4. Monetary and financial conditions

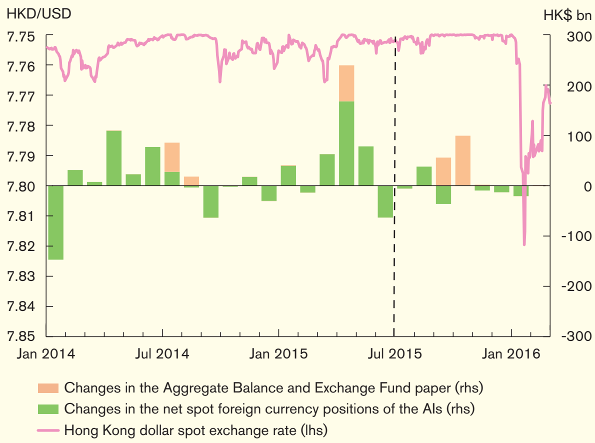
Exchange rate, capital flows and monetary developments

The Hong Kong dollar exchange rate hovered near 7.75 in the second half of 2015 with strong inflows driven by conversions of offshore renminbi into Hong Kong dollars, but it eased more recently reflecting the normal functioning of the currency board system after the US interest rate lift-off, and heightened volatility in the global and local financial markets. Going forward, the softening of the Hong Kong dollar is a natural and unavoidable step in the process of the normalisation of Hong Kong's monetary conditions. Given the likely gradual pace of US interest rate hikes and the sizable Hong Kong dollar Monetary Base, adjustments in Hong Kong dollar interest rates should not be too rapid.

4.1 Exchange rate and capital flows

In the second half of 2015, the Hong Kong dollar remained broadly stable and traded within a narrow range between 7.7500 and 7.7562 against the US dollar, despite heightened volatility in the global financial markets and the US interest rate lift-off (Chart 4.1). The Hong Kong dollar spot exchange rate strengthened to 7.75 in late August amid sizable inflows, with the strong-side Convertibility Undertaking (CU) being triggered repeatedly between 1 September and 30 October 2015. The strong inflows, totalling HK$155.7 billion, were driven by conversions of the offshore renminbi into the Hong Kong dollar and some ordinary business demands for the Hong Kong dollar (Chart 4.2). In November and December last year, the spot exchange rate hovered near 7.75 and responded calmly to the first US rate hike on December 16, while the Hong Kong dollar forward discounts widened slightly in line with a larger negative interest rate spread between the Hong Kong dollar and the US dollar (Chart 4.3).

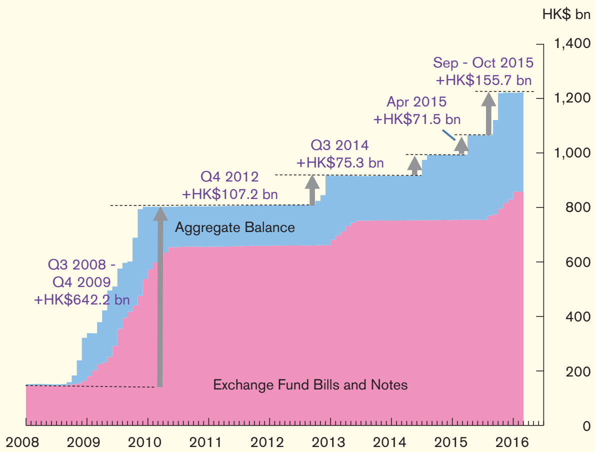
Chart 4.1
Exchange rate and fund flow indicators



Note: For fund flow indicators, a positive value indicates inflows and the change in the net spot foreign currency positions of the AIs for February 2016 is not yet available.

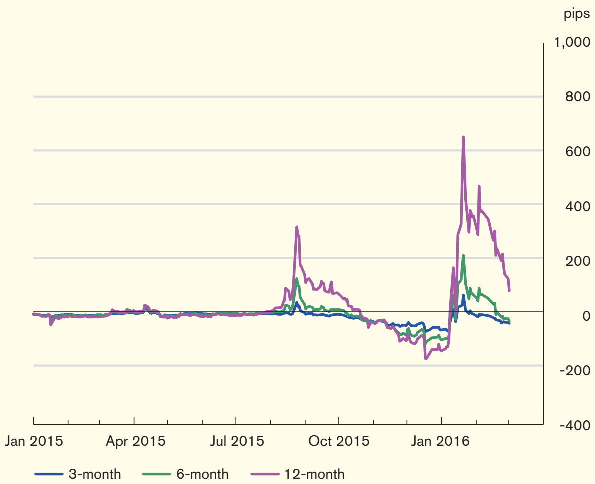
Sources: HKMA and staff estimates.

Chart 4.2
Fund flow indicators



Source: HKMA.

Chart 4.3
Hong Kong dollar forward points



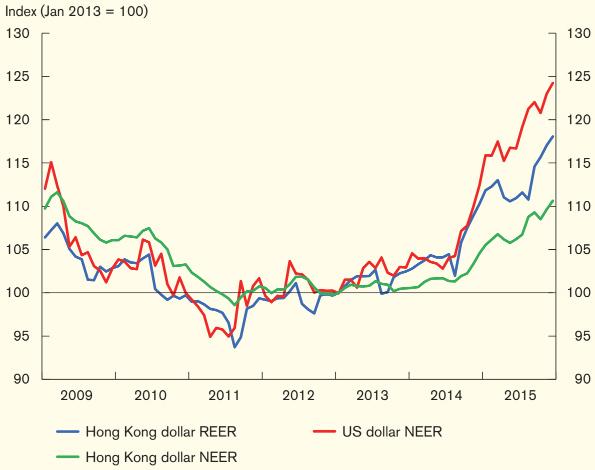
Source: HKMA.

The Hong Kong dollar started to ease notably in January 2016, reaching an intra-day low of 7.8295 against the US dollar on 20 January. The movements in the Hong Kong dollar exchange rate are in line with the workings of the Linked Exchange Rate System after the US interest rate lift-off and heightened volatility in the global and local financial markets.[15] In particular, the widened interest rate differential against the US dollar, the increased volatility of the renminbi exchange rate, general weakness in Asian currencies, the sell-off in the Mainland and Hong Kong stock markets, and the less optimistic outlook for both economies dampened demand for the Hong Kong dollar in January. There were also more investors hedging their currency and equity-related exposures, which led to an increase in supply of Hong Kong dollars in the forward market and put downward pressures on the Hong Kong dollar forward rate (Chart 4.3). In view of the tremulous financial market conditions, some market participants raised concerns about the risks of Hong Kong dollar outflows and a replay of the 1997–98 turmoil. However, it should be noted that any triggering of the weak-side CU and the resultant contraction in the Monetary Base are a natural and unavoidable step in the process of the normalisation of the Hong Kong dollar interest rates. Any attempt to sell Hong Kong dollar short and push up the Hong Kong dollar interest rates, as in 1997–98, is very difficult now under a much larger Monetary Base and the Discount Window mechanism. The Hong Kong dollar exchange rate moved within a range between 7.7668 and 7.7905 in February as the market sentiment improved.

From a broader perspective, the trade-weighted Hong Kong dollar nominal effective exchange rate index (NEER) increased by 4.2% in the second half of 2015, driven mainly by the further strengthening of the US dollar (Chart 4.4). Together with a positive but narrowing headline inflation differential between Hong Kong and its trading partners, the Hong Kong dollar real effective exchange rate index (REER) registered an increase of 6.4% in the six months to December 2015. In its 2015 Article IV Consultation with Hong Kong, the IMF Mission assesses that the Hong Kong dollar REER and external position are broadly in line with fundamentals and desirable policies.

[15] For more details, see the inSight articles on "The Hong Kong Dollar Linked Exchange Rate System" and "Get a Full Grasp of the Situation and Stay Calm" published by the HKMA on 27 January and 1 February 2016 respectively.

Chart 4.4
Nominal and real effective exchange rates



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

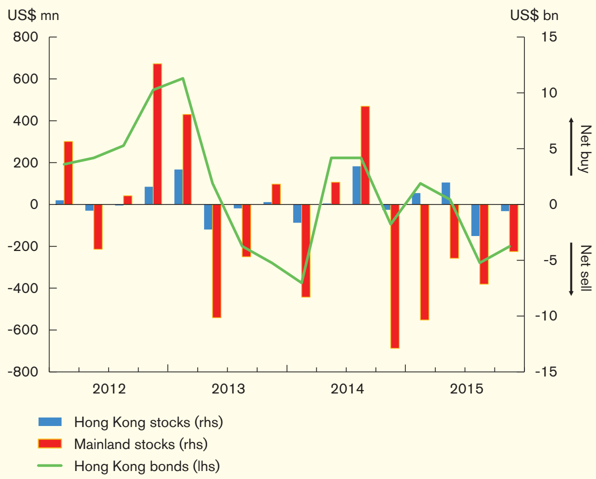
There were portfolio investment outflow pressures in the second half of 2015 and more recent periods. According to the latest Balance of Payments (BoP) statistics, net equity portfolio investment outflows occurred in the third quarter mainly because non-residents further reduced their holdings of Hong Kong equity and investment fund shares amid the plunge in the local stock market (Table 4.A).[16] On the other hand, continued debt portfolio investment outflows were primarily driven by Hong Kong banks' increased holdings of non-resident debt securities. A survey from global mutual funds also point to equity and bond-related outflows in the final quarter and more recent weeks amid heightened volatility in the global financial markets (Chart 4.5).

Table 4.A
Cross-border portfolio investment flows

(HK$ bn)	2013	2014	2015 Q1	2015 Q2	2015 Q3
By Hong Kong residents					
Equity and investment fund shares	-179.4	-318.2	-105.4	-97.5	8.9
Debt securities	-335.2	42.1	-81.0	-109.3	-122.0
By non-residents					
Equity and investment fund shares	67.6	136.7	-119.4	-198.9	-26.4
Debt securities	61.0	75.0	23.0	10.5	-5.7

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

Chart 4.5
Market survey of equity and bond-related flows



Source: EPFR Global.

Looking forward, the direction and size of Hong Kong dollar fund flows will depend on various factors such as the Hong Kong dollar-US dollar interest rate differentials, the global macro-financial outlook, and market sentiments. Given jittery global financial market sentiments, any shock triggering a reassessment of the global economic outlook could lead to continued turbulence in the global financial markets and volatile fund flows ahead.

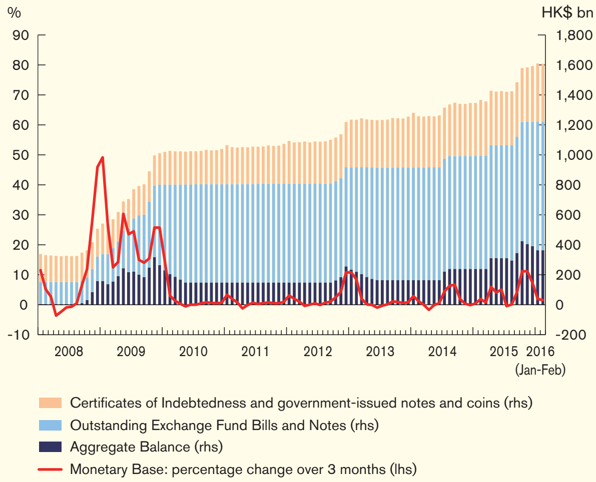
[16] At the time of writing, the fourth-quarter BoP statistics were not yet available.

4.2 Money and credit

Hong Kong's interbank liquidity remained ample, with the Monetary Base expanding further in the second half of 2015 and early 2016. Driven by the repeated triggering of the strong-side CU in September and October, the Aggregate Balance expanded from HK$310.7 billion to HK$391.3 billion during the second half of 2015 (Chart 4.6), with part of the expansion being offset by additional issuances of Exchange Fund Bills amounting to HK$75 billion to meet banks' demand for liquidity management.[17] Accordingly, the outstanding amount of Exchange Fund Bills and Notes (EFBN) increased further, to HK$829.6 billion at the end of 2015. These, together with the slight increase in Certificate of Indebtedness and Government-issued notes and coins in circulation, raised the Monetary Base by 11.8% in the second half.

Stepping into 2016, despite fluctuations in the Hong Kong dollar interest rates and exchange rate, the Hong Kong dollar interbank market continued to function normally. The Monetary Base remained largely steady and was fully backed by foreign exchange reserves in accordance with currency board principles.[18]

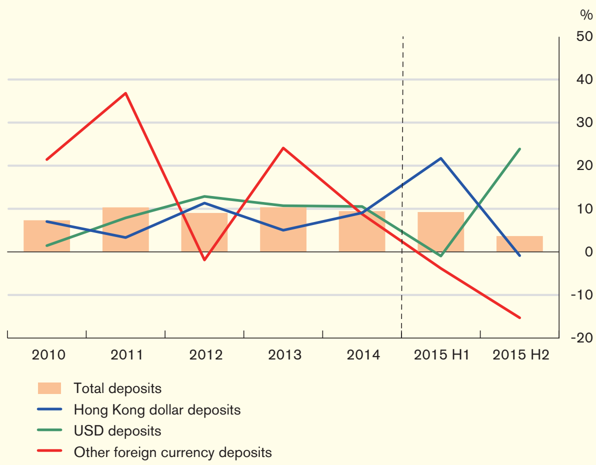
Chart 4.6
Monetary Base components



Source: HKMA.

Despite the rise in the Monetary Base, the Hong Kong dollar broad money (HK$M3) edged down by 0.2% (or 0.3% annualised) in the second half, after picking up noticeably by 10.5% (or 21.1% annualised) in the first half. Being the major component of HK$M3, Hong Kong dollar deposits decreased by 0.5% (or 0.9% annualised) in the second half (Chart 4.7), as demand deposits fell alongside the declines in turnover and fund-raising activities in the local stock market. Analysed by the asset-side counterparts, the decline in the HK$M3 mainly reflected the decrease in Hong Kong dollar loans and net foreign currency assets of banks (Chart 4.8).

Chart 4.7
Deposit growth

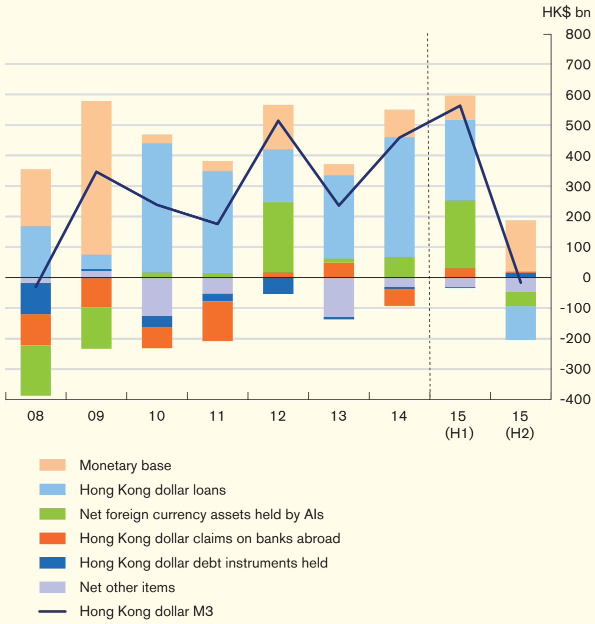


Note: Growth rates in 2015 H1 and H2 are annualised.
Source: HKMA.

[17] The additional issuance of Exchange Fund Bills is consistent with Currency Board principles, as it represents a change in the composition of the Monetary Base with a shift from the Aggregate Balance to Exchange Fund Paper.

[18] Under the LERS, while specific Exchange Fund assets have been designated for the Backing Portfolio, all Exchange Fund assets are available to support the Hong Kong dollar exchange rate.

Chart 4.8
Changes in the HK$M3 and the asset-side counterparts

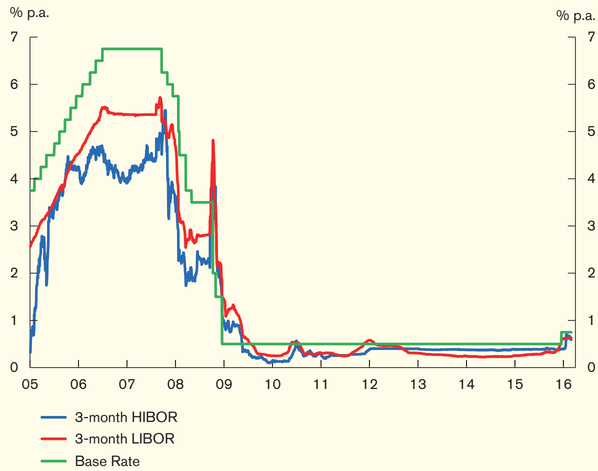


Note: The HK$M3 in the monetary survey has been adjusted to include foreign currency swap deposits and to exclude government deposits and Exchange Fund deposits with licensed banks.
Source: HKMA staff estimates.

Amid heightened exchange rate volatility, US dollar deposits registered a strong increase of 12.3% (or 24.6% annualised) in the second half of 2015 (Chart 4.7), whereas other foreign currency deposits dropped noticeably by 7.9% (or 15.8% annualised), mainly due to the contraction in renminbi deposits. Overall, growth in total deposits slowed to 1.9% (or 3.8% annualised) in the second half, compared with 4.8% (or 9.5% annualised) in the first half.

With abundant interbank liquidity, wholesale Hong Kong dollar funding costs stayed at low levels. In particular, the overnight and the three-month HIBOR fixing rates were little changed at around 0.05% and 0.39% respectively during the second half of 2015, with moderate fluctuations being driven mainly by heightened liquidity demand amid volatile financial market conditions in August, as well as banks' seasonal liquidity needs. Following the increase in the target range for the US Federal Funds Rate from 0–0.25% to 0.25–0.5% on 16 December 2015 (US time), the Base Rate was adjusted upward from 0.5% to 0.75% on 17 December 2015.[19] Stepping into 2016, Hong Kong dollar interbank interest rates faced upward pressures amid increased financial market volatilities, with the three-month HIBOR fixing rate rising to a seven-year high of 0.70% in late January. As such, the spread of HIBORs over its US counterparts narrowed. Nevertheless, the absolute level of HIBORs remained relatively low by historical standards (Chart 4.9).

Chart 4.9
The Base Rate and the interbank interest rates



Sources: CEIC and HKMA.

Going forward, the pace and magnitude of rises in the Hong Kong dollar interbank rates would hinge on the size of fund outflows which are affected by various factors including the Hong Kong dollar-US dollar interest rate differentials, the global macro-financial outlook, as well as market sentiments. With an expected gradual pace of US interest rate hikes and a sizable Hong Kong dollar Monetary Base, the pace of increases in the Hong Kong dollar interest rates should not

[19] According to the pre-set formula announced on 26 March 2009, the Base Rate is currently set at either 50 basis points above the lower bound of the prevailing target range for the US Federal Funds Rate or the average of the five-day moving averages of the overnight and one-month HIBORs, whichever is the higher.

be too rapid. Moreover, given that the outstanding EFBNs amounted to around HK$860 billion and the bulk is being held by banks for liquidity management, banks' access to the Discount Window will help limit excessive volatility in the interbank interest rates. That said, the size and pace of fund outflows are still subject to uncertainties, particularly given heightened volatility in the financial markets.

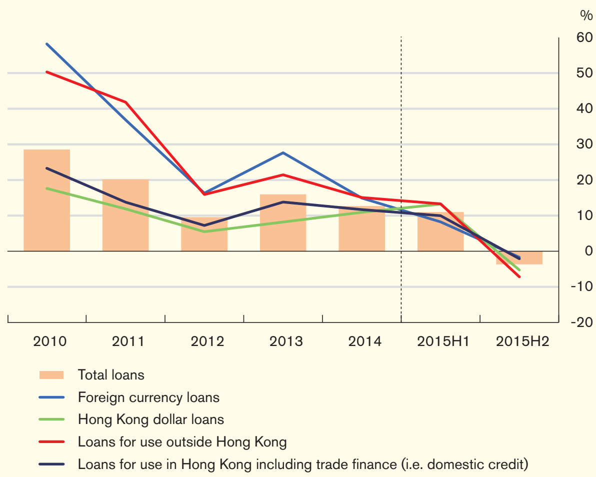
Broadly tracking its US dollar counterparts, the Hong Kong dollar yield curve flattened slightly at the longer tenors, with the yield of 10-year Hong Kong Government Bond edging down to 1.66% at the end of 2015 from 1.79% six months earlier (Chart 4.10). Meanwhile, banks' average funding costs (measured by the composite interest rate) decreased by 3 basis points to 0.26% in December, mainly due to the decline in weighted deposit rate, while banks' average lending rate for new mortgages remained steadily low at around 1.95%.

Chart 4.10
Yield of 10-year Hong Kong Government Bond, the composite interest rate and the average lending rate for new mortgages

Sources: HKMA and staff estimates.

Credit growth decelerated, largely reflecting weaker corporate credit demand amid heightened uncertainties in the macro-financial environment. After increasing by an annualised 11.0% in the first half of 2015, total loans declined by 3.7% (annualised) in the second half, marking its first decline since the first half of 2009 (Chart 4.11). Such decline was driven by both loans for use in Hong Kong and outside Hong Kong. Loans for use in Hong Kong registered a moderate decline of 2.1% (annualised). After expanding strongly in previous years, loans for use outside Hong Kong contracted by an annualised 7.2% in the second half, in part reflecting a slowdown in Mainland-related borrowings amid lower funding costs in Mainland China. Analysed by currency, Hong Kong dollar loans and foreign currency loans dropped by an annualised 5.3% and 1.7% respectively in the second half. Within the foreign currency loans, US dollar loans fell by an annualised 6.9% in part reflecting the repayment of US dollar loans amid the renminbi depreciation. For 2015 as a whole, total loan growth decelerated to 3.5% from 12.7% in 2014.

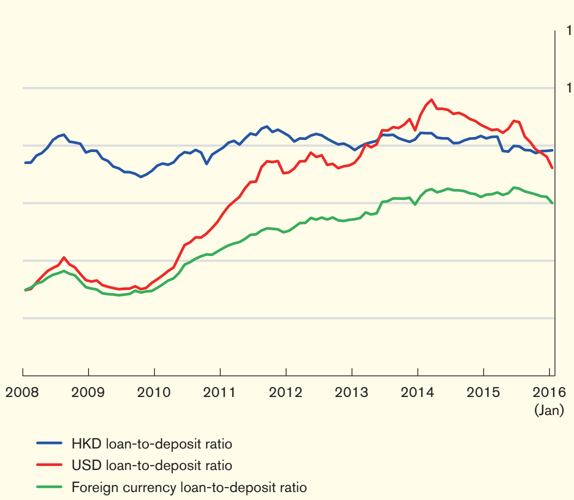
Chart 4.11
Loan growth



Note: Growth rates in 2015 H1 and H2 are annualised.
Source: HKMA.

As Hong Kong dollar loans declined at a faster pace than Hong Kong dollar deposits, the Hong Kong dollar loan-to-deposit ratio decreased from 79.9% at the end of June to 78.2% at the end of 2015 (Chart 4.12). Meanwhile, as US dollar loans contracted while US dollar deposits expanded strongly, the US dollar loan-to-deposit ratio dropped noticeably from 88.6% at the end of June to 76.1% at the end of 2015.

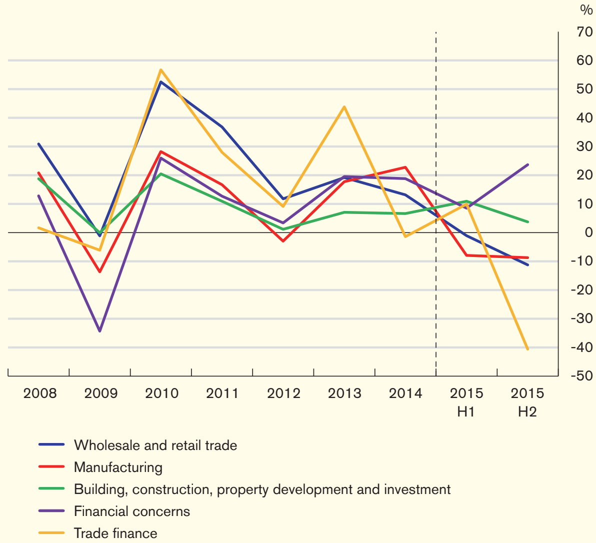
Chart 4.12
Loan-to-deposit ratios



Source: HKMA.

Analysed by economic activities, the decline in loans for use in Hong Kong was largely driven by trade finance (Chart 4.13), which slumped by 40.6% (annualised) in the second half in part due to sluggish trade flows and repayment of US dollar trade loans amid renminbi depreciation. Loans for manufacturing, wholesale and retail trade also witnessed noticeable declines amid subdued domestic economic activities, particularly the weak retail sales performance. On the other hand, loans to building, construction, property development and investment continued to expand, albeit at a moderated pace, while loans to financial concerns picked up faster in the second half.

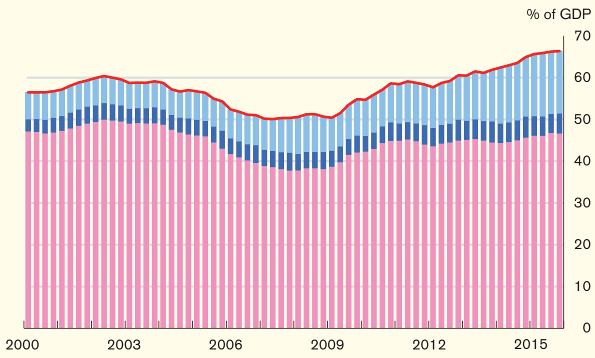
Chart 4.13
Growth in domestic loans by selected sectors



Note: Growth rates in 2015 H1and H2 are annualised.
Source: HKMA.

Growth in household debt decelerated to an annualised 7.1% in the second half of 2015 compared with 10.0% in the first half. Within the household debt, growth in personal loans (which comprise credit card advances and loans for other private purposes) slowed to an annualised 5.0% in the second half, while growth in residential mortgage loans moderated to an annualised 8.0% along with the fall in housing transactions. Overall, the household debt-to-GDP ratio edged up to 66.4% in the fourth quarter from 66.2% in the previous quarter (Chart 4.14).

Chart 4.14
Household debt-to-GDP ratio and its components



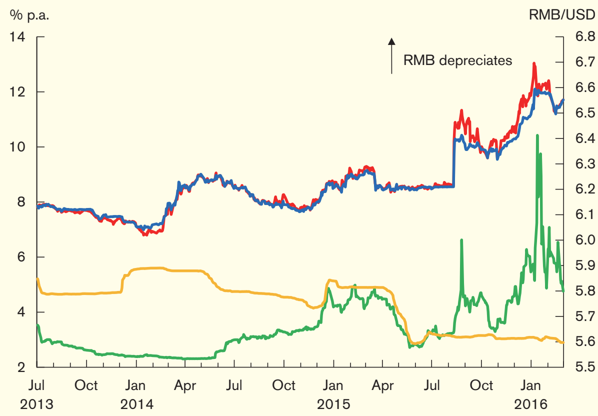
Note: Only borrowings from AIs are covered.
Source: HKMA.

Credit demand is likely to remain weak in the near term, given uncertainties surrounding the macro-financial development in the Mainland economy, the pace and magnitude of further US interest rate hikes, and shifts in financial market sentiments. According to the latest results of the HKMA Opinion Survey on Credit Condition Outlook, banks expect to see subdued credit demand in the near future.

Offshore renminbi banking business

Both the onshore (CNY) and the offshore renminbi (CNH) exchange rates faced more depreciation pressures since last November amid market concerns about the US interest rate normalisation and the prospects for the Mainland economy (Chart 4.15). In particular, the CNH once weakened to around 6.7 per US dollar in early January, with its discount vis-à-vis the onshore counterpart once widening to about 1,500 pips in early January. Box 4 studies the main drivers of the CNH-CNY spread before and after the change of the renminbi central parity fixing mechanism. CNH interbank liquidity also tightened amid increased volatility in the renminbi exchange rates, with the overnight CNH HIBOR fixing once surging to a high of 66.8% in mid-January. The renminbi exchange rates stabilised stepping into February, with the discount of CNH over CNY narrowing to virtually zero pips at the end of February. Tightness in the CNH interbank market also eased, with the 3-month CNH HIBOR declining from a high of 10% to 4.8% at the end of February.

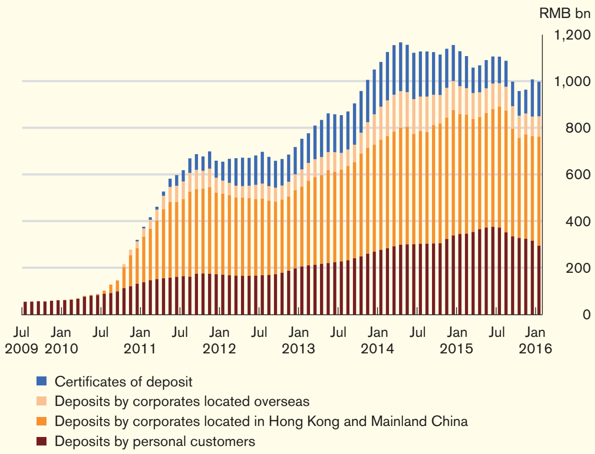
Chart 4.15
Onshore and offshore renminbi exchange rates and interbank interest rates



Sources: Bloomberg and Treasury Markets Association.

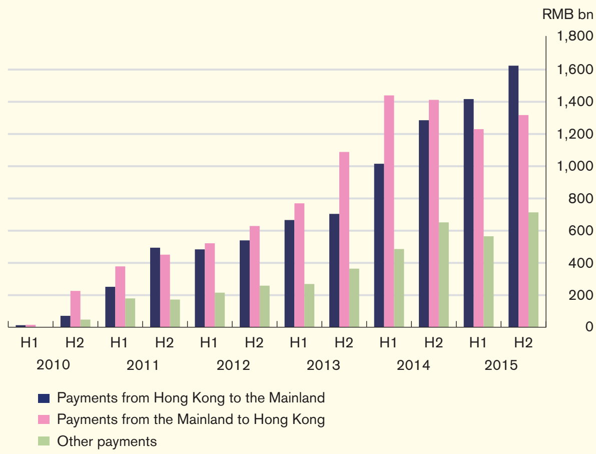
The renminbi liquidity pool in Hong Kong consolidated in the second half of 2015 amid the renminbi depreciation. The total outstanding amount of renminbi customer deposits and certificates of deposit (CDs) fell by 8.9% (not annualised) from six months earlier to RMB1,010.4 billion at the end of 2015 (Chart 4.16 and Table 4.B). Within the total, renminbi customer deposits declined by 14.3% during the second half, with both personal customer deposits and corporate customer deposits recording double-digit declines, whereas outstanding CDs bounced up by 37.4% on the back of a rise in CD issuances in December.

Chart 4.16
Renminbi deposits and CDs in Hong Kong



Source: HKMA.

Chart 4.17
Flows of renminbi trade settlement payments



Source: HKMA.

Despite the contraction in the renminbi liquidity pool, other aspects of the offshore renminbi banking business continued to grow at a firm pace. The outstanding amount of renminbi loans maintained solid growth in the second half of 2015, rising by 25.9% (not annualised) from the end of June, with the pace being roughly the same as in the first half. Renminbi trade settlement handled by banks in Hong Kong continued to expand steadily to RMB3,637.3 billion in the second half, up 13.8% from the preceding half-year period (Chart 4.17). While outward trade remittances to Mainland China continued to grow at a solid pace, inward remittances to Hong Kong also rebounded. Meanwhile, Hong Kong's position as a global hub for offshore renminbi clearing and settlement strengthened further. For 2015 as a whole, the average daily turnover of renminbi real time gross settlement (RTGS) rose to RMB947.0 billion, an increase of 29.2% compared with 2014 (Table 4.B). Within the total, around 90% were offshore transactions (i.e. not between Hong Kong and Mainland China).

The recent fluctuations in the renminbi have posed some headwinds to the development of Hong Kong's offshore renminbi business. Going forward, the demand for renminbi assets will continue to hinge on Mainland's macro-financial developments as well as the progress in renminbi internationalisation.[20] It is expected that once the Mainland economy and financial market stabilises, the demand for renminbi assets will recover and the development of the offshore renminbi business will gather momentum accordingly.

Table 4.B
Offshore renminbi banking statistics

	2014	2015
Renminbi deposits & certificates of deposit (CDs) (RMB bn)	1,158.3	1,010.4
Of which:		
Renminbi deposits (RMB bn)	1,003.6	851.1
Share of renminbi deposits in total deposits (%)	12.4	9.3
Renminbi certificates of deposit (CDs) (RMB bn)	154.7	159.3
Renminbi outstanding loans (RMB bn)	188.0	297.4
Number of participating banks in Hong Kong's renminbi clearing platform	225	217
Amount due to overseas banks (RMB bn)	145.2	105.7
Amount due from overseas banks (RMB bn)	193.3	132.1
	2014	2015
Renminbi trade settlement in Hong Kong (RMB bn)	6,258.3	6,833.1
Of which:		
Inward remittances to Hong Kong (RMB bn)	2,837.8	2,535.1
Outward remittances to Mainland China (RMB bn)	2,289.3	3,026.3
Turnover in Hong Kong's RMB RTGS system (Daily average during the period; RMB bn)	732.7	947.0

Source: HKMA

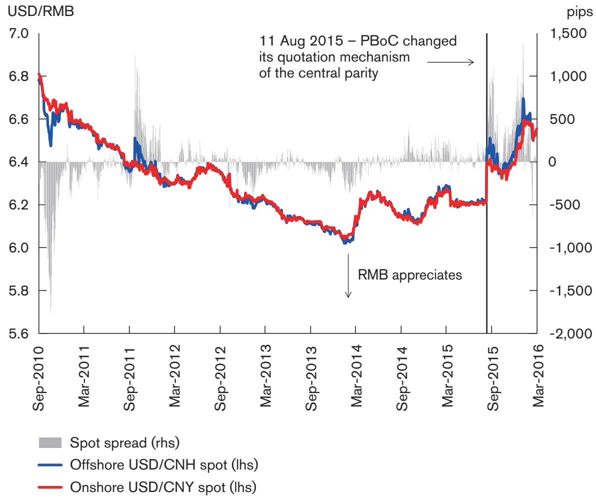
[20] There have been ongoing developments in the cross-border investment channels between Hong Kong and Mainland China. These include the launch of fund products under the Mainland-Hong Kong Mutual Recognition of Funds initiative since the latter part of 2015.

Box 4
CNH-CNY spread determination: Before and after the new central parity quotation mechanism

Introduction

While the exchange rates of the renminbi *vis-à-vis* the US dollar in Hong Kong (CNH) and onshore (CNY) have moved largely in tandem since 2010, there is always a tangible spread between them, referred to as the 'CNH-CNY spread' hereafter.[21] For the past two years, the spread had been largely steady and kept at a relatively low level until the recent spike, noticeably after the change of the renminbi central parity quotation mechanism announced on 11 August 2015 (Chart B4.1).[22] As the renminbi depreciated *vis-à-vis* the US dollar following the change, especially in the CNH market, the resulting widening of the spread was widely attributed to an increase in the exchange rate depreciation expectation.[23] Against this backdrop, this box takes a closer look at the driving forces behind the CNH-CNY spread.[24]

Chart B4.1
USD/CNH and USD/CNY spot exchange rates



Source: Bloomberg.

Our hypothesis

There are two primary reasons as to why the two exchange rates differ. First, the two markets are subject to different sets of influence. The CNH is more exposed to global influences (e.g. ups and downs of global risk appetite, the supply of and demand for global liquidity) than its onshore counterpart due to the fact that Hong Kong is an international financial centre with no capital control. Second, investors in the two markets might have different interpretations to the same economic or policy news, thus giving rise to different equilibrium exchange rates in the two segmented markets.[25]

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21 The CNH-CNY spread in this box is defined as the USD/CNH spot exchange rate minus that of USD/CNY. A positive (negative) spread means that CNH is weaker (stronger) than CNY.

22 The China Foreign Exchange Trade System (CFETS) publishes the daily middle exchange rate of the renminbi against the US dollar for the permitted trading range of the day at 9:15 a.m. on each working day. With effect from 11 August 2015, the middle rate will be based on three measures: the closing rate of the inter-bank foreign exchange rate market of the previous day; supply and demand in the market; and the price movements of major currencies. (URL: http://www.pbc.gov.cn/goutongjiaoliu/113456/113469/2927054/index.html)

23 On 11 August 2015, the central parity fell by 1.9% to 6.2298, marking the largest one-day drop since the adoption of the managed float in 2005. The CNH and CNY exchange rates fell by 2.8% and 1.9% respectively on that day.

24 Funke, Shu, Cheng and Eraslan (2015) "Assessing the CNH-CNY pricing differential: role of fundamentals, contagion and policy", *Journal of International Money and Finance*, volume 59, December 2015, pp245-262, also provided a quantitative analysis of the CNH-CNY spread but focused on an earlier sample period, i.e. 24 August 2010–20 September 2013.

25 For details of this theory applied to dual-listed stocks, 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*, 37 (2013) pp1073–1083.

In the light of the above, we hypothesise that the CNH-CNY spread is driven by five factors, which could be broadly classified into two global and three local factors. The global factors are global risk appetite and global funding liquidity, whereas the local factors are the interest rate differential between the onshore and offshore markets, exchange rate expectation and relative market liquidity. Table B4.A summarises these factors, their proxy indicators and their expected impact on the spread (and the rationale behind).

Table B4.A
Explanatory variables in the econometric model

Explanatory variables	Expected Impact	Proxy Indicator	Rationale
Global risk appetite	+	VIX	CNH market is more affected by global risk
Global funding liquidity	+	Average US Treasury yields	CNH market is more responsive to changes in global liquidity condition
CNH-CNY interest rate differential	–	Average CNH-CNY forward-point differentials	Higher interest rates are supportive to CNH
RMB depreciation expectation	+	Average risk reversals of USD/CNH[26]	RMB exchange rate expectation is more reflected in CNH market
Relative RMB market liquidity	+	Bid-ask spread of USD/CNH spot rate divided by that of USD/CNY spot rate	CNH faces selling pressure when market liquidity shrinks relative to CNY

Based on this hypothesis, we specify an econometric model such that the dependent variable is the CNH-CNY spread and the explanatory variables are these five factors and the lagged value of the spread. Daily data are used to estimate the model. The sample period is 2 July 2012 to 29 February 2016.[27]

[26] The risk reversal is the price of a USD/CNH call option minus that of a put option with the same maturity.

[27] Earlier data are excluded since at that time the CNH market was not yet well developed and some episodes of elevated CNH-CNY spread were driven by unique and specific events. For example, two episodes of elevated CNH-CNY spread stand out during the early years of the CNH market. First, in October 2010, when the conversion quota for trade settlement-related renminbi transactions were used up in the CNH market, huge demand for renminbi drove the CNH much stronger than the CNY. In the second episode, when escalating European debt crisis triggered global risk aversion and strong demand of US dollar in late 2011, the CNH was substantially weaker than the CNY.

Table B4.B
Estimation results of the regression model

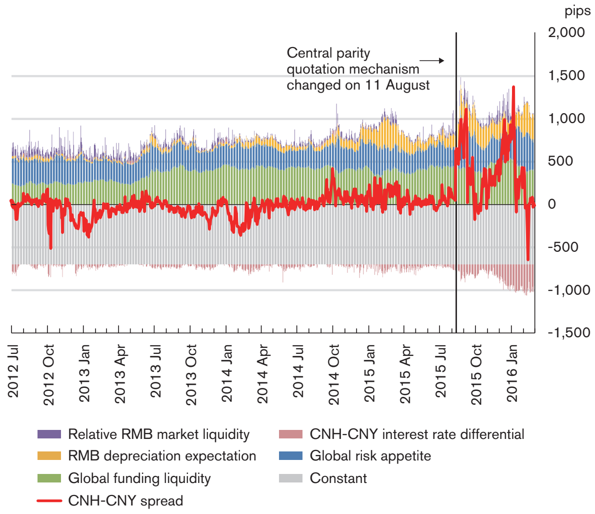
Global risk appetite	3.01***
Global funding liquidity	83.02***
Relative RMB market liquidity	3.06***
CNH-CNY interest rate differential	-0.07***
RMB depreciation expectation	14.40***
Lagged dependent variable	0.83***
Constant	-134.99***
Adjusted R-squared	0.8157
Number of observations	956
Durbin-Watson stat	2.249

Note: *** indicates statistical significance at 1% level.

Empirical results

As shown in Table B4.B, all the hypothesised factors are significant and with the expected signs. Based on the estimation results, we carry out an attribution analysis to enable us to visualise the contribution of each factor to the CNH-CNY spread throughout the period under study. As can be seen, for the whole period, global risk appetite contributed significantly to the spread, while global funding condition was also a key driver (Chart B4.2). Starting from mid-2014, when movements of the renminbi exchange rate became increasingly unpredictable (rather than continuing to appreciate), renminbi exchange rate expectation also played an important role in driving the spread. Chart B4.3 takes a close-up view of the latest episode (from the beginning of August 2015 to the end of February 2016). As can be seen, the impact of the local factors has become more prominent lately. After the latest change of the quotation mechanism of the central parity announced on 11 August 2015, not only did renminbi exchange rate expectation account for a more significant part of the spread, interest rate differential also contributed a much larger share of it than in earlier years. However, given the short span of time, it is too early to conclude that the rising importance of local factors is transitory or reflects changes that are more structural in nature. Whichever the case, it is useful to note that global risk appetite was also, to a large extent, responsible for the increase in the spread in the period. Relative market liquidity, while found statistically significant, has no discernible influence.

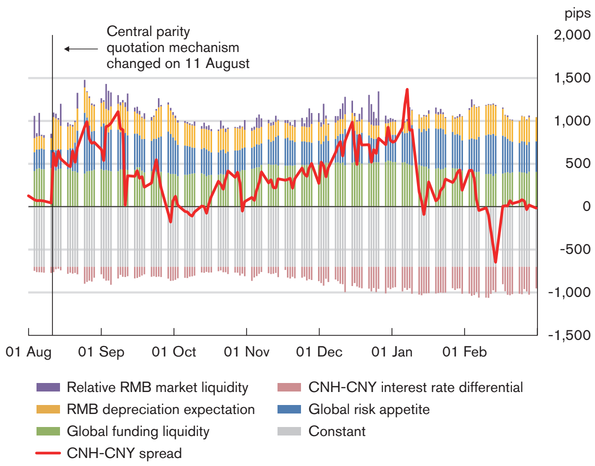
Chart B4.2
Factors of CNH-CNY spread for July 2012–February 2016



Note: The shaded areas indicate the long-term contributions of the factors to the CNH-CNY spread, assuming that the spread would converge to an equilibrium level in the long run with no further changes in these driving factors. The shaded areas do not necessarily add up to the day-to-day spread level.

Source: HKMA staff estimates.

Chart B4.3
Close-up view of CNH-CNY spread for August 2015–February 2016



Note: The shaded areas indicate the long-term contributions of the factors to the CNH-CNY spread, assuming that the spread would converge to an equilibrium level in the long run with no further changes in these driving factors. The shaded areas do not necessarily add up to the day-to-day spread level.

Source: HKMA staff estimates.

Concluding Remarks

Following the recent change to the setting of the daily middle exchange rate of the permissible renminbi band, the currency experienced a sharp depreciation, especially in the CNH market. As a consequence, the CNH-CNY spread widened significantly. This box studies the major drivers behind the spread in the past few years with a particular focus on the recent episode. Before the change of the central rate quotation mechanism, global risk appetite and global funding liquidity were basically what determined the size of the spread, although exchange rate expectation also emerged to be an additional driving force from around mid-2014. Other factors played only a minor role. After the change, the global factors continued to play an important role. However, interest rate differential is found to have exerted a much greater impact on the spread than before. The influence of exchange rate expectation also increased in the recent episode but to an extent that is perhaps smaller than many had thought.

Asset markets

The Hong Kong equity market fluctuated widely and experienced a sharp correction during the review period amid global risk-off sentiment. The market outlook will be highly susceptible to international financial market volatility as increased risks of a global slowdown and heightened geopolitical tensions weigh on investor appetite. While the Hong Kong dollar debt market maintained its steady growth, the offshore renminbi debt market contracted with its first decline in annual issuance since its inception. Residential property market has softened since the second half of 2015 amid weaker market sentiments.

4.3 Equity market

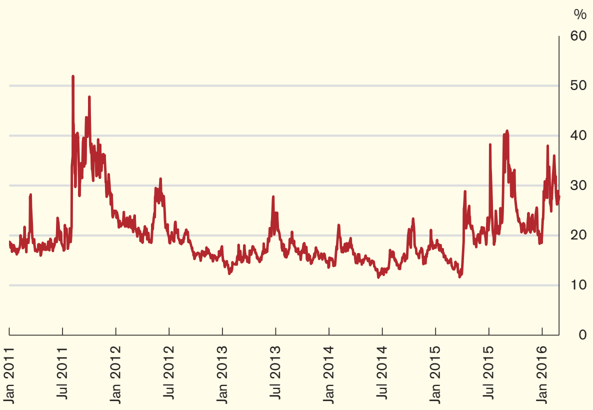
Reflecting a deteriorating external environment amid concerns about global economic slowdown, the equity market in Hong Kong experienced a sharp correction in the past six months. Following the US Federal Reserve (Fed)'s decision to keep its policy rate unchanged last September, investors regained some confidence after a turbulent summer break. However, the market came under pressure again towards the end of 2015. While the widely expected rate hike at the December Federal Open Market Committee meeting did not trigger much market reaction, concerns were mounting that the global economy is stalling in view of the weakness of oil and commodity prices (Chart 4.18). Heightened tensions in the Middle East and migrant flows added to the pessimism, especially on the economic outlook for Europe. After the turn of the year, the Mainland economy came under the spotlight amid further depreciation of the renminbi and the equity market shutdown in early January following the triggering of the newly-introduced circuit breaker weighed further on the sentiment.[28] Against this backdrop, equities in Hong Kong and across major markets saw a sharp fall in valuations toward the end of the review period. Overall, the Hang Seng Index (HSI) fell by 11.8% from September 2015 to February 2016, with the option implied volatility of the HSI (VHSI) staying mostly above 20% (Chart 4.19).

Chart 4.18
Equity prices in Hong Kong

Source: Bloomberg.

[28] To maintain market stability, the China Securities Regulatory Commission (CSRC) decided to suspend the circuit breaker mechanism, effective on 8 January 2016.

Chart 4.19
Option-implied volatility of the HSI



Source: Bloomberg.

Due to increased uncertainties over the scale of the adjustment required for the Mainland economy, the Hang Seng China Enterprises Index (HSCEI), also known as the H-share index, came under significant selling pressure, dropping by 18.7% during the review period. Compared to their onshore counterparts (i.e. A-shares), H-shares continued to be traded at a discount which may be attributed to discrepancies in the equity valuation between the Mainland and Hong Kong investors in the wake of heightened volatility in financial markets (Chart 4.20).[29]

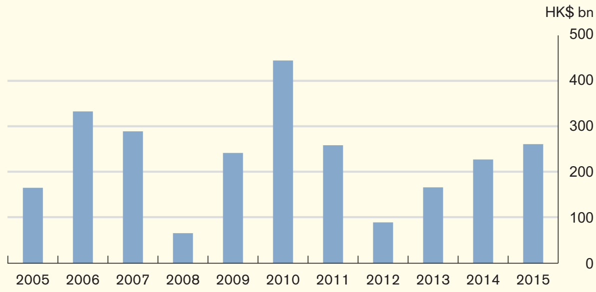
Chart 4.20
Hang Seng China AH Premium Index

Source: Bloomberg.

[29] 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*, 37 (2013) pp1073–1083.

Notwithstanding the turmoil in global equity markets, the primary market in Hong Kong enters a third straight year of solid growth. The funds raised through IPO in 2015 increased by 14.7% year-on-year to HK$261.3 billion, making Hong Kong the world's largest bourse by amount of funds raised (Chart 4.21).

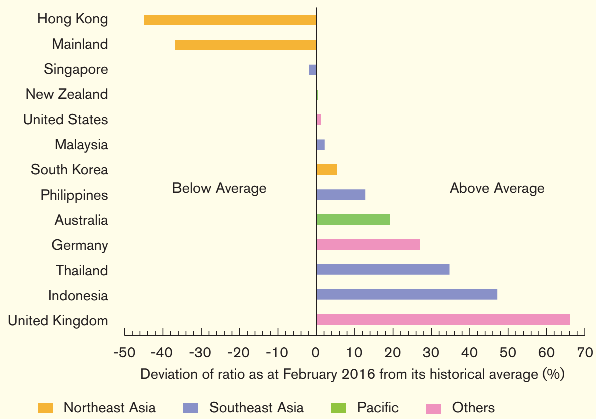
Chart 4.21
The IPO market in Hong Kong



Source: CEIC.

Looking ahead, uncertainties over the global economy and geopolitical risks in the Middle East are likely to keep investors on the sideline for a protracted period of time. While the recent market volatility may prompt the Fed to take a more gradual path in normalising monetary conditions, thus providing temporary breathing space for the markets, local equities will likely remain susceptible to the global risk-off sentiment. This is despite the more attractive valuation of the local equity market compared to other markets in the region (Chart 4.22).

Chart 4.22
Price-earnings ratios of Asia Pacific (excluding Japan) and other major markets

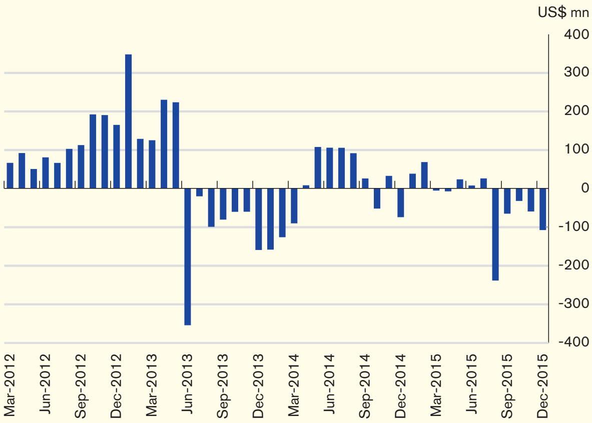


Sources: Bloomberg and HKMA staff estimates.

4.4 Debt market

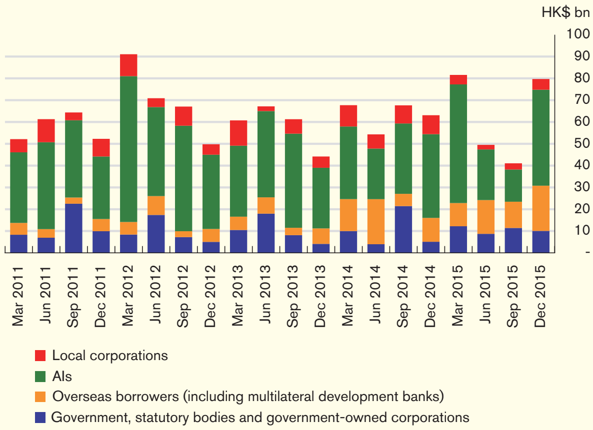
The Hong Kong dollar debt market maintained its steady growth in 2015 despite a major risk-reappraisal in global bond markets. Last year, particularly in the second half, Hong Kong saw significant net outflows from bond funds, suggesting that there was a reduction in investor appetite for bonds in the local market in the wake of the US monetary normalisation (Chart 4.23). Against this backdrop, new debt issued by the local private sector, which comprises AIs and local corporations, fell by 6.2%.[30] In contrast, public sector debt issuance rose by 3% to HK$2,284.6 billion, which more than offset the decline in the local private sector issuance.[31] Overall, total issuance of Hong Kong dollar debt securities amounted to HK$2,494.0 billion last year, up by 2.6% from the preceding year (Chart 4.24).

Chart 4.23
Bond fund flows into Hong Kong



Source: EPFR Global.

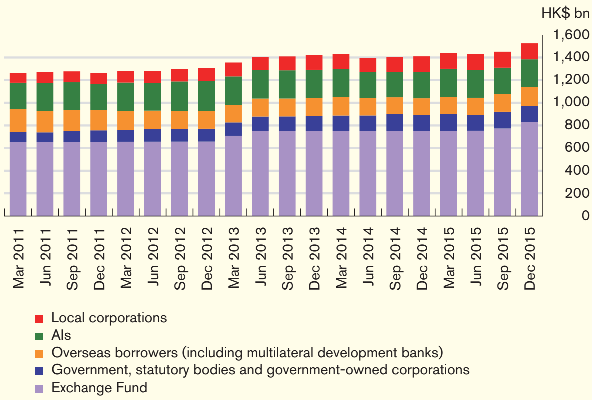
Chart 4.24
New issuance of non-Exchange Fund Bills and Notes Hong Kong dollar debt



Source: HKMA.

With the growth in total issuance, the outstanding amount of Hong Kong dollar debt rose by 8.1% to HK$1,524.6 billion at the end of December 2015, equivalent to 26.4% of Hong Kong dollar M3 or 22.2% of Hong Kong dollar denominated assets of the entire banking sector (Chart 4.25). The increase was mainly driven by the Exchange Fund and overseas borrowers including multilateral development banks (MDBs), which saw their outstanding debt increase by 10.1% and 13.3% to HK$828.4 billion and HK$167.4 billion respectively.

Chart 4.25
Outstanding Hong Kong dollar debt



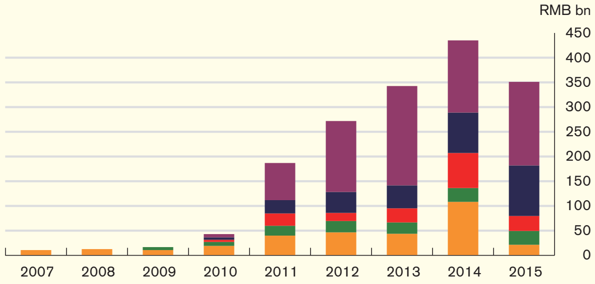
Source: HKMA.

30 In 2015, new debts issued by local corporations declined notably by 57.4% to HK$14.2 billion, which more than offset the growth of 7.3% in new debts issued by AIs.

31 New debts issued by the Exchange Fund and statutory bodies/government-owned corporations rose by 3.0% and 24.5% to HK$2,024.2 billion and HK$12.0 billion respectively, while issuance by the Government declined by 1.3% to HK$30.4 billion.

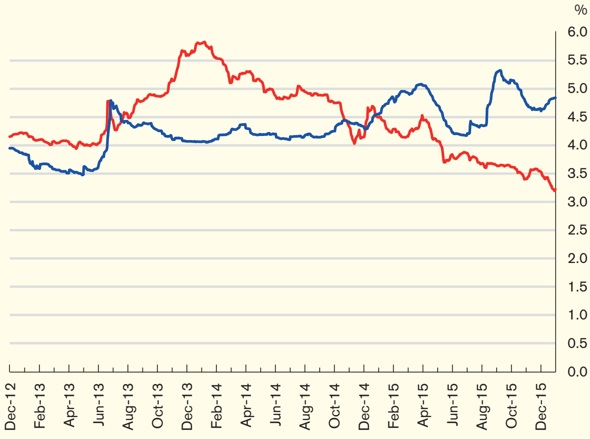
Meanwhile, after a period of rapid growth, the offshore renminbi debt market in Hong Kong showed signs of moderation. In 2015, offshore renminbi debt issuance amounted to RMB350.6 billion, down by 19.3% from the previous year, marking the first annual decline since 2007 (Chart 4.26). In particular, primary market activity shrank noticeably in the third quarter as the turbulence in global financial markets during the summer break made issuers more cautious. At the same time, a series of monetary easings in Mainland China made it more attractive for Mainland companies to issue bonds in the onshore market (Chart 4.27). Furthermore, in an effort to develop the local bond market, the Mainland authorities have relaxed the regulations for corporate bond issuance, thus encouraging more Mainland enterprises to tap the onshore bond market.[32] As a result, non-Certificate of Deposit debt securities issued by private Mainland issuers decreased by 80.7% to RMB20.7 billion. Nonetheless, overseas issuers remained active in the offshore renminbi bond market, with their issuance increasing by 25.1% to RMB102.4 billion. Notwithstanding the fall in total issuance, with less debt matured than issued, the outstanding amount of the offshore renminbi debt securities managed to grow by 6.7% to RMB659.7 billion in 2015 (Chart 4.28).

Chart 4.26
New issuance of offshore renminbi debt securities



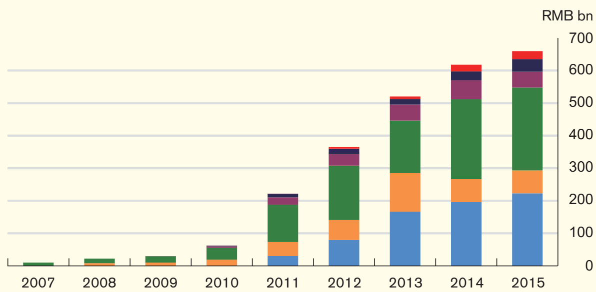
Sources: Newswires and HKMA staff estimates.

Chart 4.27
Average yields of onshore vs. offshore renminbi bond indices



Sources: Bloomberg and China Central Depository & Clearing Co., Ltd.

Chart 4.28
Outstanding amount of offshore renminbi debt securities by remaining tenor



Sources: Newswires and HKMA staff estimates.

In the near term, the road ahead for the market is expected to remain challenging. On the one hand, escalated volatility and uncertainty in global financial markets will continue to weigh on investor appetite. On the other hand, offshore issuance by Mainland corporations is likely to remain subdued in the period ahead as regulatory changes may make it easier for these corporations to tap the onshore market. Further out, however, the picture appears to be more positive. In particular, the International Monetary Fund's decision to include renminbi in

[32] For instance, the CSRC expanded the pool of eligible exchange corporate bond issuers to all onshore-registered corporates in January 2015.

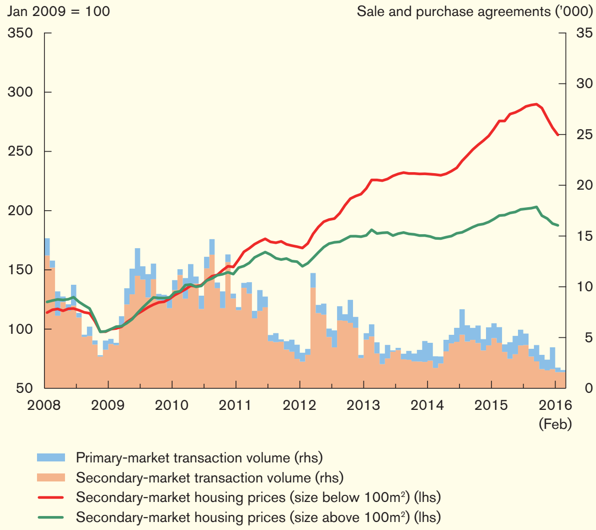
its Special Drawing Rights basket may boost the demand for renminbi-denominated assets in the long run.

4.5 Property markets

Residential property market

The residential property market has weakened since the second half of 2015 amid heightened financial market volatility and subdued growth momentum. Housing transactions dropped by 26% in the second half, with average monthly secondary-market transactions falling to a low level of 2,605 units (Chart 4.29). In contrast, average monthly primary-market transactions dropped only slightly to 1,349 units, as property developers increased new launches towards the end of the year. As a result, the share of primary market transactions increased to about one-third of the total housing transaction volume in the second half of 2015, much higher than the historical average share of about one-fifth. Although primary-market transactions held up, the pace of sales in new flats has slowed since the last quarter of 2015, according to the first-day sales and the sell-through rates. Meanwhile, speculative and investment activities generally remained subdued, whereas the pick-up in the share of company holdings in secondary-market transactions was due partly to the acquisitions of flats in old buildings (Chart 4.30). In early 2016, housing market activities remained sluggish, with the overall transaction volume reaching a record low at 1,807 units in February.

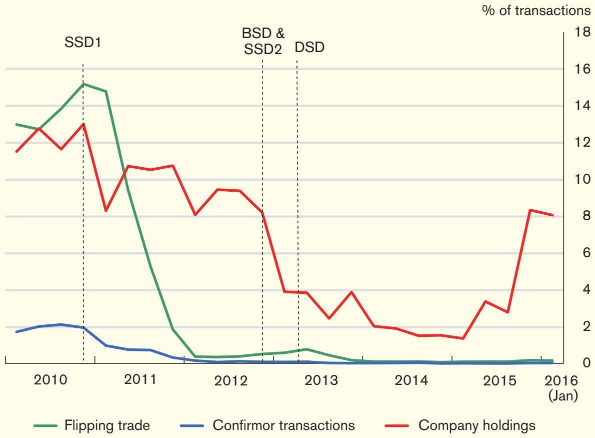
Chart 4.29
Residential property prices and transaction volume



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

With lacklustre property market sentiment, secondary-market housing prices started to decline in October, dragging the cumulative increase in housing prices in 2015 to 2.4%, down from 13.5% a year earlier (Chart 4.29). Prices of both large flats (with saleable area of at least 100m^2) and the small and medium-sized flats (with saleable area of less than 100m^2) declined at a similar pace in the last quarter of 2015. More recent data has suggested that housing prices continued to fall in early 2016, with the latest Centa-City leading index registering a decline of 13.2% from its peak in mid-September.

Chart 4.30
Confirmor transactions, flipping trade and company purchasers

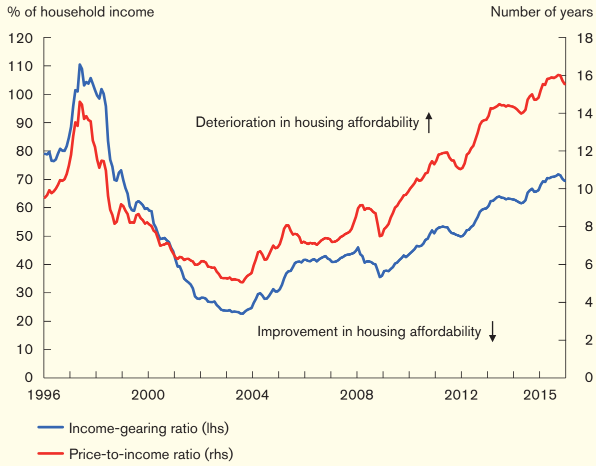


Note: SSD1 and SSD2 refer to the Special Stamp Duties introduced in November 2010 and October 2012, respectively; BSD refers to Buyer Stamp Duty introduced in October 2012; DSD refers to the doubling of the ad valorem stamp duty introduced in February 2013.
Source: Centaline Property Agency Limited.

The price premium of primary market flats relative to secondary market flats remained narrow. In view of the softening sales momentum, property developers offered different types of discounts and concessions, as well as mortgage plans with loan-to-value (LTV) ratios above the normal permissible caps on banks in order to lure homebuyers.

Despite the recent decline in housing prices, housing affordability remained stretched. The housing price-to-income ratio remained high at 15.7 in the fourth quarter, above the 1997 peak of 14.6, while the income-gearing ratio was 70.3%, well above its long-term average of about 50% (Chart 4.31).[33] The recent increases in interbank interest rates were small and would have limited impact on the debt-servicing costs of HIBOR-based mortgage loans given that HIBOR rates are still at ultra-low levels. However, if the mortgage interest rate were to increase to a more normal level, the mortgage debt-servicing burden on homeowners would soar. Under an illustrative scenario with a rise in the mortgage interest rate by 300-basis-point, the income gearing ratio could rise to 91.8%. Meanwhile, as the rate of increases in housing prices and rentals were very close in 2015, the buy-rent gap as a measure of relative user costs stayed flat but remained elevated during the year (Chart 4.32).[34] Residential rental yields stayed at record low levels of 2.3–3.1%, while their spreads relative to the long-term Government bond yields remained narrow.

Chart 4.31
Indicators of housing affordability

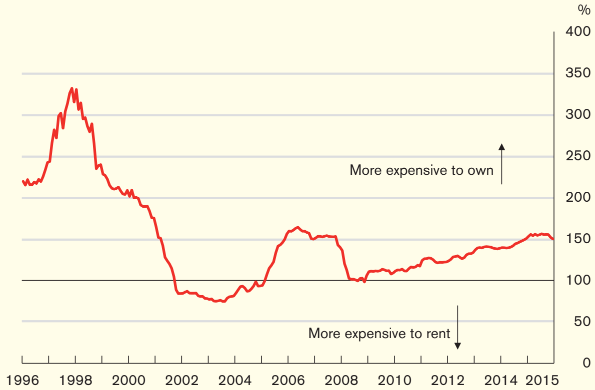


Sources: R&VD, C&SD and HKMA staff estimates.

[33] The price-to-income ratio measures the average price of a typical 50m² 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 50m² 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.

[34] 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 4.32
Buy-rent gap



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

The seven rounds of macro-prudential measures introduced by the HKMA since 2009 have helped bring down the average loan-to-value ratio for new mortgages to 50.7% in January from 64% before the measures were introduced. The debt-servicing ratio (DSR) for new mortgages also fell by about 6 percentage points to 34.3%.

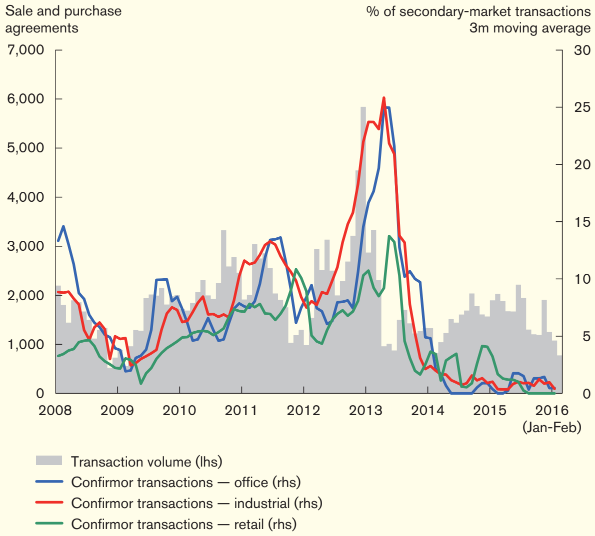
Downside risks in the housing market seem to have increased. Global financial market volatility, capital outflow pressure, and the softened growth momentum could dampen property market sentiment further. As the US rate hike cycle has begun, local mortgage rates would eventually rise and adversely affect the debt-servicing ability of homeowners and potential homebuyers. The gradual narrowing in the housing demand-supply gap may also pose some downward pressure on housing prices over time. While Hong Kong dollar assets, including properties, could become attractive as a store of value to the Mainland residents due to the depreciation in the renminbi, the reduced purchasing power due to the weaker currency, together with the slowdown in the Mainland economy, may restrain their demand for Hong Kong properties. Reflecting these risk factors, the property market has already seen downward adjustments over the past few months. However, more time is needed to observe whether the property market has indeed entered a down cycle given the highly uncertain and rapidly evolving economic environment.

Non-residential property market

The non-residential property market softened amid the generally weak property market sentiment. Transaction volume dropped by 23% in the second half due to eased demand for office and retail space, while speculative activity remained inactive, as indicated by the low levels of confirmor transactions (Chart 4.33). After experiencing solid increase in the first three quarters of 2015, prices of non-residential properties started to decline in the final quarter. Prices of retail space have fallen by 7.6% since September last year, while prices of office have declined by 5.2% since last October (Chart 4.34). Rentals also followed a similar trend, with retail space and flatted factories rentals registering a decline of 3.1% and 1.7% respectively since the last quarter. Rental yields continued to stay low at 2.5–3.0%.

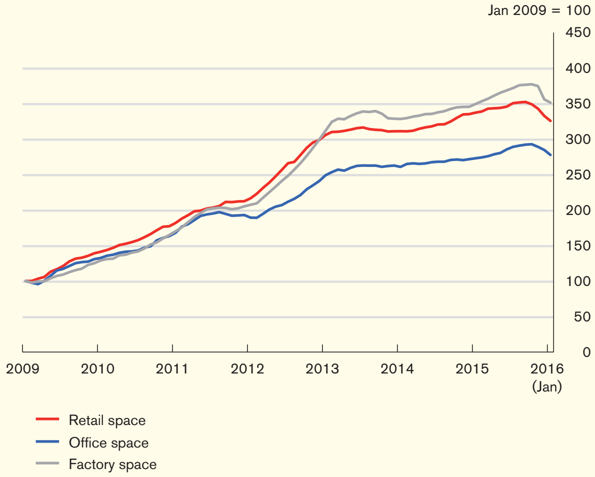
Looking ahead, the non-residential property market is likely to face headwinds from the slower economic momentum, financial market volatility and local interest rate rises, with the retail segment being further dragged by the weak retail sales outlook. While office prices and rentals also face downward pressures, the low office vacancy rate may provide some support to rentals and capital values in this market segment.

Chart 4.33
Transactions in non-residential properties



Sources: Land Registry and Centaline Property Agency Limited.

Chart 4.34
Non-residential property price indices



Source: R&VD.