4. Monetary and financial conditions

Exchange rate, capital flows and monetary developments

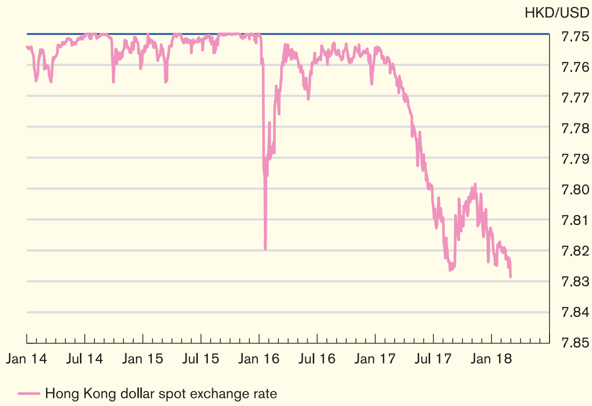
The Hong Kong dollar exchange rate eased, and the local interbank markets continued to function in an orderly manner. Total loans continued to expand in the second half of 2017, albeit at a more moderate pace than the first half. Looking ahead, Hong Kong dollar interest rates are likely to face more upward pressure amid the ongoing US monetary policy normalisation, while fund flows could be subject to more volatility should global financial market sentiment swing sharply.

4.1 Exchange rate and capital flows

The Hong Kong dollar spot exchange rate moved between 7.799 and 7.827 against the US dollar in the second half of 2017 (Chart 4.1). It briefly strengthened between September and November staying around 7.80, mainly driven by the slower momentum of interest rate arbitrage activities and an increase in covering of short Hong Kong dollar positions amid tighter liquidity conditions. These conditions were induced by initial public offering (IPO)-related funding demand and banks' prudent stance on managing liquidity ahead of the month-end and year-end demand. As Hong Kong dollar liquidity conditions eased slightly and year-end commercial demand for the US dollar rose, the spot exchange rate softened again in mid-December 2017.

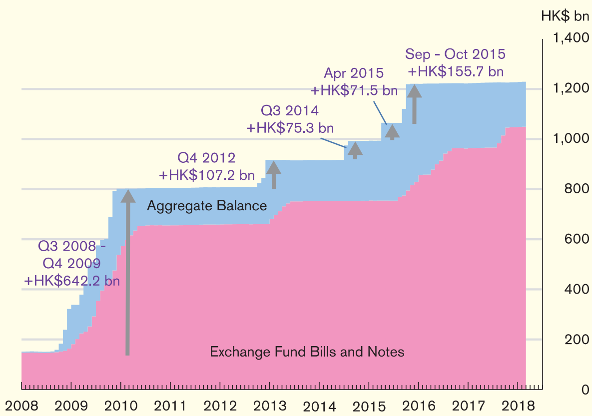
Moving into 2018, despite increased volatility in the global financial markets, in particular the stock markets, the Hong Kong dollar continued to trade in an orderly manner. During the review period, the Hong Kong dollar eased against the US dollar, but the Convertibility Undertaking (CU) was not triggered (Chart 4.2).

Chart 4.1
Hong Kong dollar exchange rate



Source: HKMA.

Chart 4.2
Fund flow indicators



Source: HKMA.

Broadly tracking the movements of the US dollar against most major currencies, the Hong Kong dollar nominal effective exchange rate index (NEER) generally moved sideways in the second half of 2017, but faced more downward pressure recently as the US dollar weakened further (Chart 4.3). The Hong Kong dollar real effective exchange rate index (REER) continued to move closely with the NEER, as the small inflation differential between Hong Kong and its trading partners had limited impact on the REER movement.

Chart 4.3
Nominal and real effective exchange rates

Note: REER is seasonally adjusted and only available on a monthly basis.
Sources: C&SD and HKMA staff estimates.

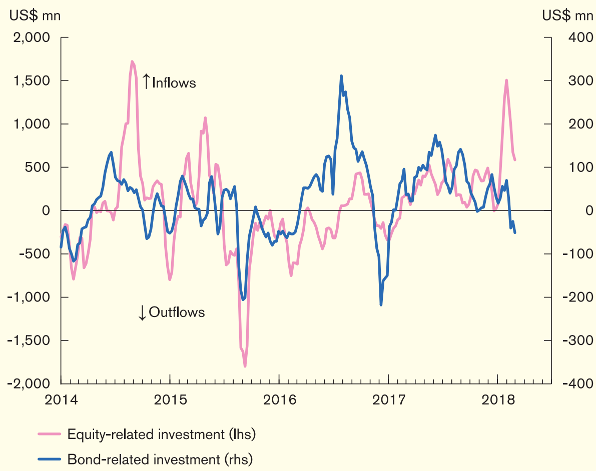
Portfolio investment saw inflows by non-residents in the second half of 2017. According to the latest Balance of Payments (BoP) statistics, there were equity portfolio investment inflows by both residents and non-residents in the third quarter, reflecting better economic prospects and bullish market sentiment across the region (Table 4.A).[41] As for debt portfolio investment, the BoP statistics registered inflows by non-residents which were offset by outflows by residents in the third quarter. Data based on a global mutual funds survey indicated equity and debt portfolio inflows in the last quarter of 2017 on the back of optimism over economic outlook and corporate earnings. In more recent weeks, the survey from global mutual funds saw some mild debt portfolio outflows but continued to show equity portfolio inflows in spite of corrections in global equity markets (Chart 4.4).

Table 4.A
Cross-border portfolio investment flows

	2015	2016	2017		
(HK$ bn)			Q1	Q2	Q3
By Hong Kong residents					
Equity and investment fund shares	-420.2	-354.7	-64.1	-17.3	0.6
Debt securities	-241.0	-175.5	108.0	128.0	-68.3
By non-residents					
Equity and investment fund shares	-329.7	19.3	14.2	28.1	27.2
Debt securities	20.0	41.3	44.9	90.4	27.0

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

Chart 4.4
Market survey of equity and bond-related flows

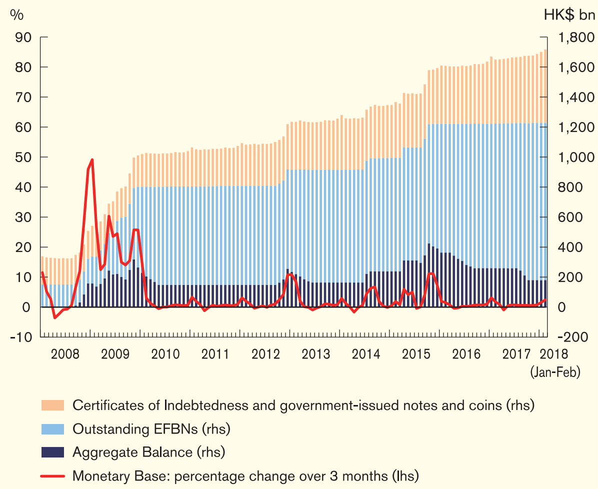


Note: Data refer to moving four-week sums.
Source: EPFR Global.

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

Looking ahead, as US monetary policy normalisation continues, the widening negative interest rate spread between the Hong Kong dollar and US dollar may lead to more arbitrage activities. The possibility of triggering the weak-side CU should not be ruled out. This is a natural process under the Linked Exchange Rate System. At the same time, the uncertain pace of the normalisation process, together with rapidly-changing global macro-financial conditions and market sentiment, could lead to rising volatility in Hong Kong dollar fund flows and the Hong Kong dollar exchange rate. The HKMA will continue to ensure the stability of the Hong Kong dollar exchange rate in accordance with the Currency Board arrangements.

Chart 4.5
Monetary Base components



Source: HKMA.

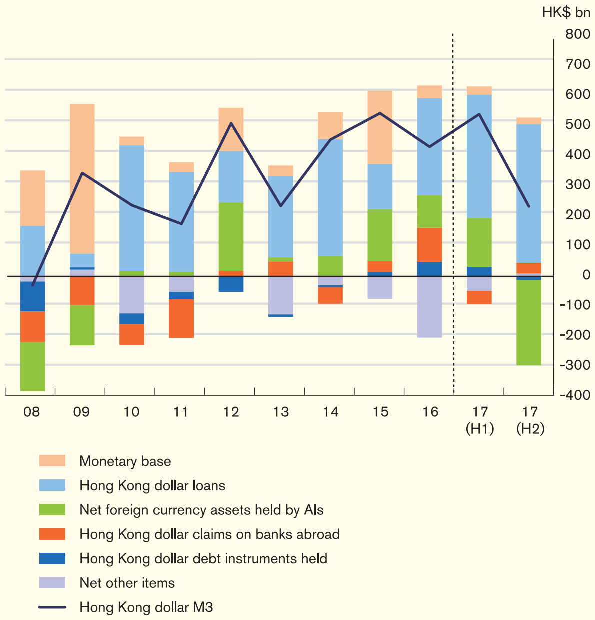
4.2 *Money and credit*

Hong Kong's monetary environment continued to stay largely accommodative in the second half of 2017 and in more recent months, despite the US Federal Reserve (Fed)'s interest rate hikes and ongoing balance sheet reduction. The Hong Kong dollar Monetary Base registered a further 1.4% increase during the second half, mainly driven by the increase in Certificates of Indebtedness for banknote issuances (Chart 4.5). As the CUs were not triggered, the total of the Aggregate Balance and the outstanding Exchange Fund Bills and Notes (EFBNs) remained virtually unchanged at around HK$1,226.8 billion during the second half. Within the total, the Aggregate Balance contracted and the outstanding EFBNs expanded correspondingly due to the issuance of additional Exchange Fund Bills (amounting to HK$80 billion) to meet the increased demand by banks for liquidity management purposes.[42] Stepping into 2018, the Monetary Base remained largely steady despite the equity market corrections.

Meanwhile, the Hong Kong dollar monetary aggregate increased further in the second half of 2017, albeit at a slower pace. Growth in the Hong Kong dollar broad money supply (HK$M3) decelerated to 2.5% in the second half from 8.9% in the first half. As the major component of HK$M3, Hong Kong dollar deposits increased modestly by 2.2% in the second half (Chart 4.7), with demand deposits growing at a faster pace, partly underpinned by rising investment demand as reflected in the buoyant asset markets. Analysis by the asset-side counterparts indicates that the growth in HK$M3 was largely supported by the strong expansion in Hong Kong dollar loans (Chart 4.6), but dragged down by the shrinkage in banks' net foreign currency assets alongside net Hong Kong dollar outflows from the non-bank private sector.

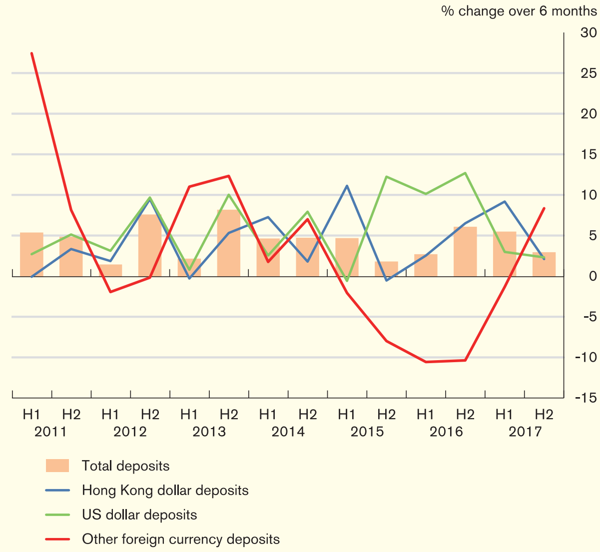
[42] The issuance of additional Exchange Fund Bills is consistent with Currency Board Principles, representing a change in composition of the Monetary Base from the Aggregate Balance to the outstanding EFBNs. The interbank liquidity remained largely abundant after the issuance of additional Exchange Fund Bills.

Chart 4.6
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 4.7
Deposit growth

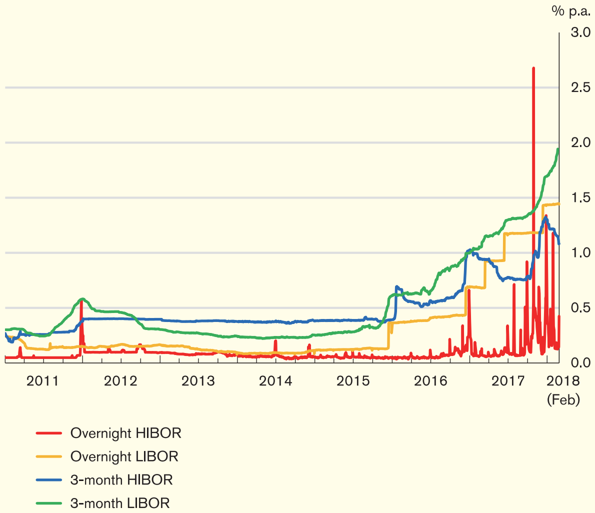


Source: HKMA.

On the other hand, growth in foreign currency deposits showed mixed performance. Partly reflecting the weakening of the US dollar against most major currencies, growth in US dollar deposits receded from 3.0% in the first half to 2.4% in the second half (Chart 4.7). By contrast, other foreign currency deposits witnessed a noticeable rebound of 8.4% after registering declines for more than two years. The rebound was led mainly by the recent pick up in renminbi deposits. With slower expansion in Hong Kong dollar and US dollar deposits, total deposits with authorized institutions (AIs) grew by a modest 3.0% in the second half of 2017 compared with 5.6% growth in the first half. For 2017 as a whole, total deposits expanded moderately by 8.7%, roughly at the same pace as in 2016.

The Hong Kong dollar interbank interest rates saw more upward pressure between September and December 2017, driven by IPO-related funding demand and banks' prudent stance on liquidity management ahead of month-end and year-end demands (Chart 4.8). Compared with six months ago, the overnight and three-month Hong Kong Interbank Offered Rate (HIBOR) fixings rose by 14 and 50 basis points to 0.25% and 1.26% respectively in December (in monthly average terms). The negative spreads between the Hong Kong dollar and the US dollar interbank rates narrowed somewhat for the maturities between one-month and three-month.

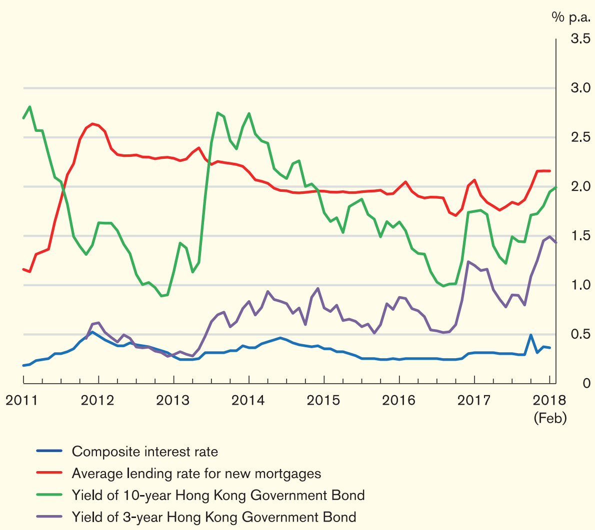
Chart 4.8
Hong Kong dollar and US dollar interbank interest rates



Sources: CEIC and HKMA.

The Hong Kong dollar yield curve also moved upwards, but flattened along with the US dollar yield curve. During the second half, the yield of the 3-year Government Bond rose by 63 basis points to 1.52% at the end of 2017, while the yield of the 10-year Hong Kong Government Bond increased by a smaller 33 basis points to 1.83% at the end of the year (Chart 4.9).

Chart 4.9
Yields of Government Bonds, the composite interest rate, and the average lending rate for new mortgages



Source: HKMA.

Moving into 2018, the Hong Kong dollar interbank market continued to operate smoothly. The Hong Kong dollar interbank interest rates declined in early January as the year-end funding demand receded and stayed broadly steady thereafter, despite corrections in the global and local equity markets. The overnight and three-month HIBORs closed at 0.43% and 1.08% respectively at the end of February 2018.

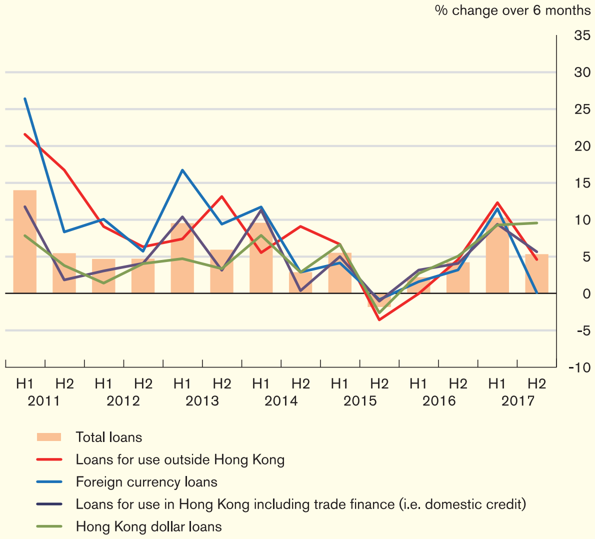
On the retail front, while banks' lending rates picked up somewhat alongside the rise in HIBORs, banks' funding costs generally stayed low as the deposit base remained sizable. Banks' average lending rate for new mortgages increased gradually by 36 basis points to 2.16% in December, largely tracking the rise in the one-month HIBOR despite keen competition in the mortgage lending business (Chart 4.9). The composite interest rate, which measures retail banks' Hong Kong dollar funding costs, mostly stayed soft in the second half and closed at 0.38% at the end of December, though picking up briefly in October due to IPO-related funding demand.

Going forward, the Hong Kong dollar interest rates could likely face more upward pressure as the monetary policy normalisation in the US continues and other major economies may start to normalize their interest rates. Sharp swings in global market sentiment and rapidly-changing macro-financial conditions may heighten fund flow volatility. Nonetheless, the sizeable Hong Kong dollar Monetary Base can help cushion the Hong Kong dollar interest rates from rising too rapidly. In addition, banks' prudent liquidity management along with their access to the Discount Window would also help limit excessive volatility in interbank interest rates.

Bank credit expanded strongly in 2017, by 10.2% in the first half, but moderated to 5.3% in the second half (Chart 4.10). Slower growth was seen in both loans for use in and outside Hong Kong. Analysed by currency, while Hong Kong dollar loans continued to expand at a fast pace of

9.5% in the second half amid the favourable domestic economic environment and relatively lower Hong Kong dollar funding costs, foreign currency loans edged up by only 0.1%, with US dollar loan growth slowing to 1.8% due, in part, to rising US dollar funding costs. For the whole of 2017, total loans recorded a robust growth of 16.1%, compared with 6.5% in 2016.

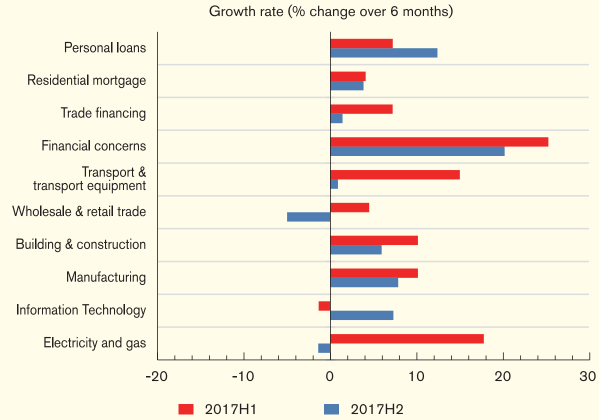
Chart 4.10
Loan growth



Source: HKMA.

Growth in loans for use in Hong Kong (including trade finance) moderated from 9.4% in the first half to 5.6% in the second half, with mixed performance across major business sectors (Chart 4.11). Loans for building, construction, and property development and investment grew at a slower pace during the second half, in part reflecting the strengthened risk management for loans to property developers starting from June 2017.[43] Despite further improvement in merchandise trade and retail sales, trade finance and loans for transport witnessed only a relatively modest increase, while loans to wholesale and retail trade posted a decline. Conversely, growth in loans to financial concerns remained strong, to some extent reflecting solid expansion in the financial services industry.

Chart 4.11
Growth in domestic loans by selected sectors



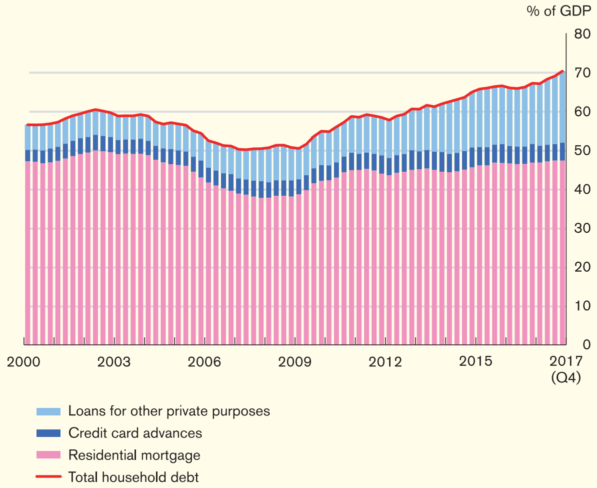
Source: HKMA.

Household debt recorded 6.5% growth in the second half of 2017 compared with 5.0% in the first half. Within the household debt, growth in personal loans (which comprise credit card advances and loans for other private purposes), accelerated to 12.4% during the second half. The strong growth of personal loans was mainly reflected in lending secured by financial assets granted to private banking and wealth management customers. Such lending growth has been largely in line with a continuous rise in assets under management in the banking sector. The risks of such collateralised lending are considered to be manageable. In addition, the HKMA issued guidance to banks in January 2014 to strengthen their risk management on personal lending business, including requirements on maximum loan tenor and debt-servicing ratio (DSR) limit.

On the other hand, despite a pick-up in housing transactions, growth in residential mortgage loans moderated slightly to 3.8% in the second half with a lower loan-to-value (LTV) ratio for new mortgages. Overall, the household debt-to-Gross Domestic Product (GDP) ratio went up from 68.2% in the second quarter of 2017 to 70.2% in the fourth quarter (Chart 4.12).

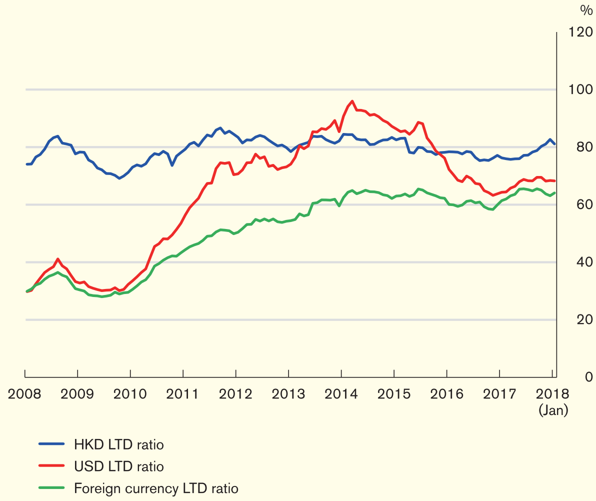
[43] For details, see "Circular on Risk management for lending to property developers" issued by the HKMA on 12 May 2017.

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



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

Chart 4.13
LTD ratios



Source: HKMA.

Growth in loans for use outside Hong Kong slowed to 4.6% in the second half compared with the sharp rise of 12.3% in the preceding half-year period. For the banking sector as a whole[44], Mainland-related lending recorded a slower 4.9% increase during the second half of 2017, compared with 12.0% in the preceding half-year period. The credit risk of Mainland-related lending continued to be manageable, with 76% of borrowers being Mainland state-owned enterprises and non-Mainland multinational companies by year end. For those lending to Mainland private entities, the majority of loans were secured by collaterals or guarantees.

As Hong Kong dollar loans grew at a faster pace than deposits, the Hong Kong dollar loan-to-deposit (LTD) ratio moved up from 77.1% at end-June to 82.7% at year end, the highest since March 2015 (Chart 4.13). By contrast, the overall foreign currency LTD ratio declined from 65.5% to 63.1% at year end, within which the US dollar LTD ratio was little changed at 68.4%.

In the near term, credit growth may be supported by continued economic growth and potential infrastructure financing. According to the HKMA Opinion Survey on Credit Condition Outlook, banks expect to see robust credit demand in the near term (see Table 5.A in Chapter 5). However, the US monetary policy normalisation and rising volatility in global and local financial markets could also pose a drag on credit growth in Hong Kong.

Offshore renminbi banking business

The offshore renminbi (CNH) market traded in an orderly manner during the second half of 2017 and in recent months, closely tracking the movements in the onshore renminbi (CNY) exchange rate. Both the CNH and the CNY were largely stable between September and November (Chart 4.14). Since December, the CNH and the CNY strengthened somewhat against the US dollar, mainly reflecting the noticeable weakness in the US dollar against major currencies. During the review period the spread between the CNY and the CNH was largely muted.

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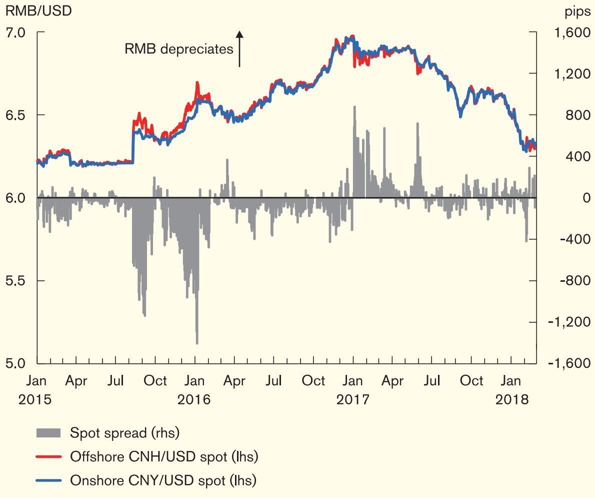
[44] Including authorized institutions (AIs)' Hong Kong offices, Mainland branches and subsidiary banks in Mainland China.

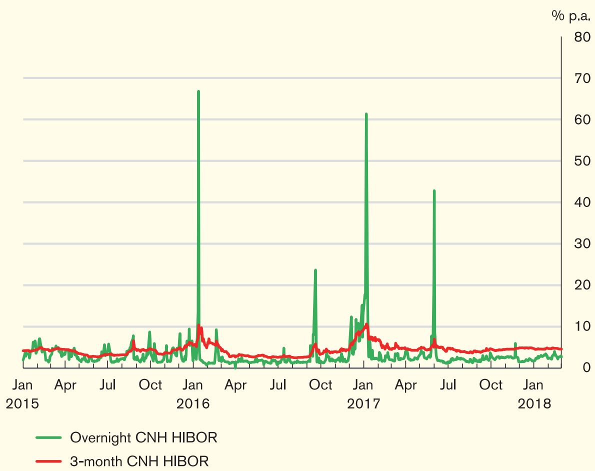
Chart 4.14
CNY and CNH exchange rates



Source: Bloomberg.

As liquidity conditions in the offshore market remained largely stable, the overnight CNH HIBOR mostly traded below 4% in the second half of 2017 and in recent months (Chart 4.15), with only occasional fluctuations due to seasonal liquidity demand. The 3-month CNH HIBOR increased at a gradual pace from around 4.0% in early September to 4.65% at the end of February 2018.

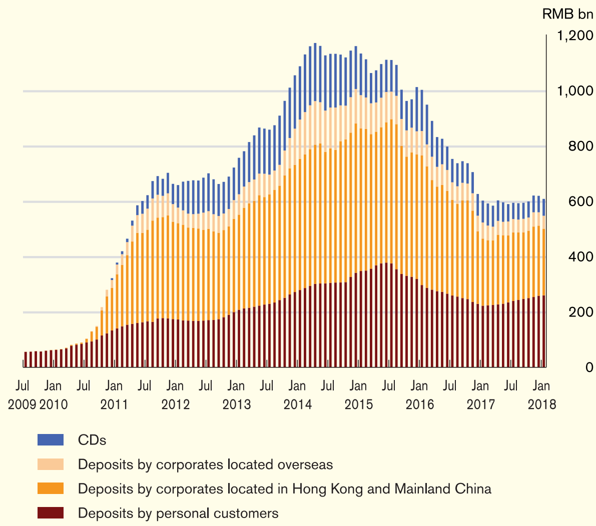
Chart 4.15
The overnight and the three-month CNH HIBOR fixings



Source: Treasury Markets Association.

Following a slight decline in the first half of 2017, Hong Kong's CNH liquidity pool regained some strength in the second half on the back of improved market sentiment towards the renminbi exchange rate movement. The total outstanding amount of renminbi customer deposits and certificates of deposit (CDs) reverted to a moderate 5.1% increase in the second half to RMB618.4 billion at the end of the year (Chart 4.16 and Table 4.B). Among the total, renminbi customer deposits grew by 6.3%, mainly led by growth in personal customer deposits alongside the pick-up in preferential renminbi deposit rates. On the other hand, outstanding CDs decreased by 5.3% during the second half, albeit at a slower pace compared with the preceding half-year period.

Chart 4.16
Renminbi deposits and CDs in Hong Kong



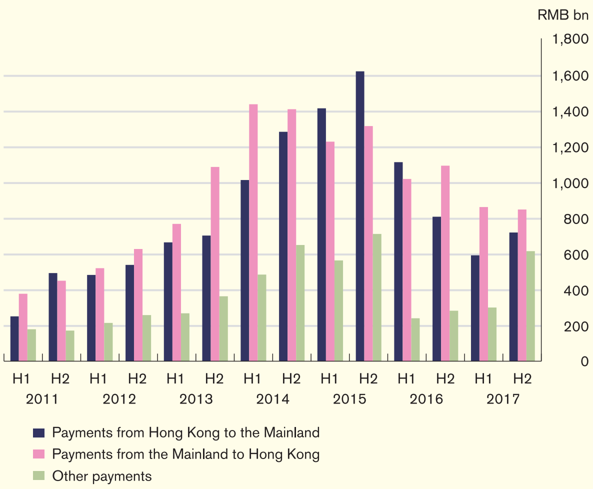
Source: HKMA.

Hong Kong's renminbi financing activities stayed weak during the review period, with the outstanding amount of renminbi bank loans declining by 30.0% in the second half to RMB144.5 billion. This was partly attributable to the high renminbi funding costs relative to those in US dollars and Hong Kong dollars.

By contrast, Hong Kong's renminbi trade settlement rebounded in the second half of 2017 after consolidating in the first half. Transactions handled by banks in Hong Kong rose to RMB2,177.1 billion in the second half, up 24.5% from the previous six months (Chart 4.17).

Overall, the size of the renminbi liquidity pool remained adequate, and continued to support a large amount of renminbi financial intermediation activities. For 2017 as a whole, the average daily turnover of the renminbi real time gross settlement system stayed at a high level of RMB903.6 billion.

Chart 4.17
Flows of renminbi trade settlement payments



Source: HKMA.

In the near term, the development of the CNH market in Hong Kong continues to depend on market expectations about the future path of the renminbi exchange rate and the evolution of Mainland's macro-financial conditions. Nevertheless, Hong Kong's offshore renminbi business is expected to benefit from the progress in Mainland's capital account liberalisation and enhanced regional economic co-operation under the Belt and Road Initiative.

Table 4.B
Offshore renminbi banking statistics

	Dec 2016	Dec 2017
Renminbi deposits & CDs (RMB bn)	625.1	618.4
Of which:		
Renminbi deposits (RMB bn)	546.7	559.1
Share of renminbi deposits in total deposits (%)	5.2	5.3
Renminbi CDs (RMB bn)	78.3	59.3
Renminbi outstanding loans (RMB bn)	294.8	144.5
Number of participating banks in Hong Kong's renminbi clearing platform	210	203
Amount due to overseas banks (RMB bn)	69.0	95.4
Amount due from overseas banks (RMB bn)	91.6	131.3
	2016	**2017**
Renminbi trade settlement in Hong Kong (RMB bn)	4,542.1	3,926.5
Of which:		
Inward remittances to Hong Kong (RMB bn)	2,106.1	1,705.3
Outward remittances to Mainland China (RMB bn)	1,915.2	1,308.0
Turnover in Hong Kong's RMB RTGS system (Daily average during the period; RMB bn)	863.6	903.6

Source: HKMA.

Asset markets

The Hong Kong equity market's strong performance suffered a sharp downward adjustment towards the end of the review period amid heightened concerns over rising bond yields. The Hong Kong dollar debt market maintained steady growth, while the offshore renminbi debt market contracted further in 2017. Transaction volumes in the residential property market picked up again after a brief moderation in mid-2017. Housing price growth has also accelerated since the fourth quarter.

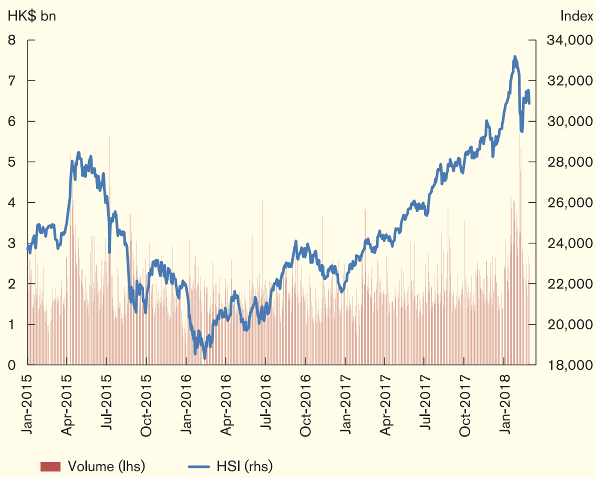
4.3 Equity market

The Hong Kong equity market extended its rally in 2017 before taking a sharp downward adjustment towards the end of the review period (Chart 4.18). The earlier rally was propelled by the markedly improved macroeconomic performances in the US, Mainland China and Europe, as well as in a number of emerging markets in the second half of 2017. The passing of the tax reform bill in the US provided further impetus to global equities. International investors also appeared to be banking on a much wider application of data technology and artificial intelligence across a broad spectrum of activities, including education, health care, finance and transportation that could lead to another wave of significant productivity increases, and ultimately translate into a prolonged and sustainable period of economic prosperity. The Fed's plan to normalise its balance sheet and the European Central Bank's announcement on the scaling back of its asset purchase programme confirmed that major central banks were also similarly confident of the economic outlook.

The Hong Kong stock market registered substantial fund inflows from Mainland investors through the Shanghai-Hong Kong Stock Connect and the Shenzhen-Hong Kong Stock Connect, with cumulative southbound net buying totalling HK$835.8 billion at the end of February, an 89% increase over a year earlier (Chart 4.19).

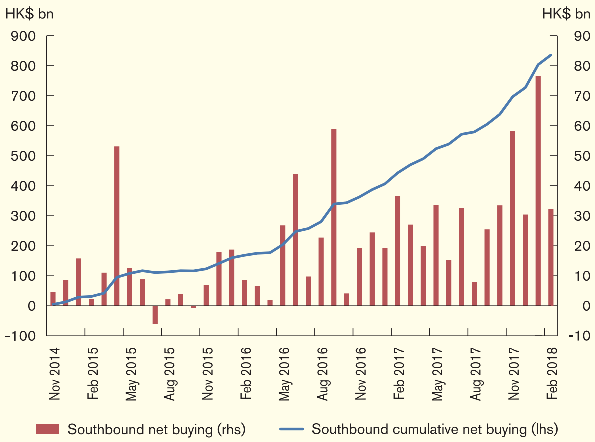
However, all these favourable factors could not prevent local equities from correcting sharply towards the end of the review period amid heightened concerns over rising bond yields. An escalation of risk aversion also triggered spikes in option-implied volatilities (Chart 4.20). Overall, the correction measured a hefty 7% from its all-time high achieved in January, although the Hang Seng Index (HSI) still managed to gain by 10% between September 2017 and February 2018. On valuation, the local market still compares favourably with other major markets in terms of cyclically-adjusted price-to-earnings, which should help lessen the impact of future headwinds to some extent (Chart 4.21).

Chart 4.18
Equity prices in Hong Kong



Source: Bloomberg.

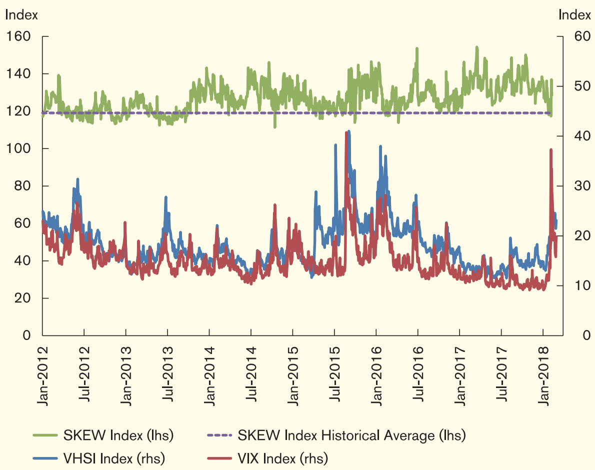
Chart 4.19
Cumulative southbound net buying from Stock Connect schemes



Note: The southbound net buying represents a sum of the southbound net buying from the Shanghai-Hong Kong Stock Connect and that of the Shenzhen-Hong Kong Stock Connect

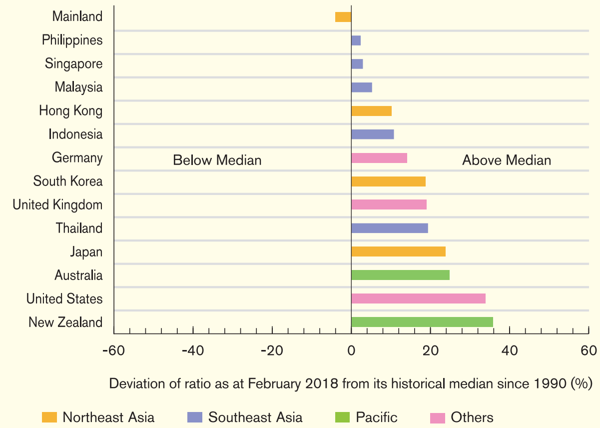
Sources: CEIC, HKEx and HKMA staff estimates.

Chart 4.20
Option-implied volatilities of the HSI and S&P 500, and the SKEW Index



Sources: Bloomberg and HKMA staff estimates.

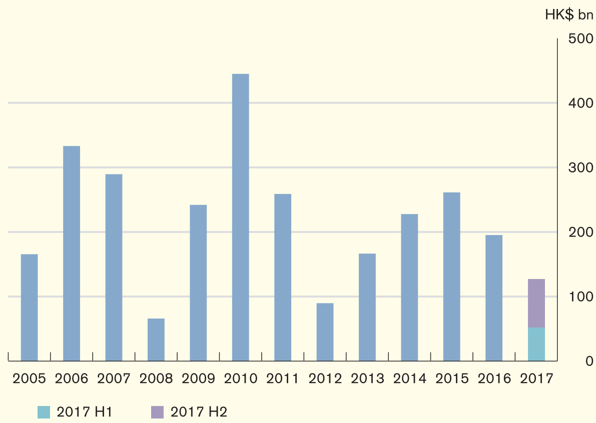
Chart 4.21
Cyclically-adjusted price-earnings ratios of Asia Pacific and other major markets



Sources: Bloomberg, CEIC and HKMA staff estimates.

The performance of the primary listing market in Hong Kong in 2017 was rather lacklustre. While funds raised through IPO in the second half grew by more than 40% from the first half, the total IPO proceeds raised from the Hong Kong Stock Exchange recorded a decline from HK$195 billion in 2016 to HK$127 billion in 2017 (Chart 4.22).

Chart 4.22
The IPO market in Hong Kong



Sources: CEIC and HKEx.

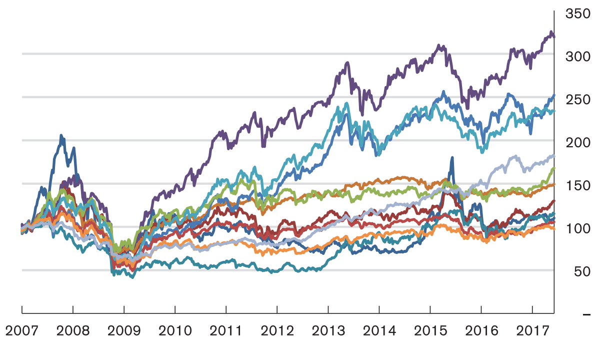
The market remains highly susceptible to external factors, such as how sharply major economies might tighten their monetary policies. Box 4 provides an assessment of the potential spillovers to Hong Kong and other Asia Pacific markets from shocks originating from both within and outside the region. Macro risks aside, it also remains to be seen how confident investors are about the potential economic benefits that can be realised through wider application of new technologies.

Box 4
Tail risk spillover impact in Asia Pacific stock markets

Introduction[45]

Stock prices in the Asia Pacific region have risen considerably since 2009, partly due to the spillovers from the quantitative easing programme adopted by the Fed. (Chart B4.1). During this bull market run, however, there were two notable stock market corrections in 2013 and 2015, with prices in some economies falling by over 20% in a week. With these acute episodes as background, a natural question is, "what was the major source of contagion to Asia Pacific stock markets during these sell-offs?" The answers to this question are important for policymakers in seeking to avoid international financial contagion and to preserve financial stability because shocks from foreign stock markets could have ramifications for domestic stock markets and, in turn, affect domestic currency markets and ultimately sovereign creditworthiness.

Chart B4.1
Stock market prices in Asia Pacific



Note: 2007 Q1 = 100.
Source: Bloomberg.

The extant empirical literature offers extensive evidence regarding spillovers between cross-country stock market returns.[46] However, much of the work overwhelmingly focused on evaluating the mean relationship between stock market returns. This kind of analysis reflects mostly risks during tranquil periods which could underestimate the real effects of an international shock in times of financial crises. A more relevant analysis of contagion should evaluate relationships between extremely negative returns, which are more likely to be associated with bear markets, periods of crises and financial distress.

In this box, we examine the financial linkages among Asia Pacific stock markets and those between these stock markets and other global markets. Through estimating these linkages, it is possible to identify major sources of risk spillovers to Asia Pacific at the mean (namely, mean risk spillovers) and at the tail (namely, tail risk spillovers), and to distinguish the difference between the two spillovers.

Methodology and data

Econometrically, we use a quantile vector autoregressive (QVAR) model to capture the dynamics among stock price returns.[47] We then employ the Diebold and Yilmaz (2009, 2012) approach to evaluate the strength of financial linkages between economies.[48] We measure the

[45] The detailed results in this box are in Fong et al. (2017) "Tail risk spillover impact on Asia Pacific – Evidence from stock market co-movement", *HKMA Research Memorandum 14/2017*.

[46] See Forbes (2013) for a recent survey on the contagion and spillovers between cross-country stock market returns.

[47] Three exogenous variables are used to control for the effect of global factors. They are (i) the Chicago Board Options Exchange Standard & Poor's 500 Implied Volatility Index (VIX) which proxies for the global risk appetite; (ii) the 10-year US Treasury term premium estimated by the Federal Bank of New York which proxies for the effect of unconventional monetary policies (UMP) adopted by the Fed; and the US dollar (DXY) index which controls for the effect of the USD appreciation and depreciation.

[48] These linkages are measured by a 10-week-ahead generalised forecast error variance decomposition of the QVAR model in the analysis. In estimation, we consider the QVAR with an AR order 1 and we choose a quantile of 0.5 (i.e. median, $\tau = 0.5$) to measure the mean risk spillovers and a quantile of 0.05 (i.e. $\tau = 0.05$) to examine the tail risk spillovers among stock markets.

stock market spillovers among 36 economies in this analysis (Table B4.A). The sample of weekly stock market returns covers a period from 2 January 2009 to 30 June 2016, and includes a total of 391 observations.[49]

Table B4.A
36 economies as the endogenous variables

Group	Economy
Advanced Economies (AEs)	Australia, Canada, Denmark, France, Germany, Italy, Norway, Spain, Sweden, Switzerland, UK, US
Asia Pacific (AP)	Australia, China, Hong Kong, Indonesia, Japan, Malaysia, New Zealand, the Philippines, Singapore, South Korea, Thailand
Emerging Europe, the Middle East and Africa (EMEA)	Czech Republic, Hungary, Israel, Poland, Russia, Slovakia, South Africa, Turkey
Latin America	Brazil, Chile, Colombia, Mexico, Peru

Empirical results

There are three major findings. First, we find that the tail risk spillovers are larger than mean risk spillovers to AP. This can be seen from Table B4.B which reports the spillover impact estimated for the mean and tail risks. The impact is measured by the model's variance decomposition which indicates the variation that each economy can be explained by shocks originating from another economy. Focusing on mean risk spillovers to the AP region, the estimated impact is 17.1% on average, with the spillovers within the region being the largest (i.e., 25.6%). On tail risk spillovers, the estimated impact is higher at 24.1% on average. Individual impacts vary to a smaller extent, with that originating from Latin America (27.4%) being the largest and AEs being the smallest (22.9%).

[49] Weekly returns are used to address the different time-zones problem given that the selected economies are located in different continents, and higher frequency data are too noisy and may generate distortion in the estimation.

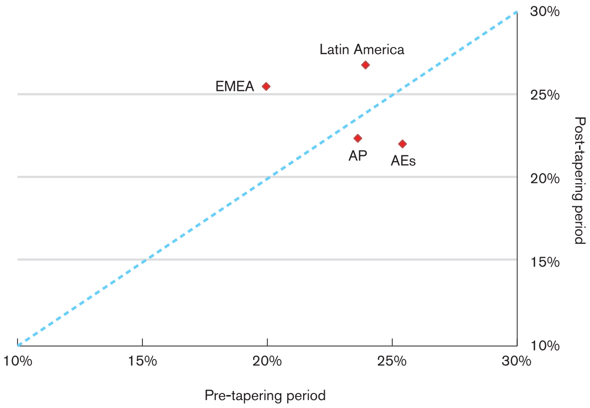
Table B4.B
Spillover impact on Asia Pacific at the mean and tail risks

	Shock origin				
Economy group	AEs	Asia Pacific*	EMEA	Latin America	Row average
Mean risk	16.2	25.6	12.5	14.2	17.1
Tail risk	22.9	23.1	23.2	27.4	24.1

Note: * The spillover effect excludes the economy's own effect when computing the average impact of the group.
Source: HKMA staff estimates.

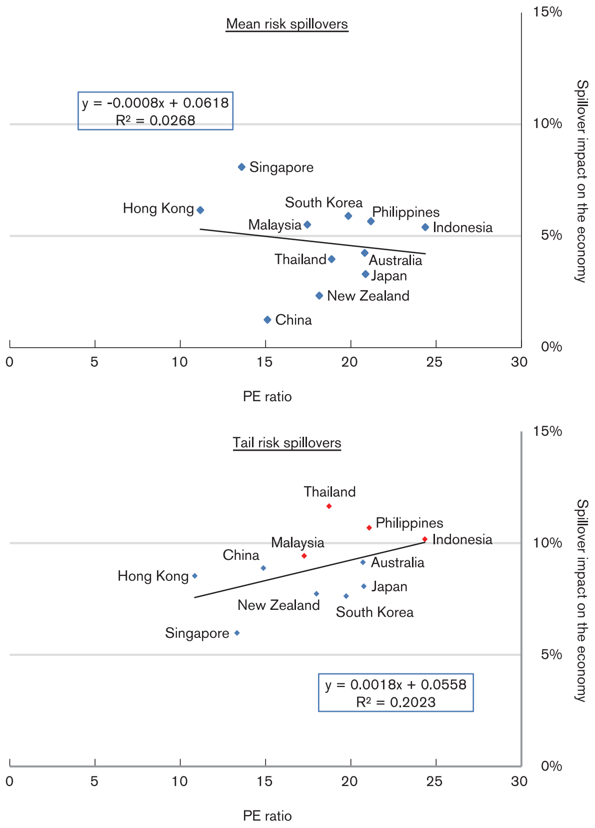
Secondly, we find that spillovers from EMEA and Latin America are substantially larger after the "taper tantrum". This can be seen from Chart B4.2 which compares tail risk spillovers to individual AP economies in the pre- and post-tapering periods. EMEA and Latin American economies scatter above the 45-degree line, suggesting that spillovers from these economies are stronger in the post-tapering period than in the pre-tapering period. AEs and AP economies scatter slightly below the 45-degree line, suggesting that their spillovers are smaller in the post-tapering period, but still substantial at around 20%.

Chart B4.2
Spillover impact on AP at the tail risk



Finally, a stronger response from AP economies to tail risk spillovers is likely to be associated with their over-valued stock markets. Chart B4.3 depicts scatters of the average spillover impact on AP economies against the price-earnings (PE) ratio of the economies based on samples in the post-tapering period. As can be seen, the explanatory powers of a simple linear regression (i.e., the value of R^2) under mean and tail dependence are 2.7% (upper panel) and 20.2% (lower panel) respectively, suggesting that the PE ratio of an economy tends to be linearly correlated with the economy's responsiveness to tail risk spillovers, but not to mean risk spillovers.

Chart B4.3
Scatters of spillover impact on Asia Pacific economies against PE ratios of the economies



Sources: Bloomberg and HKMA staff estimates.

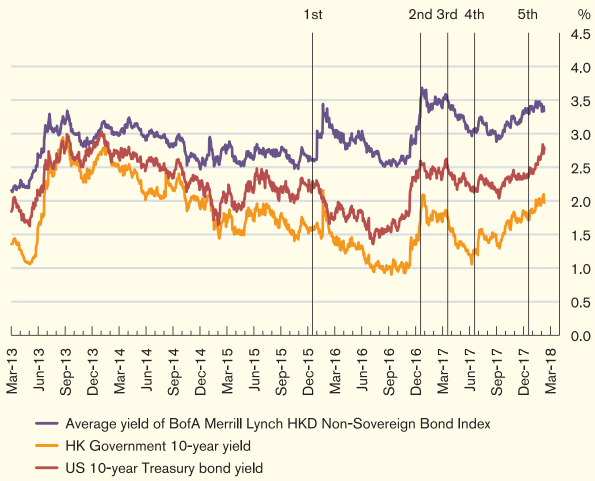
Conclusion

This box assesses spillovers from other stock markets to Asia Pacific markets. Using data on 36 stock markets, we find that mean risk spillovers to Asia Pacific markets are mainly driven by shocks originating from the Asia Pacific region. However, shocks originating from regional and non-regional markets are equally important to Asia Pacific stock markets under tail risk spillovers. We also find that shocks from Latin America and EMEA have increased notably following the taper tantrum. Finally, our results suggest that a stronger responsiveness of one economy's stock market to tail risk spillovers from other markets tends to be associated with higher PE ratios in the domestic stock market.

4.4 Debt market

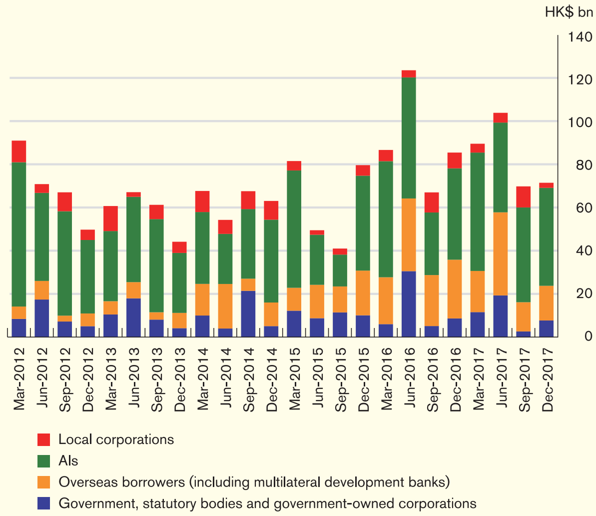
The Hong Kong dollar debt market sustained moderate growth in 2017, albeit at a slower pace than in the previous year. A slowdown in primary market activity mainly reflected a decline in non-EFBN issuance in the second half, which could be attributed to Hong Kong dollar bond yields tracking the rise in US Treasury yields amid the Fed's continued monetary policy normalisation (Charts 4.23 and 4.24). The reduced attractiveness of Hong Kong dollar debt also led to a deceleration in net bond fund inflows in recent months (Chart 4.25).

Chart 4.23
Hong Kong dollar sovereign and non-sovereign bond yields and US 10-year Treasury yield



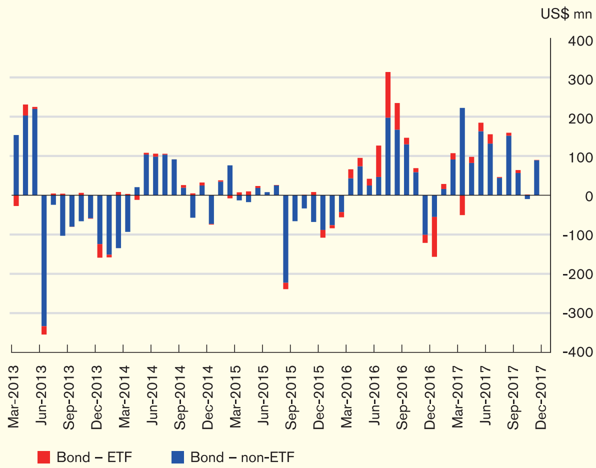
Sources: HKMA, Bank of America Merrill Lynch and Bloomberg.

Chart 4.24
New issuance of non-EFBN Hong Kong dollar debt



Source: HKMA.

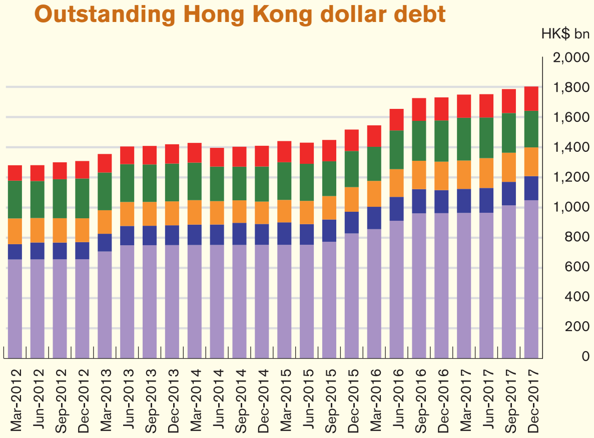
Chart 4.25
Exchange Traded Fund (ETF) and non-ETF bond fund flows into Hong Kong



Source: EPFR Global.

The total issuance of Hong Kong dollar debt amounted to HK$3,335.3 billion in 2017, an increase of 9.3% over the preceding year, mainly driven by the Exchange Fund's strong issuance. Within the total, the 11.0% year-on-year increase in new debt issued by the public sector more than offset the 17.9% decline by the overseas borrowers (including Multilateral Development Banks). Domestic private sector issuance remained almost unchanged. At the end of 2017, the Hong Kong dollar debt outstanding amount stood at HK$1,802.2 billion, up 4.1% from the preceding year (Chart 4.26). The amount was equivalent to 25.7% of HK$M3 or 21.5% of Hong Kong dollar-denominated assets of the banking sector. The outstanding amount of non-EFBN Hong Kong dollar debt decreased year on year for the first time in three years, mainly reflecting the 11.2% reduction in debt outstanding by AIs.

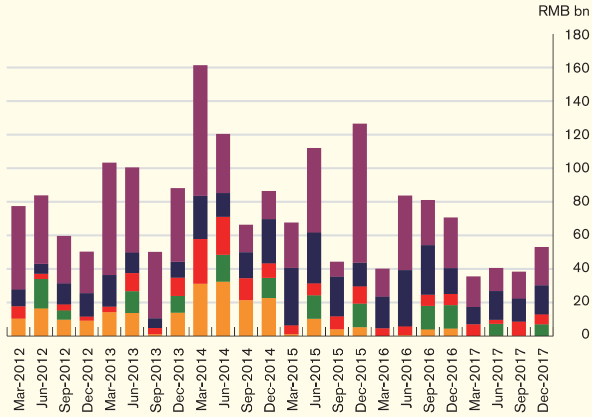
Chart 4.26
Outstanding Hong Kong dollar debt



Source: HKMA.

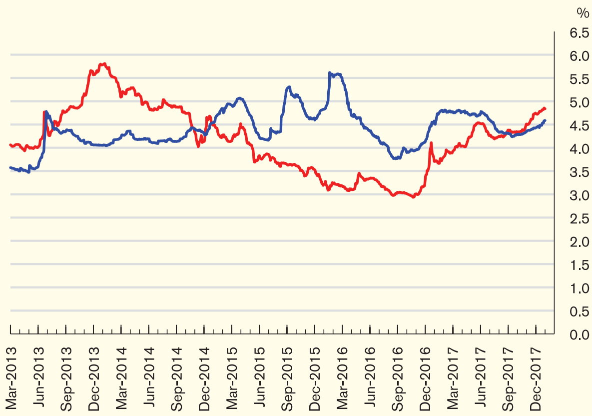
The offshore renminbi debt market in Hong Kong contracted further in 2017, with total issuance falling sharply by 39.2% to RMB167.5 billion (Chart 4.27). Non-CD debts issued by Mainland and foreign financial corporations dropped by 41.4% to RMB56.2 billion, more than offsetting the 2.9% increase in those issued by Hong Kong corporations. This is despite the fact that issuance picked up in the final quarter amid a reversal in the onshore-offshore yield gap such that the average funding cost became lower in the offshore market (Chart 4.28).

Chart 4.27
New issuance of offshore renminbi debt securities



Sources: Newswires and HKMA staff estimates.

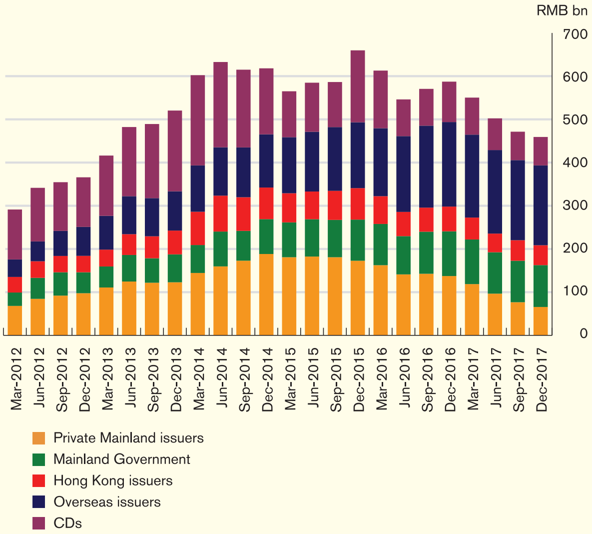
Chart 4.28
Average yields of onshore vs. offshore renminbi bond indices



Sources: Bloomberg, Hang Seng Indexes Company Ltd, and China Central Depository & Clearing Co., Ltd.

As a result of the lukewarm primary market activities, the outstanding amount of offshore renminbi debt securities in Hong Kong continued its downward trend, registering an 8.1% decline year on year to RMB459.2 billion at the end of 2017 (Chart 4.29).

Chart 4.29
Outstanding amount of offshore renminbi debt securities



Sources: Newswires and HKMA staff estimates.

Meanwhile, the Bond Connect scheme was launched last July, with Northbound Trading coming into operation in the first phase. The scheme has attracted increasing interest from international investors to participate in Mainland's domestic bond market through Hong Kong's market. At the end of December 2017, a total of 247 international investors registered in the scheme. Looking ahead, the HKMA and relevant institutions in Hong Kong and Mainland China will work to refine the Northbound Trading operation and explore Southbound Trading.

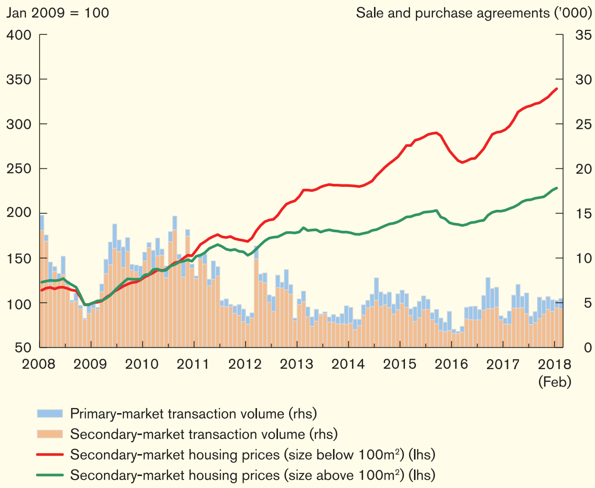
For Mainland issuers, the relatively higher onshore funding cost may encourage issuance offshore in the foreseeable future. However, the incentives for issuers to tap the offshore market remains susceptible to a wide range of other factors such as the outlook for the renminbi exchange rate, the Mainland economy, and policy directions, particularly in relation to the current deleveraging drive.

4.5 Property markets

Residential property market

Transactions in the residential property market picked up again after a brief moderation in mid-2017. Amid an improvement in economic conditions and market sentiment, average monthly housing transactions in the final quarter of 2017 gradually recovered to the level shortly before the eighth round of prudential measures was implemented in May. In particular, average monthly transactions in the secondary market increased from 2,670 units in July–August (Chart 4.30) to around 4,020 units in the fourth quarter, a level not far below the average monthly transactions of 4,220 units in the second quarter. Transactions in the primary market also rebounded in August, but softened towards the end of 2017.

Chart 4.30
Residential property prices and transaction volume

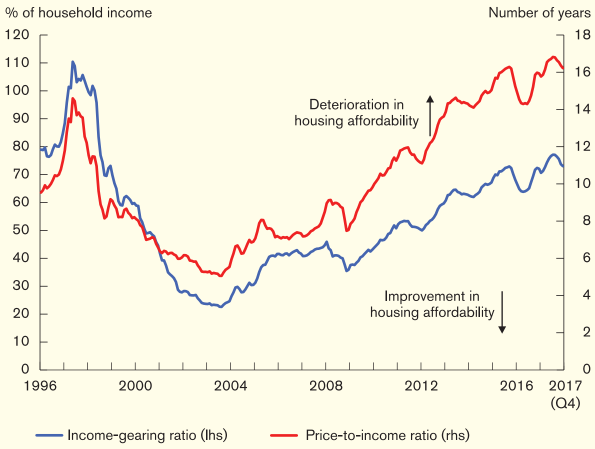


Sources: R&VD and Land Registry.

The growth in housing prices accelerated in the fourth quarter after moderating for five months (Chart 4.30). And, the growth momentum carried over into the first two months of 2018. For 2017 as a whole, housing prices increased by 14.8%. The price of small and medium-sized flats (with a saleable area of less than $100m^2$) continued to increase faster than that of large flats (with a saleable area of at least $100m^2$).

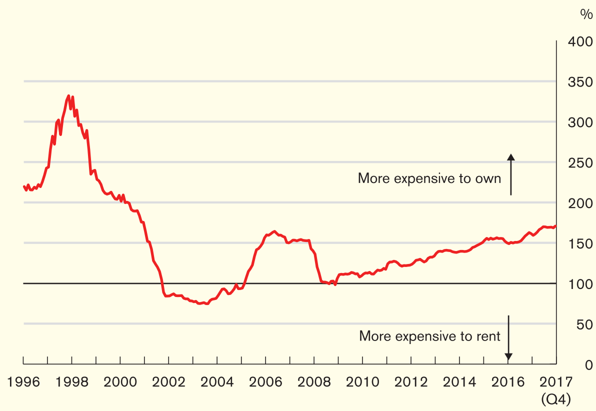
As prices rose, housing affordability was stretched even further. The housing price-to-income ratio rose from 15.9 in the fourth quarter of 2016 to 16.4 in the fourth quarter of 2017, higher than the 1997 peak of 14.6, while the income-gearing ratio increased to 74.1%, much higher than the long-term average of about 50% (Chart 4.31).[50] The buy-rent gap as a measure of relative user costs remained at a high level of 169.4% as the residential rental yields remained low at 2.0–2.7% in the last quarter of 2017 (Chart 4.32).[51]

Chart 4.31
Indicators of housing affordability



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

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.

Since late 2009, the HKMA has implemented eight rounds of macro-prudential measures to strengthen the risk management of banks for mortgage lending. These measures have helped to enhance the banking sector's resilience to property market shocks. Reflecting this policy effect, the average LTV ratio for newly approved mortgages declined to 49% in December 2017 from 64% before the measures were first introduced, and the DSR decreased to 34.7%.

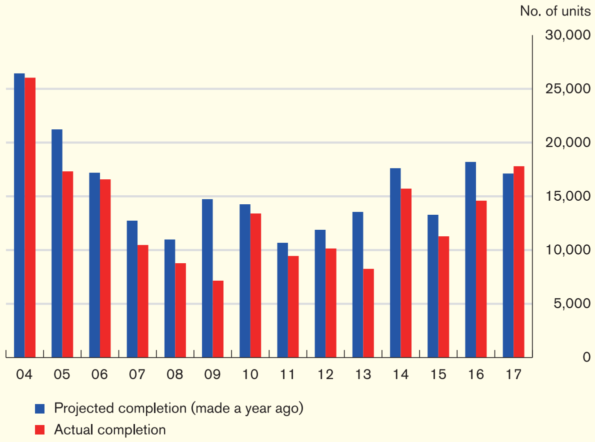
The outlook for the residential property market remains uncertain. In the near term, the current favourable domestic economic conditions, perceived housing shortage, low mortgage rates and alternative sources of home financing (including mortgage loans provided by property developers and financial support from parents), will continue to support the demand for property. However, the recent sell-off in global financial markets may dampen sentiments. Over the longer term, the property market will continue to face a number of headwinds. In particular, as the US monetary policy normalisation continues, domestic mortgage rates will rise eventually and the increase in Hong Kong interest rates could quicken should large capital outflows from Hong Kong occur amid heightened global financial market volatility. In addition, on the back of the Government's effort to increase the supply of

[50] 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% LTV ratio to the median income of households living in private housing). The income-gearing ratio is not the same as a borrower's actual DSR, which is subject to a maximum cap by the HKMA prudential measures.

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

land and residential properties, the housing demand-supply gap is expected to narrow gradually, which would ease the upward pressure on property prices over a longer term. Indeed, reflecting the Government's effort and responses by properly developers to strong housing demand, actual completion of new private residential properties increased by 22% yearly to 17,800 units in 2017 (Chart 4.33), slightly higher than the official projection of 17,100 made a year ago.

Chart 4.33
Projected and actual private flat completion

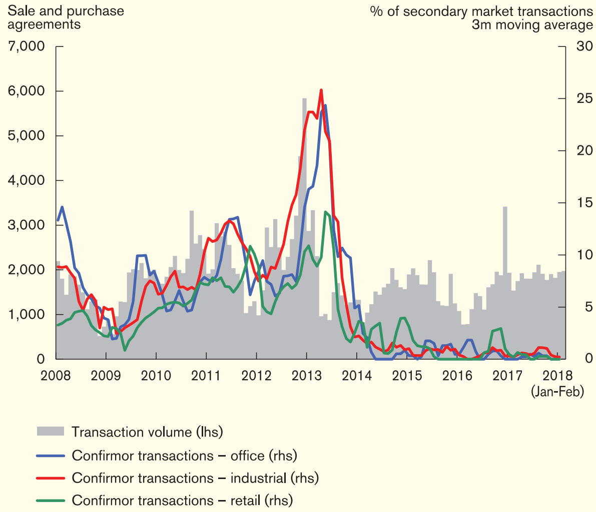


Sources: Transport and Housing Bureau and R&VD.

Non-residential property market

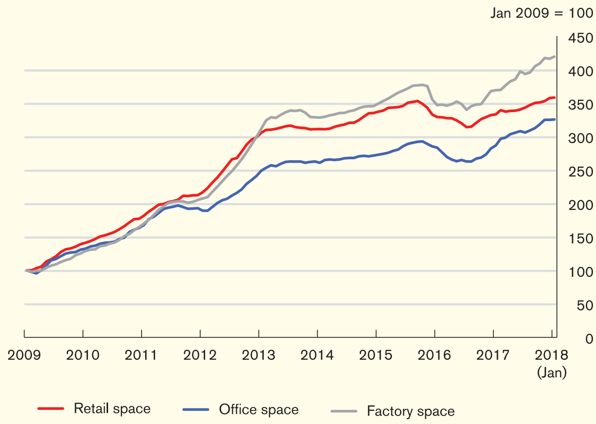
The non-residential property market remained buoyant in the second half of 2017. Average monthly transactions increased slightly to 1,910 units, while speculative activities as indicated by confirmor transactions stayed low (Chart 4.34). Market sentiment became more optimistic about the prospects for office space in prime locations following the record sale of an office tower in Central. Following this, prices for office space increased at a fast pace of 5.5% in the second half of 2017 (Chart 4.35). Prices for factory space rose by 4.8%, and price growth for retail premises accelerated. Rises in rentals for non-residential properties lagged behind that of the respective prices, particularly for retail shops. As a result, the overall rental yields across segments declined slightly to 2.4–2.9%.

Chart 4.34
Transactions in non-residential properties



Sources: Land Registry and Centaline Property Agency Limited.

Chart 4.35
Non-residential property price indices



Source: R&VD.

The attractiveness of prime retail locations may improve in the near term given the better outlook for retail sales and inbound tourism. The demand for office space will remain strong as the expansion of Mainland and foreign companies continues. Initiatives to revitalise industrial buildings proposed in the Policy Address may potentially increase the investment value of factory spaces. Nevertheless, the risk of rising domestic interest rates, heightened global financial market volatility, uncertainties surrounding global monetary conditions and capital flows could restrain the investment demand for non-residential properties.