4. Monetary and financial conditions

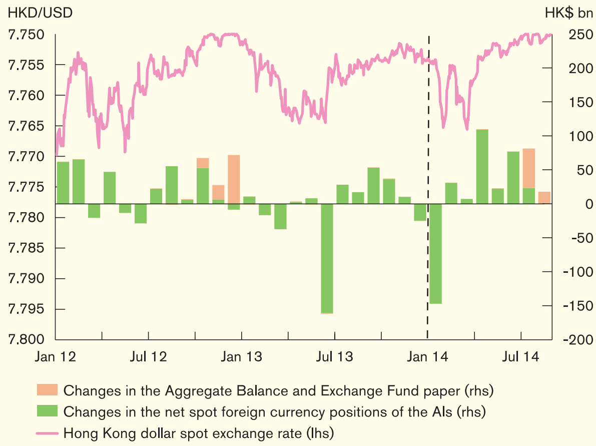
Exchange rate, interest rates and monetary developments

Despite some softening in the first quarter, the Hong Kong dollar faced more buying pressures thereafter, which culminated in the triggering of the strong-side Convertibility Undertaking in July and August. At the same time, loan growth pressure persisted with the continuation of the low interest rate environment.

4.1 Exchange rate and capital flows

The Hong Kong dollar spot exchange rate weakened against the US dollar in the first quarter and then strengthened progressively towards 7.75 in the second quarter and the following months, with the strong-side Convertibility Undertaking (CU) being triggered repeatedly in July and August. Early in the year, there was some selling pressure on the Hong Kong dollar, with the spot exchange rate dipping to a 20-month low of 7.7653 on 30 January and a low of 7.7656 on 18 March. This largely reflected market concerns about tapering of the Fed's asset purchase program, as well as weaker growth and financial prospects for Mainland China and selected emerging market economies. Hong Kong dollar outflow pressure from the non-bank private sector was also evident in the sharp decrease in the net spot foreign currency positions of the Authorized Institutions (AIs) in January (Chart 4.1). Accompanied by equity portfolio outflows, local stock market activities also weakened at that time.

Chart 4.1
Fund flow indicators and exchange rate

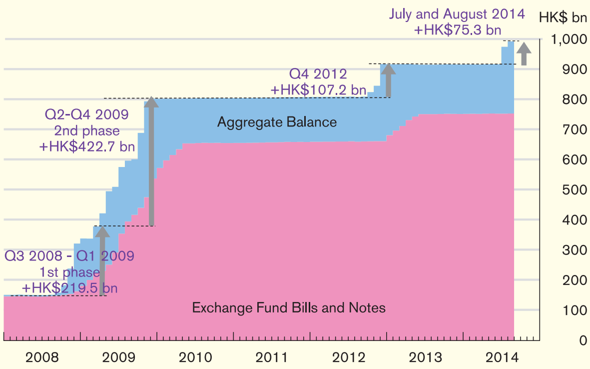


Note: For fund flow indicators, a positive value indicates inflows. The data for changes in the net spot foreign currency positions in July are tentative estimates only, and there are no estimates for August.

Sources: HKMA and staff estimates.

The direction of net fund flows has changed since late March. There were strong net Hong Kong dollar inflows into the non-bank private sector in the second quarter, particularly in April along with a revival in stock market activities and investors' risk appetite. The Hong Kong dollar spot exchange rate also strengthened gradually to around 7.75 near the end of June. Banks then triggered the strong-side CU between 1 July and 5 August, the first time since late 2012. This prompted the HKMA to passively purchase a total of US$9.7 billion from banks in exchange for HK$75.3 billion, which led to a corresponding increase in the Aggregate Balance in accordance with the currency board principles. In earlier episodes, there were net Hong Kong dollar inflows in 2008, 2009 and 2012, involving a total of around HK$750 billion due to market operations by the HKMA (Chart 4.2).

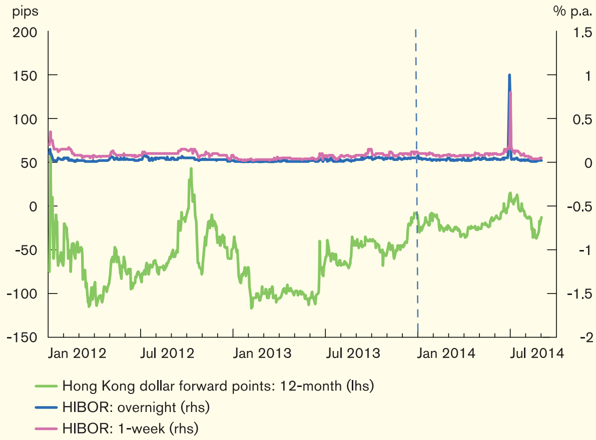
Chart 4.2
Fund flow indicators



Source: HKMA.

The increased demand for the Hong Kong dollar in the first half of July reflected vibrant equity fund-raising activities, commercial demands arising from dividend distributions and cross-border merger and acquisition transactions, and stronger needs for Hong Kong dollar liquidity around the half-year end. The last factor was also evident in the spikes of the overnight and one-week interbank interest rates in late June and early July (Chart 4.3). Some interbank players might also have tapped Hong Kong dollar funding through currency swaps with US dollars, leading to a narrowing of the Hong Kong dollar forward discounts and even an incidence of forward premia. During late July and early August, while the Hong Kong dollar inflow pressures continued to be driven mainly by the dividend-distribution-related demand, there were reports of modest amount of equity-related flows.

Chart 4.3
Indicators of demand for Hong Kong dollar liquidity



Source: HKMA.

Portfolio investment flows experienced some fluctuations in the first half of the year and recent months. According to the Balance of Payments (BoP) statistics[22], there were equity portfolio outflows in the first quarter, with Hong Kong residents purchasing more foreign equities and non-residents reducing their holdings of Hong Kong stocks (Table 4.A). But a recent survey of global mutual funds showed signs of moderate equity investment inflows in the second quarter (Chart 4.4). This pattern of reversal in equity flows was in part driven by a return of investors' risk appetite, characterised by the low volatility in financial markets worldwide. As regards bond portfolio investments, the BoP statistics revealed that domestic investors (mainly banks) reduced their holdings of non-resident debt securities in the first quarter while foreign investors bought more Hong Kong bonds amid buoyant domestic bond issuance activities (Table 4.A). In the second quarter, fund managers also reportedly made net purchase of Hong Kong bonds (Chart 4.4).

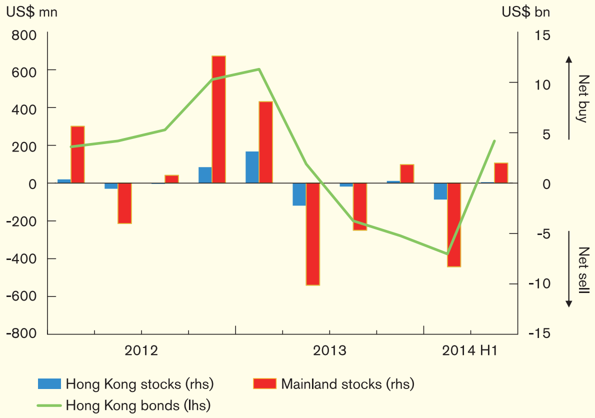
[22] At the time of writing, the second-quarter BoP statistics are not yet available.

Table 4.A
Cross-border portfolio investment flows

(HK$ bn)	2011	2012	2013	2013 Q1	2013 Q2	2013 Q3	2013 Q4	2014 Q1
By Hong Kong residents								
Equity and investment fund shares	-237.3	-159.6	-192.8	24.8	-151.4	35.4	-101.5	-75.7
Debt securities	81.5	-151.3	-278.9	-39.8	117.5	-214.7	-141.9	63.3
By non-residents								
Equity and investment fund shares	47.1	224.5	92.4	46.2	-27.9	45.0	29.1	-8.5
Debt securities	97.7	54.9	45.7	2.6	30.2	11.0	1.9	9.4

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

Chart 4.4
Market survey of equity and bond-related flows



Source: EPFR Global.

Banking-related capital flows maintained their dynamics, as local AIs continued to extend sizeable loans to external borrowers while some foreign bank branches in Hong Kong were drawing liquidity from parent or overseas banks. This largely explained why there were substantial loans and deposits outflows by residents (mainly local AIs), in conjunction with deposits inflows by non-residents in the first quarter (Table 4.B).

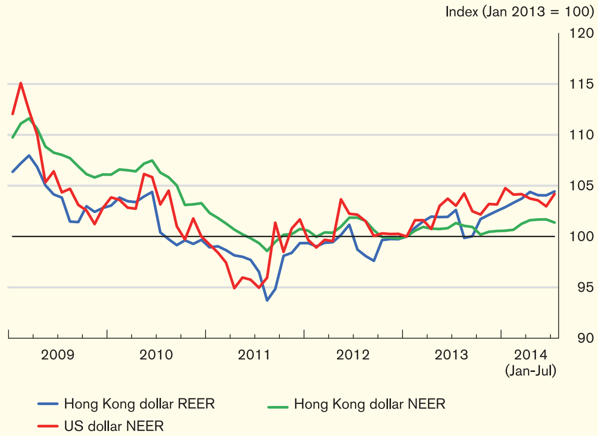
Table 4.B
Cross-border flows relating to deposits and loans

(HK$ bn)	2011	2012	2013	2013 Q1	2013 Q2	2013 Q3	2013 Q4	2014 Q1
By Hong Kong residents								
Currency and deposits	-348.1	209.0	-156.0	321.2	53.6	-250.4	-280.3	-183.8
Loans and trade credit	-414.9	-339.3	-393.3	-187.2	-81.0	-72.7	-52.3	-133.2
By non-residents								
Currency and deposits	544.7	225.7	759.6	-138.1	135.8	309.5	452.4	452.8
Loans and trade credit	194.6	150.2	181.9	57.8	66.7	37.1	20.2	4.6

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

From a broader perspective, the trade-weighted Hong Kong dollar nominal effective exchange rate index (NEER), which measures the relative strength of the Hong Kong dollar against a basket of trading partner currencies, rose slightly in the first half of the year (Chart 4.5). This was because the Hong Kong dollar appreciated against the renminbi, which more than offset the negative impact of a slightly weaker US dollar. The Hong Kong dollar real effective exchange rate index (REER) showed stronger increases amid positive inflation differentials between Hong Kong and the weighted average of its trading partners. The Executive Board of the IMF recently concluded the Article IV consultation with Hong Kong, agreeing that Hong Kong's external position is consistent with medium-term fundamentals and desirable policies. The Board also agreed that the Linked Exchange Rate system has worked well to keep the external position broadly in balance and it remains the best arrangement for Hong Kong.

Chart 4.5
Nominal and real effective exchange rates



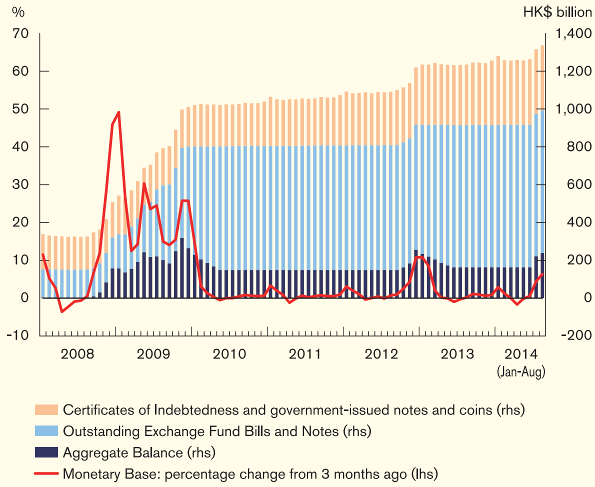
Note: Real effective exchange rate index is seasonally adjusted.
Sources: C&SD and HKMA staff estimates.

While the Hong Kong dollar exchange rate may remain on the strong side against the US dollar in the near-term, the direction and size of fund flows are relatively uncertain further down the road. On the upside, central banks in Japan and the euro area may lengthen or reinforce their monetary easing, which would be supportive of global risk appetite and inflows of funds into Hong Kong. It is also expected that the forthcoming launch of the Shanghai-Hong Kong Stock Connect pilot scheme will encourage more two-way portfolio flows between Mainland China and Hong Kong. On the downside, the uncertain time and pace of US monetary policy normalisation, coupled with ongoing market concerns over Mainland China's macro-financial outlook and heightened geopolitical tensions, could increase the volatility in fund flows and the risk of fund flow reversals.

4.2 Money and credit

The monetary and credit conditions remained accommodative in Hong Kong in the first half of 2014 and recent months, with ample liquidity staying in the banking system and interest rates hovering at low levels. While largely stable in the first half, the Hong Kong dollar Monetary Base climbed by a cumulative 5.8% in July and August following the triggering of the strong-side CU (Chart 4.6). The HKMA purchased a total of US$9.7 billion in response to banks' offer during these two months, creating HK$75.3 billion and leading to a corresponding increase in the Aggregate Balance to HK$239.2 billion at the end of August. On the other hand, there was little change in other Monetary Base components such as Certificates of Indebtedness, notes and coins in circulation, and outstanding Exchange Fund paper.

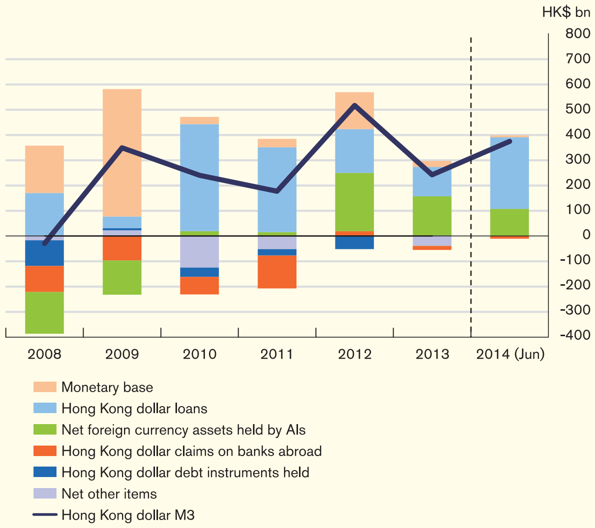
Chart 4.6
Monetary Base components



Source: HKMA.

Monetary aggregates also expanded at a robust pace. Driven by a sizeable increase in time deposits and negotiable certificates of deposit held by the non-bank sector, the Hong Kong dollar broad money supply (HK$M3) rose by an annualised 14.4% in the first half, compared with 5.7% in 2013. Analysis by the asset-side counterparts under the framework of monetary survey showed that strong growth in bank loans and a rise in AIs' net foreign currency assets, the latter reflecting inflow pressure into the non-bank private sector, were expansionary on broad money supply in the first half (Chart 4.7). The triggering of the strong-side CU and the resultant increase in the Monetary Base also added to money expansion in recent months.

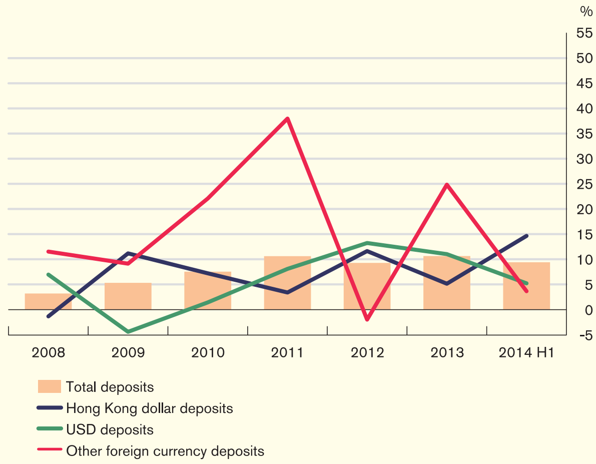
Chart 4.7
Changes in the HK$M3 and the asset-side counterparts



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.

Chart 4.8
Deposit growth



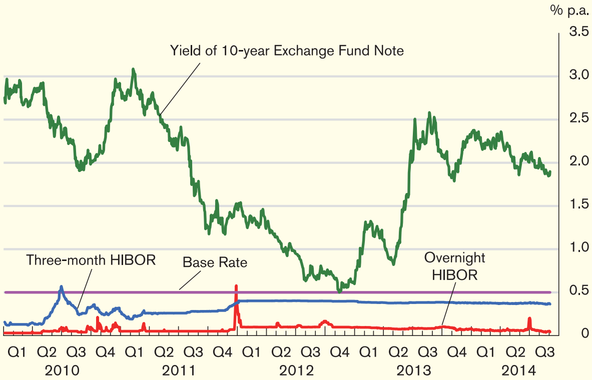
Note: Growth rates in 2014 H1 are annualised.

Source: HKMA.

As the main component of HK$M3, Hong Kong dollar deposits posted an annualised increase of 14.7% in the first half, much faster than the full-year growth of 5.1% in 2013 (Chart 4.8). On the other hand, growth in foreign currency deposits slowed to an annualised 4.6% in the first half from 16.2% in 2013. US dollar deposits briefly contracted in the first quarter but rose again in the second quarter. Renminbi deposits expanded at a robust pace early in 2014 and then levelled off in the second quarter. Their recent developments are discussed in further details later in this section. Overall, total deposits with the AIs grew by an annualised rate of 9.4% in the first half, slightly slower than the 10.7% growth in 2013.

Largely reflecting the abundant liquidity conditions, the wholesale funding costs of the banking sector remained at low levels. In the first half, the overnight and three-month Hong Kong dollar interbank interest rate (HIBOR) fixings stayed low at 0.06% and 0.37% respectively, only with occasional fluctuations due to banks' funding demand for quarter-end liquidity and IPO activities (Chart 4.9). The Hong Kong dollar yield curve also flattened, with the average yield of the 10-year Exchange Fund Notes declining by about 20 basis points in six months to 2.05% in June. This broadly followed the similar movement of the US dollar yield curve. On the other hand, given a moderate increase in the deposit rates, the composite interest rate, which reflects the average funding cost of retail banks in Hong Kong, picked up to 0.47% in June from 0.39% last December. This contrasted with a moderate decline in the average lending rate for new mortgage loans to around 2% recently.

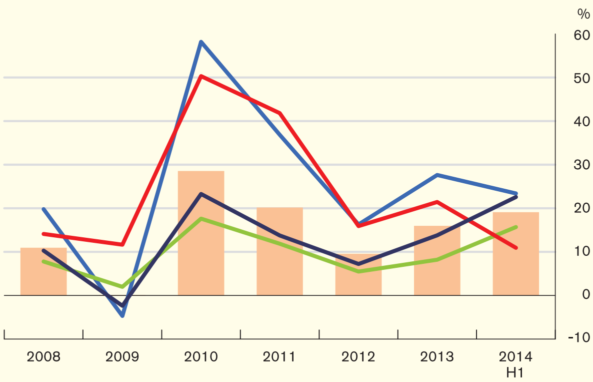
Chart 4.9
Hong Kong dollar interbank interest rates and yield of 10-year Exchange Fund Note



Sources: CEIC and HKMA.

With the continuation of the accommodative monetary conditions and the low interest rate environment, total bank loans grew faster at an annualised 19.1% in the first half of 2014, compared with a 16.0% increase in 2013 (Chart 4.10). Reflecting strong cross-border credit demand and increased Mainland-related exposure, foreign currency loans and loans for use outside Hong Kong continued to rise at a fast pace of 23.4% and 10.9% (annualised) respectively, though moderating slightly compared with last year. Meanwhile, growth in Hong Kong dollar loans and loans for use in Hong Kong (including trade finance) has accelerated to 15.7% and 22.6% (annualised) respectively.

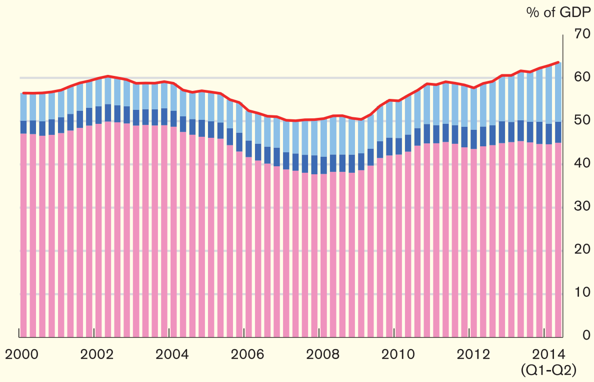
Chart 4.10
Loan growth



Note: Growth rates in 2014 H1 are annualised.
Source: HKMA.

Within domestic credit, trade finance saw a notable increase of 29.5% (annualised) in the first half, while lending to several sectors such as electricity and gas, information technology, financial concerns and stockbrokers picked up strongly. Household debt also grew at a fast pace of 9.3% (annualised), compared with 7.2% in 2013. This was largely driven by personal loans (which comprise credit card advances and loans for other private purposes), although mortgage loans also posted slightly faster growth. As a result, the household debt-to-GDP ratio edged higher to 63.6% in the second quarter (Chart 4.11).

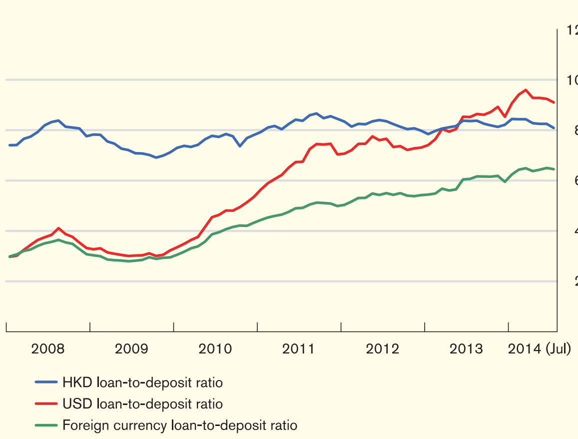
Chart 4.11
Household debt-to-GDP ratio and its components



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

Reflecting the respective movements in deposits and loans, the loan-to-deposit (LTD) ratio for Hong Kong dollar increased slightly to 82.5% at the end of June 2014 from 82.1% at the end of 2013 (Chart 4.12). During the same period, the LTD ratio for foreign currency picked up to 65.0% from 59.5%, mainly due to a rise in the US dollar ratio. The LTD ratio for foreign currency (particularly, the US dollar) started levelling off in recent months. To prevent further build-up of funding vulnerability, the HKMA initiated an earlier review of the Stable Funding Requirement (SFR) in mid-March, which assesses the SFR based on the first quarter bank position instead of the second quarter. This measure mainly affects those banks with rapid loan growth but a relatively narrow local customer deposit base.

Chart 4.12
Loan-to-deposit ratios



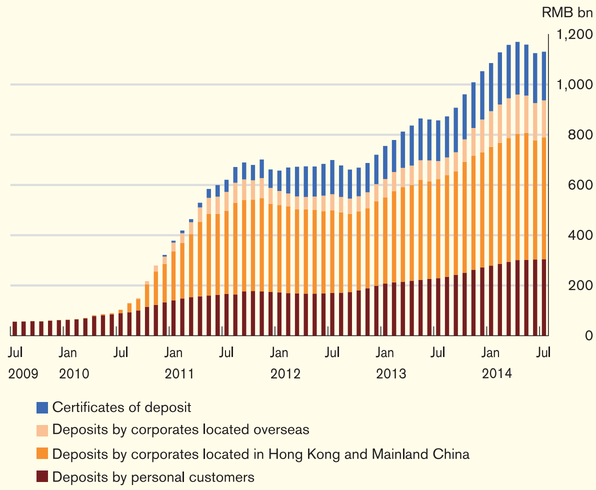
Source: HKMA.

With the low interest rate environment likely to stay for a time, credit growth pressure could persist in the near term. While cross-border dollar credit demand is expected to remain robust, domestic credit also shows signs of resurgence. Leverages of banks, corporations and households could therefore accumulate further, making them more vulnerable to adverse economic developments.

Offshore renminbi banking business

Offshore renminbi business in Hong Kong maintained solid growth. The liquidity pool expanded further in Hong Kong, with total renminbi deposits and certificates of deposit (CDs) amounting to RMB1,124.9 billion at the end of June, up 6.8% (not annualised) in the first half of 2014 following a 22.3% increase in the second half of 2013 (Chart 4.13 and Table 4.C). Growth in deposits and CDs was mainly recorded in the first quarter, followed by some softening in the second quarter. Corporate deposits declined in May and June, offsetting a steady increase in personal deposits. Moreover, CD issuance moderated in the second quarter amid active renminbi bond issuance, resulting in a decline in outstanding CDs. Renminbi trade settlement handled by banks in Hong Kong continued to increase rapidly, amounting to RMB2,926.1 billion in the first half of 2014, up 36.4% (not annualised) from RMB2,145.6 billion in the second half of 2013 (Chart 4.14 and Table 4.C). Both payments between the Mainland and Hong Kong and payments involving places outside Hong Kong grew by more than 30%. Meanwhile, the outstanding amount of renminbi bank lending grew at a faster pace of 20.6% (not annualised) in the first half, following a tepid 4.6% in the preceding half-year period.

Chart 4.13
Renminbi deposits and CDs in Hong Kong



Source: HKMA.

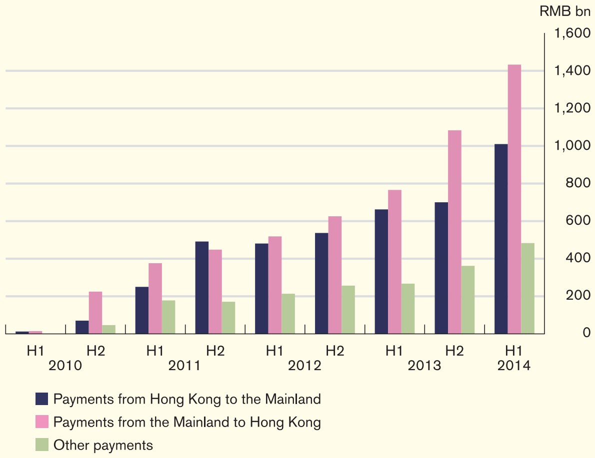
Table 4.C
Offshore renminbi banking statistics

	Dec 2013	Jun 2014
Renminbi deposits & certificates of deposit (CDs) (RMB bn)	1,053.0	1,124.9
Renminibi deposits (RMB bn)	860.5	925.9
Non-Hong Kong residents' renminbi deposits (RMB bn)	19.0	29.2
Share of renminbi deposits in total deposits (%)	12.0	12.0
Renminbi certificates of deposit (CDs) (RMB bn)	192.5	199.0
Renminbi outstanding loans (RMB bn)	115.6	139.4
Number of participating banks in HK's renminbi clearing platform	216	222
Amount due to overseas banks (RMB bn)	166.0	160.2
Amount due from overseas banks (RMB bn)	164.5	230.6

	Jan - Jun 2014
Renminbi trade settlement in Hong Kong (RMB bn)	2,926.1
Of which:	
Inward remittances to Hong Kong (RMB bn)	1,432.7
Outward remittances to Mainland China (RMB bn)	1,010.2
Ratio of inward to outward remittances to Mainland China	1.4
Turnover in Hong Kong's RMB RTGS system (Daily average during the period; RMB bn)	691.8

Source: HKMA.

Chart 4.14
Flows of renminbi trade settlement payments



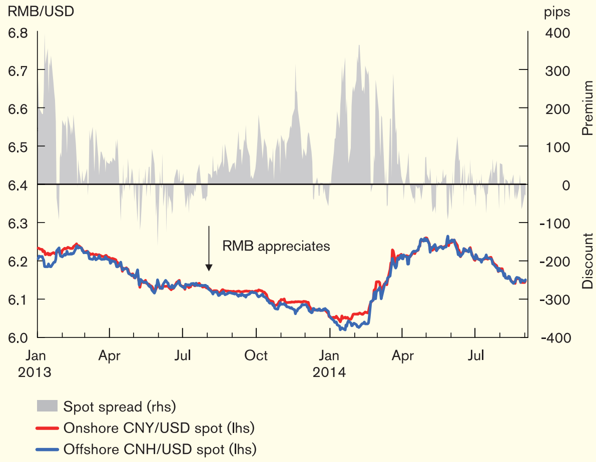
Source: HKMA.

Hong Kong's position as a global hub for renminbi clearing and settlement has further strengthened, with the average daily turnover of renminbi real time gross settlement (RTGS) system climbing to RMB691.8 billion in the first half of 2014 compared with RMB395.4 billion in the whole of 2013. This reflected the pivotal role of Hong Kong in handling the rapid expanding renminbi payments in the offshore market globally.

In all likelihood, the prospects of offshore renminbi business in Hong Kong will further prosper with the launch of the Shanghai-Hong Kong Stock Connect pilot scheme. By enabling investors to have mutual access of the Shanghai and Hong Kong stock markets, this scheme is expected to facilitate a wider cross-border usage and circulation of renminbi, further broadening the scope of offshore renminbi business in Hong Kong.

The Hong Kong offshore renminbi exchange rate (CNH) continued to broadly follow the onshore rate (CNY), both depreciating by 2.4% in the first half (Chart 4.15). The CNH, however, displayed slightly greater volatility in daily movements than the CNY. With the CNH trading at a premium, the average spread vis-à-vis CNY shrank from +163 pips in the first quarter to +3 pips in the second quarter. While relatively stable early in the year, liquidity in the CNH interbank market has tightened slightly since May, with the three-month CNH HIBOR fixings rising by about 60 basis points to 3% at the end of June. This was largely due to an increase in funding demand for renminbi bond investments and stronger liquidity needs around the half-year end.

Chart 4.15
Onshore and offshore renminbi exchange rates



Source: Bloomberg.

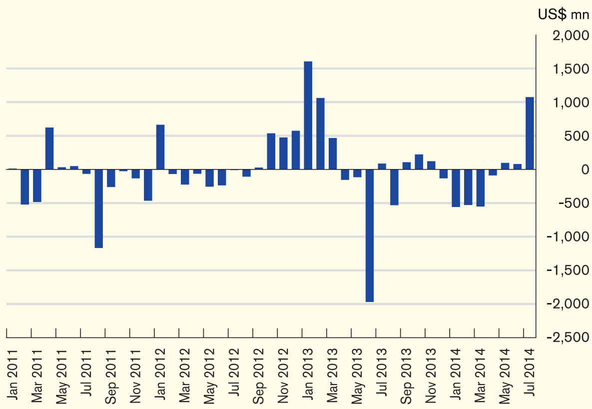
Asset markets

Hong Kong equity prices rallied in the past six months on the back of the continued dovish tone from the US Fed on its monetary policy and optimism over the launch of the Shanghai-Hong Kong Stock Connect. However, the market outlook will be uncertain in the medium-term with the impending monetary normalisation. The Hong Kong dollar debt market contracted slightly, while the offshore renminbi debt market continued to expand rapidly with non-CD debt issuance surpassing the total amount recorded in the entire 2013. The residential property market has turned more active in the past few months, with transaction volume picking up from recent lows and housing prices advancing again. Property valuation remains highly stretched and could be sensitive to interest rate hikes.

4.3 Equity market

After a sell-off in the first quarter of 2014, local equities staged a rebound over the past few months amid improved external market conditions and optimism over a pilot scheme to link the stock markets in Shanghai and Hong Kong. While the US Fed continued to taper its asset purchases as planned, its chair reiterated her pledge to keep interest rates low in the foreseeable future. As a result, international investors regained their appetite for risky assets, which benefited local equities, especially given their low valuations following a protracted period of underperformance. This was reflected in a reversal in equity fund flows (Chart 4.16) and the considerable increase in the Aggregate Balance over the review period. Meanwhile, across the border, the Central Government unveiled a series of "mini-stimulus" measures in April to support economic growth. This, coupled with the announcement of the Shanghai-Hong Kong Stock Connect, helped improve market sentiment over local equities. Although global market conditions deteriorated somewhat in mid-July upon escalating geopolitical tensions in Eastern Ukraine and Gaza, local equities continued to extend their gains amid signs of a steady economic growth in China, with the Hang Seng Index (HSI) breaking the 25,000 level in August.

Chart 4.16
Equity fund flows into Hong Kong

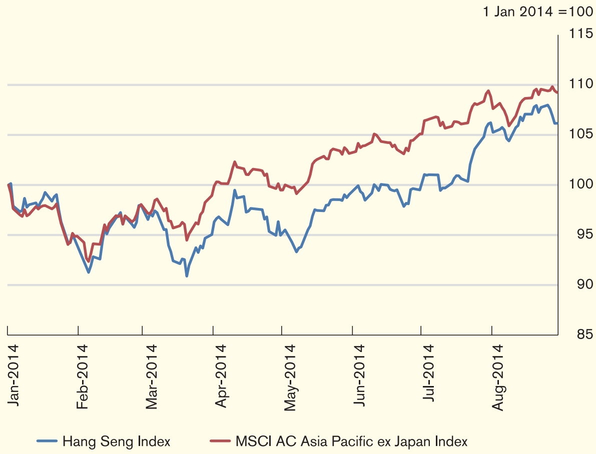


Source: EPFR Global.

Overall, the HSI and the Hang Seng China Enterprises Index (HSCEI), also known as the H-share index, increased by 8.3% and 10.8% respectively from March to August 2014. Notwithstanding the strong rebound in July, the

Hong Kong equity market still underperformed its counterparts in the Asia-Pacific region in the first eight months of 2014 (Chart 4.17).

Chart 4.17
Performance of stock markets in Hong Kong and the Asia Pacific region

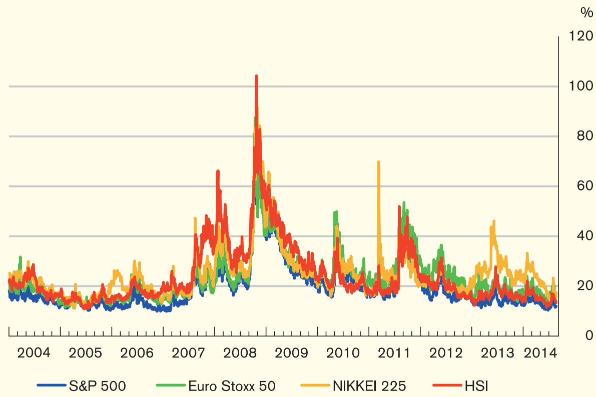


Source: Bloomberg.

Looking forward, the local equity market will continue to be dictated by external market conditions. In the near-term, market sentiment may remain buoyant ahead of the launch of the Shanghai-Hong Kong Stock Connect. Further out, however, there is unlikely to be smooth sailing through the remainder of the year. As financial market volatility has now returned to pre-subprime-crisis levels globally – a phenomenon that may be attributed to optimism stemming from expectations of low interest rates to continue – there are increasing concerns that the low-volatility environment may encourage excessive risk-taking behaviour, thereby threatening financial stability (Chart 4.18). Indeed, some studies suggest that financial market volatility goes hand-in-hand with interest rates, meaning that a rebound in interest rates could prompt a major risk re-appraisal.[23]

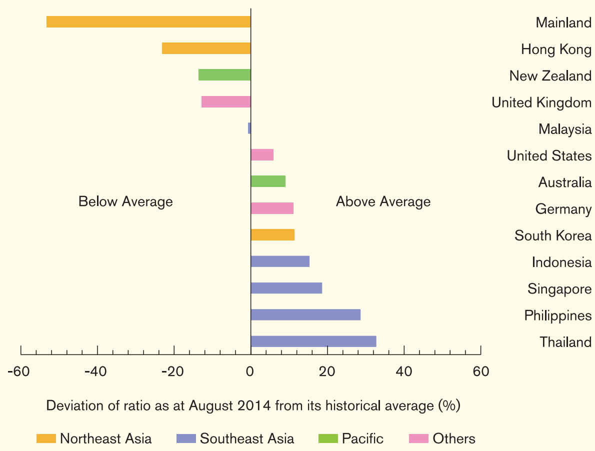
Therefore, while local equities are arguably less susceptible to a considerable downward adjustment given their current relatively low valuations (Chart 4.19), the medium-term outlook for the market is highly uncertain, especially after the Fed ends its asset purchases.

Chart 4.18
Volatility indices of major equity markets



Source: Bloomberg.

Chart 4.19
Price-earnings ratios of Asian Pacific (excluding Japan) and other major markets



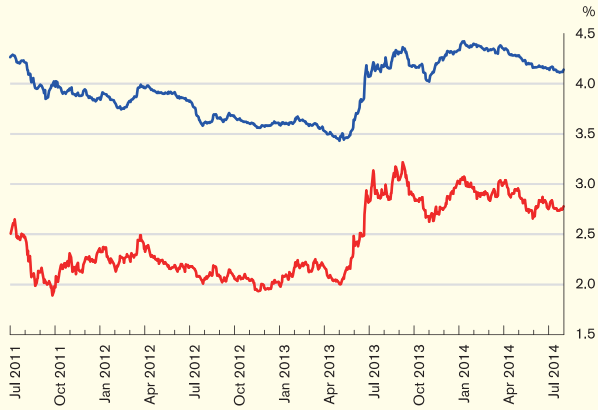
Sources: Bloomberg, CEIC and HKMA staff estimates.

[23] See, for instance, Bekaert, Geert, Marie Hoerova, and Marco Lo Duca. (2010), "Risk, Uncertainty and Monetary Policy," working paper, European Central Bank.

4.4 Debt market

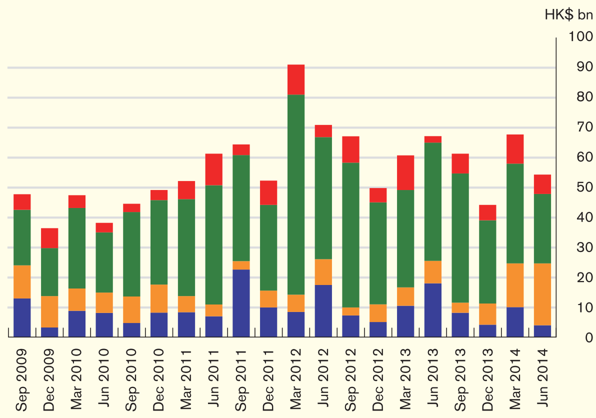
The Hong Kong dollar debt market contracted slightly despite increased issuance activities amid improved financial market conditions. At the beginning of this year, the selloff in Asian bond markets continued as the Fed started to taper its asset purchases. However, investor sentiment subsequently turned positive as regional economies showed signs of improvement. This, coupled with the Fed's indication to keep interest rate low in the near-term, generally set a bullish tone for bonds (Chart 4.20). Against this backdrop, primary market activities by the private sector increased in the first half of 2014, with issuance rising by 7.3% year on year to HK$106.7 billion (Chart 4.21).[24, 25] In contrast, public sector debt issuance edged up by just 0.4% to HK$1,078.9 billion as the increase in Exchange Fund papers issuance barely offset the sizeable decline in new debts issued by the Government and statutory bodies/government-owned corporations.[26] Overall, total issuance in the first half of 2014 amounted to HK$1,186.9 billion, slightly up by 1.1% from the preceding year.

Chart 4.20
Average yields of Asian and Hong Kong local bonds



Source: Bloomberg.

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



Source: HKMA.

Notwithstanding the increase in total issuance, the Hong Kong dollar debt market registered its first, though slight, year-on-year contraction in more than five years. As at end-June 2014, the outstanding amount of Hong Kong dollar debt securities stood at HK$1,396.7 billion, down marginally by 0.6% from a year earlier (Chart 4.22). Public sector outstanding debt rose by 1.2% year on year, while the private sector saw its outstanding debt fell by 3.0% despite the significant growth in its issuance. This appears

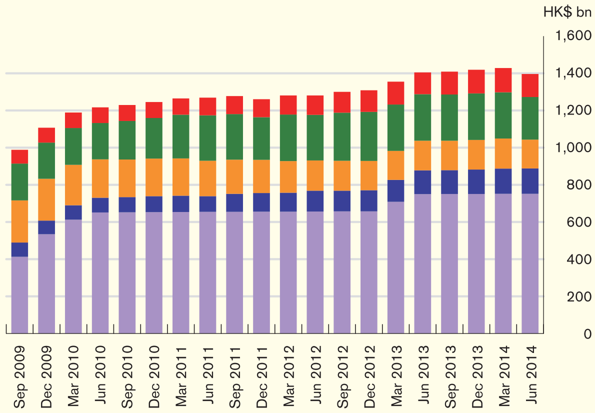
24 Private sector comprises AIs, local corporations and overseas borrowers and excludes multilateral development banks (MDBs).

25 In the first half of 2014, non-MDB overseas borrowers and local corporations issued 149.6% and 18.1% more debt than the preceding year to HK$34.0 billion and HK$16.3 billion respectively. New issuance by AIs, however, declined by 21.6% year on year to HK$56.5 billion.

26 Exchange Fund papers issuance in the first half of 2014 rose by 1.8% year on year to HK$1,064.9 billion, which was equivalent to 89.7% of total issuance over the same period. New debts issued by statutory bodies/government-owned corporations and the Government dropped considerably by 68.7% and 43.5% to HK$2.6 billion and HK$11.3 billion respectively.

to buck the trend of the rapid growth in corporate bonds in Hong Kong as well as other parts of Asia. Box 4 reviews the developments in the Asian corporate bond market in recent years and discusses the potential risks involved.

Chart 4.22
Outstanding Hong Kong dollar debt

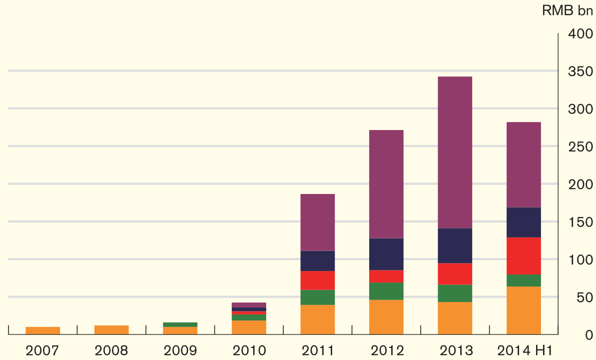


Local corporations
AIs
Overseas borrowers (including multilateral development banks)
Government, statutory bodies and government-owned corporations
Exchange Fund

Source: HKMA.

On the other hand, the offshore renminbi debt market in Hong Kong continued to expand rapidly in the first half of 2014. Despite earlier concerns over further depreciation of the renminbi and the credit quality of Mainland issuers following the first corporate bond default in the onshore market in March 2014, investor demand for offshore renminbi debt securities remained strong.[27] As a result, total issuance in the first half of 2014 jumped markedly by 38.3% year on year to RMB281.9 billion (Chart 4.23). In particular, non-CD debt issuance reached RMB168.8 billion, surpassing the full-year amount recorded in 2013. While private Mainland issuers accounted for 37.7% of the non-CD debt issuance in the first half of this year, Hong Kong issuers recorded a strong growth, issuing 251.2% or RMB35.3 billion more non-CD debt than in the same period of 2013. The surge was mainly attributed to increased issuance by banks operating in Hong Kong. With the significant growth in total issuance, the outstanding amount of offshore renminbi debt securities in Hong Kong grew by 31.3% year on year to a record level of RMB632.7 billion as at end-June 2014 (Chart 4.24).

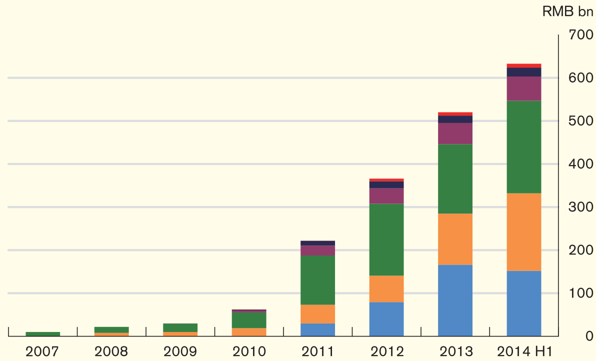
Chart 4.23
New issuance of offshore renminbi debt securities



Private Mainland issuers
Mainland Government
Hong Kong issuers
Overseas issuers
CDs

Sources: Newswires and HKMA staff estimates.

Chart 4.24
Outstanding amount of offshore renminbi debt securities by remaining tenor



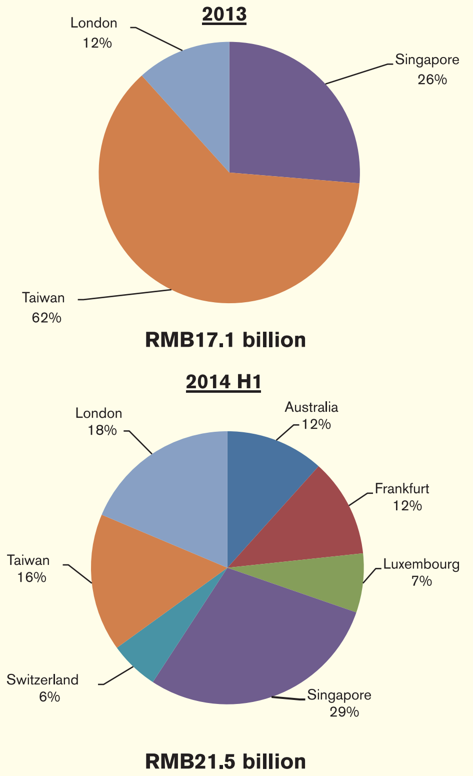
Up to 0.5 year
More than 0.5 year and up to 1 year
More than 1 year and less than 3 years
3 years or more and up to 5 years
More than 5 years and up to 10 years
More than 10 years

Sources: Newswires and HKMA staff estimates.

27 Debt securities include both medium and long-term notes, bonds, CDs and commercial papers.

Meanwhile, outside Hong Kong, a total amount of RMB21.5 billion renminbi bonds was issued in the offshore renminbi market in the first half of 2014 (Chart 4.25). Apart from London, Singapore and Taiwan, a significant portion of these bonds were issued in other markets, including Australia, Frankfurt, Luxembourg and Switzerland. This reflects a deepening of the global offshore renminbi market.

Chart 4.25
New issuance of offshore renminbi bonds outside Hong Kong



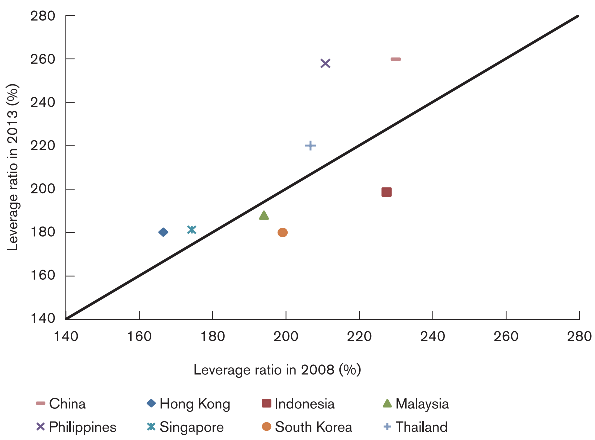
Sources: Newswires and HKMA staff estimates.

Looking ahead, the offshore renminbi debt securities market in Hong Kong is expected to continue to grow steadily in the second half of this year. On the supply side, strong refinancing need will continue to support issuance in the market. As at end-June 2014, the outstanding debt maturing by the end of this year amounted to RMB152.1 billion, which was equivalent to 24.0% of the total outstanding balance (Chart 4.24). On the demand side, investor appetite for offshore renminbi debt securities is likely to remain strong in view of the improved economic outlook for the Mainland and a relatively stable currency in the near-term.

Box 4
Recent developments of the corporate bond market in Asia

The corporate bond market has grown rapidly in Asia over the past few years. At the same time, however, there was an increase in the leverage of the corporate sector in the region. Balance sheet statistics of major listed non-financial companies show that the debt leverage ratio of the corporate sector in major Asian economies, except Indonesia, Malaysia and South Korea, has all trended higher over the past few years (Chart B4.1). This has aroused concerns over the vulnerability of the Asian economies to a sudden reversal in global liquidity conditions, especially after the bond market sell-off in May 2013 following the Fed's indication to taper its asset purchases. Against this backdrop, this box reviews the recent developments of the Asian corporate bond market and discusses the risks associated with the rapid expansion.

Chart B4.1
Leverage ratio of major listed non-financial companies in selected Asian economies



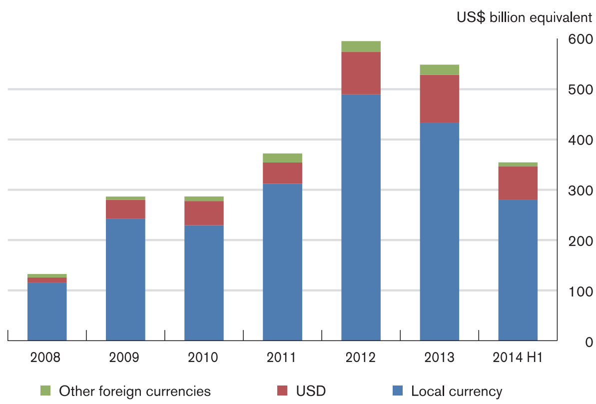
Notes:
1. Debt leverage is defined as the ratio of total assets to shareholders' funds. A higher value indicates higher leverage.
2. Major listed non-financial companies refer to the non-financial constituents of the economy's major stock market index, including the Shanghai Shenzhen CSI 300 Index, the Hang Seng Index, the Jakarta Stock Exchange Composite Index, the FTSE Bursa Malaysia KLCI Index, the Philippines Stock Exchange PSEi Index, the Straits Times Index, the Korea Stock Exchange Composite Index and the Stock Exchange of Thailand SET Index.

Source: HKMA staff estimates based on data from Bloomberg.

Recent developments

After the global financial crisis, the Asian corporate sector has increasingly relied on the bond market for funding needs. Based on the nationality of the deals (which covers both onshore and offshore issuance by the corporations), issuance of non-bank corporate bonds in major Asian economies reached US$594.8 billion in 2012, more than four times the amount recorded in 2008 (Chart B4.2).[28, 29] Although primary market activities have declined somewhat in 2013, the total amount of newly issued bonds still remained at a relatively high level of US$548.1 billion. Besides search-for-yield activities fuelled by the low interest rate environment, a number of other factors, including a tightening of bank credit amid the deleveraging in European banks and improved economic fundamentals in Asia, also contributed to the recent boom. With the surge in issuance, the outstanding balance of non-bank corporate bonds in major Asian economies rose sharply by 366.8% from 2008 to US$2,299.3 billion as at the end of June 2014 (Chart B4.3).

Chart B4.2
New issuance of local non-bank corporate bonds in selected Asian economies



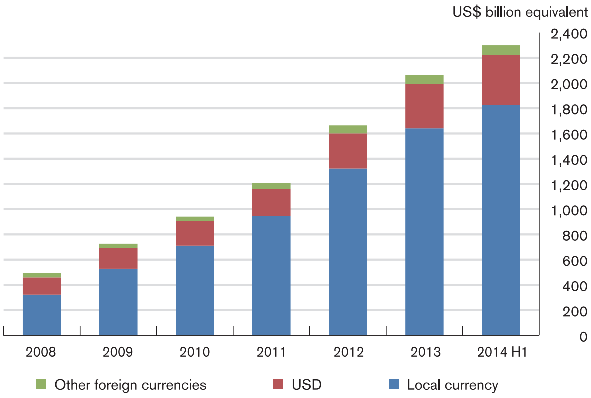
Note: The selected Asian economies include China, Hong Kong, Indonesia, Malaysia, the Philippines, Singapore, South Korea, and Thailand.

Source: HKMA staff estimates based on data from Dealogic.

28 We follow Dealogic's definition of deal nationality which 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.

29 Corporate bonds here include investment grade and high-yield debts, medium term notes and preferred securities. All the deals included have an original tenor greater than or equal to 18 months.

Chart B4.3
Outstanding amount of local non-bank corporate bonds in selected Asian economies



Note: The selected Asian economies include China, Hong Kong, Indonesia, Malaysia, the Philippines, Singapore, South Korea, and Thailand.
Source: HKMA staff estimates based on data from Dealogic.

Despite the policy initiatives that have already been in place since the early 2000s for promoting the local currency bond market in Asia, market attention has centred around the sharp rise in foreign currency bond issuance by the Asian corporations over the past few years.[30, 31] In 2013, issuance of foreign currency bonds by non-bank corporations in major Asian economies reached US$116.0 billion, a marked 557.3% increase from 2008 (Chart B4.2). In particular, issuance of US dollar-denominated bonds jumped almost nine-fold over the same period to US$95.7 billion in 2013 as the corporate sector took advantage of the low interest rate environment due to quantitative easing by the Fed. Following the strong growth in issuance, the outstanding amount of foreign currency bonds issued by non-bank corporations in the region reached US$474.2 billion as at the end of June 2014, of which 83.8% was accounted for by US dollar-denominated bonds (Chart B4.3).

Apart from the growth in issuance, Asian corporations have been more able to issue bonds with longer tenors. In 2013, the weighted average tenor of new issuance by non-bank corporations in major Asian economies lengthened to 6.3 years from 5.9 years in 2008. The lengthening of tenors could partly be attributed to a surge in foreign currency bond issuance in offshore markets, which tend to be more developed and more appealing to institutional investors.[32, 33]

Associated risks

The rapid growth in bond issuance in the region has *ceteris paribus* brought a number of risks, namely, exchange rate risk, interest rate risk and credit risk, which warrant closer scrutiny given its potential implications for financial stability.[34]

Exchange rate risk

First, the surge in foreign currency bond issuance appears to suggest that the corporate sector may be taking a higher exchange rate risk, sparking concerns of potential currency mismatch. However, over the past few years, the growth of local currency bonds has been equally fast. In fact, local currency bonds now account for a larger share of total outstanding bonds in most of the economies in the region, with the

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[30] For details on the policy initiatives for developing local currency bond markets in the region, see "ASEAN+3 Bond Market Guide", Asian Development Bank, 2012.

[31] For a discussion on the impact of rising foreign currency bond issuance by corporations in emerging market economies, see Turner, P., 2014. "The global long-term interest rate, financial risks and policy choices in EMEs". BIS Working Papers No. 441, Bank for International Settlements.

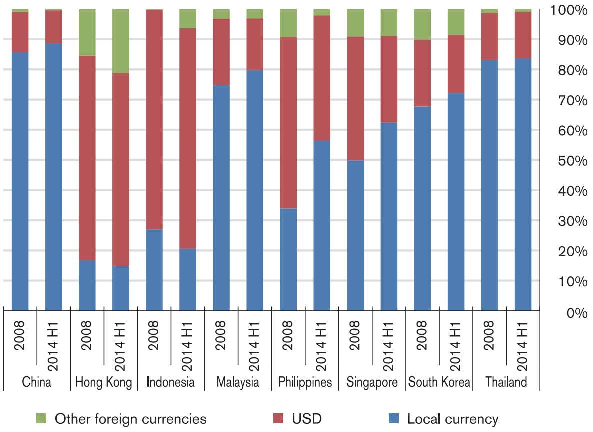
[32] For a discussion on the recent developments of offshore bond issuance by corporations in emerging market economies, see Box 2 in the BIS Quarterly Review, September 2013.

[33] For a discussion on the motivations for issuing bonds offshore, see Black, S. & Munro, A., 2010. "Why issue bonds offshore?". BIS Working Papers No. 334, Bank for International Settlements.

[34] It should, however, be stressed that the following analysis, which focuses on the bond market, cannot provide a comprehensive analysis of the extent of corporate leverage in the region.

exception of Hong Kong and Indonesia (Chart B4.4).[35] Hence, the risk of currency mismatch may not necessarily increase.

Chart B4.4
Breakdown of outstanding non-bank corporate bonds in selected Asian economies as at end-June 2014 by currency type

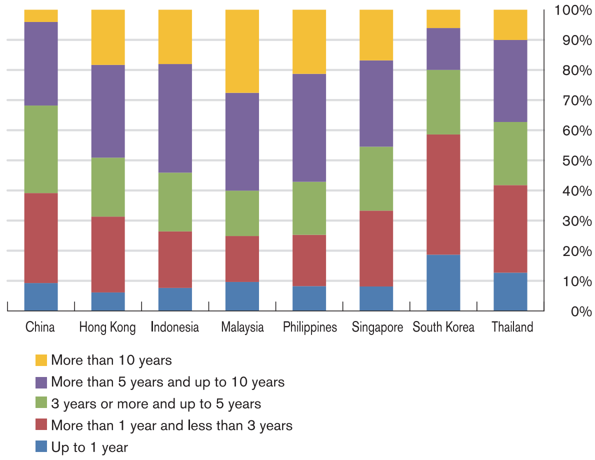


Source: HKMA staff estimates based on data from Dealogic.

Interest rate risk

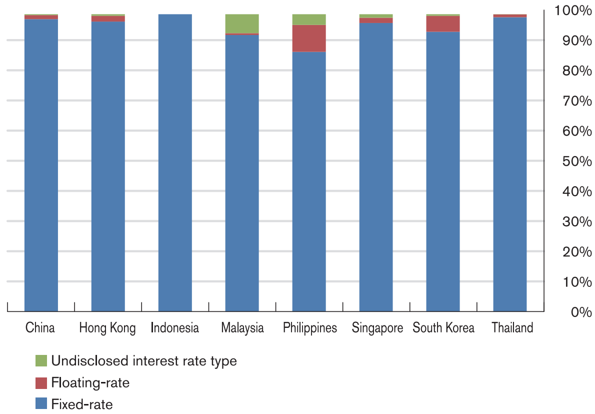
Second, in light of the rising issuance of longer-tenor bonds, the average remaining tenor of the outstanding Asian non-bank corporate bonds remained at a relatively high level of 4.9 years at the end of June 2014, with over 50% of the outstanding bonds in most of the economies (except South Korea) carrying a remaining maturity of at least 3 years (Chart B4.5).[36] This suggests that the refinancing need of the corporations in the region may not increase significantly in the near-term. Moreover, fixed-rate bonds accounted for the majority of the total outstanding bonds as corporations locked in lower cost for long-term funding by issuing fixed-rate bonds over the past few years. As at the end of June 2014, 97.1% of the total outstanding non-bank corporate bonds in major Asian economies are fixed-rated bonds, suggesting that the normalisation of the US monetary policy may not lead to substantial increase in the interest expenses of these corporations in the near-term (Chart B4.6). Nevertheless, corporations refinancing their debts still face higher interest cost as the monetary normalisation by the Fed could lead to a mark-to-market decline in the price of their bonds.

Chart B4.5
Breakdown of outstanding non-bank corporate bonds in selected Asian economies as at end-June 2014 by remaining tenor



Source: HKMA staff estimates based on data from Dealogic.

Chart B4.6
Breakdown of outstanding non-bank corporate bonds in selected Asian economies as at end-June 2014 by interest rate type



Source: HKMA staff estimates based on data from Dealogic.

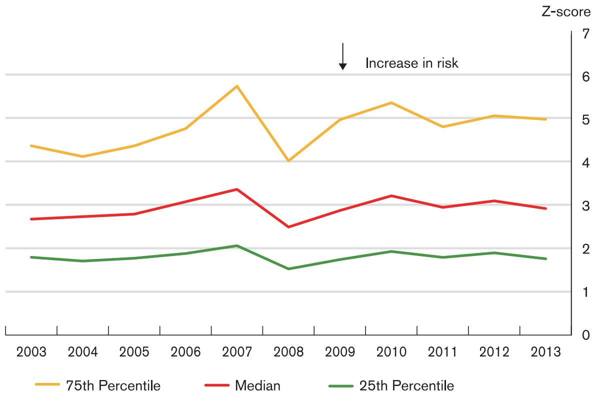
[35] While foreign currency bonds accounted for 85.2% of Hong Kong's total outstanding non-bank corporate bonds as at the end of June 2014, 75.1% of these bonds were denominated in USD. Hence, the exchange rate risk of Hong Kong corporations is arguably low given the Linked Exchange Rate System.

[36] Perpetual bonds are excluded from the calculation of weighted average tenor.

Credit risk

Last but not least, corporations' probability of default has remained fairly stable despite the strong issuance of corporate bonds. Their Altman's Z-score is still significantly above the level recorded during the global financial crisis in 2008 (Chart B4.7). Hence, the credit risk of the Asian corporations may not have heightened significantly at this stage despite their increased leverage in recent years.

Chart B4.7
Altman's Z-score of listed non-financial companies in selected Asian economies



Notes:
1. A lower Z-score indicates a higher likelihood of a company default.
2. The selected Asian economies include China, Hong Kong, Indonesia, Malaysia, the Philippines, Singapore, South Korea, and Thailand.
3. Major listed non-financial companies refer to the non-financial constituents of the major stock market indices of the above eight economies, including the Shanghai Shenzhen CSI 300 Index, the Hang Seng Index, the Jakarta Stock Exchange Composite Index, the FTSE Bursa Malaysia KLCI Index, the Philippines Stock Exchange PSEi Index, the Straits Times Index, the Korea Stock Exchange Composite Index and the Stock Exchange of Thailand SET Index.

Source: HKMA staff estimates based on data from Bloomberg.

Concluding remarks

In Asia, the corporate sector has in the past relied heavily on the banking sector and stock market for financing, a key structural weakness identified in the Asian financial crisis. In recent years, the bond market has started to play a more prominent role in financial intermediation in the region. From a structural perspective, this should be a welcome development.

However, risks associated with the rapid expansion of the market warrant careful analysis. This box has examined the risks based solely on some highly aggregated bond market data and reached a conclusion that the risks remain contained. However, this is not to say that all Asian corporations are therefore safe. Issuing bonds is only one of the many channels of borrowing. Assessing the extent of leverage of a corporation requires much closer examination of its balance sheet and beyond.[37] Hence, the increasing leverage of the corporate sector warrants close monitoring, particularly given the uncertainties associated with the Fed's monetary normalisation and the macroeconomic environment in the region.

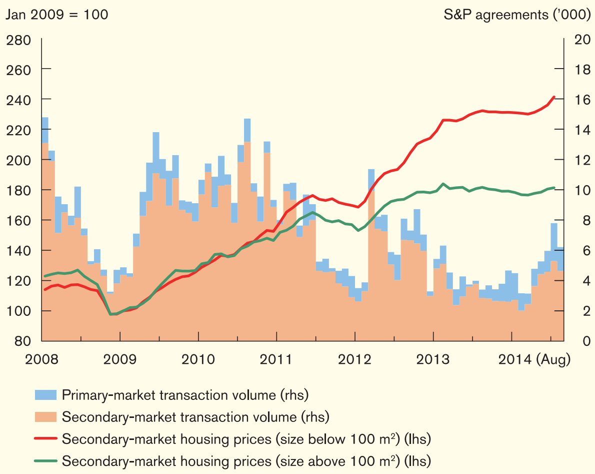
[37] For instance, there are concerns that some corporations in the region are disproportionately more indebted and vulnerable than others. See Chapter 2 in IMF Regional Economic Outlook: Asia and Pacific, April 2014.

4.5 Property markets

Residential property market

After some consolidation in the past year or so, the residential property market has turned more active in recent months, with transaction volume picking up from recent lows and housing prices resuming moderate growth. This was largely supported by pent-up demand and improving sentiment, as the market became less concerned about an imminent interest rate hike in the US and Hong Kong. Indeed, credit conditions remained supportive with the mortgage interest rates staying low and banks slightly easing their credit stance. Trading activity picked up at first in the primary market, later followed by the secondary market, particularly that of the small and medium-sized flats. The average monthly registration of sale and purchase (S&P) agreements for residential properties rose from 3,827 in number in the second half of 2013 to 4,467 in the first half of 2014 and 7,002 in July and August (Chart 4.26).

Chart 4.26
Residential property prices and transaction volume



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

Meanwhile, housing prices in the secondary market rose by 4.9% in the four months to July, after edging down by 0.6% in the first quarter and moving sideways during most of 2013. Prices of small and medium-sized flats (those with a saleable area of less than 100 m^2) were particularly resilient, rising by 5.0% between April and July to a record high level. While also picking up at a fast pace, prices of large flats (those at least 100 m^2) have not fully recovered from last year's consolidation. Other price indicators such as the Centa-City leading index, sellers' asking prices and banks' appraisal value also suggested upward pressure on housing prices. In the primary market, however, developers continued to offer discounts and concessions on new launches, while the premium of new flats relative to used ones appeared to have narrowed recently.

Given the latest developments, property valuation remains highly stretched relative to household income and economic fundamentals, and this continues to be a concern for Hong Kong's macro-financial stability. Despite sustained income growth, housing affordability is still low, with the price-to-income ratio staying high at 14.0 in the second quarter, a level just slightly below the 1997 peak, and the income-gearing ratio still hovering around 61.9% and above its long-term average of 50% (Chart 4.27).[38] Moreover, if mortgage interest rates rose to a more normal level, say by 300 basis points, the income-gearing ratio would soar to 80.8%. The buy-rent gap has also edged higher, indicating a continued rise in the relative cost of owning than renting a flat (Chart 4.28).[39] The average residential rental yield stayed low at 2.2-3.2% in the year to July, near the level of 10-year Exchange Fund Notes and suggesting active search-for-yield behaviour.

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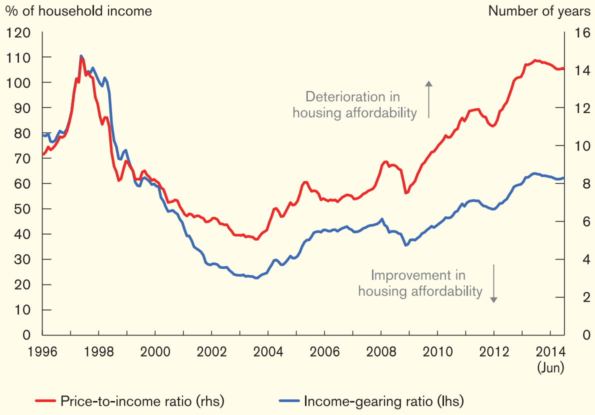
[38] The price-to-income ratio measures the average price of a typical 50 m^2 flat relative to the median income of households living in private housing. Alternately, the income-gearing ratio compares the amount of mortgage payment for a typical 50 m^2 flat (under a 20-year mortgage scheme with a 70% loan-to-value ratio) to the median income of households living in private housing.

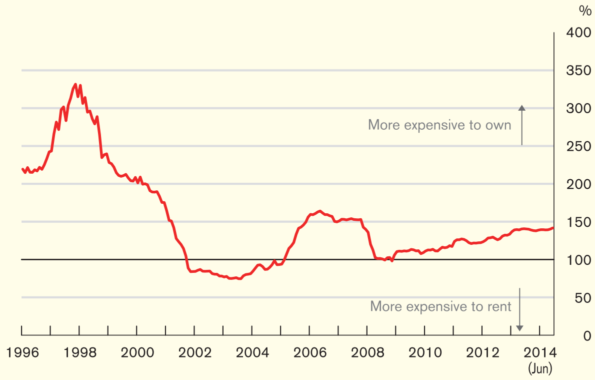
[39] The buy-rent gap estimates the cost of owner-occupied housing (under a 20-year mortgage scheme with a 70% loan-to-value ratio) relative to rentals.

Chart 4.27
Indicators of housing affordability



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

Chart 4.28
Buy-rent gap

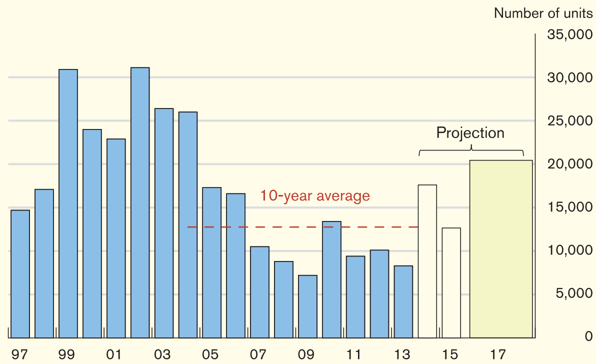


Note: This indicator is calculated as the ratio of the cost of purchasing and maintaining a 50 m² flat with that of renting it.

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

As regards the outlook, property market imbalance could persist for a time in Hong Kong, with housing prices likely to remain supported by the prevailing low interest rate environment and a relatively tight housing demand-supply condition. Nevertheless, the property market is still facing some downside risks. The eventual interest rate hikes could dampen the dynamics of property price inflation or even exert some downward pressure. By then, debt repayment and servicing burden would increase (e.g. by an estimated 30.5% for a 20-year mortgage under the assumption of a 300-basis-point rate hike), while property investment and home purchase would become less attractive due to a rise in interest rates relative to rentals. It should also be noted that the Fed's interest rate normalisation process could significantly increase financial market volatility and affect market sentiment. Should fund flows reverse significantly, it could exacerbate downward adjustment in housing prices and severely hit the broader economy. Looking further ahead, the demand-supply condition of the housing market is expected to gradually progress towards a more balanced state, with housing completion likely to hit 17,600 units in 2014 and expected total supply rising to around 73,000 units in the next three to four years (Chart 4.29).

Chart 4.29
Private flat completion

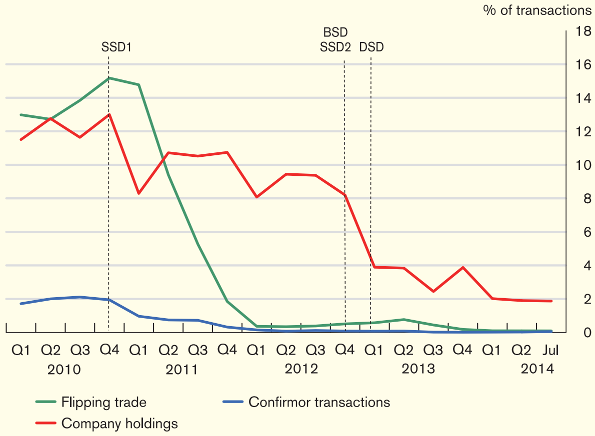


Note: The R&VD projects new housing completion at 17,614 units and 12,660 units respectively in 2014 and 2015. The projections for 2016-18 are based on the Transport and Housing Bureau's forecast of private housing supply in the next three to four years (73,000 units) netting out the R&VD's forecast for 2015.

Sources: Transport and Housing Bureau and R&VD.

Since 2009, the HKMA has introduced six rounds of counter-cyclical macro-prudential measures to prevent bank credit from fuelling property-price bubbles and to ensure that banks and their customers have sufficient cushions on their balance sheets to ride out volatilities in property prices. These measures have helped bring down the actual loan-to-value (LTV) ratio for new mortgages from an average of 64% before their introduction to around 56% and the debt servicing ratio (DSR) from an average of over 40% to around 35% recently. Growth in residential mortgage loans also slowed from 14.1% in 2010 to about 7-8% in 2011 and 2012 and 3.9% in 2013. At the same time, the Government's demand-management measures have reduced speculative and investment activity (Chart 4.30) and helped dampen property price inflation. Box 5 further explores the impact of these cooling measures on Hong Kong's property market in recent years.

Chart 4.30
Confirmor transactions, flipping trade and company purchasers



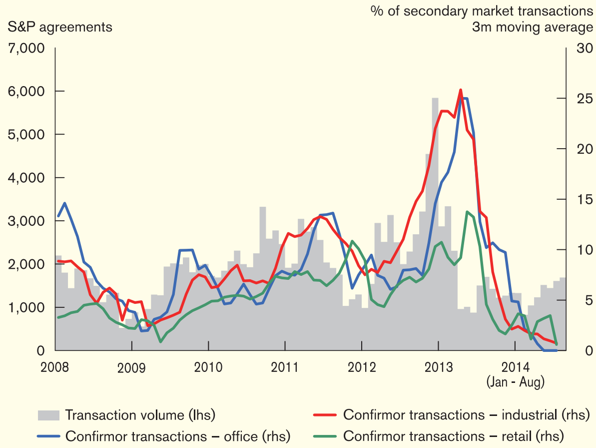
Note: SSD1 refers to the first introduction of the Special Stamp Duty in November 2010, and SSD2 refers to the enhancement in October 2012. BSD and DSD refer to the Buyer's Stamp Duty and the doubling of the *ad valorem* stamp duty rates, respectively.

Source: Centaline Property Agency Limited.

Commercial and industrial property markets

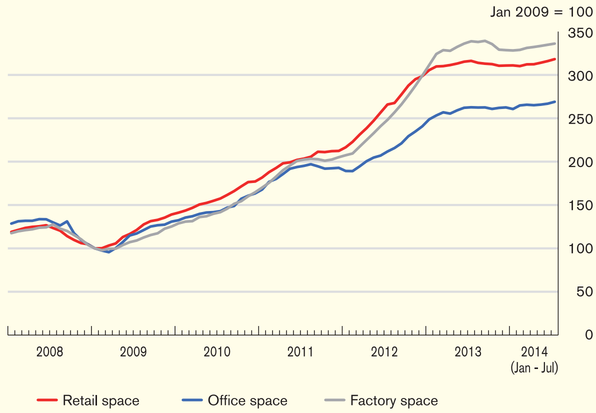
The commercial and industrial property markets also showed more signs of pick-up in recent months, although the overall market sentiment remained weak because of concerns about future interest rate hikes and the Government's demand-management measures. Transaction volume has risen from recent lows since early this year, with the number of S&P registrations averaging 1,336 a month in the first eight months (Chart 4.31). As an indicator of speculative activities, confirmor transactions continued to hover at low levels. Prices of commercial and industrial properties edged higher by a modest 2.3-2.5% in the year to July after some consolidation in the past year (Chart 4.32), while rentals also increased by around 2.3-6.2%, with yields staying low at 2.4-2.9%.

Chart 4.31
Transactions in non-residential properties



Sources: Land Registry and Centaline Property Agency Limited.

Chart 4.32
Non-residential property price indices



Source: R&VD.

Despite improving sentiment in recent months, the commercial and industrial property markets still have some headwinds to contend with in the near to medium term. It should be noted that property valuation has been highly-stretched, and rental earnings could soften going forward along with a possible growth slowdown of the domestic economy and particularly in retail trade. This, coupled with expectation of interest rate hikes, could bring down the capital values and exert downward pressure on commercial and industrial property prices. In terms of banking and financial stability, it remains critically important for banks to maintain a prudent credit stance, restrain their property-related exposure, and ensure sufficient cushions to ride out property cycles.

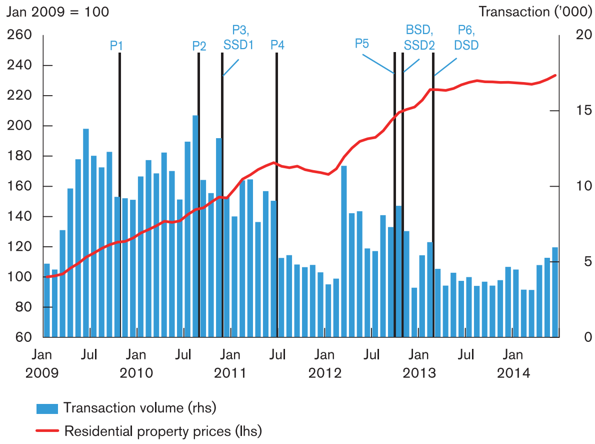
Box 5
The impact of counter-cyclical prudential and demand-management measures on Hong Kong's housing market

How can the counter-cyclical measures affect the housing market?

The HKMA has introduced six rounds of counter-cyclical prudential measures on banks' property mortgage business since October 2009 (with the latest round in February 2013) to prevent bank credit from fuelling property market imbalances and ensure that banks and their customers will have sufficient cushions on their balance sheets to ride out volatilities in housing prices (Chart B5.1). The policy tools include imposing limits on the loan-to-value (LTV) ratio and debt-servicing ratio (DSR) for property mortgage, and requiring mandatory stress tests of borrowers' repayment ability against interest rate hikes. Theoretically, while prudential measures can lead banks to lend less than they otherwise would have done, the additional wealth and income constraints, if binding on households, can help reduce housing demand and housing credit, through which housing prices may also be affected.[40, 41]

The Government has also put into place three rounds of demand-management measures starting from November 2010. By imposing additional and higher stamp duties (through Special Stamp Duty (SSD), Buyer's Stamp Duty (BSD) and doubling of the *ad valorem* stamp duty rates (DSD)), the Government aims at deterring speculative activities, as well as non-local demand. Housing prices can be affected as a result of reduced housing demand, while there can also be indirect pass-through onto demand for housing credit. Chart B5.2 illustrates how the prudential and demand-management measures may be transmitted to the housing market.

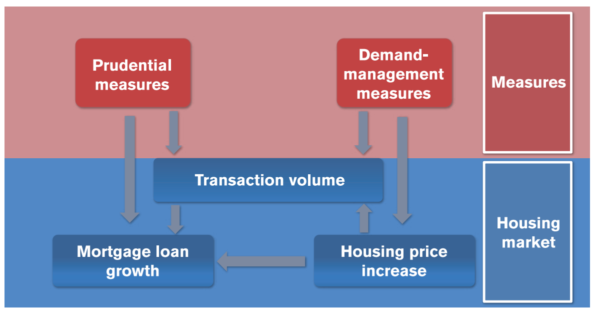
Chart B5.1
Housing prices, transaction volume and the timeline of counter-cyclical measures



Notes:
1. P1 refers to the first round of prudential measures introduced in October 2009, P2 the second round, etc.
2. SSD1 refers to the first introduction of the Special Stamp Duty in November 2010, and SSD2 refers to the enhancement in October 2012.
3. BSD and DSD refer to the Buyer's Stamp Duty and the doubling of the *ad valorem* stamp duty rates, respectively.

Sources: R&VD and Land Registry.

Chart B5.2
Transmission channels of counter-cyclical measures and the housing market



Source: HKMA staff.

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40 For example, Kuttner and Shim (2013) use a two-period consumption model to analyse the impact of LTV and DSR on housing demand and housing credit. See Kuttner, K. and I. Shim (2013), "Can Non-Interest Rate Policies Stabilise Housing Markets? Evidence from a Panel of 57 Economies", BIS Working Papers No. 433.

41 Wong et al (2014) provide empirical evidence that the LTV policy can restrain the level of household leverage in Hong Kong and illustrate the effect of LTV policy on credit supply and demand. For details, please refer to Box 5 of the March 2013 issue of this Report, and Wong, E. et al (2014), "How Does Loan-To-Value Policy Strengthen Banks' Resilience to Property Price Shocks – Evidence from Hong Kong", Hong Kong Institute for Monetary Research Working Paper No.03/2014.

Model specification

In order to assess how the counter-cyclical prudential and demand-management measures affect housing market activities, we construct a vector auto-regression (VAR) model. A VAR model has the advantage of being able to capture the dynamics of variables while controlling for the impact of other economic and financial factors. The model is specified as follows:

$$X_t = A + B_1 X_{t-1} + B_2 P_{t-1} + B_3 Z_{t-1} + \epsilon_t \ ,$$

where X is a vector of endogenous housing market variables (monthly change in housing prices, level of transaction volume, monthly change in outstanding residential mortgage loans), P is a vector of policy variables, and Z represents other controlling economic and financial factors, which include the Hang Seng Index (HSI), the HSI Volatility Index, the unemployment rate, and the average mortgage interest rate.[42] The sample used for the analysis covers the period from January 2009 to June 2014.

There are two policy variables in the model, representing the prudential measures and demand-management measures respectively. They are constructed as step function variables, equal to zero when no measures are in place, and increasing by one for each new "count" of tightening (which denotes a specific policy on either the mass market or the luxury market).[43] Details of the specification are shown in Table B5.A. The estimated coefficient for each policy variable then measures the marginal effect of each count of tightening. In this set-up, there can be more than one count in a certain round of policy tightening. This allows us to use counts as a proxy to measure the intensity of tightening at each policy round, having regard to the large diversity of the measures. It also helps deal with the problem of over-fitting and multicollinearity if all disaggregate policy measures and each round of tightening are otherwise put in a model as separate dummy variables.

Table B5.A
Counts of prudential measures and demand-management measures by policy round for specification of policy variables

Prudential measures

	LTV	DSR	Foreign income source	Non-owner occupiers	Multiple mortgage	Net-worth based mortgage	Number of new counts
Oct 2009	L						1
Aug 2010	L	M, L		M, L			5
Nov 2010	M, L			M, L			4
Jun 2011	M, L		M, L			M, L	6
Sep 2012					M, L		2
Feb 2013		M, L					2

Demand-management measures

	Special stamp duty (SSD)	Buyer's stamp duty (BSD)	Doubling of ad valorem stamp duty rates (DSD)	Number of new counts
Nov 2010	M, L			2
Oct 2012	M, L	M, L		4
Feb 2013			M, L	2

Notes:
1. M and L indicate the mass market and luxury market respectively.
2. Under prudential measures, a cap on loan tenor was introduced in September 2012. It is not considered a specific count of tightening in our analysis because it is mainly designed to strengthen the effectiveness of the DSR cap and stress test. In addition, the increase in the risk-weight floor for banks using the internal rating-based approach, which was introduced in March 2013, is also not considered in our analysis because the policy effect is mainly transmitted through the mortgage interest rates, which is one of the exogenous variables in the model. Kuttner and Shim (2013) explain that raising risk-weights on mortgage loans makes it more costly for banks to extend mortgage loans if bank equity remains unchanged.

Source: HKMA staff.

Empirical findings

Our estimated results show that, after controlling for the impact of other economic and financial factors, prudential measures helped dampen mortgage loan growth and transaction volume but do not appear to have had a *direct* impact on housing prices as the estimated coefficient is not statistically significant. The findings also show that demand-management measures have dampened transaction volume and growth in housing prices, while their *direct* impact on mortgage loan growth was not statistically significant. The latter result may be partly attributable to the situation that buyers who are subject to demand-management measures (particularly BSD and DSD) may be less reliant on credit from Hong Kong to finance their home

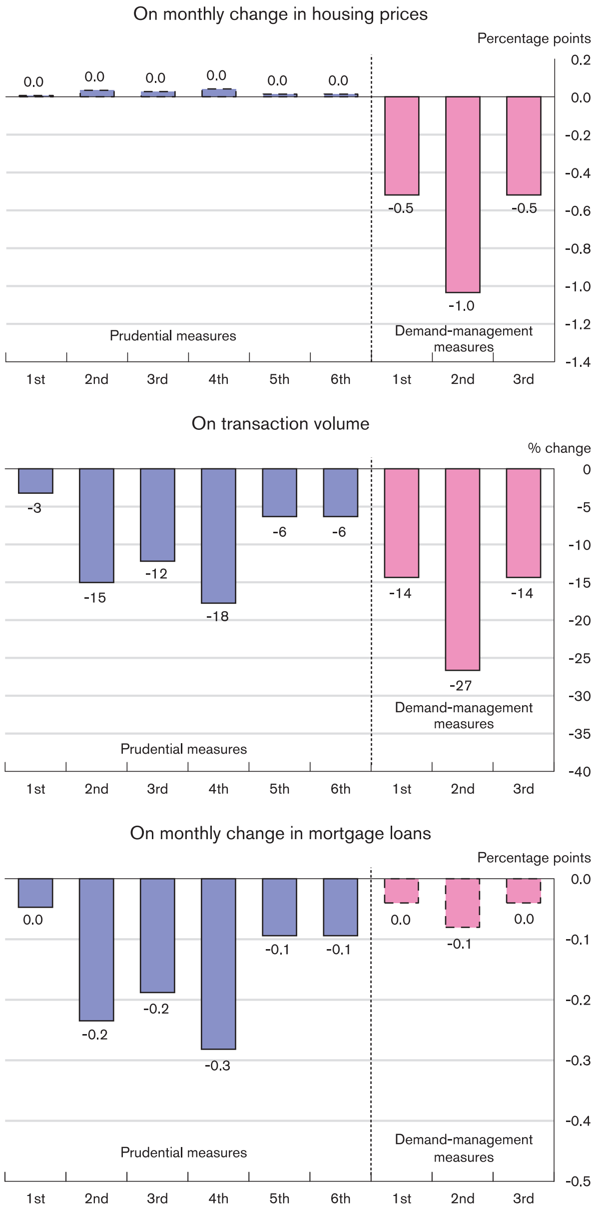
42 Similar studies include Krznar, I. and J. Morsink (2014), "With Great Power Comes Great Responsibility: Macroprudential Tools at Work in Canada", IMF Working Paper No. 14/83, which regresses property prices and mortgage loans in two single equations.

43 The step-function approach is proposed and adopted to model the intensity of prudential measures in Krznar and Morsink (2014) and Kuttner and Shim (2013).

purchases. Nevertheless, there remains an *indirect* effect of demand-management measures on loan growth through its dampening impact on housing prices and transaction volume. The findings that housing price increases can support mortgage loan growth are consistent with the collateral effect as implied by the financial accelerator theory.[44]

Based on the estimated coefficients of the policy variables, the total impact of each round of prudential measures and demand-management measures can be derived following the feed-through between housing prices, transaction volume, and mortgage loans in the VAR model. In Charts B5.3, the vertical bars show the total impact on the monthly change in housing prices and outstanding mortgage loans as well as the level of transaction volume. The second, the third and the fourth rounds of prudential measures, which impose stringent LTV requirements, DSR caps and stress tests, are found to be relatively more effective in limiting mortgage loan growth than other prudential rounds. They are found to have reduced mortgage loan growth by a monthly pace of 0.2% on average, compared with that of 0.1% for other rounds. These three rounds of prudential measures are also found to have had a larger dampening effect on transaction volume (by an average 15%) than other rounds (by 5%). The impact of prudential measures on housing prices is not statistically significant. In comparison, the Government's demand-management measures are found to be more effective in reining in housing price increase and reducing transactions. The latest two rounds of demand-management measures (mainly BSD and DSD), in particular, are found to have dampened housing price increase by a monthly pace of 1% and 0.5% respectively and lowered transaction volume by 27% and 14% respectively. These results are largely consistent with recent international experiences.[45] However, it should be noted that the above results are rough estimates and can be sensitive to the way the policy variables are specified using counts as a proxy to measure the intensity of policy tightening. The results are also limited by the rather short sample period. They should therefore be regarded as a preliminary attempt to quantify the impact of the policy measures.

Chart B5.3
Estimated impact of counter-cyclical measures



Note: Statistically insignificant if the bars are in broken-line borders.
Source: HKMA staff estimates.

44 See Bernanke, B. (2007), "The Financial Accelerator and the Credit Channel," Speech at the Credit Channel of Monetary Policy in the Twenty-first Century Conference, Federal Reserve Bank of Atlanta.

45 See, for example, Kuttner and Shim (2013).

Concluding remarks

Our findings show that prudential measures can help slow down mortgage loan growth in Hong Kong, but there is no clear evidence that they can affect housing prices in a systematic and predictable manner. We also find that demand-management measures appear to be effective in reducing housing demand and dampening housing price growth in the short term.