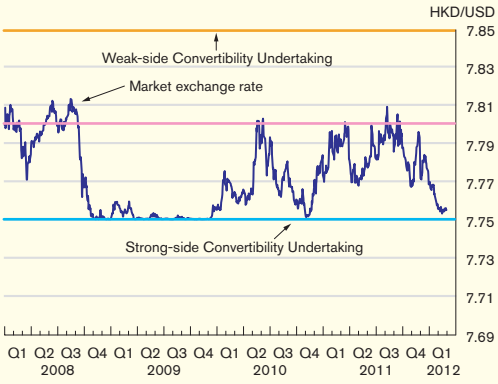
4. Monetary and financial conditions

Exchange rate, interest rates and monetary developments

Despite a turbulent macro-financial environment, the Hong Kong dollar spot exchange rate traded within a narrow range and the Hong Kong dollar money market continued to operate orderly. Hong Kong dollar interbank interest rates remained low and mostly below their US dollar counterparts except near the year-end. Commercial interest rates adjusted upwards, while credit growth slowed from a high level earlier in the year and loan-to-deposit ratios eased partly as a result. The HKMA continued its efforts to ensure prudent liquidity and credit risk management by banks, including calls for banks to raise their regulatory reserves against possible asset quality deterioration.

4.1 Exchange rate and interest rates

Chart 4.1
Hong Kong dollar exchange rate

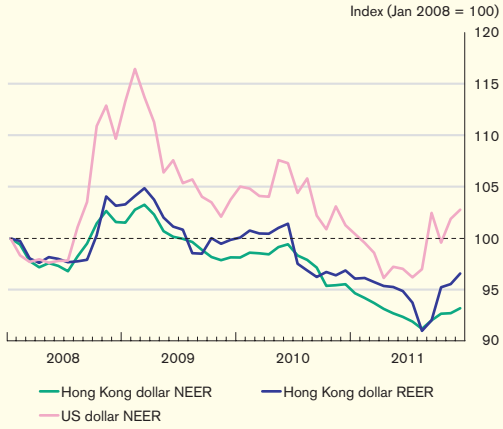


Source: HKMA.

The Hong Kong dollar spot exchange rate remained stable against the US dollar in the second half of 2011, undeterred by a series of external turbulences, including the downgrading of the US sovereign credit rating, the escalation of the European sovereign debt crisis and increased volatility in global equity markets. After weakening between May and July, the movements in the bilateral exchange rate largely mirrored the swings in the US dollar against other major currencies for the remainder of the year (Chart 4.1). Overall, the exchange rate traded within a narrow range between 7.7671 and 7.8097 during the second half.

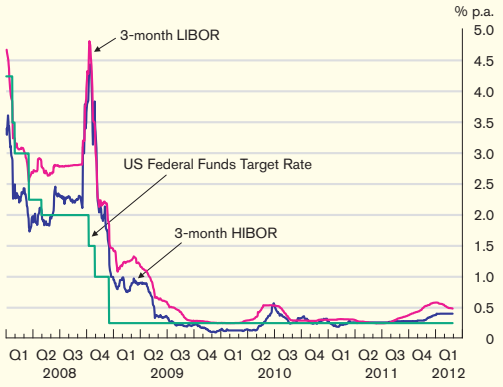
Stepping into 2012, the Hong Kong dollar spot exchange rate strengthened to close at 7.7549 on 29 February, compared with 7.7685 on 30 December 2011. The strengthening trend partly reflected an improvement in market sentiment amid the US Federal Open Market Committee's forecast of exceptionally low interest rates at least through late 2014 and some signs of progress in addressing the euro zone sovereign debt crisis. Near-term outlook is clouded by potentially volatile international capital flows and considerable uncertainty about the euro zone crisis. The market consensus in February 2012 suggests that the spot exchange rate will move to around 7.782 by the end of May 2012.

Chart 4.2
Nominal and real effective exchange rates



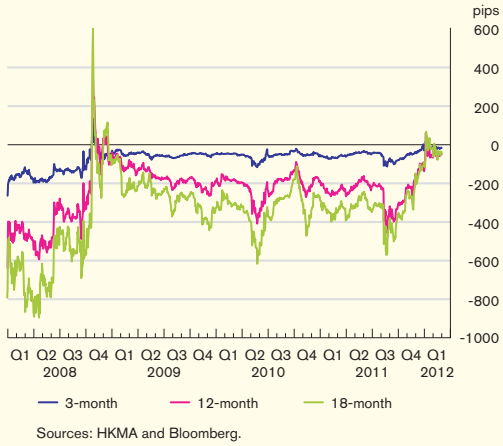
Note: Real effective exchange rate index is seasonally adjusted.
Sources: C&SD, CEIC and HKMA staff estimates.

Chart 4.3
Interest rates of the Hong Kong dollar and US dollar



Source: CEIC.

Chart 4.4
Hong Kong dollar forward exchange rates



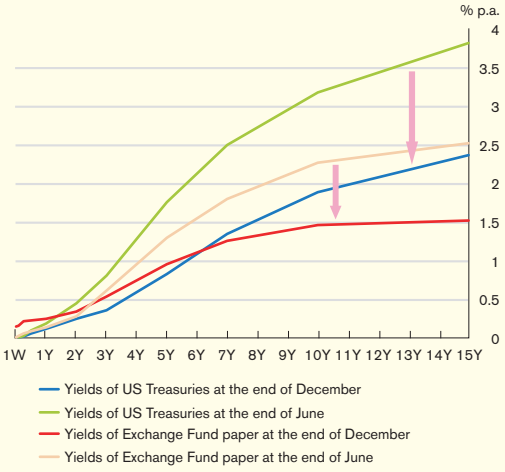
Sources: HKMA and Bloomberg.

Reflecting movements in the US dollar, both the trade-weighted nominal and real effective exchange rate indices of the Hong Kong dollar rebounded between September and December 2011, reversing the weakening trends in the previous eight months (Chart 4.2). Separate exchange rate assessments by the IMF and the HKMA conducted in October 2011 suggest that the Hong Kong dollar real effective exchange rate was broadly in line with economic fundamentals in the medium term and close to the estimated equilibrium value.

In the money market, while market activities were orderly in the second half of 2011, there were slight upward adjustments in interbank interest rates near the end of the year. After being largely stable at low levels in the first 10 months of 2011, HIBORs rose slightly in November and December, in part tracking the upward movements in their US dollar counterparts (Chart 4.3). Domestically, occasional funding needs arising from initial public offerings in the equity market and increased demand for the Hong Kong dollar associated with year-end liquidity needs also contributed to the upticks in HIBORs, including the slight rises in overnight HIBOR vis-à-vis its US dollar counterpart in the last few days of 2011.

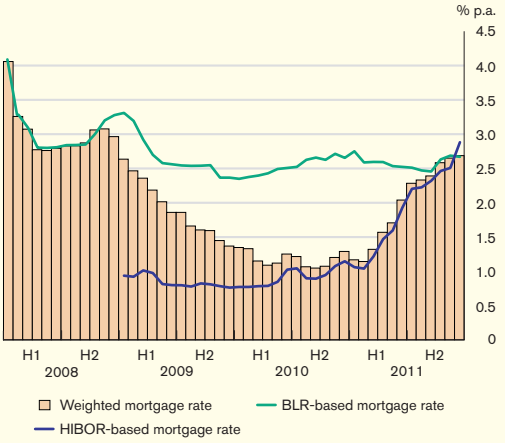
Tighter Hong Kong dollar funding conditions towards the end of 2011 was also evident in the foreign exchange forward market, as there was a greater demand by some market participants to tap collateralised term funding by swapping US dollars for Hong Kong dollars. Such transactions put weakening pressure on the Hong Kong dollar forward exchange rate because Hong Kong dollars would be sold on later. As a result, the Hong Kong dollar forward discounts broadly narrowed between September and December 2011 and the forward points even momentarily turned from discounts to small premiums in December (Chart 4.4). From January to July 2011, the forward discounts were generally stable, consistent with roughly stable HIBOR-LIBOR spreads.

Chart 4.5
Yield curve movements in the second half of 2011



Source: HKMA.

Chart 4.6
Mortgage interest rates for newly approved loans



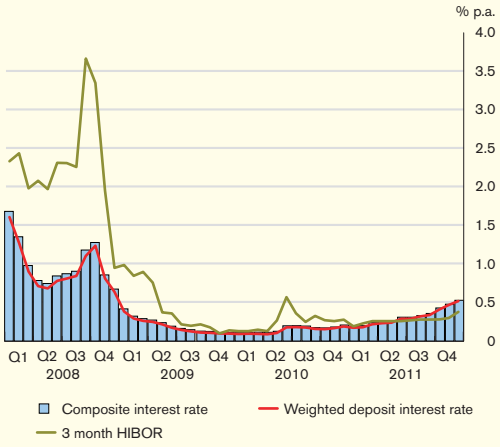
Note: The share of HIBOR-based mortgage plans was small in 2008. All mortgage rates are estimates only.

Source: HKMA staff estimates.

In contrast to the pick-up in interbank interest rates, yields of longer-term Exchange Fund papers declined alongside their US dollar counterparts in the second half of 2011, leading to a flatter Hong Kong dollar nominal yield curve (Chart 4.5). Longer-term yields of US government bonds fell back notably in the third quarter amid increased uncertainty about the global outlook. The launch of the maturity extension programme (the so-called "Operation Twist") by the US Federal Reserve in September 2011 also exerted some downward pressure on the longer-term interest rates. The Hong Kong dollar-US dollar yield spreads at the end of 2011 turned positive for tenors less than or equal to five years, but remained negative for other tenors.

At the retail level, Hong Kong dollar lending interest rates appeared to have risen further during the second half of 2011 and banks continued to tighten their mortgage interest rates for newly approved loans (Chart 4.6). Despite steady best lending rates (BLR) at either 5% or 5.25%, the BLR-based mortgage interest rates picked up slightly in the final quarter of 2011. The HIBOR-based mortgage rates also rose to a post-2008 high in December and were estimated to be on average higher than the BLR-based rate. Partly reflecting this, survey data indicate the proportion of newly approved mortgage loans priced with reference to HIBOR fell notably to 8% in December from 80% six months earlier. Taken together, the weighted average mortgage rate for newly approved loans increased to around 2.7% at the end of 2011, back to the levels last seen in late 2008.

Chart 4.7
Deposit interest rates and the average cost of funds

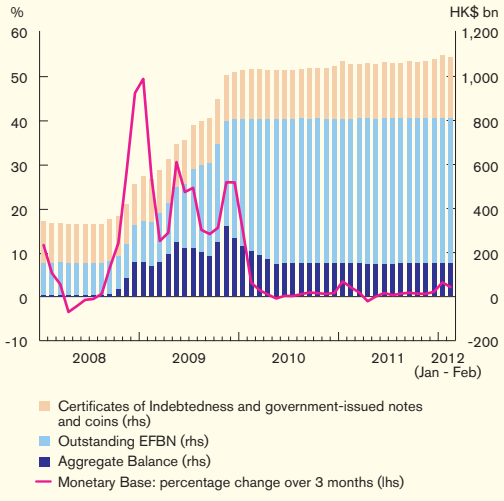


Sources: HKMA and CEIC.

The Hong Kong dollar weighted deposit interest rates offered by retail banks also gradually increased, although still at a very low level, in the six months to December 2011. This, coupled with the pick-up in HIBORs, led to a moderate upward trend in the average cost of funds for banks. As a measure of that cost, the composite interest rate crawled steadily to 0.53% at the end of the year from 0.31% six months ago (Chart 4.7). There were incipient signs that banks offered more favourable interest rates to new customers to attract term renminbi deposits towards the end of 2011, partly driven by increased demand for renminbi loans. Earlier, the local renminbi deposit interest rates were lowered once in April, immediately after the PBoC cut the offshore renminbi clearing interest rate by 27 basis points to 0.72%.

Data in the first two months of 2012 indicate the HIBORs were roughly stable against the backdrop of the US Federal Reserve's forecast of exceptionally low interest rates at least through late 2014 and a slight easing in LIBORs. The consensus forecasts in February 2012 also project little change in the three-month HIBOR over the next 12 months. Longer-term yields of Exchange Fund papers declined slightly. Hong Kong dollar lending and deposit interest rates will continue to be affected by changes in the supply of deposits and demand for loans in the banking system.

Chart 4.8
Monetary Base components

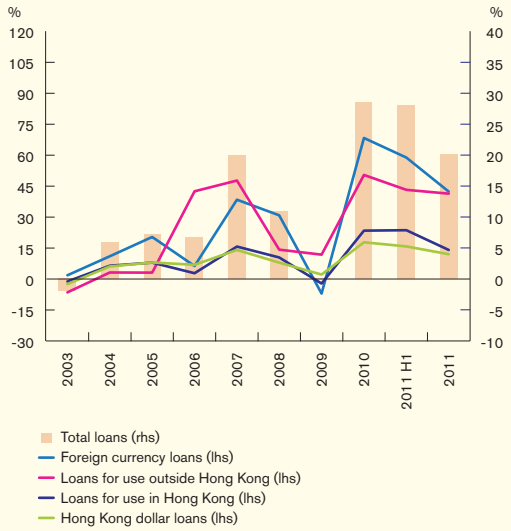


Source: HKMA.

4.2 *Money and credit*

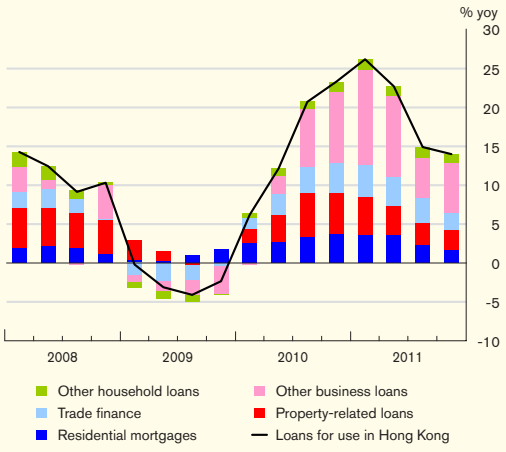
During the second half, the Monetary Base increased slightly mainly because of seasonal demand for banknotes (Chart 4.8). In particular, the new series of HK$50 and HK$100 banknotes that have been in circulation since 22 November contributed to an expansion in outstanding Certificates of Indebtedness towards the end of the year. The Aggregate Balance remained stable at around HK$148.7 billion, accounting for about 14% of the Monetary Base. Broader Hong Kong dollar monetary aggregates continued to rise, with M1 and M3 growing by 5.2% and 3.7% respectively in the second half of 2011, compared with 3.5% and 0.9% in the first half.

Chart 4.9
Loan growth



Note: Growth rates in 2011 H1 are annualised.
Source: HKMA.

Chart 4.10
Loans for use in Hong Kong by sector



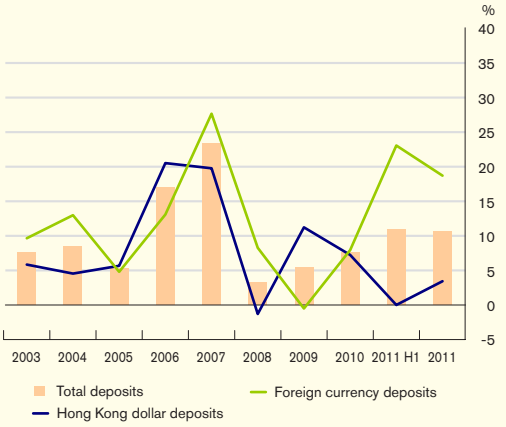
Source: HKMA.

On the credit side, total loan extension slowed in the second half, and outstanding loans even contracted slightly in December, driven by sluggish merchandise external trade, a weaker growth outlook, and the on-going consolidation of the local residential property market. In 2011 total loans grew by 20.2%, slower than the 28.6% growth in 2010 and the (year-to-date) annualised growth of 27.9% in 2011 H1 (Chart 4.9). Mainland-related credit demand showed signs of moderation, as evidenced by slower growth in foreign currency lending and loans for use outside Hong Kong, although they continued to expand at a much faster pace than Hong Kong dollar lending and loans for use in Hong Kong. As Mainland-related loans have been a major driver of recent credit cycles in Hong Kong, Box 2 analyses how Mainland China's monetary conditions affect credit developments in Hong Kong. The December data also suggested a slowdown in credit extension by some European banks' units in Hong Kong. Their outstanding customer loans declined by 6% in December, and among these loans, trade finance contracted by more than 20%.

Loans for use in Hong Kong (local currency only) also showed slower growth momentum towards the end of 2011, growing by 9.5% for the whole year, comparable with the annual nominal GDP growth of 8.7%. Analysed by economic use, most types of loans for use in Hong Kong (including all currencies) recorded smaller year-on-year increases in the second half (Chart 4.10). For mortgages, survey data reveal that both new loans drawn down and new loans approved declined notably amid a softer residential property market. According to the HKMA Opinion Survey of Credit Condition Outlook conducted in December 2011, surveyed authorized institutions anticipated overall loan demand will stabilise somewhat in the next three months.[15]

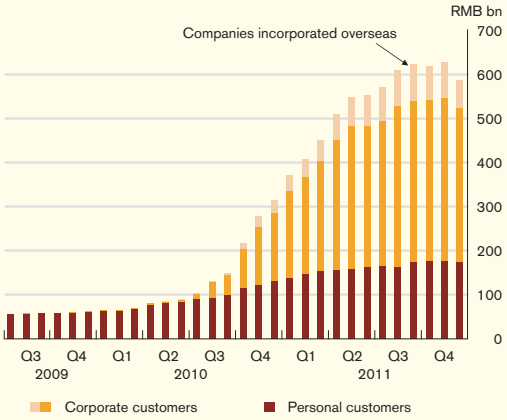
[15] As indicated by a roughly stable level of net respondents which refer to the percentage of respondents expecting loan demand to increase minus the percentage expecting loan demand to decline.

Chart 4.11
Growth in deposits



Note: Growth rates in 2011 H1 are annualised.
Source: HKMA.

Chart 4.12
Renminbi deposits in Hong Kong

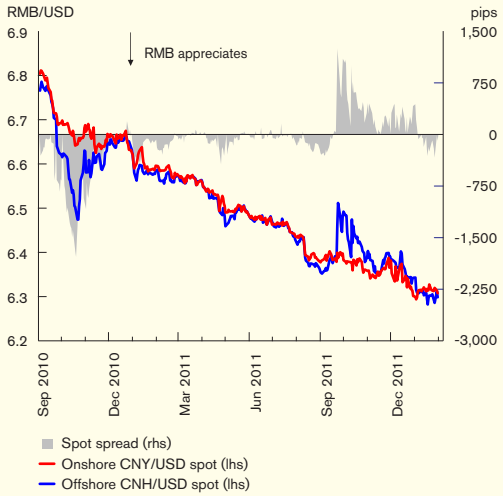


Source: HKMA.

The HKMA continued to closely monitor credit growth and has implemented a series of supervisory measures to ensure sustainable credit growth and prudent management of credit and liquidity risks by banks. For example, the HKMA asked banks to raise the level of their regulatory reserves to build a stronger buffer against possible material deterioration in their asset quality. Selected foreign banks have also been required to ensure they have sufficient long-term funding to meet their new lending (tenor matching) so that they have stable funding sources to support their loan growth in an uncertain environment. In view of the growing importance of banks' Mainland exposures, the supervisory surveillance on local banks' Mainland operations has also been intensified.

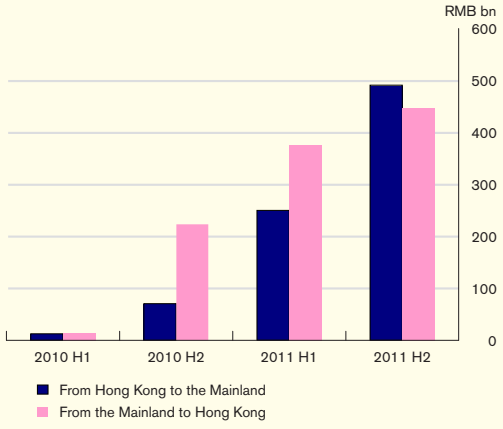
Total deposits expanded by a solid 5.4% and 4.9% respectively in the first and second half of 2011. For the year as a whole, the increase in total deposits of 10.6% was faster than the 7.5% rise in 2010 (Chart 4.11). Partly helped by a stepped-up competition for new deposits and the resulting increase in term deposit rates, Hong Kong dollar deposits rose by 3.4% in the second half of 2011 following an essentially flat path in the first half, although such deposits continued to grow much more slowly than their foreign currency counterpart. Indeed, the increases in foreign currency deposits remained strong and renminbi deposits were the main engine of growth. The outstanding renminbi deposits reached RMB588.5 billion at the end of 2011, up from RMB553.6 billion at the end of June, largely on the back of an increase in corporate deposits (Chart 4.12).

Chart 4.13
Onshore and offshore renminbi exchange rates



Source: Bloomberg.

Chart 4.14
Flows of renminbi trade settlement payments



Source: HKMA.

Table 4.A
Renminbi business in Hong Kong

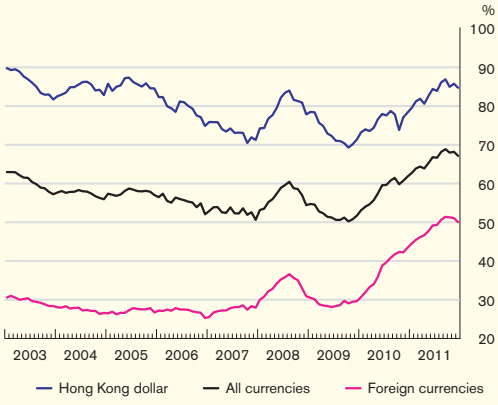
	2010	2011
	(RMB bn)	
Outstanding renminbi certificates of deposits	5.7	72.0
Outstanding renminbi loans	1.8	30.8
Amount due from overseas banks	10.9	121.7
Amount due to overseas banks	19.6	116.4
	(Number)	
Renminbi correspondent accounts set up by overseas banks at Hong Kong banks	187	968

Source: HKMA.

However, by monthly data, renminbi deposits in Hong Kong were seen to have contracted in October and December, partly reflecting global market factors that weakened market participants' demand for the offshore renminbi. In particular, in the last quarter of 2011, amid heightened global risk aversion and flight to safe-haven currencies especially the US dollar, most currencies in the region experienced heavy sell-offs. In this context, the offshore renminbi in Hong Kong traded at a visible discount to the onshore renminbi, reversing the previous pattern of a more expensive renminbi in the offshore market (Chart 4.13). Box 3 analyses the market dynamics of price disparities between the Mainland's onshore and offshore financial markets, including the onshore-offshore renminbi exchange rate spreads. The downward pressures and volatility in the CNH market, however, were milder than what most other regional currency markets encountered during the period.

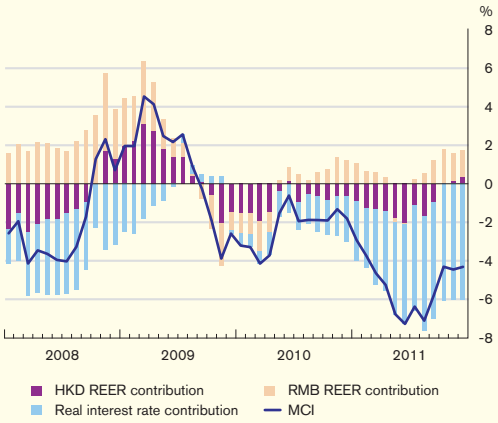
Despite the short-term fluctuations in renminbi deposits, the underlying growth in Hong Kong's offshore renminbi banking business remained strong. Renminbi trade settlement conducted through Hong Kong banks rose from around RMB800 billion in the first half of 2011 to RMB1,100 billion in the second half. The ratio of inward to outward renminbi remittances related to trade settlement converged to roughly balanced, shrinking from 1.5 in the first half of 2011 to even slightly below one at 0.9 in the second half (Chart 4.14). Non-deposit renminbi banking products in Hong Kong continued to develop, with banks increasingly raising renminbi funds through certificates of deposits and extending a greater amount of renminbi loans (Table 4.A). Going beyond the local market, Hong Kong banks' role in supporting renminbi business worldwide has also grown in importance. The number of renminbi correspondent accounts set up by overseas banks at Hong Kong banks rose more than four-fold in 2011, and Hong Kong banks' cross-border interbank claims and liabilities in renminbi also expanded rapidly. Policy initiatives announced by the Central Government in August are expected to further promote two-way renminbi circulation between Hong Kong and the Mainland, thereby providing additional impetus for growth in Hong Kong's renminbi banking business. The initiatives include further expansion of the renminbi trade settlement scheme, the support for the use of the renminbi for inward foreign

Chart 4.15
Loan-to-deposit ratios



Source: HKMA.

Chart 4.16
Monetary Conditions Index



Note: MCI is a weighted sum of the real interest rate and the four-quarter changes in the Hong Kong dollar and renminbi real effective exchange rates (REERs).

Sources: HKMA and staff estimates.

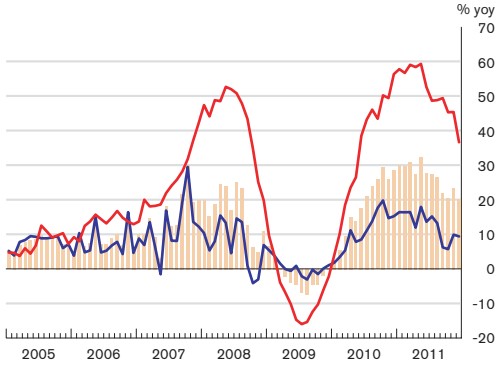
direct investments on the Mainland and the introduction of a Renminbi Qualified Foreign Institutional Investors scheme for investing in Mainland China's securities markets.

As loan growth slowed and deposit growth picked up for the whole banking sector, the loan-to-deposit ratios tapered off somewhat in the final quarter, stalling the generally upward trend since 2010 (Chart 4.15). Through the course of 2011, the Hong Kong dollar loan-to-deposit ratio rose by a total of 6.4 percentage points, slightly smaller than the 6.9 percentage point increase in 2010. The US dollar loan-to-deposit ratio also increased briskly during 2011.

Monetary conditions became less expansionary in the second half of 2011, as indicated by a rebound in the Monetary Conditions Index (MCI) (Chart 4.16), which remained in negative territory. The rise in the MCI was mainly due to a rise in the Hong Kong dollar and renminbi real effective exchange rates, which countered the impact of a low real interest rate.

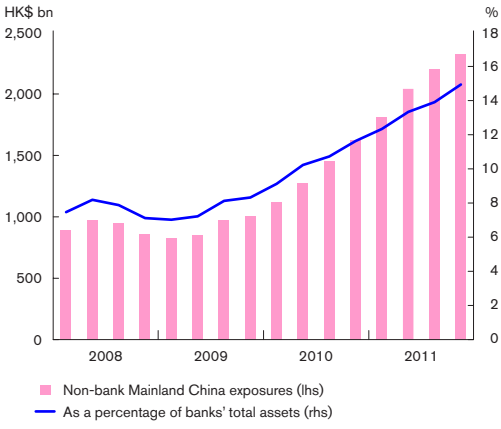
Box 2
How are credit developments in Hong Kong related to monetary conditions in Mainland China?

Chart B2.1
Year-on-year growth in loans



Note: External loans refer to foreign currency loans plus Hong Kong dollar loans for use outside Hong Kong.
Source: HKMA.

Chart B2.2
Non-bank Mainland exposure of banks



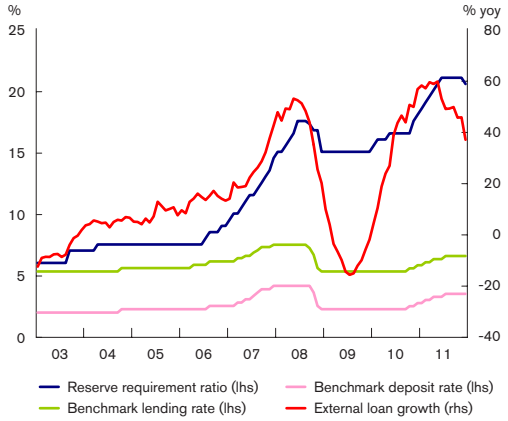
Source: HKMA.

External loans, which refer to the sum of all foreign currency loans and those Hong Kong dollar loans that are for use outside Hong Kong, have become an increasingly important component of our banking system. Since 2007, the swing of credit cycles in Hong Kong seems to have been amplified by the external loan component (Chart B2.1). By way of its impact on loan-to-deposit (LTD) ratios, the fluctuation in external loan growth may have important implications for the banking sector's liquidity condition. In particular, fast growth in external loans since 2010 has been accompanied by notable increases in LTD ratios, which exert some funding pressure on banks.

One of the major factors driving external loans since 2008 appears to have been Mainland-related lending, as suggested by the rapid rise in non-bank Mainland exposure of Hong Kong banks (Chart B2.2). Some observers attribute the strong credit demand from the Mainland partly to its evolving monetary conditions. Earlier research [16] has highlighted that Mainland China's monetary conditions could affect Hong Kong's interbank interest rates, even though the Linked Exchange Rate system tends to bind together the movements in HIBORs and the US dollar LIBORs. However, questions arise whether the Mainland's monetary conditions directly affect Hong Kong's credit development and, if so, what is the magnitude of the effects? The following analysis attempts to answer this.

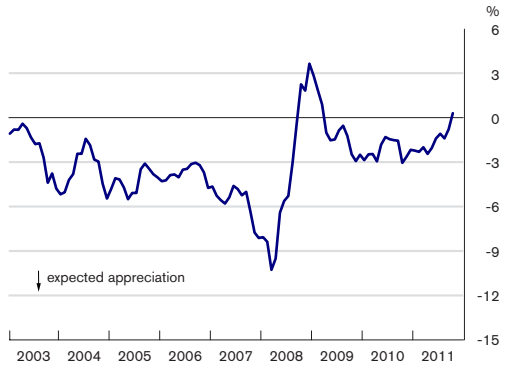
[16] See D. He, F. Leung and P. Ng (2007), "How Do Macroeconomic Developments in Mainland China Affect Hong Kong's Short-term Interest Rates?", *HKMA Working Paper 17/2007*.

Chart B2.3
External loans in Hong Kong and indicators of the Mainland's monetary conditions



Sources: HKMA and CEIC.

Chart B2.4
Expected appreciation of the renminbi



The percentage difference between the onshore renminbi spot rate and 12-month offshore renminbi non-deliverable forwards

Source: Bloomberg.

Possible determinants of credit demand from the Mainland

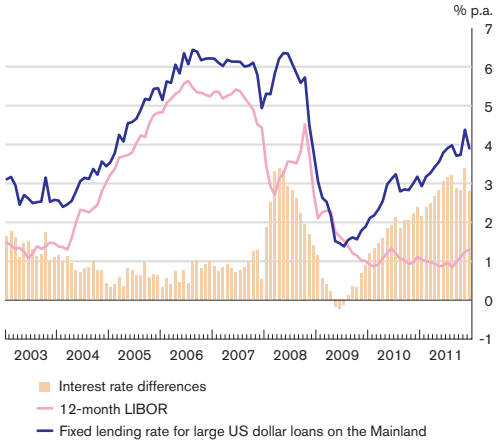
Monetary conditions in Mainland China could have an impact not only on the overall credit needs of its own entities, but also to some extent their choice of markets in which to satisfy those needs. This analysis focuses on the following four monetary condition variables on the Mainland.

- *Renminbi policy interest rates*. The policy rates appear to generally move in tandem with cyclical economic developments (Chart B2.3). Higher policy rates translate into costlier borrowing terms on the Mainland, which may induce Mainland entities to conduct more of their borrowing activities abroad, including in Hong Kong.

- *The reserve requirement ratio* (RRR). As an important quantitative policy tool in Mainland China (Chart B2.3), a higher RRR could signal more limited bank capacity to make loans on the Mainland, hence possibly diverting some credit demands to banks in Hong Kong.

- *Expected renminbi appreciation*. In addition to renminbi interest rates, the carrying cost of a renminbi-denominated loan is determined also by the expectations of the future renminbi exchange rate (Chart B2.4). A greater renminbi appreciation expectation, for instance, will increase the cost of borrowing in the renminbi, and thus possibly encourage borrowing in other currencies, including the Hong Kong and US dollars.

Chart B2.5
US dollar lending interest rates in Mainland China and 12-month LIBOR



Note: Mainland lending rates in July, August and October - December 2008 are interpolated because of missing data.
Sources: HKMA staff estimates and WIND.

Table B2.A
Mainland monetary conditions and credit developments in Hong Kong

Shocks	Estimated effects on	
(Unexpected movements)	Year-on-year growth in external loans	Total loan-to-deposit ratio
Renminbi policy interest rate ↑ 25 basis points	↑ 5 percentage points after 1 year	↑ 0.5 percentage points after 2 months
Expected rate of renminbi appreciation ↑ 1 percentage point	↑ 1 percentage point after 1 month	↑ 0.5 percentage points after 7 months
Mainland's US dollar interest rate spread over LIBOR ↑ 50 basis points	↑ 1.3 percentage points after 3 months	↑ 0.7 percentage points after 1 month
Reserve requirement ratio ↑ 25 basis points	↑ 2.5 percentage points after 7 months	↑ 0.5 percentage points after 1 year

Source: HKMA staff estimates.

- *The Mainland's US dollar interest rate spread over US dollar LIBOR*. Given the capital account restrictions on the Mainland, US dollar interest rates on the Mainland and in the international markets (including Hong Kong) can differ significantly, depending on the US dollar supply and demand conditions on the Mainland (Chart B2.5). An increase in US dollar interest rates on the Mainland vis-à-vis in Hong Kong, for example, might encourage Mainland corporations to conduct more of their US dollar borrowing activities in Hong Kong rather than on the Mainland, thus potentially driving up Hong Kong's external loans.

Statistical analysis using a vector autoregression model

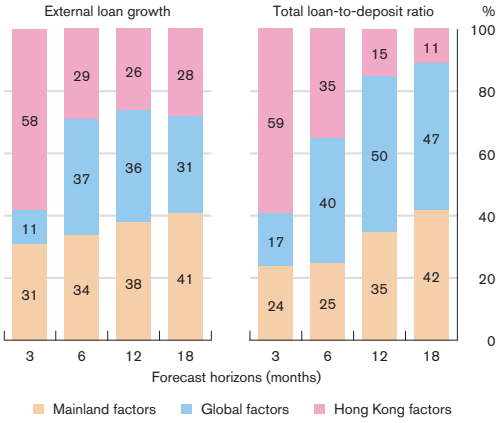
To understand the dynamic responses of Hong Kong's external loan growth and total LTD ratio to Mainland shocks, we estimate a vector autoregression model with 11 variables, including global and other Mainland factors as control.[17] The sample period is between early 2003 and September 2011.

The estimated results support the theoretical predictions on how Mainland monetary conditions would affect Hong Kong's credit development, as discussed above. Specifically, the results suggest that unexpectedly higher carrying costs of borrowing on the Mainland – as reflected by the Mainland's renminbi policy interest rates, US dollar interest rate differential, and expectations of renminbi appreciation – tend to lead to faster growth in external loans and higher LTD ratios in Hong Kong. Likewise, a tighter-than-expected quantitative access to credit on the Mainland, as proxied by the RRR policy, appears to generate similar effects.

Some of our model's quantitative estimates on the effects of the Mainland monetary conditions are presented in Table B2.A.

[17] The 11 variables are: (1) G3 industrial production; (2) 12-month US dollar LIBOR; (3) US dollar nominal effective exchange rate; (4) Mainland industrial production; (5) Mainland reserve requirement ratio; (6) Mainland policy interest rate; (7) Mainland renminbi loans; (8) 12-month expected changes in the renminbi exchange rate against the US dollar; (9) the difference between the 12-month US dollar lending interest rate in Mainland China and LIBOR; (10) Hong Kong total merchandise trade value; and (11) the variable of interest (either external loans or the total loan-to-deposit ratio in Hong Kong).

Chart B2.6
Forecast error variance decomposition of external loan growth and loan-to-deposit ratio



Note: The decomposition allows us to calculate the percentage of the variance of the error made in forecasting the variable of interest due to global or Mainland shocks at different time horizons.

Source: HKMA staff estimates.

The estimated model can also shed light on the importance of the unexpected changes (shocks) in the Mainland variables – taken together – in driving Hong Kong's external loans and loan-to-deposit ratio in recent years (Chart B2.6). Depending on the length of horizon, the Mainland factors appear to account for about 31 - 41% of the unexpected fluctuations in external loan growth in Hong Kong and 24 - 42% of those in the total LTD ratio.

It needs to be noted that in interpreting the results, however, there are two caveats. First, given that the sample period on which the estimation is based is relatively short and is peppered with many volatile and unusual global events, it might not be representative of a normal time period. As such, the quantitative estimates are best regarded as indicative rather than definitive in nature. Secondly, with Hong Kong banks' exposures to the Mainland having increased rapidly in recent years, the true impact of Mainland shocks on Hong Kong's credit development could be understated by the exercise, which measures the average effect over the sample period.

Box 3
Price disparities between Mainland China's onshore and offshore financial markets

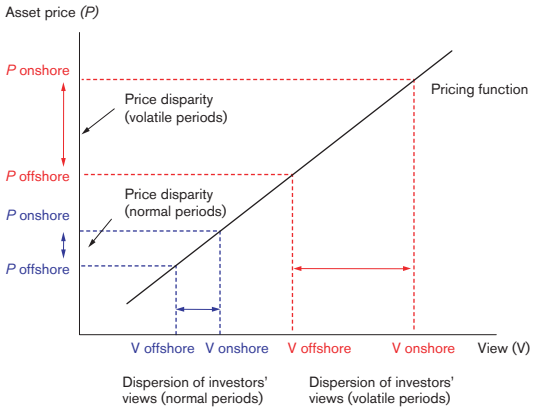
As the Mainland's capital account has yet to be fully liberalised, an institutional separation exists between the onshore and offshore financial markets for the same underlying asset. Prominent examples include the A- and H-shares, the onshore deliverable forwards (DF) and offshore non-deliverable forwards (NDF), and the onshore CNY and offshore CNH renminbi spot exchange markets. Despite the increasing integration of the onshore and offshore markets in recent years, apparent price disparities continue to exist. To gain a better understanding of the market dynamics of such disparities, this box investigates three issues: (i) why onshore and offshore investors pay different prices for the same underlying asset; (ii) whether the price disparities would converge over time; and (iii) if there are causation links between the two markets.

We develop a framework to incorporate the possible existence of differences in views between Hong Kong and Mainland investors.[18 & 19] In the framework, asset prices are assumed to be determined by investors' views, which are affected by their perceptions about the macroeconomic prospect of Mainland China, their expectations of the Mainland's monetary policy stance and market sentiments. Due to discrepancies in the information sets used by Hong Kong and Mainland investors, it is possible they would arrive at different valuations of the same asset because their views are diverse.

[18] Hong Kong investors include international investors participating in Hong Kong's markets.

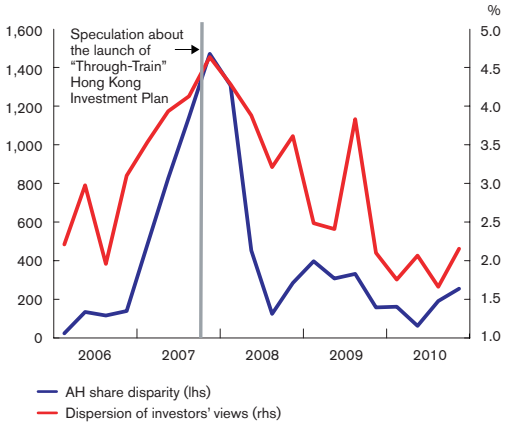
[19] The analytical framework refers to the structural pricing model developed in the following two papers. For the stock markets, see T. Chung et al. (2011), "Explaining share price disparity with parameter uncertainty: Evidence from Chinese A- and H-shares", *HKIMR working paper No.33*. For the forward exchange rate markets, see K. Li et al. (2012), "Determinants and dynamics of price disparity in onshore and offshore RMB forward exchange rate markets", *HKIMR Working Paper* (forthcoming).

Chart B3.1
Relationship between price disparities and the dispersion of investors' views



Note: For illustration purposes, onshore investors are assumed to have a more sanguine view than offshore investors, which results in a higher valuation.

Chart B3.2
Price disparity in the A- and H-share markets and dispersion of investors' views



Notes:
1. Sample period: 2006 Q1 to 2010 Q4.
2. AH share disparity is the absolute difference between the Hang Seng A-share index and the Hang Seng H-share index.

We then extract information about the extent of disagreement between the views of Hong Kong and Mainland investors arising from their different perceptions developed from observed market data of equity prices, exchange rates, and macroeconomic and balance-sheet information.[20] The measure of the dispersion in investors' views is used as one explanatory variable in studying the variations in price disparities.[21] Chart B3.1 provides a graphical illustration to highlight how price disparities may relate to the differences in investors' views. It shows that when onshore and offshore investors differ in their views, the pricing function generated from our framework would deliver different prices in the two markets. Indeed, the larger the discrepancy between the views, the larger the price disparity would be.

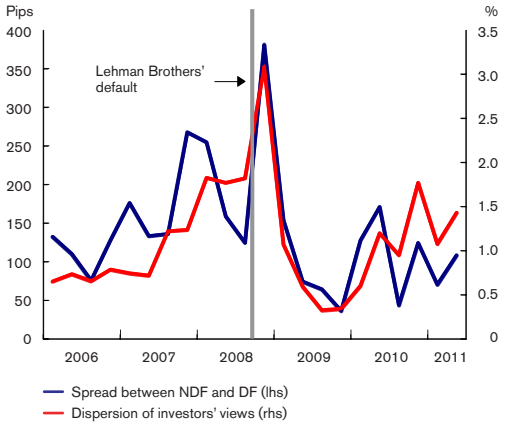
Empirical results testing the above relationship are shown in Charts B3.2 and B3.3 for the A- and H-share markets and the renminbi forward markets respectively.[22] For both markets, the price disparities are found to move in tandem with the measures of the corresponding dispersion of investors' views. It should be noted that the levels of price disparity and the dispersion of views are usually mild, and they spike only during periods of market turbulence. Such a phenomenon fits well with this framework because the level of uncertainty in general rises during times of distress. This, coupled with a degree of information asymmetry between different investors, would result in larger dispersions in their views, which in turn would generate bigger price disparities.

[20] This follows the idea of parameter uncertainty in the finance literature that assumes investors are unsure about parameters in structural pricing models. For example, see L.Pastor and P. Veronesi (2003), "Stock Valuation and Learning about Profitability", *Journal of Finance*, 58(5), pages 1749 - 1789.

[21] The models are estimated using Bayesian methods. Bayes' theorem states that the posterior distribution of the model-parameter estimates contains information about the dispersion of investors' prior views. The extent of disagreement between investors' views is measured by the standard deviation of the model-parameter estimates.

[22] Similar tests on price disparity in the CNY and CNH spot markets are not conducted due to the absence of a sufficiently long data series.

Chart B3.3
Price disparity in the onshore deliverable forward and offshore non-deliverable forward markets and dispersion of investors' views



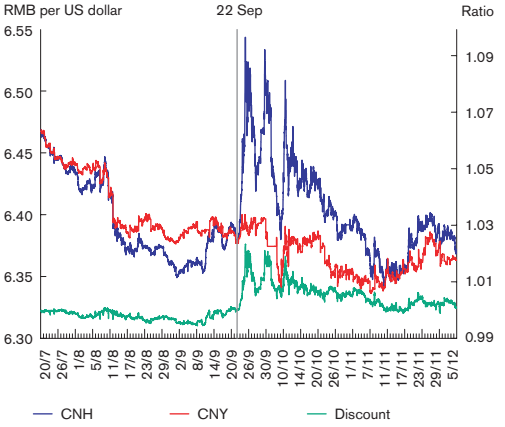
Notes:
1. Sample period: 2006 Q1 to 2011 Q2.
2. Spread is the absolute difference between the onshore DF rate and the offshore NDF rate.

Table B3.A
Results of the decay test

Price disparity	Number of trading days for a unit of shock to decay by half[1]
A- and H-shares[2]	35.1
RMB DF and NDF	3.4
CNH and CNY	13.5

Notes:
1. The number of days is computed as $-\log(2)/\log(1+b)$, where b is the regression coefficient of $y_t - y_{t-1} = a + by_{t-1}$, with y representing the disparity series and a as the intercept.
2. Results for the partial sample period from November 2009 to November 2011 only. Results for a longer sample period from January 2006 to November 2011 suggests significantly more trading days.

Chart B3.4
CNH and CNY rates from 13 July to 7 December 2011



Note: A ratio of CNH/CNY greater than 1 indicates CNH is trading at a discount relative to CNY.

Given that price disparities generally exist, it is of interest to know whether the disparity itself has a self-correcting mechanism. In particular, it is useful to know whether an increase in disparity due to additional shocks would persist, or if it would converge back to its long-run average level.[23] To examine this, the decay test is employed to examine how many trading days are required for a unit of shock impact to reduce by half of its value. The result reveals that all price disparities would converge to their respective long-run average levels over time, indicating that the shock impacts would only cause temporary deviations from the long-run disparity levels. Table B3.A summarises the results of the decay test. Using the renminbi forward market as an example, it states that for a one unit shock to this market, it takes around three days for the shock impact to reduce by half, and another three days to further reduce the remaining impact by another half, and so on.

One of the key concerns regarding price disparities is whether significant price movements in the offshore market may cause undesirable anomalies to the onshore markets. To examine this issue, we study the interaction between the CNY and CNH spot exchange markets using high frequency data, i.e. exchange rates recorded at every five minutes. The selection of these markets for study was prompted by an episode in late September 2011 when there was a significant fall in the offshore renminbi spot exchange rate, with the disparity widening on 23 September to as much as 1.94%, compared with the CNY rate.

The empirical tests show that before 22 September 2011 (Chart B3.4), a two-way relationship existed between the CNH and CNY rates.[24] However, in the second sub-period, the causation was estimated to run from the CNY rate to the CNH rate, but not in the other direction.

[23] Although the long-run equilibrium may change as a result of market developments in each of the onshore and offshore markets, we can still test whether the increases in disparities due to shocks are moving faster (indicating divergence) or slower (indicating convergence) than their respective long-run equilibrium levels.

[24] The tests employed are the Granger causality test and cross-correlation test. The Granger causality test is a statistical hypothesis test for determining whether one variable "causes" another. The cross correlation test is similar to the Granger causality test, but uses a Chi-square test to check whether one variable in the current period will be jointly correlated with another in preceding periods.

This result indicates that both the onshore and offshore markets influenced each other during the period when the CNH rate was relatively stable, but in the second sub-period when the CNH rate was more volatile, this relationship became one way, with the CNY rate leading the CNH rate. This, coupled with the empirical finding that the disparity possesses a self-correcting property with the two rates tending to converge over time, jointly implies the CNY rate acts as an anchor and tends to pull the CNH rate back when the CNH rate deviates from it significantly.[25]

The above analysis confirms that the price disparities between the onshore and offshore markets are significant due to information asymmetry and the segmentation of the Mainland and Hong Kong markets. While the results suggest a degree of disparity may be sustained, a self-correcting mechanism exists which shows that any drastic disparities are likely to be temporary. In addition, the study on the disparity of onshore and offshore renminbi spot exchange rates indicates there is no evidence that the volatility in the offshore market would cause anomalies to the onshore market. Looking ahead, the price disparities are likely to persist as long as information asymmetry continues to exist with market segmentation and limited arbitrage. And, they could become fairly large in times of market turbulence. However, the gaps should diminish as the financial markets of Mainland China and Hong Kong further integrate and the Mainland's capital account liberalisation proceeds.

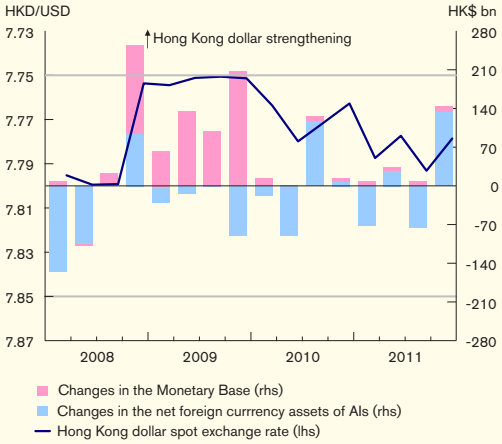
[25] Similar causality tests have also been applied to the A- and H-shares and the forward markets using daily data. In both markets, it is estimated that the onshore and offshore prices influence each other and there is no clear statistical evidence of a volatility spill-over that runs from the offshore market to the onshore market.

Capital flows

Fund flow continued to be driven by shifts in risk sentiment in the second half of 2011. The demand for the Hong Kong dollar weakened in the third quarter alongside heightened risk aversion and a slump in global stock markets, but showed more fluctuations in the final quarter as the euro zone sovereign debt crisis worsened. Looking ahead, the directions and size of fund flows in 2012 will remain highly uncertain, and will continue to be influenced by the evolution of the euro debt crisis.

4.3 Capital flows

Chart 4.17
Fund flow indicators



Note: A positive change in the Monetary Base or the net foreign currency assets of AIs signals inflows.

Source: HKMA.

Demand for Hong Kong dollar assets

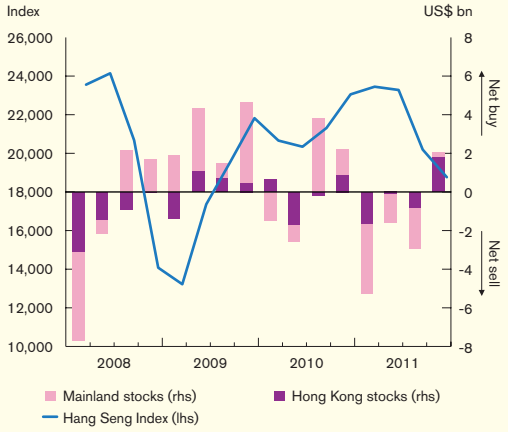
In such a volatile environment, the demand for the Hong Kong dollar was generally soft through the third quarter of 2011, but fluctuated more in the final quarter, according to both price and quantity indicators. The Convertibility Undertakings were not triggered and the Hong Kong dollar spot exchange rate against the US dollar moved within a narrow range.

During the third quarter, the reduced demand for the Hong Kong dollar was reflected in a weaker market exchange rate and a decline in the net foreign currency assets of the banking system (Chart 4.17). First, the Hong Kong dollar-US dollar spot exchange rate softened from an average of 7.7773 in Q2 to 7.7931 in Q3. Secondly, the net foreign currency assets of the AIs shrank for three consecutive months between July and September, signalling some outflows of funds in the non-bank private sector.[26] In tandem, despite an expansion in Hong Kong dollar loans, Hong Kong dollar deposits contracted slightly.

Heightened global risk aversion and increased demand for safe haven assets, like the US dollar, were important factors behind the selling pressures on the Hong Kong dollar and many other regional currencies in the three months to September 2011. In August the downgrade of

[26] It should be noted that changes in the net foreign currency assets of the AIs, or the equivalent of their net Hong Kong dollar liabilities, include the effects of valuation changes like price and exchange-rate changes, and, therefore, are only a proxy for net Hong Kong dollar fund flows.

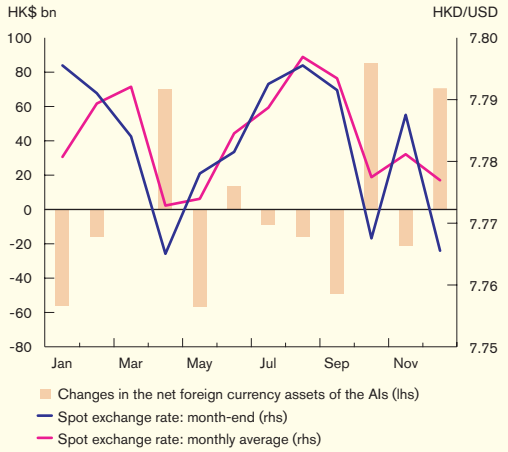
Chart 4.18
Market survey of equity-related flows



Note: "Mainland stocks" include H-shares, red-chips listed on the Hong Kong Stock Exchange and those shares listed on the Mainland stock markets.

Sources: CEIC and EPFR Global.

Chart 4.19
Exchange rates and changes in the net foreign currency assets of the AIs in 2011



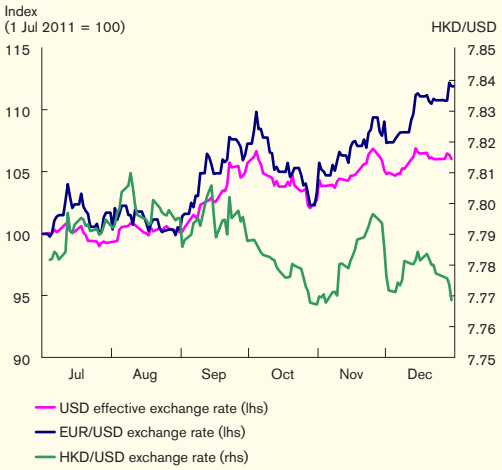
Note: A positive change in the net foreign currency assets of AIs signals inflows.

Source: HKMA.

the US sovereign credit rating led to a sell-off frenzy and retreat from risky assets. Increasing concerns about the euro zone sovereign debt crisis further undermined market confidence and reduced risk appetite. In September many regional currencies registered their largest monthly fall since the collapse of Lehman Brothers three years earlier. Even the offshore renminbi in Hong Kong was under some selling pressure, trading at a discount to the onshore renminbi in September. This was in sharp contrast to the first half of the year, when the offshore renminbi exchange rates consistently traded at a premium to the onshore rates. A market survey suggests there was net foreign selling of Hong Kong equities and Mainland-related stocks including H-shares in Q3, pointing to reduced demand for the Hong Kong dollar assets (Chart 4.18). Equity prices across the region generally saw a sharper drop than those in the US stock markets in August and September.

Demand for the Hong Kong dollar showed more fluctuations in 2011 Q4, with some buying pressure in October and December, but selling pressure in November (Chart 4.19). For the quarter as a whole, Hong Kong dollar demand appeared to be generally stronger than in Q3, as indicated by a slight strengthening in the Hong Kong dollar spot exchange rate against the US dollar and a rise in the net foreign currency assets of the AIs. In addition, Hong Kong dollar deposits expanded significantly more than Hong Kong dollar loans over the period.

Chart 4.20
Exchange rates in 2011



Note: A higher effective exchange rate represents an appreciation of the US dollar.

Sources: Bloomberg and HKMA.

The fluctuations in the Hong Kong dollar demand between October and December were partly driven by risk-on-risk-off sentiments linked to the developments in the euro zone sovereign debt crisis and banks' year-end funding needs. In particular, the Hong Kong dollar spot exchange rate strengthened amid a weaker US dollar in October, but weakened alongside a stronger US dollar in November, largely mirroring the swings in the US dollar against other major currencies, in particular the euro (Chart 4.20). Towards the end of 2011, the Hong Kong dollar spot exchange rate strengthened, together with an increase in market participants' demand for swapping US dollars for Hong Kong dollars in response to year-end funding needs. As a result of these transactions, the Hong Kong dollar forward discounts narrowed markedly.

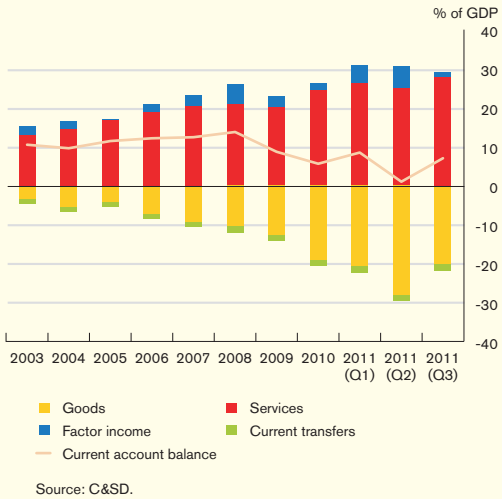
In the first two months of 2012, inflow pressures seem to have continued with the Hong Kong dollar strengthening alongside other regional currencies. There was also a quick turn in financial market sentiment, with the Hang Seng Index recording its largest January rally since 1996.

Balance of Payments and cross-border capital flows

The latest Balance of Payments statistics showed that reserve assets continued to expand, rising by HK$23.6 billion (4.8% of GDP) in 2011 Q3, compared with an average quarterly increase of HK$19.1 billion (4.3% of GDP) in the previous two quarters. The expansion in reserve assets in Q3 was caused by purchases of foreign currencies with Hong Kong dollars, incomes from foreign currency assets and increases in Certificates of Indebtedness. More recent data indicate that the foreign currency reserve assets of the Exchange Fund grew further in Q4.

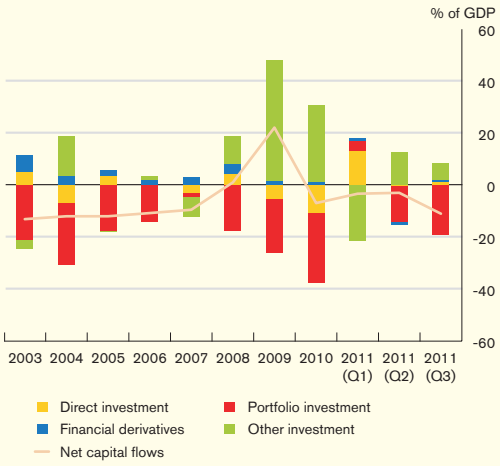
Despite a slight deterioration in the terms of trade, the third quarter of 2011 saw a rebound in the current account surplus from Q2, but it is too early to tell whether the surplus' narrowing trend since 2009 will stabilise or even reverse (Chart 4.21). The current account surplus improved to HK$34.2 billion (7.0% of GDP) in Q3 as an expansion in the service trade surplus exceeded a contraction in the merchandise trade deficit.

Chart 4.21
Current account surplus



Source: C&SD.

Chart 4.22
Cross-border capital flows



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

Table 4.B
Cross-border portfolio investment flows

(HK$ bn)	2010	2011 Q1	2011 Q2	2011 Q3
By Hong Kong residents				
Equity securities	-364.1	-51.5	-96.0	-154.9
Debt securities	-275.7	60.3	-11.6	25.5
By non-residents				
Equity securities	143.9	-2.5	37.2	18.2
Debt securities	28.6	11.4	7.6	16.8

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

Chart 4.23
Stock market performance in 2011

Source: CEIC.

The net private capital inflows during the global financial crisis in 2008 and 2009 have been reversed to net outflows since 2010 (Chart 4.22).[27] In particular, a sizable net private capital outflow of HK$54.5 billion (11.1% of GDP) was recorded in 2011 Q3, larger than the average quarterly net outflow of HK$14.6 billion (3.3% of GDP) in the previous two quarters, broadly mirroring developments in the current account. In terms of composition, Hong Kong recorded a net outflow in Q3 mainly because net portfolio investment outflows exceeded net other investment inflows relating to loans and deposits.

In the third quarter of 2011, the portfolio investment account recorded a net outflow, mainly driven by net equity portfolio investment outflows which more than offset net debt portfolio investment inflows (Table 4.B). Equity portfolio investment outflows by Hong Kong residents grew successively in the first three quarters of 2011 and reached HK$154.9 billion (31.6% of GDP) in Q3, the highest since 2008 Q2. Part of these equity portfolio investments might be related to residents' buying of some locally-listed but foreign-domiciled shares off-loaded by foreign investors in the secondary market. In addition, equity funds might have shifted from the local stock market to other equity markets in advanced economies. In this context, the local stock market under-performed the US equity market in Q3 (Chart 4.23).

[27] As Hong Kong records sizable current account surpluses over the years, it is natural for Hong Kong to have net private capital outflows if reserve assets are little changed.

Chart 4.24
Cross-border flows relating to bank loans

Note: A negative value indicates outflows.
Source: C&SD.

On the other hand, the net other investment inflow relating to deposits and loans in 2011 Q3 was partly driven by currency and deposit inflows by non-residents. Local banking sector data also show there was increased interbank placement in foreign currencies from banks abroad during the quarter. Sizable outflows of loans extended by local banks to non-residents continued in Q3, but the rate of the loan increase moderated, in line with the pattern of slower overall loan growth (Chart 4.24). Part of these loan outflows was Mainland-related, underpinned in part by low US dollar and Hong Kong dollar interest rates.

Outlook for capital flows

The direction and size of fund flows will be highly uncertain in 2012. The experience towards the end of 2011 once again illustrates the sensitivity of fund flows and exchange rate movements in the region to the global financial conditions and investors' risk appetite. For instance, how euro zone banks reshape their international businesses in response to US dollar funding gaps, capital shortfalls and fragile European economic conditions could have major implications for capital flows in regional economies including Hong Kong.

More generally, on the upside, the possibility of further monetary easing in the advanced economies and a continued two-speed global recovery could induce capital inflows in the region. On the downside, while the Federal Reserve's enhanced communication signals against a hike in interest rates in the near term, further escalation in the euro zone sovereign debt crisis could undermine investment sentiment and lead to large capital outflows from the region.

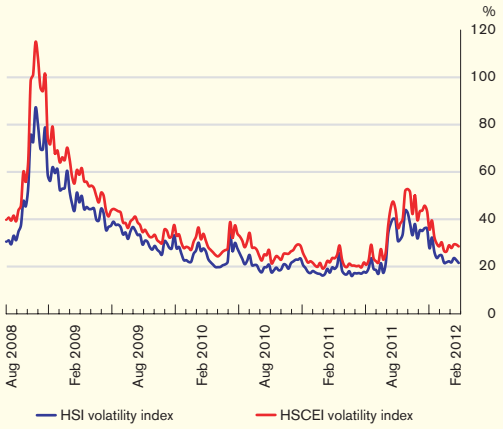
Asset markets

The local equity market experienced a roller coaster ride in the past six months. A sharp sell off at the start of the review period was followed by a rebound as the global outlook improved and risk appetite increased. The Hong Kong dollar debt market expanded mildly, while the offshore renminbi bond market saw phenomenal growth with issuance by non-financial corporations growing markedly.

The consolidation of the residential property market has been gradual, characterised by unusually thin transactions and only modestly weaker prices. Some downward pressure has also emerged in the commercial and industrial property markets, although rental demand remains relatively resilient. If there are no further downside risks in the external environment, the expectation of continued low interest rates and tight supply conditions could foster a further build-up of leverage in the property market, thus warranting continued supervisory restraint on bank credit.

4.4 Equity market

Chart 4.25
Volatility indices of the Hang Seng Index and Hang Seng China Enterprises Index

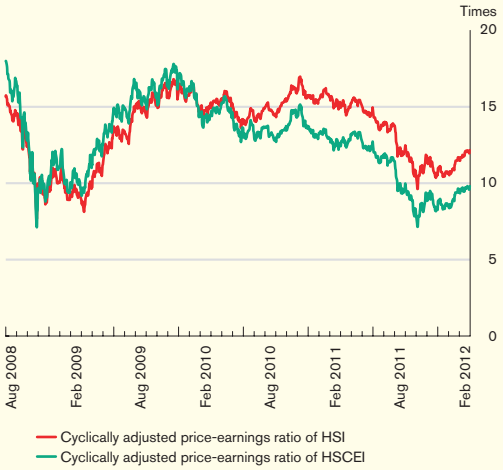


Note: HSI volatility index is calculated by Hang Seng Indexes Company Limited while HSCEI volatility index is estimated by HKMA staff.

Sources: Bloomberg and HKMA staff estimates.

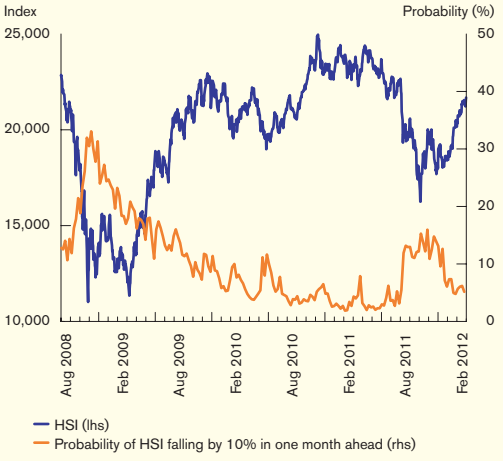
The Hong Kong equity market continued to come under pressure in September, amid a host of negative developments domestically and abroad. Weak external demand translated into an almost stagnant economy. Business conditions worsened across the border as the liquidity squeeze intensified. The European sovereign debt problem deepened, while the US economic recovery lost momentum. A risk re-appraisal pushed implied volatility to the highest level since the global credit crisis, despite the market's attractive low valuation (Charts 4.25 and 4.26). However, as the external environment improved towards the end of last year – funding strains eased in Europe, inflation peaked on the Mainland and the economic outlook improved in the US – bargain hunters emerged and global equities rebounded. This also rejuvenated the local market with a sharp rise in the turnover.

Chart 4.26
Cyclically adjusted price-earnings ratio of the Hang Seng Index and Hang Seng China Enterprises Index



Sources: Bloomberg and HKMA staff estimates.

Chart 4.27
Hang Seng Index and its option-implied probability of falling 10% in one month ahead

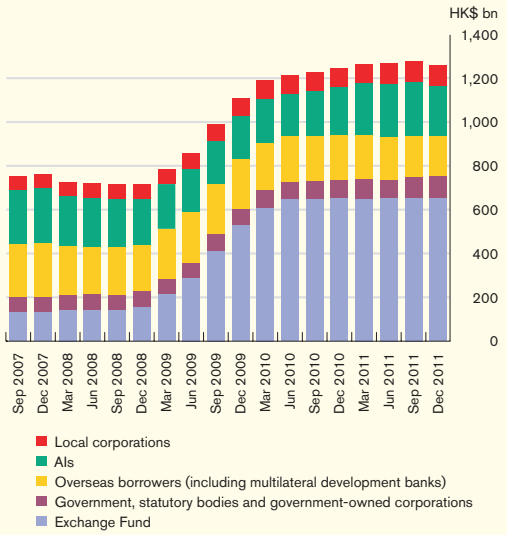


Sources: Bloomberg and HKMA staff estimates.

Overall, the Hang Seng Index edged up by 5.6% from September 2011 to February 2012, while the Hang Seng China Enterprises Index (also known as the H-share index) rose by 8.1%. Among the sub-indices, the Finance sector regained investor confidence and increased by 7.1% as risk appetite returned. Consistent with a highly uncertain macroeconomic environment, small-cap stocks (2.7% loss) underperformed large-cap stocks (5.5% gain) significantly during the period.

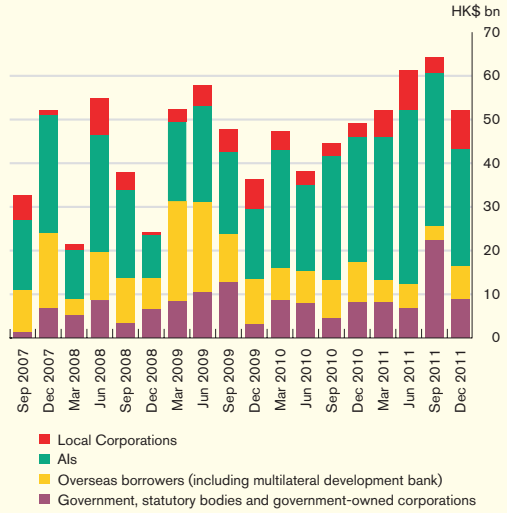
Looking forward, trading is likely to continue to be volatile in view of a more uncertain global market outlook, although the option-implied probability of a sharp fall in the near term has diminished considerably (Chart 4.27). A slowing economy or even a recession in Europe is well expected. The key concerns, however, are the extent to which European banks will de-leverage and, if this turns out to be considerable, whether it will translate into a global credit tightening. Downside risks to growth in most emerging markets, including Hong Kong, have already heightened significantly, due to weak external demand, and a much-inflated cost structure. Offsetting this bearish outlook will be a more benign monetary environment worldwide. The US Federal Reserve has vowed to keep its ultra-accommodative stance unchanged for three more years, while central banks in most emerging markets, including the PBoC, may find room to ease monetary policy in the period ahead if inflation peaks. The uncertainties over the impact of the de-leveraging of European banks and whether the magnitude and speed of the forthcoming round of monetary easings will provide enough mitigating forces will cast a shadow over the outlook for local equities.

Chart 4.28
Outstanding Hong Kong dollar debt



Source: HKMA.

Chart 4.29
New issuance of non-EFBN Hong Kong dollar debt



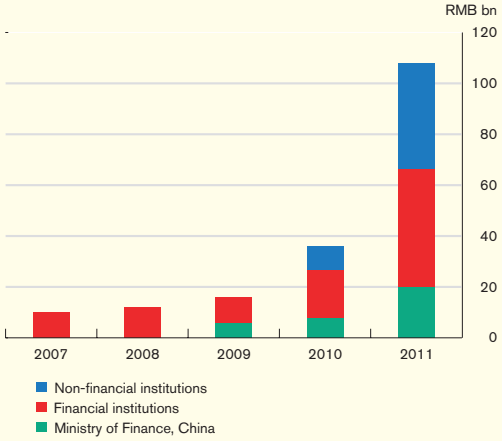
Source: HKMA.

4.5 Debt market

The Hong Kong dollar debt market managed to grow slightly despite a major risk re-appraisal last year. The total outstanding amount of Hong Kong dollar debt rose by 1.2% year on year, to $1,260.9 billion at the end of December 2011, equivalent to 31.1% of the Hong Kong dollar M3 or 25.1% of Hong Kong dollar denominated assets of the entire banking sector. The lacklustre growth was mainly caused by a year-on-year reduction of 9.9% in the amount of outstanding debt issued by private overseas borrowers (Chart 4.28). This was due to a generally more difficult environment for private sector issuers to raise funds in international capital markets, including the Hong Kong dollar debt market, amid the deterioration of the European debt crisis last year.

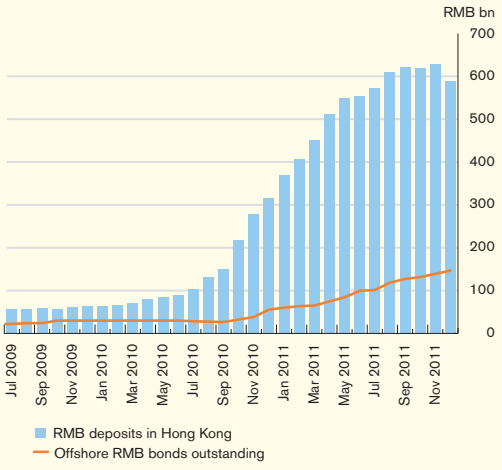
New debt issuance rose 2.9% year on year to $2,071.3 billion in 2011. The Exchange Fund and AIs provided the main growth driver, issuing HK$24.6 billion and HK$22.0 billion more debt respectively last year. These represented a combined contribution of 2.3 percentage points to the increase in total issuance. The Government was also an active player in the primary market issuing a total of HK$11.5 billion worth of bonds under the Government Institutional Bond Issuance Programme and sold HK$10.0 billion worth of 3-year inflation-linked bonds to retail investors. Due to reduced demand amid a risk re-appraisal, issuance by private overseas borrowers declined by 38.9%, shaving 0.7 percentage points off the growth (Chart 4.29). However, 2012 may see a rebound in their issuance, given the surge in risk appetite recently and the increasing cost of bank financing both locally and in the region.

Chart 4.30
New issuance of offshore renminbi bonds



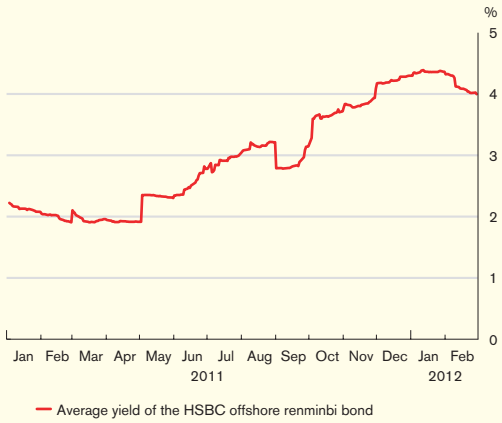
Source: Newswires and HKMA staff estimates.

Chart 4.31
Offshore renminbi bonds outstanding and RMB deposits in Hong Kong



Source: HKMA.

Chart 4.32
Offshore renminbi bond yield



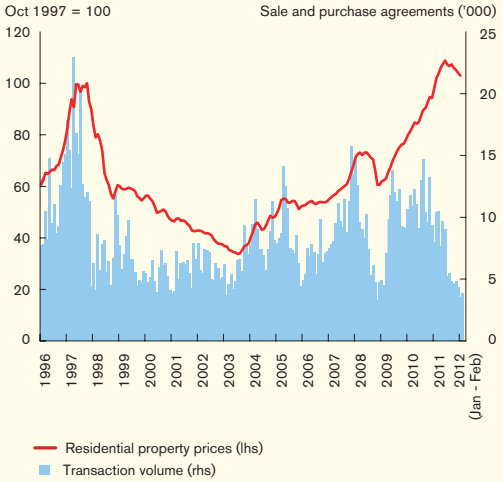
Source: Bloomberg.

Meanwhile, the offshore renminbi bond market in Hong Kong grew significantly. A total of RMB107.9 billion bonds were issued in 2011, more than tripling the RMB35.8 billion recorded in 2010 (Chart 4.30). The surge in issuance pushed the outstanding amount to a record RMB146.7 billion by the end of 2011 (Chart 4.31). While in the earlier years the primary market was dominated by financial institutions and the Ministry of Finance, a growing number of non-financial corporations tapped the market more recently, accounting for almost 30% of all new issuance in 2011. Stronger issuance, coupled with an increasing share of non-financial corporate bonds in the market (with higher credit spreads), contributed to a steady rise in average yields throughout the year (Chart 4.32). The sharp fall in early September was probably due to the Ministry of Finance issue, but it was quickly reversed by a sell off amid a global risk re-appraisal towards the end of September.

This year will likely see steady growth in the offshore renminbi bond market. On the demand side, the opening up of the renminbi financial asset market to foreign and Hong Kong investors is still at an early stage and it will take some time for the current amount of holdings to reach the optimal level. Also, the on-going appreciation of RMB – albeit much slower than before – and relatively attractive yields will continue to offer a major incentive to dollar-based investors, especially now that the US Federal Reserve has vowed to keep interest rates unchanged over the next three years. On the supply side, tight bank credit conditions across the border means that more companies will have to explore capital markets, both onshore and offshore, as alternative financing channels. Further expansion in the use of renminbi for foreign direct investment will also support growth in this market.

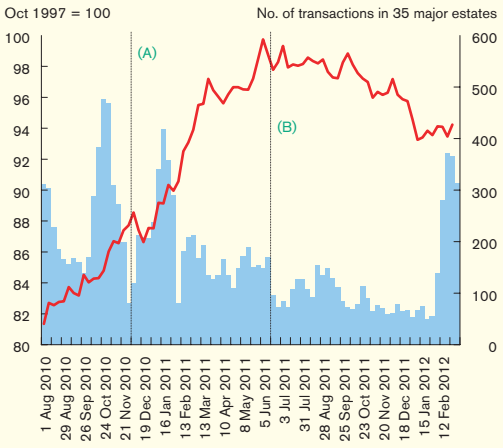
4.6 Property markets

Chart 4.33
Residential property prices and transaction volumes



Sources: R&VD and Land Registry.

Chart 4.34
Residential property prices and transaction volumes estimated by realties



(A) Introduction of the Special Stamp Duty and macro-prudential measures
(B) Further round of macro-prudential measures

Sources: Midland Realty and Centaline Property Agency Limited.

Residential property market

The residential property market has cooled down since mid-2011, reflecting the combined impact of stabilising policy measures, tighter credit conditions, weaker market sentiment and rising economic uncertainties. Property trading shrank by around 50%, with only about 4,900 sale and purchase agreements lodged with the Land Registry each month in the second half of 2011 (Chart 4.33). Confirmor transactions and flipping trade (selling within 12 months of holding) decreased significantly to a handful of cases. Mortgage loan originations were heavily weighed down. Housing prices also decreased, although only by a modest 4 - 5%. However, there have been anecdotal signs of a resurgence in property market activities after the Chinese New Year holidays. According to the provisional records of major real estate agencies, the transaction volume has surged to a 12-month high, while housing prices stabilised more recently (Chart 4.34). It remains to be seen whether these indications represent simply a short pause or an end to the market adjustment. Barring the extreme situation in 1997 - 2003, past episodes suggest that housing price corrections in Hong Kong tend to be

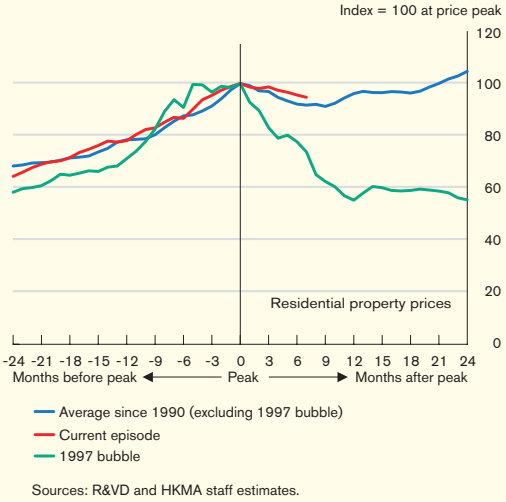
Table 4.C
Property cycle chronology

Peak	Trough	Contraction		Expansion	
		Peak to trough		Previous trough to this peak	
Dates		Duration (Months)	Cumulative price changes (%)	Duration (Months)	Cumulative price changes (%)
Oct 1981	Sep 1984	35	-32.3	–	–
Mar 1994	Oct 1995	19	-15.6	114	620.6
Oct 1997	Jul 2003	69	-66.2	24	71.5
Apr 2005	Nov 2005	7	-7.2	21	63.4
Jun 2008	Dec 2008	6	-17.2	31	43.1
Jun 2011	n.a.	n.a.	-5.3 (to Jan 2012)	30	79.5
Average:					
1981-2011		27.2	-27.7	44.0	175.6
1994-2011		25.3	-26.6	26.5	64.4
1994-2011 (excluding 1997 bubble)		10.7	-13.3	27.3	62.0

Note: Property cycle dates are identified using the Bry-Boschan procedures. See Bry, G. and C. Boschan (1971), *Cyclical Analysis of Time Series: Selected Procedures and Computer Programs*, New York, NY: Columbia University Press.

Source: HKMA staff estimates.

Chart 4.35
Event analysis of residential property prices



Sources: R&VD and HKMA staff estimates.

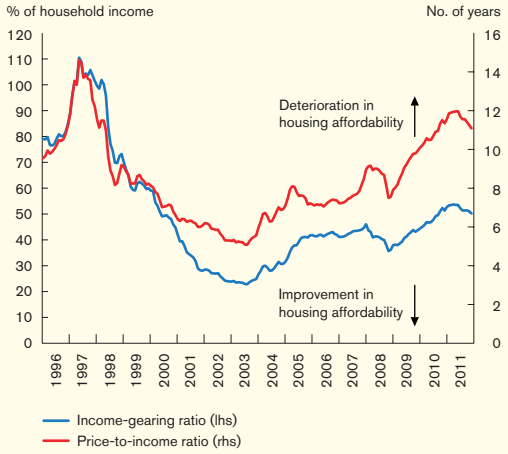
relatively shallow (with an average decline of 13%) and brief (with an average duration of 11 months) (Table 4.C and Chart 4.35).

The downward adjustment in housing prices has been mild so far, particularly in light of the strong surge in the preceding two years. As of late, housing prices were still some 40% higher than the previous peak reached before the 2008/9 global financial crisis. On the other hand, household income has lagged behind at a growth rate of around 13%, resulting in a fast deterioration in housing affordability, a rapid expansion of mortgage credit, and a rise in households' leverage. For example, the housing price-to-annual income ratio dipped slightly, but still stood at 11 at the end of 2011, much higher than the historical norm (Chart 4.36).[28] Therefore, the case remains that purchasing a home will substantially stretch the household's balance sheet. Indeed, at the aggregate level, households have amassed a high level of mortgage debt over the previous years amid fast-rising housing prices (Chart 4.37).

In terms of mortgage payment, the ratio to pre-tax income (or the income-gearing ratio) also stands well above the 10-year average of 38%, despite the prevailing ultra-low interest rate environment, which will ultimately reverse. In addition, from an asset-pricing perspective, housing prices are high relative to rental capitalisation, with yields having fallen close to 3% on average.

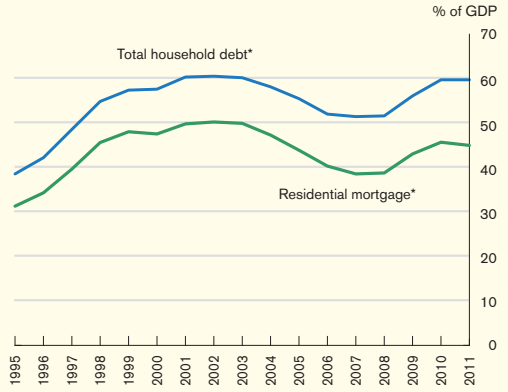
[28] The price-to-income ratio and the income-gearing ratio (to be discussed) are calculated based on the average price of a typical 50m^2 flat and the median pre-tax income of households living in private housing. The corresponding ratios for the luxury segment were higher. They are calculated based on the average price of a 150m^2 flat and the 95th percentile of pre-tax income of households residing in private housing.

Chart 4.36
Indicators of housing affordability



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

Chart 4.37
Household debts



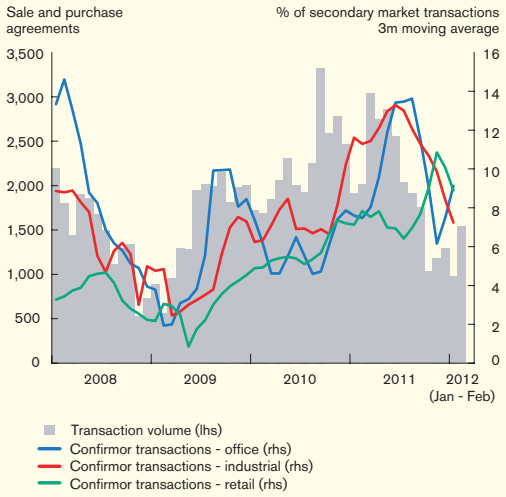
* Non-bank lending to the household sector is not covered in the statistics.

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

The interplay of conflicting economic forces will determine how the housing market will move in the period ahead. On the downside, housing prices could face continued headwinds from the uncertain economic prospects and weaker sentiments, especially if the global outlook deteriorates further. Access to mortgage credit could tighten if the upward funding pressure on banks lingers. Significant upside risks also remain. In particular, the supply of flats has been, and will likely remain, tight relative to demand in the near term, and the interest rates may stay low for a protracted period. These market factors are conducive to continued buoyancy in housing prices. At the same time, risks of renewed exuberance are still present, given the global backdrop discussed in earlier sections of the Report, and could potentially send housing prices up again.

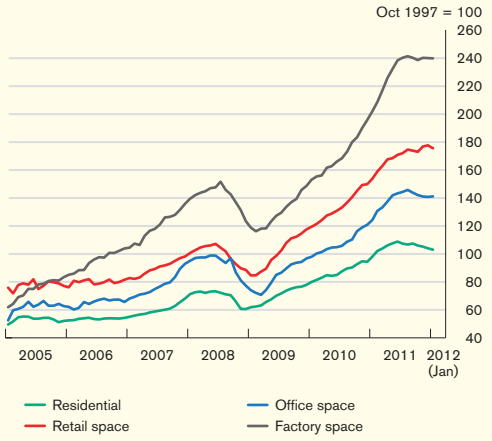
Considering the prevailing state of the market and the balance of risks ahead, the HKMA is maintaining its current prudential requirements on mortgage lending. Continued restraint on the build-up of leverage in the system could guard against a possible return in overheating pressures in the property market, and also reinforce the resilience of households and banks against a deep economic downturn. The present ultra-low interest rates also argue for a tight prudential policy stance to build in a greater buffer against the eventual rise in interest rates.

Chart 4.38
Transaction volume and confirmor transactions



Sources: CEIC, Land Registry, Centaline Property Agency Limited and HKMA staff estimates.

Chart 4.39
Price indices by property type



Source: R&VD.

Commercial and industrial property markets

The non-residential property market is also consolidating, with overall trading activities falling sharply and prices starting to adjust downwards. During the second half of 2011, the transaction volume was about 1,500 sale and purchase agreements being registered each month, a 39% decrease from the first half (Chart 4.38). Speculative activities also weakened, although they remained notable by historical standards. Prices for offices and flatted factories decreased modestly, while retail space prices remained largely stable (Chart 4.39). Rental demand for offices, flatted factories and retail space remained relatively resilient, helping to lift market rentals further by around 2 - 5% during the second half. Still, rental yields remained close to record lows.