar fund flows. Furthermore, as the US interest rate lift-off is drawing near, the pressure on funds flowing back from some emerging markets to the US is likely to continue and this would also affect fund flows in Hong Kong.

4.2 *Money and credit*

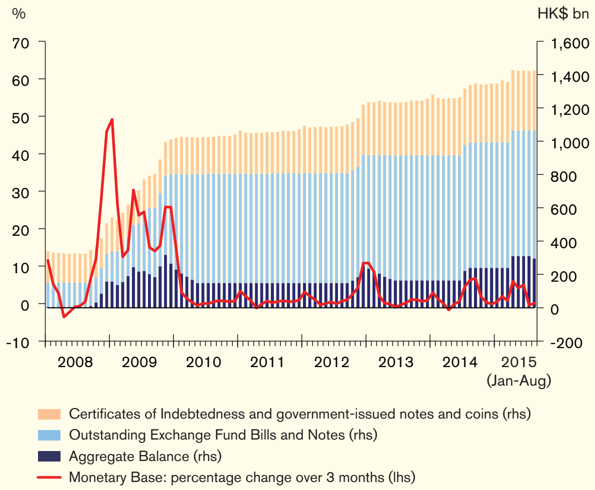
The monetary environment in Hong Kong remained accommodative amid continuation of low interest rates in the first half of 2015 and recent months. The Hong Kong dollar Monetary Base picked up by a cumulative 5.9% in the first half of 2015, as the Aggregate Balance expanded after repeated triggering of the strong-side CU in April (Chart 4.5). Other Monetary Base components, including Certificates of indebtedness, government-issued notes and coins in circulation, and the outstanding amount of

29 The equity portfolio outflows were also due to the restructuring of Cheung Kong and Hutchison Whampoa, under which the shares of both companies were swapped into shares of CK Hutchison in Cayman Islands.

30 Note that the net turnover value recorded under the SHKSC scheme does not exactly match the equity flows as defined by the BoP statistics under such a scheme. For example, if southbound trade buying H-shares in Hong Kong involves transactions among non-residents only, these capital flows are excluded in Hong Kong's BoP data.

Exchange Fund paper, were little changed. More recently, the Monetary Base expanded further with the strong-side CU being triggered in early September.

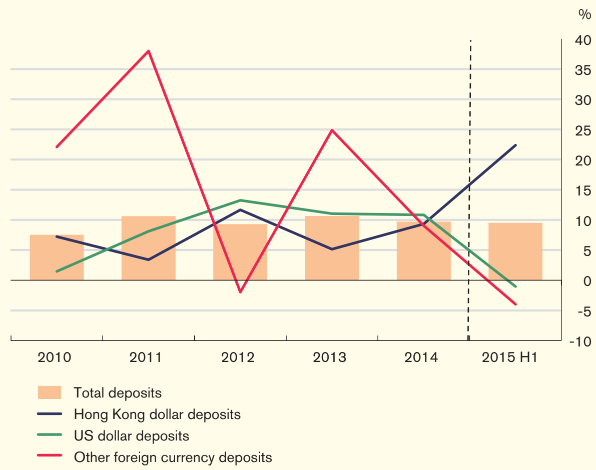
Chart 4.5
Monetary Base components



Source: HKMA.

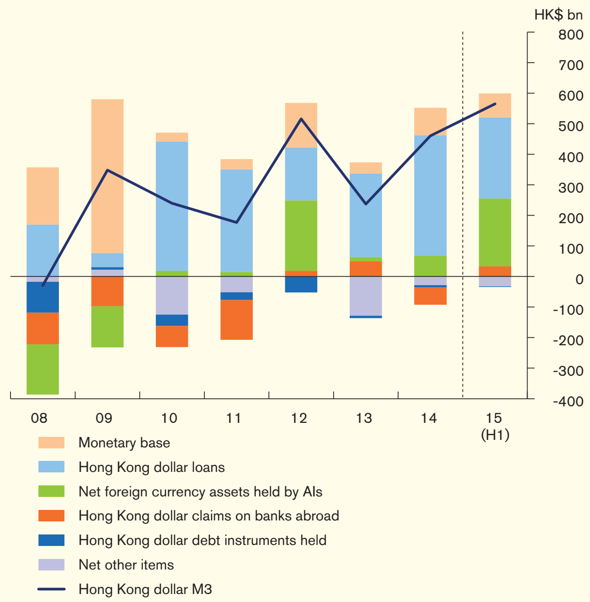
The Hong Kong dollar broad money supply (HK$M3) also picked up noticeably by 10.5% (or 21.1% annualised) in the first half, after rising by 9.0% in 2014. Within this, Hong Kong dollar deposits rose by 11.2% (or 22.4% annualised) in the first half, following a 9.3% increase in 2014 (Chart 4.6). In particular, demand deposits increased notably alongside buoyant trading and Initial Public Offering (IPO) activities in the equity market. Analysed by the asset-side counterparts, growth in the HK$M3 mainly reflected strong expansion in the Monetary Base and the net foreign currency assets of the authorized institutions (AIs), as well as growth in Hong Kong dollar loans (Chart 4.7).

Chart 4.6
Deposit growth



Note: Growth rates in 2015 H1 are annualised.
Source: HKMA.

Chart 4.7
Changes in the HK$M3 and the asset-side counterparts



Note: The HK$M3 in the monetary survey has been adjusted to include foreign currency swap deposits and to exclude government deposits and Exchange Fund deposits with licensed banks.
Source: HKMA staff estimates.

While the HK$M3 and Hong Kong dollar deposits increased in the first half, foreign currency deposits declined mildly. In the first six months, US dollar deposits edged down by 0.5% (or 1.0% annualised) and other foreign currency deposits fell by 2.0% (or 4.0% annualised) with modest drags from renminbi deposits. But overall, total deposits with the AIs (covering both Hong Kong dollar and foreign currency deposits) expanded by 4.8% (or 9.5% annualised) in the first half, roughly the same pace as in 2014.

With abundant liquidity in the banking system, wholesale funding costs continued to stay at low levels. The overnight and three-month HIBOR fixing rates were little changed at around 0.06% and 0.39% respectively in the first half, only showing occasional fluctuations due to increased equity funding demand and banks' liquidity needs ahead of the quarter-ends (Chart 4.8). Reflecting stable interbank funding conditions through currency swaps with US dollar, the Hong Kong dollar forward points saw little change during the same period. Broadly tracking the US dollar counterpart, the Hong Kong dollar yield curve flattened in the first four months and then steepened a bit. This left the average yield of 10-year Hong Kong Government Bond at 1.84% in June, still lower than the 1.97% level last December. At the retail level, mainly due to a lower weighted deposit rate, banks' average funding costs (measured by the composite interest rate) declined to a recent low of 0.29% in June, down 10 basis points from six months earlier. Meanwhile, banks' average lending rate for new mortgages remained steadily low at around 1.95% in the first half.

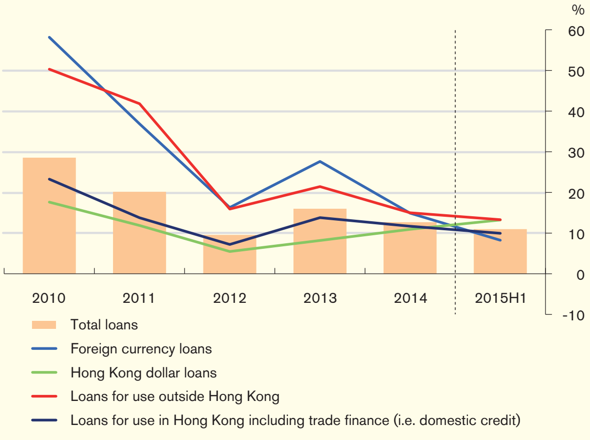
Chart 4.8
Hong Kong dollar interbank interest rates and yield of the 10-year Government Bond

Sources: CEIC and HKMA.

Monetary conditions in Hong Kong faced some pressure more recently. Along with the worsened financial market conditions, Hong Kong dollar interbank interest rates increased by a couple of basis points in August, while the Hong Kong dollar forward points turned to a premium.

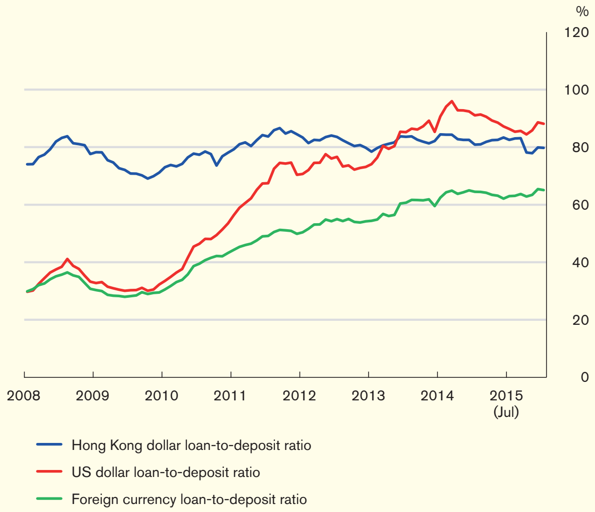
Total loan growth moderated slightly to an annualised rate of 11.0% in the first half of 2015 from 12.7% in 2014 (Chart 4.9). The moderation was due to softer growth in domestic credit, at an annualised 10.0% in the first half compared with 11.7% in 2014, while loans for use outside Hong Kong picked up by 13.3% (annualised), roughly the same pace as last year. Analysed by currency type, Hong Kong dollar loans grew faster than last year in part supported by surges in IPO loans and equity-related financing. On the other hand, foreign currency loans recorded a slower increase in the first half, particularly with growth in US dollar loans decelerating to an annualised 2.1% from 13.3% in 2014. Reflecting the relative changes in deposits and loans, the Hong Kong dollar loan-to-deposit ratio declined to 79.9% in June from 83.3% last December, while the US dollar loan-to-deposit ratio rose to 88.6% from 87.2% (Chart 4.10).

Chart 4.9
Loan growth



Note: Growth rates in 2015 H1 are annualised.
Source: HKMA.

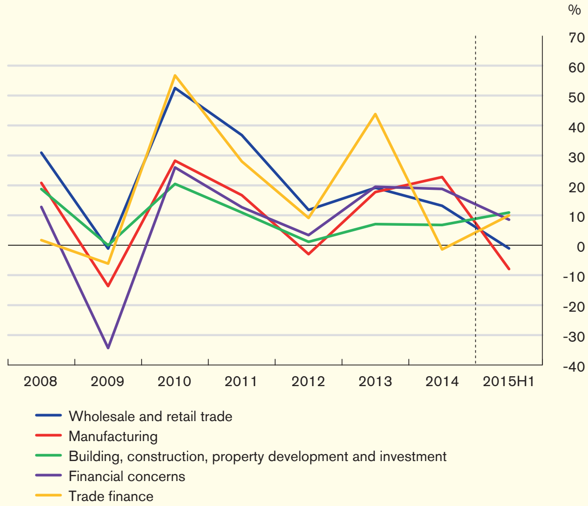
Chart 4.10
Loan-to-deposit ratios



Source: HKMA.

Behind the softer growth in domestic credit, sectoral performance was quite mixed, however (Chart 4.11). While trade finance picked up in the first half from a low recorded late last year, at the end of June it remained down by about 10% year on year, in part due to weak merchandise trade performance. Also, along with weak performance in the retail business, loans to wholesale and retail trade also declined. On the other hand, loans to stockbrokers rose notably faster, underpinned by vibrant equity IPOs and trading activities, and loans to financial concerns grew at a moderate pace. Meanwhile, loans to building, construction and property development also increased somewhat faster amid robust construction activities.

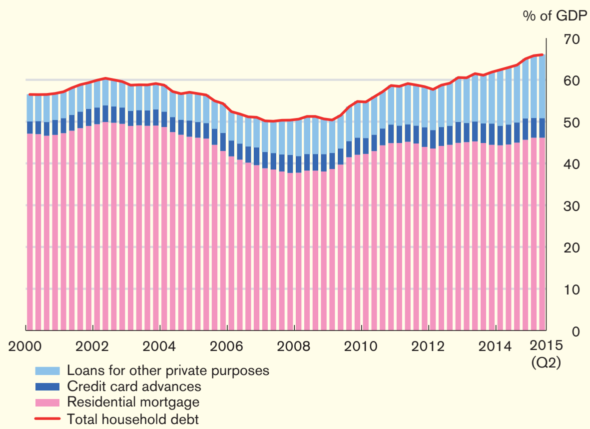
Chart 4.11
Growth in domestic loans by selected sectors



Note: Growth rates in 2015 H1 are annualised.
Source: HKMA.

Household debt continued to increase steadily in the first half. In particular, growth in personal loans (which comprise credit card advances and loans for other private purposes) remained fast at an annualised rate of 12.4%. Meanwhile, residential mortgage loans picked up by 9.0% (annualised) in the first half, although the growth momentum has decelerated after the HKMA introduced the seventh round of prudential measures in late February and early March. Overall, the household debt-to-GDP ratio edged higher to 66.0% in the second quarter from 65.7% in the first quarter (Chart 4.12).

Chart 4.12
Household debt-to-GDP ratio and its components



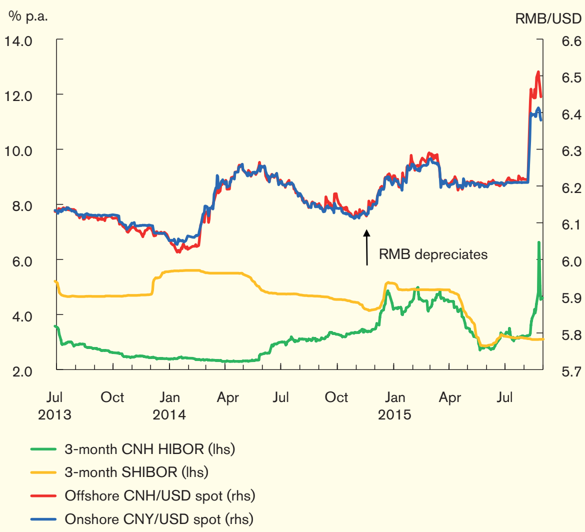
Note: Only borrowings from AIs are covered.
Source: HKMA.

Entering into the third quarter, credit growth showed signs of moderation. Total loans declined by 0.6% in July from a month earlier, bringing down the annualised growth rate to 8.3% for the first seven months as a whole. In the near term, credit growth would remain restrained by heightened uncertainties in the macro-financial environments amid expectation of US interest rate hike, a slowdown of the Mainland economy and renminbi depreciation.

Offshore renminbi banking business

Following mild depreciation against the US dollar in the first quarter of 2015, the offshore renminbi (CNH) exchange rate held steady between April and July while closely tracking the stable path of its onshore counterpart (CNY) (Chart 4.13). In August, however, the CNH faced increased depreciation pressure following the change in the renminbi exchange rate fixing mechanism on 11 August. The CNH weakened along with the CNY, and its discount vis-à-vis the CNY widened to as high as 1,000 pips in late August. Funding conditions in the CNH interbank markets also tightened in August amid renminbi depreciation pressure. Overall, the three-month CNH HIBOR picked up by about 130 basis points from the end of June, to 4.6% at the end of August.

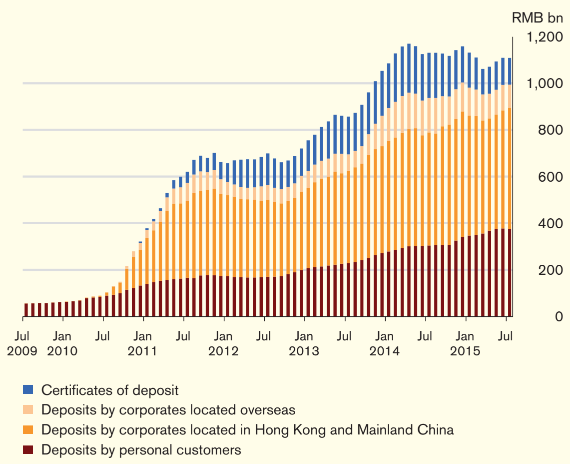
Chart 4.13
Onshore and offshore renminbi exchange rates and interbank interest rates



Sources: Bloomberg and Treasury Markets Association.

The renminbi liquidity pool in Hong Kong levelled off in the first quarter of 2015 and then picked up again in the second quarter. As a whole, the total outstanding amount of renminbi customer deposits and certificates of deposit (CDs) still decreased by 4.3% from six months earlier to RMB1,108.8 billion at the end of June (Chart 4.14 and Table 4.B). Renminbi customer deposits saw a modest 1.1% decline in the first half of the year. This was mainly attributable to a decline in corporate deposits, although personal customer deposits continued to increase at a steady pace. The market expectation of renminbi depreciation, if persistent, could potentially slow down growth in renminbi deposits in the near term. Yet, at the same time, the liquidity pressure might be partially offset by banks offering higher interest rates to lure customer deposits. Outstanding CDs dropped by 25.1% as there was a decrease in issuance year on year and a relative large amount of CDs reaching maturity.

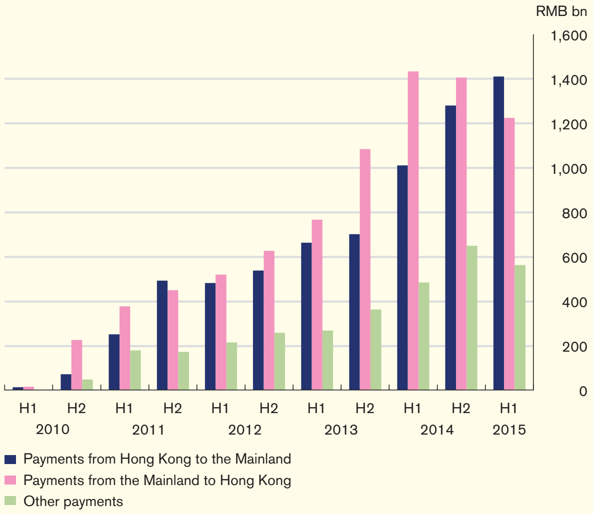
Chart 4.14
Renminbi deposits and CDs in Hong Kong



Source: HKMA.

Renminbi trade settlement handled by banks in Hong Kong decreased to RMB3,195.8 billion in the first half of 2015, down 4.1% from the second half of 2014. There were net outflows from Hong Kong to Mainland China under the renminbi trade settlement (Chart 4.15 and Table 4.B), in part because corporates reduced their offshore renminbi holdings amid weaker expectation of renminbi appreciation.

Chart 4.15
Flows of renminbi trade settlement payments



Source: HKMA.

Table 4.B
Offshore renminbi banking statistics

	Dec 2014	Jun 2015
Renminbi deposits & certificates of deposit (CDs) (RMB bn)	1,158.3	1,108.8
Of which:		
Renminbi deposits (RMB bn)	1,003.6	992.9
Non-Hong Kong residents' renminbi deposits (RMB bn)	30.8	28.7
Share of renminbi deposits in total deposits (%)	12.4	11.8
Renminbi certificates of deposit (CDs) (RMB bn)	154.7	115.9
Renminbi outstanding loans (RMB bn)	188.0	236.3
Number of participating banks in Hong Kong's renminbi clearing platform	225	223
Amount due to overseas banks (RMB bn)	145.2	142.2
Amount due from overseas banks (RMB bn)	193.3	174.5
	Jan–Jun 2015	
Renminbi trade settlement in Hong Kong (RMB bn)	3,195.8	
Of which:		
Inward remittances to Hong Kong (RMB bn)	1,224.0	
Outward remittances to Mainland China (RMB bn)	1,409.9	
Ratio of inward to outward remittances to Mainland China	0.9	
Turnover in Hong Kong's RMB RTGS system (Daily average during the period; RMB bn)	890.3	

Source: HKMA.

On the other hand, Hong Kong's renminbi lending business continued to expand, with the outstanding amount of renminbi loans rising by 25.7% from a low base to RMB236.3 billion at the end of June. Hong Kong's position as a global hub for offshore renminbi clearing and settlement also strengthened further. The average daily turnover of renminbi real time gross settlement (RTGS) rose to RMB890.3 billion in the first half of 2015 from RMB732.7 billion in 2014, and of these, around 90% were offshore transactions (i.e. not between Hong Kong and Mainland China) (Table 4.B). Looking ahead, the launch of the Mainland-Hong Kong Mutual Recognition of Funds (MRF) initiative in July, which has broadened cross-border investment channels between the two places with a wider selection of funds, would be conducive to Hong Kong's further development as a renminbi investment and asset management centre.

Asset markets

The Hong Kong equity market has taken a roller coaster ride and fallen sharply amid a major risk reappraisal in the past six months. The price premium of A-shares over H-shares has remained tangible, which is arguably attributable to discrepancies in the equity valuation between the Mainland and Hong Kong investors in the wake of elevated market volatilities. While the Hong Kong dollar debt market continued to grow in the first half of 2015, the offshore renminbi debt market showed signs of moderation after several years of rapid growth. Meanwhile, residential property market activities have softened in recent months after picking up gradually in the second quarter.

4.3 Equity market

The equity market in Hong Kong fluctuated widely in the review period and ended up sharply lower towards the end, subject heavily to external factors. After a flat first quarter, local equities surged sharply to a seven-year-high in April, triggered by the announcement of the China Securities Regulatory Commission to allow Chinese mutual funds to invest in Hong Kong equities (Chart 4.16). However, starting from late June, bouts of sharp selloff in global equities, coupled with weakness of commodity prices and the standoff in the Greek bailout negotiations, triggered a major risk reappraisal. As a result, the Hong Kong equity market took a drastic turnaround, with the Hang Seng Index (HSI) falling by 12.7% between March and August 2015.

Chart 4.16
Equity prices in Hong Kong

Source: Bloomberg.

During the review period, the Hang Seng China Enterprises Index (HSCEI), also known as the H-share index, dropped by 20.1%, mirroring the price correction in the A-share market. The valuation premium of A-shares over H-shares, as gauged by the Hang Seng China AH Premium Index (HSCAHP), though narrowing since early July, has remained tangible (Chart 4.17). This is attributable to discrepancies in the equity valuation between the Mainland and Hong Kong investors in the wake of elevated market volatilities, as reflected by the spike of HSI volatility index (VHSI) (Chart 4.18).[31] Nonetheless, a sharp decrease in the relative turnover of the A-share market to the H-share market, which partly reflected the scaling down of margin financing, hindered the further widening of price disparities between the two markets (Chart 4.19).[32]

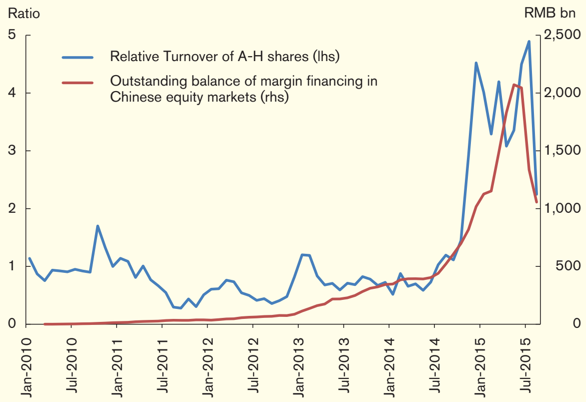
Chart 4.17
Hang Seng China AH Premium Index

Source: Bloomberg.

Chart 4.18
Option-implied volatility of the HSI

Source: Bloomberg.

Chart 4.19
Relative turnover of A- and H-shares and margin financing in Chinese equity markets



Note: Relative turnover is defined as the ratio of the turnover rate of A-shares to that of H-shares. The turnover rate of each market is computed by taking a weighted average of the turnover rates of dual-listed stocks that are constituents of the HSCAHP Index, with the weights being their respective market capitalisation.

Sources: Bloomberg, CEIC and HKMA staff estimates.

Looking ahead, the local equity market is likely to remain highly susceptible to external market conditions, although it still offers attractive valuation, compared to other markets in the region (Chart 4.20). In particular, given the increased economic ties and market connectivity between Hong Kong and Mainland China, growing concerns over an economic slowdown in Mainland China will continue to cast a shadow over the Hong Kong equity market. This, coupled with uncertainties over the course of monetary normalisation in the US and the global economic outlook, suggests that the local equity market is likely to remain volatile for the remainder of 2015.

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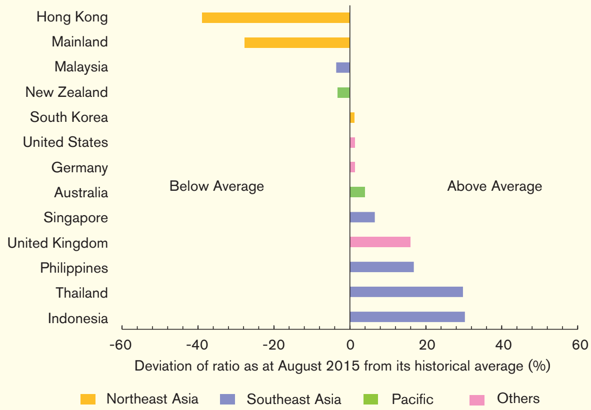
[31] See Chung, Hui and Li (2013) "Explaining share price disparity with parameter uncertainty: Evidence from Chinese A- and H-shares", *Journal of Banking and Finance*, Vol. 37, 2013, pp. 1073–1083.

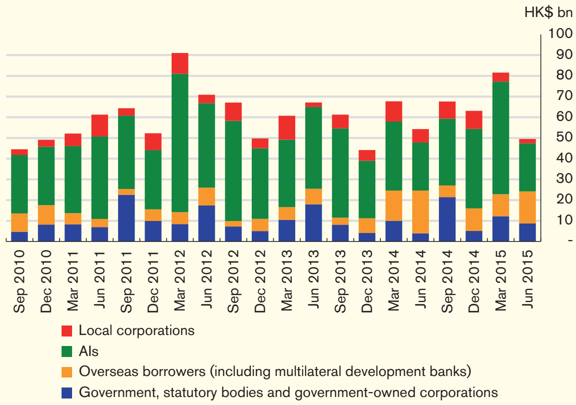
[32] See Fong, Wong and Yong (2010) "Share price disparity in Chinese stock markets", *Journal of Financial Transformation*, Vol. 30, 2010, pp. 23–31.

Chart 4.20
Price-earnings ratios of Asia Pacific (excluding Japan) and other major markets



Sources: Bloomberg and HKMA staff estimates.

Chart 4.21
New issuance of non-Exchange Fund Bills and Notes Hong Kong dollar debt

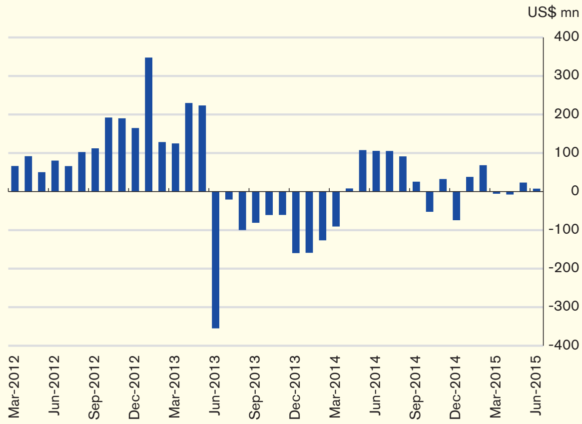


Source: HKMA.

4.4 Debt market

Less debt was issued in the Hong Kong dollar debt market in the first half of 2015 (Chart 4.21). Total issuance dropped by 1.9% year on year to HK$1,164.3 billion. The public sector registered the largest decline, issuing HK$1,054.1 billion or 2.3% less debt than in the same period of 2014, as a result of reduced issuance of Exchange Fund papers.[33] In contrast, the local private sector, which consists of AIs and local corporations, posted a year-on-year increase of 15.5% in its debt issuance.[34] However, on a quarterly basis, new debt issued by the local private sector fell sharply by 43.1% in the second quarter. This, to some extent, was attributable to reduced investor appetite for bonds in the local market in view of growing expectation that the US Federal Reserve will raise interest rates later this year, as reflected by the slowdown in bond fund flows into the city over the past few months (Chart 4.22).

Chart 4.22
Bond fund flows into Hong Kong



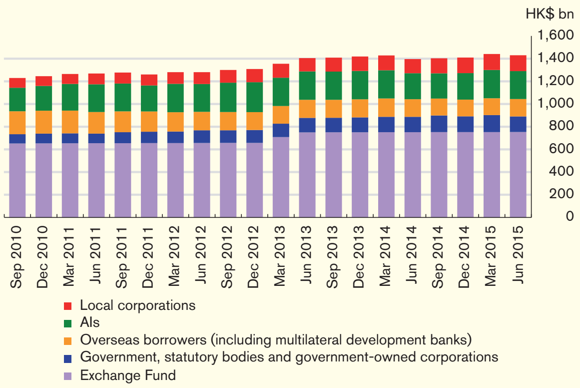
Source: EPFR Global.

33 The Exchange Fund papers issuance, which accounted for 86.9% of new issuances in the Hong Kong dollar debt market, dropped by 3.0% year on year in the first half of 2015.

34 In the first half of 2015, issuance by local corporations fell by 60.4% year on year to HK$6.5 billion, which was more than offset by the growth of 37.4% in new debts issued by AIs.

Notwithstanding the decrease in total issuance, the total outstanding amount of Hong Kong dollar debt rose by 2.4% year on year to HK$1,430.1 billion at the end of June 2015, equivalent to 24.7% of Hong Kong dollar M3 or 21.0% of Hong Kong dollar denominated assets of the entire banking sector (Chart 4.23). Overseas borrowers including multilateral development banks (MDBs) saw their outstanding debt fall by 0.7%, whereas the outstanding amount of debt issued by the local private sector increased by 9.2%. That said, as driven by the sharp decline in local private sector issuance in the second quarter, the Hong Kong dollar debt market saw a quarter-on-quarter contraction of 0.7% in Q2 2015 after rising three quarters in a row.

Chart 4.23
Outstanding Hong Kong dollar debt

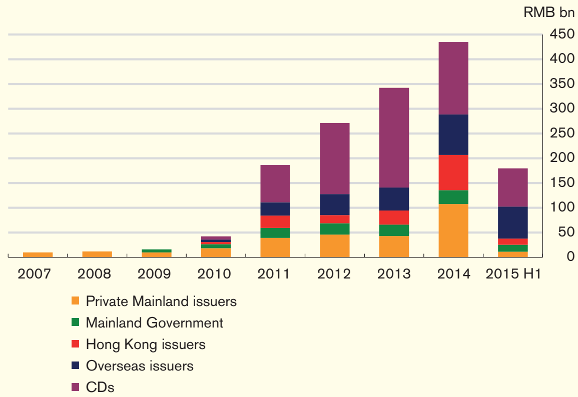


Source: HKMA.

Meanwhile, after years of phenomenal growth since the launch of the CNH market, the offshore renminbi debt market in Hong Kong showed signs of moderation in the first half of 2015, which can be attributed to both demand- and supply-side factors. On the demand side, investor appetite for offshore renminbi debt securities has receded, in part due to renminbi depreciation in late 2014 and early 2015. Meanwhile, the Shanghai-Hong Kong Stock Connect launched last November has offered an alternative channel for offshore investors to gain exposure to Mainland China. On the supply side, following a series of monetary easing measures introduced by the People's Bank of China (PBoC), funding costs in the domestic market have been reduced. Hence, Mainland's enterprises may be less motivated to raise funds through issuing bonds offshore.

Against this backdrop, new issuance of offshore renminbi debt securities in the first half of 2015 totalled RMB179.7 billion, 36.2% lower than the same period a year earlier (Chart 4.24). In particular, non-CD debt securities issued by private Mainland's issuers decreased by 82.1% to RMB11.4 billion. Nevertheless, those issued by overseas issuers increased by 61.7% year on year to RMB64.6 billion, suggesting that overseas issuers might either have significant demand for renminbi or find it cost-effective to raise renminbi funds and swap the proceeds to US dollar.[35] With the fall in total issuance, the outstanding amount of the offshore renminbi market in Hong Kong dropped by 7.6% year on year to RMB584.9 billion as at end-June 2015.

Chart 4.24
New issuance of offshore renminbi debt securities

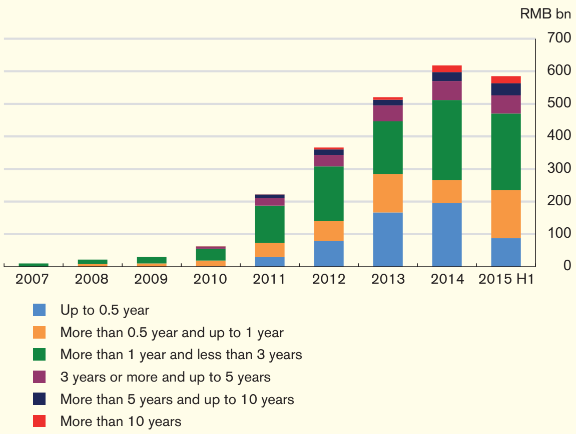


Sources: Newswires and HKMA staff estimates.

[35] For details about USD/CNH cross-currency swap, see Box 4 in *Half-Yearly Monetary and Financial Stability Report* (March 2014).

Looking forward, near-term development of the offshore renminbi debt market will hinge on a host of factors. Firstly, in a drive to reform the renminbi exchange rate regime, the resulting exchange rate uncertainty may affect both investor appetite and issuers' fund raising strategy. Second, in view of increased global financial volatility, investors are likely to stay on the sideline in the near term. Third, as the authorities try to maintain growth momentum, more monetary easings are likely to be in the pipeline. Hence, issuance by Mainland's enterprises in the offshore market might stay lukewarm should funding costs in the onshore market remain relatively low. This is despite the fact that the market will see strong refinancing needs in the period ahead (Chart 4.25).

Chart 4.25
Outstanding amount of offshore renminbi debt securities by remaining tenor



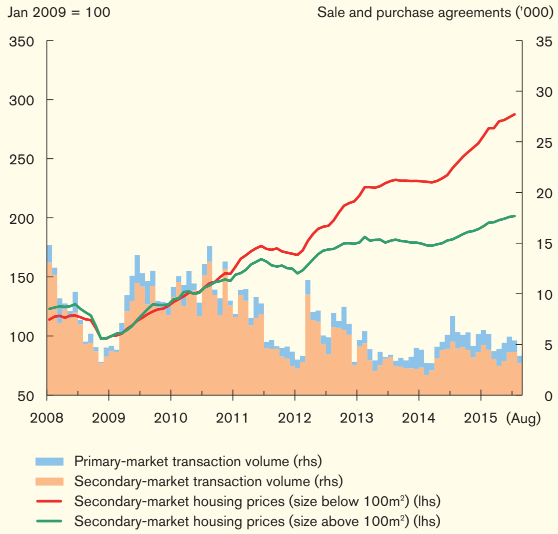
Sources: Newswires and HKMA staff estimates.

4.5 Property markets

Residential property market

The residential property market showed some signs of consolidation in March after the HKMA introduced the latest round of prudential tightening, but market activities picked up gradually in April–June before softening again in July–August. As a whole, housing transactions dropped in March by nearly 30% from a month earlier, which then revived in April–June amid robust primary-market sales and recovery in secondary-market transactions (Chart 4.26). The average monthly primary-market transaction was 1,370 units between March and July, similar to the average level recorded in the 12 months before the February prudential tightening. Meanwhile, secondary-market transactions rose gradually from a recent low of 2,915 units in April to 4,271 units in July. Speculative and investment activity, such as confirmor transactions, short-term flipping trade and company holdings, remained at low levels (Chart 4.27). Entering into August, however, housing market sentiment weakened amid the stock market sell-off. In particular, secondary-market transactions fell to 3,132 units in August, while Midland volume index pointed to continuous decline more recently. Primary-market sales have reportedly been slower as well.

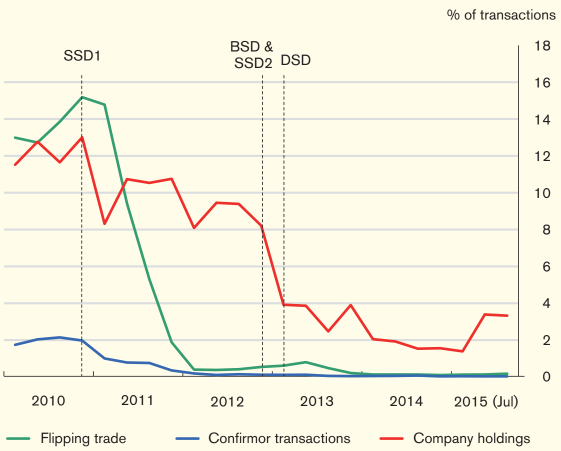
Chart 4.26
Residential property prices and transaction volume



Sources: Rating and Valuation Department (R&VD) and Land Registry.

As regards housing prices, a fast pick-up was recorded in the first two months of this year but the pace of increase has decelerated since then (Chart 4.26). Still, with the rapid increase early in the year, housing prices rose by a cumulative 9.1% in the first seven months, and prices of small and medium-sized flats (with saleable area of less than 100 m^2) continued to increase faster than prices of larger flats (with saleable area of at least 100 m^2). Housing prices continued to pick up further more recently, as suggested by the Centa-City leading index. Meanwhile, the price premium of primary-market flats relative to secondary-market flats has reportedly narrowed in recent months as developers offer more discounts and concessions.

Chart 4.27
Confirmor transactions, flipping trade and company purchasers



Note: SSD1 and SSD2 refer to Special Stamp Duties introduced in November 2010 and October 2012, respectively; BSD refers to Buyer's Stamp Duty introduced in October 2012; DSD refers to doubling of the ad valorem stamp duty introduced in February 2013.

Source: Centaline Property Agency Limited.

Given the latest market developments, housing affordability has stretched a lot further. The housing price-to-income ratio rose to a record high of 15.9 in the second quarter compared with the 1997 peak of 14.6, while the income-gearing ratio increased further to 70.7%, well above its long-term average of about 50% (Chart 4.28).[36] Moreover, if the mortgage interest rate returned to a more normal level, say by a 300-basis-point increase, the income-gearing ratio would soar to 92.3%. Meanwhile, the rise in fresh housing rentals still lagged behind the upward trend in housing prices. As a result, residential rental yields dropped to record low levels of 2.2–2.9%, while their spreads relative to the long-term Government bond yields have narrowed. The buy-rent gap as a measure of relative user costs also widened further (Chart 4.29).[37]

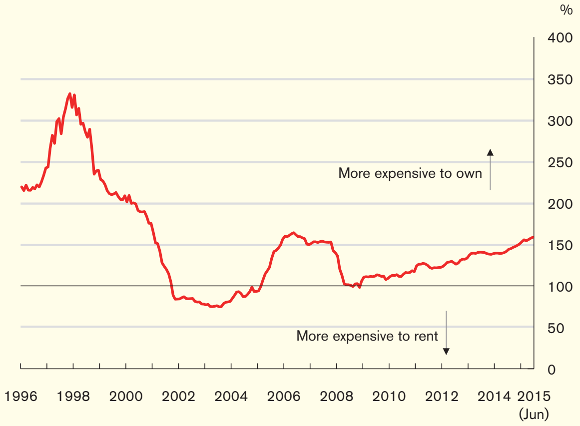
Chart 4.28
Indicators of housing affordability

Sources: R&VD, C&SD and HKMA staff estimates.

36 The price-to-income ratio measures the average price of a typical 50 m^2 flat relative to the median income of households living in private housing. Alternately, the income-gearing ratio compares the amount of mortgage payment for a typical 50 m^2 flat (under a 20-year mortgage scheme with a 70% loan-to-value ratio) to the median income of households living in private housing. The income-gearing ratio is not the same as a borrower's actual debt-servicing ratio, which is subject to a maximum cap by the HKMA prudential measures.

37 The buy-rent gap estimates the cost of owner-occupied housing (under a 20-year mortgage scheme with a 70% loan-to-value ratio) relative to rentals.

Chart 4.29
Buy-rent gap



Note: This indicator is calculated as the ratio of the cost of purchasing and maintaining a 50 m² flat with that of renting it.
Sources: R&VD, C&SD and HKMA staff estimates.

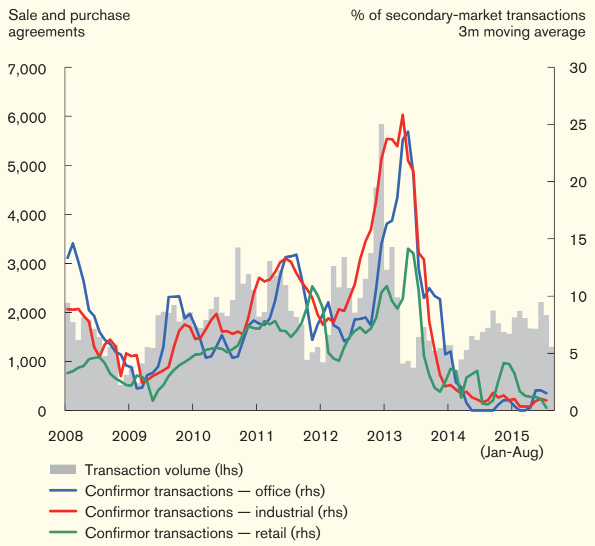
To manage banking risks related to mortgage lending and to enhance borrowers' ability to cope with the impact of a possible property market downturn, the HKMA has introduced seven rounds of macro-prudential measures since 2009, including the latest round in February and early March this year. These measures helped bring down the average loan-to-value ratio for new mortgages from 64% before the introduction of the measures to around 52% more recently. The debt-servicing ratio (DSR) for new mortgages also fell by about 5 percentage points to 35%.

Housing market outlook will likely become more cautious amid increased volatility in the global and Hong Kong's financial markets. While there appears to be near-term support from pent-up demand and tight supply conditions, the weakening stock market sentiment is having an adverse spillover into housing market sentiment. Housing demand of Mainland Chinese in Hong Kong could also weaken in net terms due to diminished purchasing power from a weaker renminbi and growth slowdown of the Mainland economy. But more importantly, the highly-stretched valuation of the property market is not quite in line with economic fundamentals, and the risk of downward adjustment has picked up steadily. Rises in US interest rates and the gradual shrinkage of the housing demand-supply gap are also posing headwinds to housing prices. In particular, once the US rate hike cycle begins, interest rates will eventually reach a level that leads to a more substantial tightening of liquidity conditions in Hong Kong. The effect on housing demand and housing prices, however, depends on the exact pace and magnitude of rate hikes, as well as financial market responses.

Non-residential property market

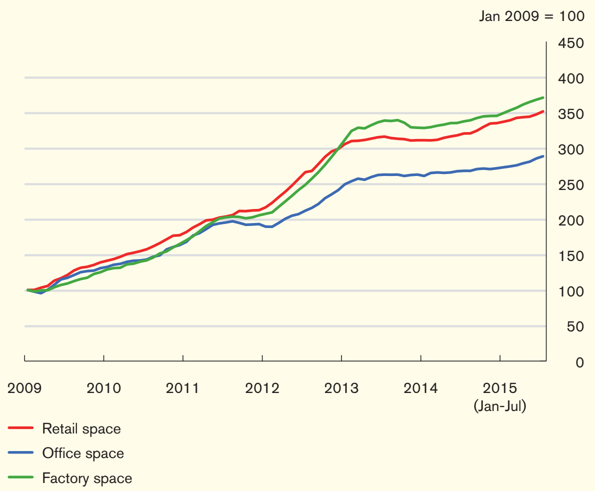
The non-residential property market picked up steadily in the first half of 2015 before showing signs of softening in recent months. Driven mainly by demand for office and factory premises and parking lots, average transaction volume rose by more than 10% in the first half, which saw a reverse more recently (Chart 4.30). Speculative activity remained subdued, with confirmor transactions hovering at very low levels. As regards property value, prices of office and factory premises rose by 6.2% and 7.4% respectively in the first seven months, while prices of retail space saw a slower 5.0% increase (Chart 4.31). Rental growth was generally slower than price increase across market segments, with yields staying low at 2.4–2.9%. Looking ahead, prices and rentals of non-residential properties will largely hinge on business prospects and interest rate developments. In particular, the prices and rentals of retail space, especially at prime locations, will face headwinds from the weak retail sales outlook. Slower economic growth and a possible decline in rentals, together with expectation of interest rate hikes, could exert downward pressure on capital values of non-residential properties.

Chart 4.30
Transactions in non-residential properties



Sources: Land Registry and Centaline Property Agency Limited.

Chart 4.31
Non-residential property price indices



Source: R&VD.

5. Banking sector performance

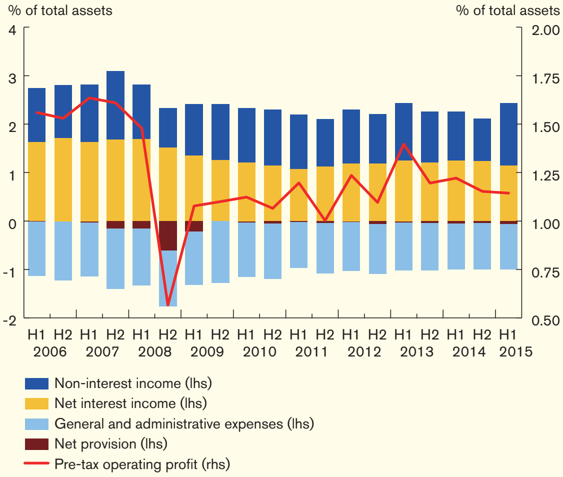
The local banking sector continued to post healthy performance, characterised by stable earnings growth, strong capital positions and sound asset quality. The liquidity conditions of the banking sector remained favourable, with the average liquidity ratios under Basel III staying well above the regulatory minimum. However, the financial market turmoil coupled with possible deterioration in business environment may weaken corporates' fundamentals. This together with the expected interest rate rises in the US could exert upward pressure on corporates' financing costs, posing challenges for banks' credit risk management in view of the rising leverage and debt-servicing burden of the corporate sector in recent years. The increasing share of Mainland-related lending coupled with slower economic growth in Mainland China remains a key risk factor to watch for.

5.1 *Profitability and capitalisation*

Profitability

Retail banks[38] registered stable earnings growth in the first half of 2015, with pre-tax operating profits bouncing back by 5.4% from the second half of 2014 (see the bars in Chart 5.1). The improvement in earnings was mainly due to substantial growth in non-interest income, which more than offset lower net interest income. However, reflecting relatively faster growth in assets than earnings, the return on assets of retail banks receded slightly to 1.14% in the first half of 2015 from 1.15% in the second half of 2014 (i.e. the red line in Chart 5.1).

Chart 5.1
Profitability of retail banks



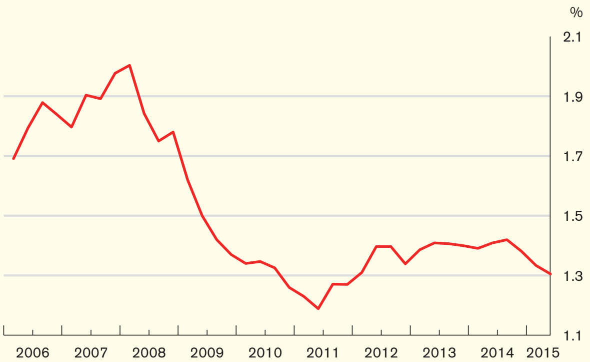
Note: Semi-annually annualised figures.
Source: HKMA.

The net interest margin (NIM) of retail banks declined to an average of 1.32% in the first half of 2015 (Chart 5.2). The fall in NIM was in line with anecdotal evidence of a declining average yield of corporate loans that emerged from the syndicated loan market in Hong Kong (Chart 5.3). Nevertheless, funding costs of banks were also reduced. For licensed banks as a whole, their overall interest costs registered a mild decrease of 7 basis points in the first half of 2015, contributed by a fall in both deposit and market-

38 Throughout this chapter, figures for the banking sector relate to Hong Kong offices only, except where otherwise stated.

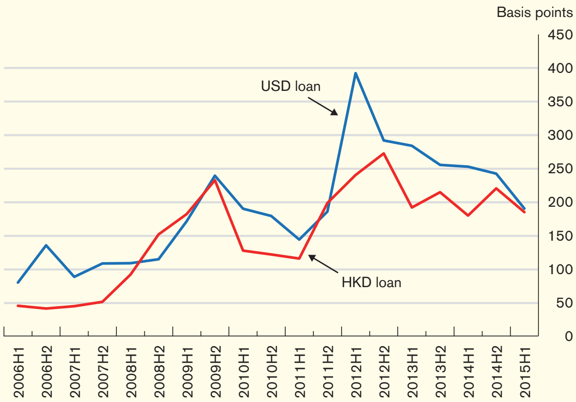
based funding costs (Chart 5.4).[39] The composite interest rate, a measure of the average cost of Hong Kong dollar funds for retail banks, decreased by 10 basis points during the first half of 2015 to 0.29% at the end of June, and further declined to a recent low of 0.26% at the end of July (Chart 5.5).

Chart 5.2
Net interest margin of retail banks



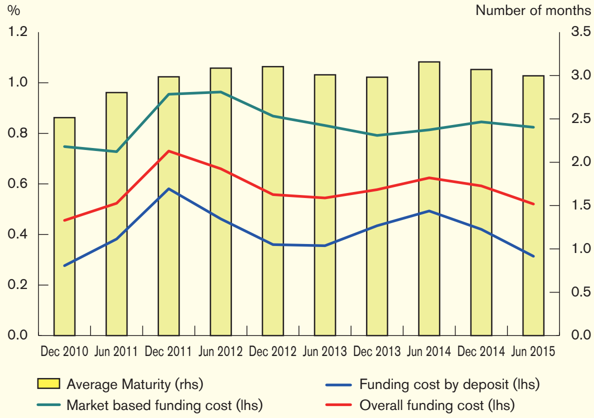
Note: Quarterly annualised figures.
Source: HKMA.

Chart 5.3
Average pricing of syndicated loans



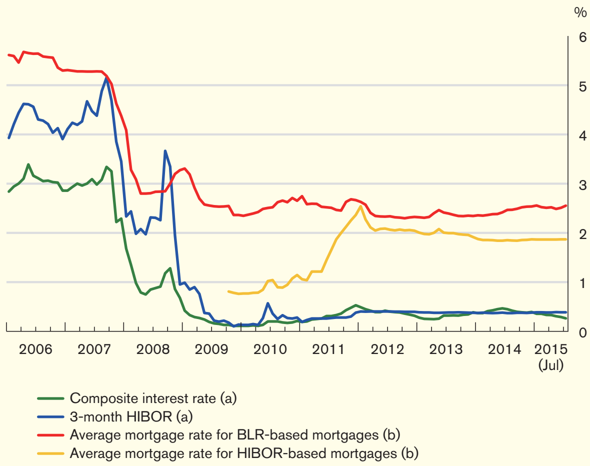
Note: The average pricing of syndicated loans is weighted by the loan amounts and the pricing of loans refers to sum of spread and the corresponding reference rate.
Source: HKMA staff estimates based on data from LoanConnector.

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



Source: HKMA.

Chart 5.5
Interest rates



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

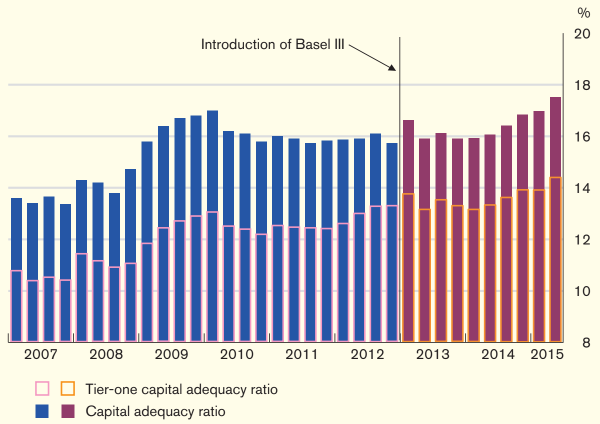
During the first half of 2015, both the HIBOR-based and the best lending rate-based (BLR-based) mortgage rates remained broadly stable. Partly reflecting the persistent lower price of HIBOR-based mortgages, the share of HIBOR-based mortgages amongst newly approved mortgage loans stayed steady at 85.8% at the end of June.

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

Capitalisation

Capitalisation of the banking sector remained well above the minimum international standards. The consolidated capital adequacy ratio of locally incorporated AIs climbed to 17.5% at the end of June from 16.8% at the end of 2014 (Chart 5.6), with the tier-one capital adequacy ratio[40] also increasing to 14.4% from 13.9%.

Chart 5.6
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 capital adequacy ratios from March 2013 onwards are therefore not directly comparable with those up to December 2012.

Source: HKMA.

5.2 Liquidity, interest rate and credit risks

Liquidity and funding

The Basel III Liquidity Coverage Ratio (LCR)[41] requirement became effective from 1 January 2015. The liquidity position of the banking sector continued to be favourable during the review period. In particular, the average LCR of category 1 institutions was 131.7% in the second quarter of 2015, while the average Liquidity Maintenance Ratio (LMR) of category 2 institutions was 53.4% (Table 5.A). Both ratios were well above the regulatory minimum[42], suggesting that AIs in Hong Kong are generally not expected to encounter major difficulties in complying with the new liquidity standard over the transition period.

Table 5.A
Liquidity ratios

Quarterly average ratios (%)	2014 Q3	2014 Q4	2015 Q1	2015 Q2
Liquidity Coverage Ratio (Consolidated) — Category 1 institutions	n.a.	n.a.	129.9	131.7
Liquidity Maintenance Ratio (Consolidated) — Category 2 institutions	n.a.	n.a.	50.8	53.4
Liquidity ratio (Hong Kong Offices) — Retail banks	41.2	41.1	n.a.	n.a.

Note: n.a.: Not applicable
Source: HKMA.

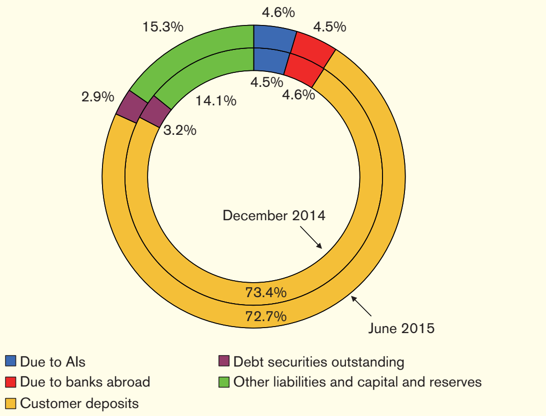
40 The ratio of tier-one capital to total risk-weighted assets.

41 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, the requirement is implemented in two tiers: category 1 institutions adopt the LCR; category 2 institutions adopt the LMR, which is modified from the original liquidity ratio requirement.

42 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 a LMR of not less than 25% on average in each calendar month.

Meanwhile, customer deposits continued to be the primary funding source for retail banks, underpinning a stable funding structure. During the review period, the share of customer deposits to banks' total liabilities declined slightly to 72.7% at the end of June (Chart 5.7), but remained at a high level.

Chart 5.7
Liabilities structure of retail banks



Notes:

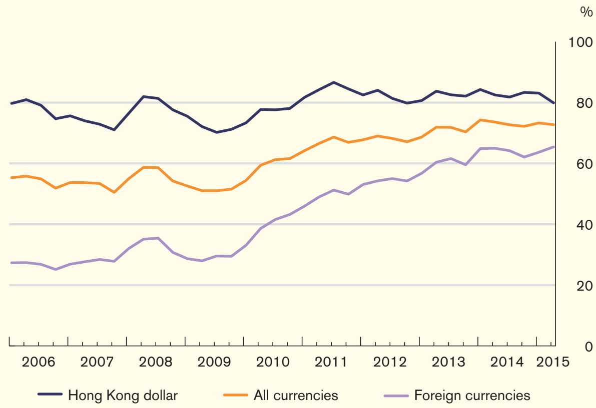
1. Figures may not add up to total due to rounding.
2. Figures refer to the percentage of total liabilities (including capital and reserves).
3. Debt securities comprise negotiable certificates of deposit and all other negotiable debt instruments.

Source: HKMA.

On a half-year basis, the Hong Kong dollar loan-to-deposit (LTD) ratio for all AIs decreased by 3.4 percentage points to 79.9% at the end of June (Chart 5.8), due to a relatively stronger rise in Hong Kong dollar deposits which outpaced the moderate growth in Hong Kong dollar loans. In contrast, the foreign currency LTD ratio of all AIs increased notably to 65.4% at the end of June 2015, compared with 62.1% at the end of 2014. On the whole, the all-currency LTD ratio for all AIs increased slightly by 0.5 percentage point to 72.7% at the end of June.

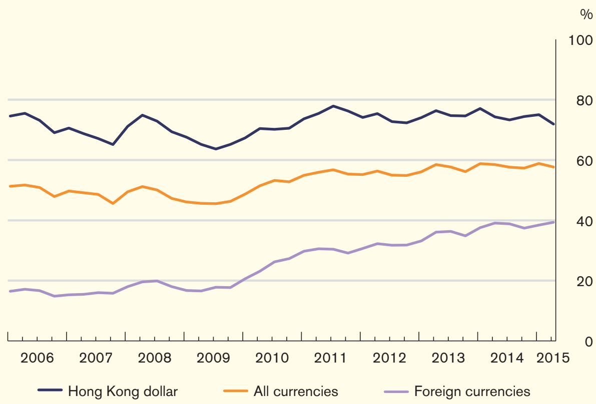
Retail banks' LTD ratios also exhibited similar development (Chart 5.9). The Hong Kong dollar LTD ratio declined tangibly by 2.5 percentage points to 71.9% at the end of June, while the foreign currency LTD ratio rose slightly by 1.9 percentage points to 39.3%. On the whole, the all-currency LTD ratio for retail banks stayed steady at 57.6%.

Chart 5.8
Average loan-to-deposit ratios of all AIs



Source: HKMA.

Chart 5.9
Average loan-to-deposit ratios of retail banks

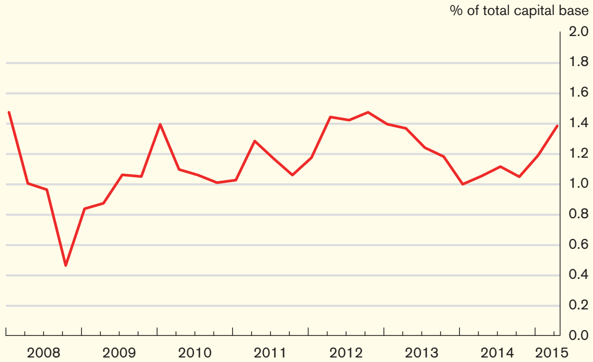


Source: HKMA.

Interest rate risk

Interest rate risk exposure of retail banks remained manageable during the review period. It is estimated that under a hypothetical shock of an across-the-board 200-basis-point increase in interest rates, the economic value of retail banks' interest rate positions could be subject to a decline equivalent to 1.38% of their total capital base as of June 2015 (Chart 5.10). Banks should remain alert to risks associated with the uncertainty of both the pace and timing of the US interest rate hikes.

Chart 5.10
Impact of interest rate shock on retail banks



Notes:

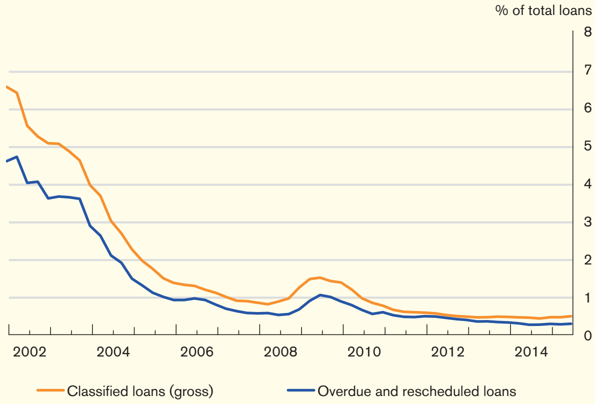
1. Interest rate shock refers to a standardised 200-basis-point parallel rate shock to institutions' interest rate risk exposures.
2. The impact of the interest rate shock refers to its impact on the economic value of banking and trading book[43], expressed as a percentage of the total capital base of banks.

Source: HKMA staff estimates.

Credit risk

There were tentative signs of deterioration in asset quality of retail banks, with the classified loan ratio increasing slightly to 0.49% at the end of June, from 0.47% at the end of 2014, while the ratio of overdue and rescheduled loans stayed at 0.29% during the period (Chart 5.11). Nevertheless, both ratios remained low by historical standard, suggesting that the asset quality of retail banks' loan portfolios remained healthy.

Chart 5.11
Asset quality of retail banks



Notes:

1. Classified loans are those loans graded as "sub-standard", "doubtful" or "loss".
2. Figures related to retail banks' Hong Kong office(s) and overseas branches.

Source: HKMA.

Credit growth continued to be moderate in the first half of 2015, although there was a surge in growth at the end of March driven by a temporary increase in IPO loans. On a half-year basis, domestic lending[44] of AIs grew by 5.0% in the first half of 2015, compared to 0.4% in the second half of 2014.[45]

According to the results of the HKMA Opinion Survey on Credit Condition Outlook of June 2015, the share of surveyed AIs expecting loan demand to remain the same in the next three months had increased to 95%, whereas there were some surveyed AIs expecting a lower loan demand (Table 5.B). Credit condition outlook had turned to be more neutral, compared to the optimism in the second half of 2014.

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[43] 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 and overseas incorporated institutions are required to report aggregate positions in the banking book and trading book.

[44] Defined as loans for use in Hong Kong plus trade-financing loans.

[45] The growth rate is different from that in the previous report due to revised figures of domestic lending in December 2014.

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

% of total respondents	Sep-14	Dec-14	Mar-15	Jun-15
Considerably higher	0	0	0	0
Somewhat higher	19	10	10	0
Same	81	90	86	95
Somewhat lower	0	0	5	5
Considerably lower	0	0	0	0
Total	100	100	100	100

Note: Figures may not add up to 100% due to rounding.
Source: HKMA.

Household exposure

Household loan[46] growth moderated to 5.0% in the first half of 2015 from 5.9% in the second half of 2014, which was in line with a lower mortgage loan growth of 4.5% from 5.2% (Table 5.C).

Growth in other loans for private purposes (i.e. personal loans) accelerated to 10.5% in the first half of 2015, compared to 6.9% in the second half of 2014. Banks are reminded to stay prudent on personal lending business.

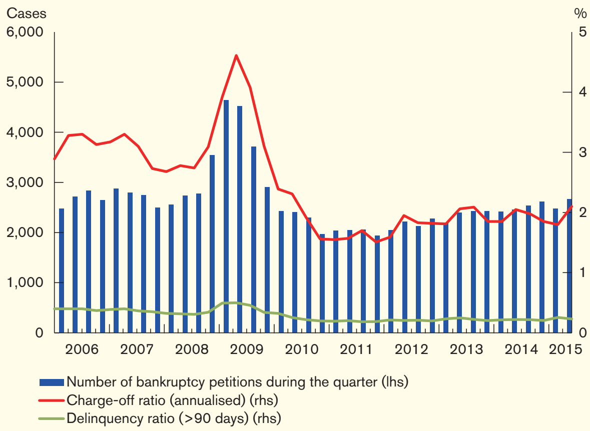
Table 5.C
Half-yearly growth of loans to households of all AIs

	2012		2013		2014		2015
(%)	H1	H2	H1	H2	H1	H2	H1
Mortgages	2.5	5.0	3.1	0.8	3.1	5.2	4.5
Credit cards	-1.6	15.3	-4.0	10.2	-4.1	10.4	-5.5
Other loans for private purposes	5.0	9.3	10.6	10.5	13.9	6.9	10.5
Total loans to households	2.6	6.5	3.8	3.3	4.6	5.9	5.0

Source: HKMA.

The credit risk of unsecured household exposure remained contained in the first half of 2015, with the annualised credit card charge-off ratio and the number of bankruptcy petitions staying relatively low (Chart 5.12). The delinquency ratio of credit card lending first increased by 6 basis points in the first quarter of 2015, before edging down by 3 basis points to 0.23% in the second quarter. Although the ratio increased in the first half of 2015, the level remained low by historical standard.

Chart 5.12
Charge-off ratio and delinquency ratio for credit card lending and bankruptcy petitions



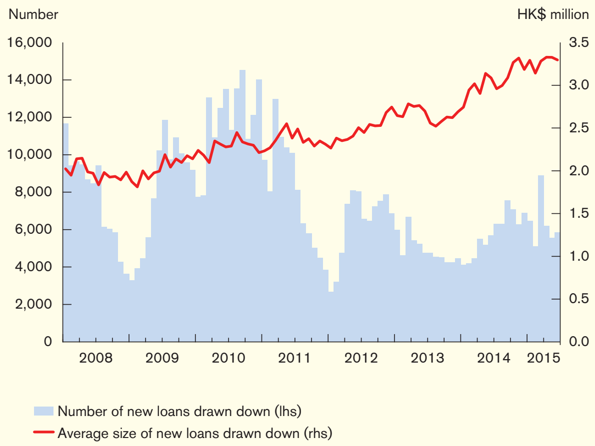
Sources: Official Receiver's Office and the HKMA.

Banks' mortgage portfolios remained healthy with the delinquency ratio hovering at 0.03%. However, the credit risk of mortgage lending business could increase drastically should the property market cycle turn or interest rates increase. To strengthen banks' risk management in relation to their mortgage lending business, the HKMA implemented another round of macro-prudential measures on banks' mortgage lending[47].

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 June 2015, the share of household lending in domestic lending was 29.0%.

47 On 27 February 2015, the HKMA introduced a new round of prudential supervisory measures on property mortgage business, which included lowering the maximum loan-to-value ratio and debt-servicing ratio, to strengthen banks' risk management and resilience. Meanwhile, the HKMA also required AIs using the internal ratings-based approach to extend, by end-June 2016, the risk-weight floor of 15% to residential mortgage loans approved before February 2013. For details, see HKMA press release "Prudential Supervisory Measures for Mortgage Lending" issued on the same date.

Chart 5.13
New mortgage loans of surveyed AIs

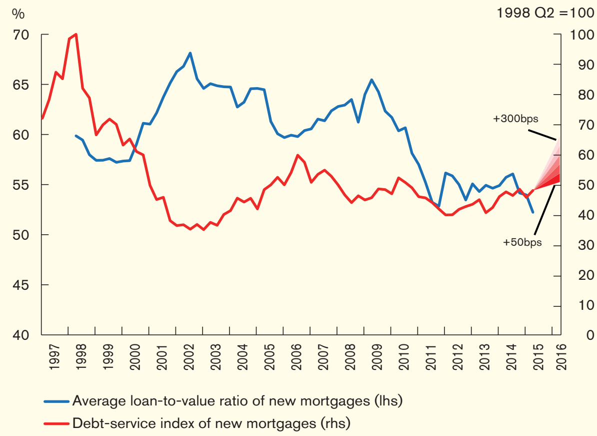


Source: HKMA Residential Mortgage Survey.

Largely reflecting the effect of the latest round of macro-prudential measures introduced in late-February, both the amount and the number of new mortgage loans drawn down shrank in the second quarter of 2015 (Chart 5.13).

The average loan-to-value ratio of new mortgage loans approved also declined to 52.2% in the second quarter of 2015 from 54.2% in the fourth quarter of 2014, suggesting that banks' resilience to property price shocks continued to be strong (Chart 5.14). The debt-service index of new mortgages[48] was largely unchanged at 48.1 in the second quarter of 2015, compared to 48.5 in the fourth quarter of 2014, suggesting that household repayment ability remained stable. Nevertheless, a sensitivity test still suggests that the debt-service index would rise significantly to 66.2 if interest rates were to increase by 300 basis points[49] and other things being constant. Given that households' debt servicing ability could come under significant pressures should the US interest rates rise, banks should continue to be attentive to risks associated with household debt-servicing burden.

Chart 5.14
Average loan-to-value ratio and household debt-servicing burden in respect of new mortgages



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

While macro-prudential policies (MPPs) have been increasingly adopted by policymakers globally to contain systemic risks after the global financial crisis, their implementations may come with unintended international spillover effects. Findings from Box 4 show that the Hong Kong banking sector is not immune to the spillover effect from home countries of foreign banks in Hong Kong. Our study further shows that both the pattern and the extent of the spillover effect of MPPs are crucially dependent on banks' balance sheet characteristics and types of MPP instruments being adopted. These findings suggest that policymakers may face significant challenges in achieving a coordinated implementation of MPPs across different jurisdictions.

48 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.

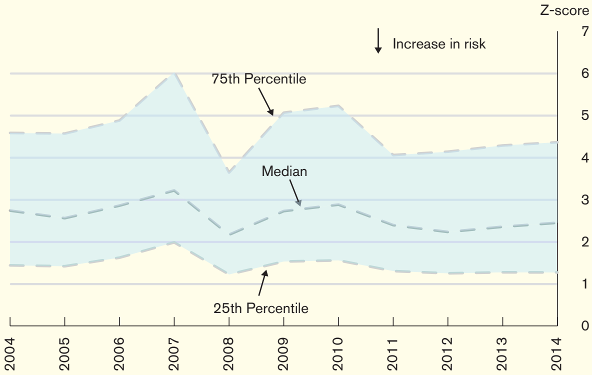
49 The assumption of a 300-basis-point rise in interest rates is consistent with the prudential measure that requires AIs to have a 3-percentage-point mortgage rate upward adjustment for stress testing property mortgage loan applicants' debt servicing ability.

Corporate exposure[50]

Domestic loans to corporations grew by 5.0% in the first half of 2015, after declining by 1.7% in the second half of 2014. Loans to manufacturing and the wholesale and retail sectors saw noticeable moderation in growth, partly due to weakening domestic economic activities. At the end of June, corporate loans accounted for 70.8% of domestic lending.

The Altman's Z-score (Chart 5.15), a typical credit risk measure based on accounting data, stayed largely unchanged at healthy levels up to the end of 2014. Owing to the time lag of availability of accounting data, how the recent financial market turmoil would affect the corporate sector's fundamentals and default risk cannot be fully assessed. However, past episodes may shed light on this question. In particular, the Z-score dropped significantly right after the onset of the global financial crisis in 2007–08 and that of the euro-zone crisis in 2010–11 due mainly to deterioration in corporates' earnings and net worth. Drawing on this evidence, the corporate sector's default risk and thus financing cost could be adversely affected should the financial market turmoil persist or intensify.

Chart 5.15
Altman's Z-score: A bankruptcy risk indicator of listed non-financial companies



Notes:
1. A lower Z-score indicates a higher likelihood of a company default.
2. Figures are calculated based on information up to end-August 2015.

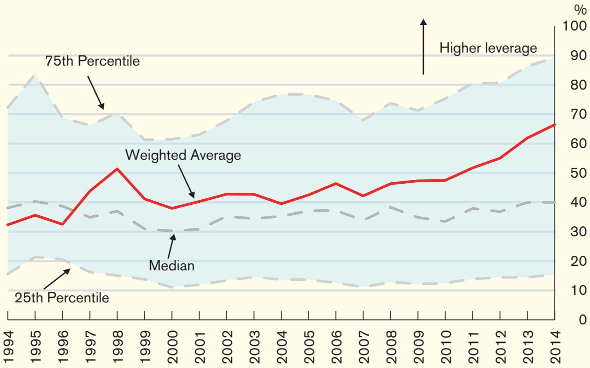
Source: HKMA staff estimates based on data from Bloomberg.

The possible rise in corporates' financing cost amid financial market instability together with the expected normalisation of the US interest rates would put the credit quality of corporate loans to the test in view of the rising trend of the corporate sector's leverage and debt-servicing burden after the global financial crisis. The leverage of the corporate sector as measured by weighted average debt-to-equity ratio has trended upward in recent years, with the ratio rising to 66.4% in 2014 (Chart 5.16). The rise in debt-service ratio, as measured by total interest expenses divided by earnings before interest and taxes (EBIT), suggests a general deterioration of local corporations' debt-servicing ability (Chart 5.17).

Meanwhile, given the prolonged period of low interest rate environment in major advanced economies, corporations may be encouraged to take on excessive foreign exchange exposure due to attractive borrowing rates without regard to the possible impact on the currency mismatch between their funding and earnings. Such currency mismatch could translate into significant losses and thus increase their default risk if exchange rates move unfavourably. Banks should remain vigilant to corporate currency mismatch risk.

[50] Excluding interbank exposure.

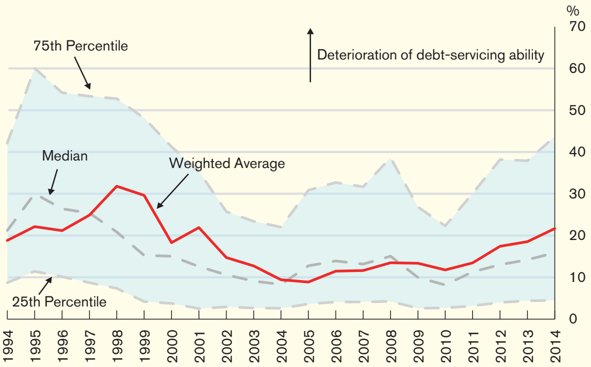
Chart 5.16
Leverage ratio of listed non-financial companies in Hong Kong



Notes:
1. The leverage ratio is defined as the ratio of debt to equity. A higher value indicates higher leverage.
2. All non-financial corporations listed on the Hong Kong Stock Exchange are selected.
3. Figures are calculated based on information up to end-August 2015.

Source: HKMA staff estimates based on data from Bloomberg.

Chart 5.17
Debt-service ratio of listed non-financial companies in Hong Kong



Notes:
1. Debt-service ratio is calculated by the total interest expenses divided by the earnings before interest and tax (EBIT). Companies with negative EBIT are excluded from the calculation.
2. All non-financial corporations listed on the Hong Kong Stock Exchange are selected.
3. Figures are calculated based on information up to end-August 2015.

Source: HKMA staff estimates based on data from Bloomberg.

Mainland-related lending and non-bank exposures

The banking sector continued to expand its business in Mainland China during the review period. Total Mainland-related lending increased by 8.1% to HK$3,486 billion (15.9% of total assets) at the end of the second quarter of 2015 from HK$3,224 billion (15.4% of total assets) at the end of 2014 (Table 5.D). During the review period, other non-bank exposures increased by 4.9% to HK$1,083 billion (Table 5.E).

Table 5.D
Mainland-related lending

HK$ bn	Sep 2014	Dec 2014	Mar 2015	Jun 2015
Mainland-related loans	3,062	3,224	3,439	3,486
Mainland-related loans excluding trade finance	2,641	2,869	3,053	3,114
Trade finance	421	355	386	373
By type of AIs:				
Overseas-incorporated AIs	1,315	1,388	1,468	1,476
Locally-incorporated AIs*	1,206	1,294	1,420	1,453
Mainland banking subsidiaries of locally-incorporated AIs	541	542	551	557
By type of borrowers:				
Mainland state-owned entities	1,430	1,480	1,576	1,548
Mainland private entities	563	585	653	653
Non-Mainland entities	1,068	1,160	1,209	1,285

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

Source: HKMA.

Table 5.E
Other non-bank exposures

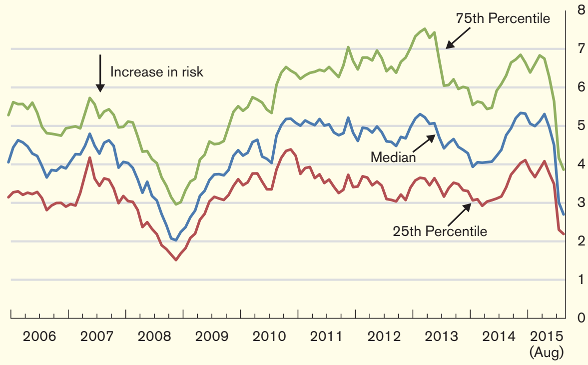
HK$ bn	Sep 2014	Dec 2014	Mar 2015	Jun 2015
Negotiable debt instruments and other on-balance sheet exposures	598	637	621	670
Off-balance sheet exposures	436	396	369	413
Total	**1,035**	**1,032**	**990**	**1,083**

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

The rising share of banks' Mainland-related lending continues to be a key risk factor to watch for. In particular, the recent sharp fall of prices in the Mainland stock markets may spark concerns over the credit risk of Mainland-related exposure. A market-based default risk indicator (i.e. distance-to-default index)[51] points to a broad-based increase in credit risk of the Mainland corporate sector since June 2015 (Chart 5.18). The deterioration in default risk for the Mainland corporate sector was largely driven by heightened market volatility along with an increasing trend of corporate leverage (Chart 5.19). However, the level of credit risk remained lower than that during the global financial crisis, suggesting that the likelihood of a large-scale default in the Mainland corporate sector should not be significant in near term.

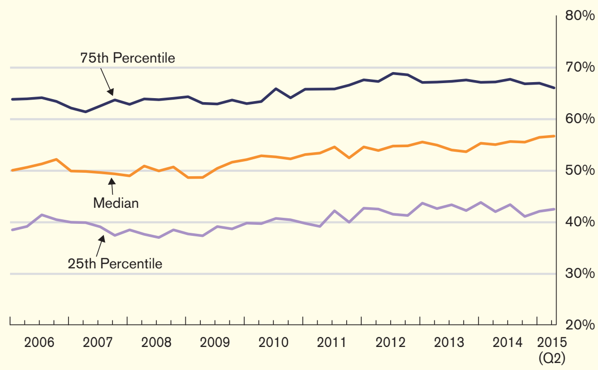
Nevertheless, in view of concerns over a possible further slowdown of the Mainland economy and its relatively high level of credit-to-GDP ratio (Chart 5.20), banks should be attentive to the credit risk management of their Mainland-related exposure.

Chart 5.18
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.

Chart 5.19
Leverage ratio for the Mainland corporate sector

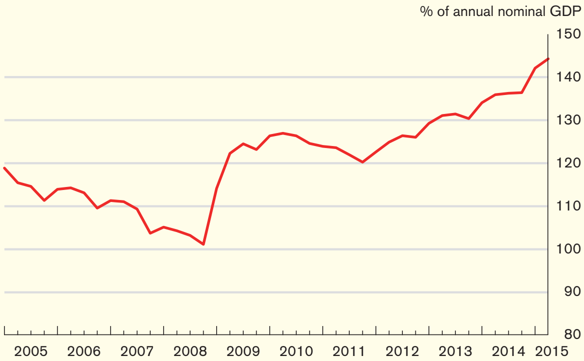


Notes:
1. The leverage ratio is defined as the ratio of total liabilities to total assets.
2. It is calculated based on the non-financial constituent companies (i.e. excluding investment companies and those engaged in banking, insurance and finance) of the Shanghai Stock Exchange 180 A-share index.

Source: HKMA staff estimates based on data from Bloomberg.

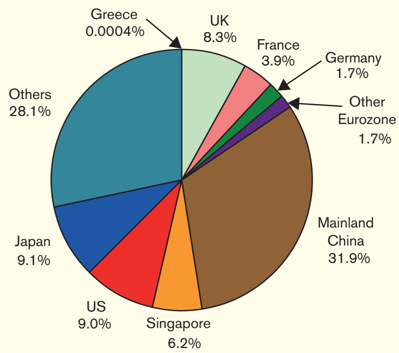
51 The distance-to-default is a market-based default risk indicator based on the framework by R. Merton (1974), "On the pricing of corporate debt: the risk structure of interest rates", *Journal of Finance*, Vol. 29, pages 449–470, in which equity prices, equity volatility, and companies' financial liabilities 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.

Chart 5.20
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 5.21
External claims of the Hong Kong banking sector on selected economies (all sectors) at the end of June 2015



Note: Figures may not add up to 100% due to rounding.
Source: HKMA.

The impact of possible contagion from Greece

The "Grexit" issue has threatened the financial stability in the euro area and sparked concerns about the potential spillover effect to the global banking sector. Such risk to the Hong Kong banking sector should be small given the small direct exposure to Greece (Chart 5.21). However, given that the exposure of the Hong Kong banking sector to some European banking sectors (e.g. UK, France and Germany) is significant, and the interconnectedness of these European banking sectors to Greece, banks in Hong Kong should continue to be pay close attention to the possible indirect contagion risk.

Macro stress testing of credit risk[52]

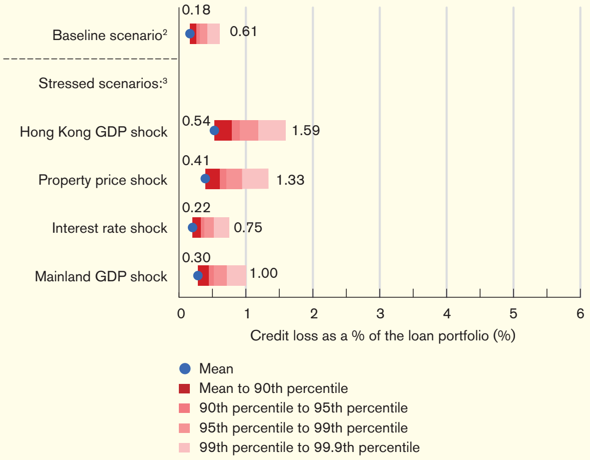
Results of the latest macro stress testing on retail banks' credit exposure suggest that the Hong Kong banking sector remains resilient and should be able to withstand rather severe macroeconomic shocks, similar to those experienced during the Asian financial crisis. Chart 5.22 presents the simulated future credit loss rate of retail banks in the second quarter of 2017 under four specific macroeconomic shocks[53] using information up to the second quarter of 2015.

Taking account of tail risk, banks' credit losses (at the confidence level of 99.9%) under the stress scenarios range from 0.75% (Interest rate shock) to 1.59% (Hong Kong GDP shock), which are significant, but smaller than the estimated loan loss of 4.39% following the Asian financial crisis.

52 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.

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

Chart 5.22
The mean and value-at-risk statistics of simulated credit loss distributions[1]



Notes:

1. The assessments assume the economic conditions in 2015 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 2015 Q3 to 2016 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 2015 Q3 to 2016 Q2.

   Interest rate shock: A rise in real interest rates (HIBORs) by 300 basis points in the first quarter (i.e. 2015 Q3), followed by no change in the second and third quarters and another rise of 300 basis points in the fourth quarter (i.e. 2016 Q2).

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

Source: HKMA staff estimates.

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 2015 that the CCyB for Hong Kong will be 0.625% with effect from 1 January 2016.[54] Under the phase-in arrangement for the CCyB, the maximum CCyB under Basel III will begin at 0.625% of banks' risk-weighted assets on 1 January 2016.[55]

In setting the CCyB rate, the Monetary Authority considered a series of indicators (Table 5.F), 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[56]). Based on the latest information up to the decision date at the end of second quarter, the credit-to-GDP gap narrowed to 20.8% from 32.8% in January 2015 while the property price-to-rent gap widened slightly to 16.0% from 14.2%. Both gaps remained at elevated levels and a simple mapping from the indicative buffer guide would signal a CCyB of 2.5%, remaining unchanged at the upper end of the Basel III range.

In addition, the information drawn from other reference indicators[57] was, in the view of the Monetary Authority, consistent with the signal from the indicative buffer guide.

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

	27-Jan-15	Q1-2015	Q2-2015
Announced CCyB rate	0.625%		
Date effective	01/01/2016		
Indicative buffer guide	2.5%	2.5%	2.5%
Basel Common Reference Guide	2.5%	2.5%	2.5%
Property Buffer Guide	2.5%	2.5%	2.5%
Composite CCyB Guide	2.5%	2.5%	2.5%
Indicative CCyB Ceiling	None	None	None
Primary gap indicators			
Credit/GDP gap	32.8%	26.1%	20.8%*
Property price/rent gap	14.2%	14.8%	16.0%
Primary stress indicators			
3-month HIBOR spread (percentage points)	0.17%	0.18%	0.18%
Quarterly change in classified loan ratio (percentage points)	-0.01%	0.02%	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 decision, 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. *This gap was calculated based on end-Q1 credit data excluding from the credit measure IPO loans of HK$201 billion at end-March 2015. If such loans are included, the Credit/GDP gap increases to 28.9%. See press release at: http://www.hkma.gov.hk/eng/key-information/press-releases/2015/20150430-5.shtml

Source: HKMA.

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

54 Further details of the decision may be found in the "Announcement of the CCyB to authorized institutions" released on 27 January 2015 which is available on the HKMA website.

55 Under the phase-in arrangement, the maximum CCyB rate would be capped at 0.625% on January 2016, with the cap rising by 0.625 percentage points each subsequent year until it reaches 2.5% on 1 January 2019.

56 The gap between the ratio of credit to GDP and its long term trend, and between the ratio of residential property prices to rentals and its long-term trend.

57 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.G
Key performance indicators of the banking sector[1] (%)

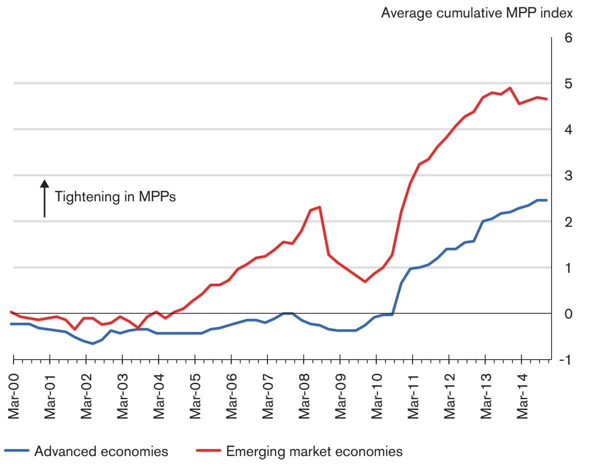
	Jun 2014	Mar 2015	Jun 2015
Interest rate			
1-month HIBOR fixing[2] (quarterly average)	0.21	0.24	0.24
3-month HIBOR fixing (quarterly average)	0.37	0.39	0.39
BLR[3] and 1-month HIBOR fixing spread (quarterly average)	4.79	4.76	4.76
BLR and 3-month HIBOR fixing spread (quarterly average)	4.63	4.61	4.61
Composite interest rate[4]	0.47	0.33	0.29
		Retail banks	
Balance sheet developments[5]			
Total deposits	5.3	3.1	1.7
Hong Kong dollar	7.9	6.7	2.5
Foreign currency	2.4	-1.1	0.6
Total loans	4.8	5.9	-0.5
Domestic lending[6]	4.9	6.2	-1.8
Loans for use outside Hong Kong[7]	4.4	4.5	5.5
Negotiable instruments			
Negotiable certificates of deposit (NCD) issued	-3.3	9.6	-15.0
Negotiable debt instruments held (excluding NCD)	5.3	4.7	6.2
Asset quality[8]			
As a percentage of total loans			
Pass loans	98.50	98.39	98.25
Special mention loans	1.05	1.14	1.25
Classified loans[9] (gross)	0.46	0.46	0.49
Classified loans (net)[10]	0.33	0.32	0.35
Overdue > 3 months and rescheduled loans	0.27	0.28	0.29
Profitability			
Bad debt charge as percentage of average total assets[11]	0.05	0.06	0.07
Net interest margin[11]	1.40	1.33	1.32
Cost-to-income ratio[12]	42.7	43.7	43.6
		All AIs	
Liquidity ratios (quarterly average, consolidated)[13]			
Liquidity Coverage Ratio — Category 1 institutions	n.a.	129.9	131.7
Liquidity Maintenance Ratio — Category 2 institutions	n.a.	50.8	53.4
		Surveyed institutions	
Asset quality			
Delinquency ratio of residential mortgage loans	0.02	0.03	0.03
Credit card lending			
Delinquency ratio	0.22	0.26	0.23
Charge-off ratio — quarterly annualised	2.05	1.80	2.10
— year-to-date annualised	1.90	1.80	1.91
		All locally incorporated AIs	
Capital adequacy (consolidated)			
Common Equity Tier 1 capital ratio	13.2	13.3	13.7
Tier 1 capital ratio	13.3	13.9	14.4
Total capital ratio	16.1	17.0	17.5

Notes:
1. Figures are related to Hong Kong office(s) only except where otherwise stated.
2. The Hong Kong Dollar Interest Settlement 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 office(s) and overseas branches.
9. Classified loans are those loans graded as "substandard", "doubtful" or "loss".
10. Net of specific provisions/individual impairment allowances.
11. Year-to-date annualised.
12. Year-to-date figures.
13. A new data series was introduced for liquidity ratios which are defined in accordance with the Basel III framework starting from January 2015. For a category 1 institution, the minimum requirement for Liquidity Coverage Ratio 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 a Liquidity Maintenance Ratio of not less than 25% on average in each calendar month.

Box 4
Inward spillover effect of macro-prudential policies – evidence from foreign banks in Hong Kong

Although macro-prudential policies (MPPs) have been increasingly adopted globally to address systemic risks (Chart B4.1) after the global financial crisis, there remains an ongoing debate on how this tool can be effectively implemented. One key issue is the international spillover effect of MPPs, which not only potentially undermines the effectiveness of MPPs implemented in one country, but could also adversely affect financial stability for other countries, particularly when their economic and financial cycles are not synchronised. To broaden our understanding of this policy issue, this box empirically examines the inward spillover effect of MPPs from home countries of foreign banks to the Hong Kong banking sector.

Chart B4.1
Average cumulative MPP index of advanced and emerging market economies



Note: The index reflects the average cumulative number of MPP actions by assigning a positive value for tightening and a negative value for loosening. Policy instruments include general capital requirement, sector-specific capital requirement, countercyclical capital buffer, limit on interbank exposure, concentration limit ratio, caps on loan-to-value ratios and reserves requirements.

Source: HKMA staff estimates based on data contributed by the International Banking Research Network.

Potential inward spillover effect of MPPs

The strong presence of foreign banks in Hong Kong provides a natural experiment setting to study the issue of inward spillover effect of MPPs from a host country's perspective.[58] Since these foreign banks are subject to MPPs imposed in their home countries, by studying how their cross-sectional differences in lending in Hong Kong are associated with changes in MPPs in their respective home countries, we can identify the inward spillover effect of MPPs empirically. The large number of foreign banks in Hong Kong is conducive to a reliable statistical result.

This study focuses on two hypotheses. First, we posit that there is a significant inward spillover of MPPs from foreign banks to a host country, but the pattern of inward spillover differs among MPP instruments. This hypothesis is consistent with the fact that the wide range of MPP instruments are implemented with very different scopes of application and policy objectives. So, even for the same MPP stance, banks may respond differently to MPP actions, depending on whether the instruments being adopted are applied at the consolidated level (e.g. the countercyclical capital buffer) or in a geographically confined area (e.g. loan-to-value caps) and whether the instruments target to a specific sector (e.g. capital charge for property-related loans).

The second hypothesis is that banks' balance sheet characteristics matter for the extent of MPP spillover. We set up this hypothesis by drawing on recent findings from international banking research that balance sheet characteristics of global banks play a pivotal role in determining

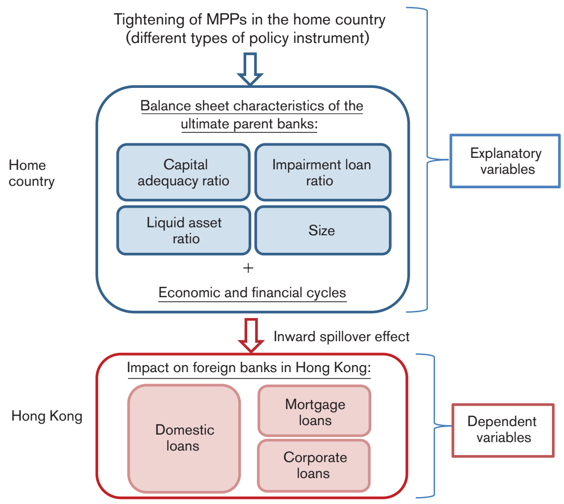
[58] At the end of 2014, there were 152 foreign banks operating in Hong Kong, including 45 of top 50 global banking organisations (by consolidated assets).

the international transmission of financial shocks.[59]

The empirical model and estimation results

To test these two hypotheses, we adopt the baseline regression model as proposed by Buch and Goldberg (2014).[60] In our context, the model is specified to explain changes in loans of foreign banks in Hong Kong by an MPP index that reflects MPP actions taken in their respective home countries. The model also includes a vector of explanatory variables that interact the MPP index with parent banks' balance sheet characteristics[61] and home country's economic and financial cycles to identify how these variables affect the spillover effect of MPPs (Chart B4.2 details the model specification).

Chart B4.2
Structure of the empirical model



Regarding the type of MPPs, three commonly adopted instruments are considered. We consider both overall and sector-specific capital requirements (denoted by *CapitalReq* and *SSCB* respectively), with the latter generally targeting property-related loans. These two measures are generally applied on a consolidated basis at the parent-bank level. Our analysis also includes loan-to-value ratio caps (*LTVcap*) for mortgage loans, which is conventionally applied in a geographically confined area, mostly in the home country.

The model is estimated using a quarterly panel dataset of 81 foreign banks in Hong Kong covering from 2000Q1 to 2013Q4.[62] The dependent variables (i.e. loans of foreign banks in Hong Kong) are constructed using regulatory data filed by the foreign banks to the HKMA, while parent-level variables are constructed using consolidated balance sheet data of their respective parents from *Bankscope*. Data of the economic and financial cycles are obtained from the BIS. The MPP indexes[63] are constructed by using a refined database from the result of the IMF's worldwide survey for macro-prudential instruments.[64]

59 Buch, C.M. and L.S. Goldberg (2014), "International banking and liquidity risk transmission: Lessons from across countries", National Bureau of Economic Research, Working Papers, N. 20286.

60 Buch, C.M. and L.S. Goldberg (2014), "Cross-border regulatory spillovers: How much? How important? Evidence from the International Banking Research Network", International Banking Research Network, Draft.

61 The balance sheet characteristics include: (1) the regulatory capital adequacy ratio, (2) ratio of impairment loans to gross loans, (3) ratio of liquid assets to total assets; and (4) log of real total assets.

62 Total assets of the estimation samples account for about 77% of the total assets of foreign banks in Hong Kong at the end of 2014.

63 All MPP indexes are defined in the following fashion: an index takes a value of 1 in quarter t if the home country tightens the measure in t; -1 if the home country loosens the measure; and 0 otherwise.

64 The MPP dataset primarily comes from the IMF Global Macroprudential Policy Instruments survey, with further verification of the data accuracy by members of the International Banking Research Network.

Table B4.A
Estimated impact of MPPs on lending of foreign banks in Hong Kong

	Overall capital requirement	Sector specific capital requirement	Loan-to-value ratio cap
Consolidated level?	Yes	Yes	No
Sector-specific?	No	Yes	Yes
Panel A	Estimated marginal effect of MPPs on lending of an average foreign bank in HK		
Loans in HK	↓	↑	↑*
Mortgage loans	↑**	↓**	↑***
Corporate loans	↓	↑	↑**
Panel B	Balance sheet characteristics that are estimated to affect the spillover effect of MPPs significantly		
Higher impairment loan ratio	Loans in HK↓↓	Mortgage loans↓↓	
Higer capital adequacy ratio			Loans in HK↑↑

Notes:
1. Panel A displays the estimated directional change in loans of an average foreign bank in HK by different type of instruments. ***, ** and * respectively indicate statistical significance at the 1%, 5% and 10% level.
2. Panel B displays the estimation result on which balance sheet characteristics are found to affect the extent of the spillover effect of MPPs statistically.

Source: HKMA staff estimates.

Our preliminary estimation result, which broadly supports our hypotheses, is summarised as follows (see also Table B4.A):

(1) Our empirical findings point to a significant inward spillover (Panel A of Table B4.A). However, the pattern of inward spillover is found to differ among the MPP instruments for a typical foreign bank in Hong Kong (henceforth referred to as "the average foreign bank").[65] Specifically,

(a) For *CapitalReq*, the average foreign bank is estimated to reduce its lending in Hong Kong in response to a more stringent capital requirement in the home country (though the estimation result is not statistically significant).

The estimated directional change in loans in Hong Kong suggests that the inward spillover effect tends to be consistent with the MPP stance in the home country. However, mortgage lending in Hong Kong is estimated to increase. This suggests that the affected banks may partially offset the impact of overall capital requirement by reallocating loan portfolio towards less capital-intensive or less risky exposure, such as mortgage loans in Hong Kong.

(b) For *SSCB*, the average foreign bank is estimated to reduce its mortgage loans in Hong Kong while at the same time increase its corporate loans. The net impact on lending in Hong Kong of the average foreign bank is therefore uncertain. The finding suggests that affected banks may have strong incentives to rebalance its loan portfolios by increasing those exposures that are not subject to the more stringent MPP measure.

(c) Regarding the impact of *LTVcap*, it is estimated that the average foreign bank would react to the tightening measure by increasing its lending in Hong Kong generally, particularly for mortgages. This finding suggests that affected banks would maintain their portfolio mix by increasing mortgage loans in overseas markets when a more stringent MPP requirement is imposed on mortgage loans in the home market.

[65] For each MPP instrument considered, an average foreign bank is constructed by taking the mean value for banks' balance sheet characteristics and economic and financial cycles for those samples that their home countries have triggered the particular MPP instrument during the estimation period.

(2) The estimation result also supports the second hypothesis (Panel B of Table B4.A). Specifically, banks with higher impairment loan ratios are found to reduce their lending in Hong Kong and mortgage loans more than the average foreign bank in response to the tightening of *CapitalReq* and *SSCB* respectively, probably reflecting that banks with an impaired balance sheet may be more subject to capital constraints, and therefore, more sensitive to the MPP tightening. Meanwhile, banks with higher capital adequacy ratios are found to increase their lending in Hong Kong by a larger extent in response to the tightening of *LTVcap*, which may probably reflect that better capitalised banks are relatively more capable of expanding other loan portfolios.

Conclusion

Our empirical findings show that both the pattern and the extent of the international spillover effect of MPPs are crucially dependent on various factors, including banks' balance sheet characteristics and types of MPP instruments being adopted. These findings have important implications for the issue of international coordination of MPPs. Specifically, the different patterns of inward spillover effects among MPP instruments and the potential heterogeneous banks' responses to MPPs due to different balance sheet characteristics may pose significant challenges for policymakers in achieving a coordinated implementation of MPPs globally.

Glossary of terms

Aggregate Balance
The sum of balances in the clearing accounts and reserve accounts maintained by commercial banks with the central bank. In Hong Kong, this refers to the sum of the balances in the clearing accounts maintained by the banks with the HKMA for settling interbank payments and payments between banks and the HKMA. The Aggregate Balance represents the level of interbank liquidity, and is a part of the Monetary Base.

Authorized Institution (AI)
An institution authorized under the Banking Ordinance to carry on the business of taking deposits. Hong Kong maintains a Three-tier Banking System, which comprises licensed banks, restricted licence banks and deposit-taking companies.

Best Lending Rate
A benchmark interest rate that banks use to price loans. In Hong Kong, the Best Lending Rate is used as a base for quoting interest rates on mortgage loans.

Certificates of Indebtedness (CIs)
Certificates issued by the Financial Secretary under the Exchange Fund Ordinance, to be held by note-issuing banks as cover for the banknotes they issue.

Composite Consumer Price Index (CCPI)
The headline consumer price index (CPI) for Hong Kong. The Census and Statistics Department compiles three separate CPI series relating to households in different expenditure ranges. The CPI(A) relates to about 50% of households in the relatively low expenditure range; the CPI(B) relates to the next 30% of households in the medium expenditure range; and the CPI(C) relates to the next 10% of households in the relatively high expenditure range. The Composite CPI is compiled based on the aggregate expenditure pattern of all of the above households taken together.

Composite Interest Rate
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. Data from retail banks, which account for about 90% of the total customers' deposits in the banking sector, are used in the calculation. It should be noted that the composite interest rate represents only average interest expenses. There are various other costs involved in the making of a loan, such as operating costs (e.g. staff and rental expenses), credit cost and hedging cost, which are not covered by the composite interest rate.

Convertibility Undertaking (CU)
An undertaking by a central bank or currency board to convert domestic currency into foreign currency and vice versa at a fixed exchange rate. In Hong Kong, the HKMA operates Convertibility Undertakings on both the strong side and the weak side. Under the strong-side Convertibility Undertaking, the HKMA undertakes

to buy US dollars from licensed banks at 7.75. Under the weak-side Convertibility Undertaking, the HKMA undertakes to sell US dollars at 7.85. Within the Convertibility Zone between 7.75 and 7.85, the HKMA may choose to conduct market operations consistent with Currency Board principles with the aim of promoting the smooth functioning of the money and foreign exchange markets.

Convertibility Zone

The Hong Kong dollar-US dollar exchange rate band, defined by the levels of the strong- and weak-side Convertibility Undertakings, within which the HKMA may choose to conduct market operations consistent with Currency Board principles.

Exchange Fund Bills and Notes (EFBN)

Debt instruments issued by the HKMA for the account of the Exchange Fund. These instruments are fully backed by the foreign reserves. The HKMA has undertaken that new Exchange Fund paper will only be issued when there is an inflow of funds, thus enabling the additional paper to be fully backed by the foreign reserves. Since 1 April 1999, interest payments on Exchange Fund paper have been allowed to expand the Monetary Base. Additional Exchange Fund paper is issued to absorb such interest payments. This is consistent with the Currency Board discipline since interest payments on Exchange Fund paper are backed by interest income on the US dollar assets backing the Monetary Base.

Monetary Base

A part of the monetary liabilities of a central bank. The monetary base is defined, at the minimum, as the sum of the currency in circulation (banknotes and coins) and the balance of the banking system held with the central bank (the reserve balance or the clearing balance). In Hong Kong, the Monetary Base comprises Certificates of Indebtedness (for backing the banknotes issued by the note-issuing banks), government-issued currency in circulation, the balance of the clearing accounts of banks kept with the HKMA, and Exchange Fund Bills and Notes.

Nominal and Real Effective Exchange Rate (NEER and REER)

An indicator of the overall exchange rate value of the Hong Kong dollar against a basket of currencies of Hong Kong's principal trading partners. The nominal effective exchange rate (NEER) is a weighted average of the exchange rates between Hong Kong and its principal trading partners. The real effective exchange rate (REER) is obtained by adjusting the NEER for relative movements in the seasonally adjusted consumer price indices of those selected trading partners.

Abbreviations

3m moving average	Three-month moving average
3m-on-3m	Three-month-on-three-month
ASEAN	Association of Southeast Asian Nations
AIs	Authorized Institutions
BIS	Bank for International Settlements
bn	Billion
BLR	Best lending rate
BoJ	Bank of Japan
BoP	Balance of Payments
BSD	Buyer's stamp duty
CAR	Capital Adequacy Ratio
CBRC	China Banking Regulatory Commission
CCPI	Composite Consumer Price Index
CCyB	Countercyclical capital buffer
CDs	Certificates of deposit
CDS	Credit default swap
CEPA	Closer Economic Partnership Arrangement
CIs	Certificates of Indebtedness
CNH	Offshore renminbi in Hong Kong
CNY	Onshore renminbi
C&SD	Census and Statistics Department
CPI	Consumer Price Index
CSRC	China Securities Regulatory Commission
CU	Convertibility Undertaking
DF	Deliverable forward
DI	Direct investment
DSD	Doubling of the ad valorem stamp duty rates
DSR	Debt servicing ratio
ECB	European Central Bank
EBIT	Earnings before interest and taxes
EFBN	Exchange Fund Bills and Notes

EMEs	Emerging Market Economies
EPIFs	External primary income flows
ETFs	Exchange traded funds
EUR	Euro
Fed	Federal Reserve
FOMC	Federal Open Market Committee
FSB	Financial Stability Board
FX	Foreign exchange
GBs	Government Bonds
GDP	Gross Domestic Product
GFC	Global Financial Crisis
G-SIBs	Global systemically important banks
HIBOR	Hong Kong Interbank Offered Rate
HK	Hong Kong
HKD	Hong Kong dollar
HKEx	The Hong Kong Exchanges and Clearing Limited
HKMA	Hong Kong Monetary Authority
HK$M3	Hong Kong dollar broad money supply
HSCAHP	Hang Seng China AH Premium Index
HSCEI	Hang Seng China Enterprises Index
HSI	Hang Seng Index
I/E	Import/Export
IMF	International Monetary Fund
IPO	Initial Public Offering
IT	Information technology
IVS	Individual Visit Scheme
LCR	Liquidity Coverage Ratio
LEI	Composite index of leading economic indicators
LERS	Linked Exchange Rate system
LIBOR	London Interbank Offered Rate
LMR	Liquidity Maintenance Ratio
lhs	Left-hand scale
IRB	Internal-Ratings Based Approach
LTD	Loan-to-deposit
LTV	Loan-to-value ratio
mn	Million

MDBs	Multilateral Development Banks
MRF	Mutual Recognition of Funds
MPP	Marco-prudential policy
MTN	Medium-term Note
NBS	National Bureau of Statistics
NCD	Negotiable certificate of deposit
NEER	Nominal effective exchange rate
NIE	Newly industrialised economies
NPL	Non-performing loan
OIS	Overnight indexed swap
OTC	Over-the-counter
p.a.	Per annum
PBoC	People's Bank of China
PI	Portfolio investment
PMI	Purchasing Managers' Index
PPI	Producer Price Index
qoq	Quarter-on-quarter
QDII	Qualified Domestic Institutional Investor
QE	Quantitative Easing
QFII	Qualified Foreign Institutional Investor
QQE	Quantitative and Qualitative Easing
R&VD	Rating and Valuation Department
REER	Real effective exchange rate
Repo	Repurchase operation
rhs	Right-hand scale
RMB	Renminbi
ROA	Return on assets
RTGS	Real time gross settlement
SHIBOR	Shanghai Interbank Offered Rate
SHKSC	Shanghai-Hong Kong Stock Connect
SME	Small and medium-sized enterprise
SOEs	State-owned enterprises
SSD	Special stamp duty
SSE	Shanghai Stock Exchange
SWIFTs	Society for Worldwide Interbank Financial Telecommunication

S&P	Sale and Purchase Agreements of Building Units
S&P 500	Standard & Poor's 500 Index
TLTRO	Targeted Longer-Term Refinancing Operation
TFP	Total factor productivity
UK	United Kingdom
US	United States
USD	US dollar
VHSI	HSI Volatility Index
VIX	Chicago Board Options Exchange Market Volatility Index
WMPs	Wealth management products
yoy	Year-on-year

Full text of this Report is available on the HKMA website at **www.hkma.gov.hk.**

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