HONG KONG MONETARY AUTHORITY
香港金融管理局

HALF-YEARLY MONETARY AND FINANCIAL STABILITY REPORT

March 2012

This Report reviews statistical information between the end of August 2011 and the end of February 2012.

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

Hong Kong's financial system withstood the severe market volatilities in the second half of 2011. The Hong Kong dollar exchange rate was not subjected to any great pressures. Credit growth slowed and the property market consolidated. The offshore renminbi market adjusted to expectations of slower exchange rate appreciation, and banks' renminbi balance sheets became more diversified.

The external environment is likely to remain volatile in 2012. Materialisation of downside risks to growth in the region could put the credit quality of bank assets under pressure. On the other hand, risk build-up in the local property market could resume as interest rates remain lower than consumer price inflation. Banks will face the challenge of managing these risks prudently while preparing for the implementation of the new capital and liquidity standards under Basel III.

The external environment

The intensification of the euro zone sovereign debt crisis in the second half of 2011 brought the global financial system to the brink of another crisis of systemic proportions. Although the risk has now receded somewhat, de-leveraging by European banks will cast a long shadow on recovery of the global economy. Recovery in major advanced economies will also be constrained by on-going fiscal consolidation and household balance sheet repair. Weak growth and low resource utilisation could prompt major central banks to continue with further quantitative easing, which could exacerbate financial imbalances in the faster-growing emerging market economies.

Growth has slowed in most East Asian economies, including Mainland China, amid subdued external demand. While the weak global backdrop will continue to weigh on exports across the Asian region, solid domestic demand and sufficient scope for policy stimulus suggest that growth will not deviate far from the trend. Some central banks in the region have started to loosen monetary policy, but a significant reversal in the policy stance is not expected unless there is a sharp deterioration in the near-term economic outlook.

The domestic economy

The Hong Kong economy failed to regain much momentum in the second half of 2011, with the difficult external environment restraining exports and also casting a shadow on domestic demand. On a quarter-on-quarter basis, the economy grew at a meagre 0.1% and 0.4% in Q3 and Q4, respectively. While net exports edged up from the deep slump in Q2, domestic demand, particularly inventory investment, turned weaker.

The weakened growth momentum in the local economy has yet to have any visible impact on labour market conditions. The seasonally adjusted three-month moving-average unemployment rate remained at low levels of about 3.3% during the second half of 2011, while total employment reached an historical high of 3.63 million in January. With growth momentum slowing, the output gap was estimated to have been largely closed in the second half of 2011.

Inflationary pressures have been gradually receding. On an annualised three-month-on-three-month basis, the underlying inflation rate declined from 6.8% in July to 5.3% in January. The slowdown in the sequential momentum has been mainly driven by a slower pace of increase in the housing component of the CCPI and stabilised commodity prices. However, upside risks, such as the implementation of a new round of quantitative easing in the US, and supply-side shocks on oil prices triggered by geopolitical tensions, could reverse the expected moderation of inflationary pressures.

Incoming news has generally pointed to a gradual revival in growth impetus in the second half of 2012. Box 1 of the Report discusses our in-house composite leading and coincident economic indicators, which seek to take the pulse of the economy based on high-frequency data. However, the underlying global backdrop remains highly uncertain. On the one hand, the downside risks arising from the European sovereign debt crisis persist. On the other hand, the risk of renewed exuberance in asset markets should not be discounted given the expectations of the persistence of very expansionary monetary policies in the advanced economies. The latest consensus forecast for 2012 growth is 3.0%, but bracketed by a wide spectrum of views. The Government, meanwhile, has forecast growth also at a wide range of 1.0 - 3.0%.

Monetary conditions and capital flows

In the second half of 2011 the Hong Kong dollar spot exchange rate continued to trade within a narrow range. The exchange rate generally weakened in the third quarter, albeit mostly remaining in the stronger side of the Convertibility Zone. The downward pressures on the Hong Kong dollar were milder than the situation across much of the region, where local currencies were heavily sold off amid heightened global risk aversion.

The fourth quarter of 2011 saw larger fluctuations in the Hong Kong dollar exchange rate, mainly driven by the evolving market sentiments and banks' year-end funding demand. The exchange rate strengthened alongside a stock market rally in October, before weakening in November amid a higher safe-haven demand for the US dollar. Approaching the end of 2011, demand for the Hong Kong dollar rose again in response to banks' year-end liquidity needs.

Movements in the Hong Kong dollar interest rates in the second half of 2011 varied across market segments and tenor. In the money market, HIBORs rose slightly in November and December, broadly tracking their US dollar counterparts, after having been largely flat earlier in 2011. In contrast, yields of longer-term Exchange Fund papers declined alongside a fall in the corresponding US Treasury yields, albeit by a lesser magnitude. At the retail level, banks raised both their mortgage interest rates and deposit interest rates in response to higher funding pressures.

Reflecting weaker credit demand and enhanced supervisory measures, loan extension has decelerated visibly since mid-2011. In particular, growth in external loans – the sum of all foreign currency loans and those Hong Kong dollar loans that are for use outside Hong Kong – slowed more sharply than that of

Hong Kong dollar loans for use in Hong Kong. It should be noted, however, that renminbi-denominated loans have been growing at a fast rate, albeit from a very low base. Indeed, over the past few years, the external loan component has generally displayed more procyclical movement than the domestic loan counterpart, thus magnifying the swing of credit cycles in Hong Kong. Box 2 seeks to add to our understanding of the determinants of external loan growth, particularly by highlighting the role of the Mainland's monetary conditions in driving demand for credits from Hong Kong.

Deposits in both the Hong Kong dollar and foreign currencies grew solidly in the second half of 2011. Growth in renminbi deposits was slower in the third quarter than in the first half of the year, largely due to more balanced two-way renminbi remittance flows between Hong Kong and the Mainland in relation to trade settlement. Renminbi deposits have contracted in recent months, in part reflecting global market factors that weakened market participants' demand for the offshore renminbi. Amid heightened global risk aversion and flight to safe-haven currencies, 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. Box 3 studies the price dynamics in onshore and offshore renminbi financial markets. The downward pressures and volatility in the CNH market, however, were much milder than those encountered in most other regional currency markets during the period.

In the year ahead, Hong Kong dollar interbank interest rates will likely remain at very low levels, given the US Federal Reserve's indication that current economic conditions warrant exceptionally low levels for the federal funds rate at least through late 2014. However, fund flows and longer-term Hong Kong dollar interest rates could see more volatilities as global economic and financial conditions evolve. As discussed above, a key risk relates to the likelihood of further rounds of quantitative easing in the advanced economies, which could lead to renewed inflows and push the long-term interest rates down. On the downside, an escalation in the euro zone sovereign debt situation could lead to significant outflows and put upward pressures on long-term interest rates.

Asset markets

Equities have been on a roller coaster ride – a major sell-off at the beginning of the review period was followed by a rebound towards the end. As the euro zone sovereign debt crisis deteriorated sharply after summer, investors sought safe havens and fled risky assets, sending the local equity market into a tailspin and implied volatility to the highest levels since the global credit crisis. Risk appetite subsequently returned as funding conditions eased in the euro zone and the US Federal Reserve indicated its intention to retain its highly accommodative policy stance at least through late 2014. The immediate future is likely to remain turbulent as a more accommodative monetary environment wrestles with weakening global demand and the de-leveraging of European banks.

The domestic debt market was also subject to the influence of the external environment. As investors turned more risk-averse globally, especially in their assessment of credit risk and in view of the deepening euro zone debt crisis, the accessibility of private sector issuers to international capital markets was generally reduced. The resulting reduction in issuance of Hong Kong dollar debt by overseas private issuers has slowed the expansion of the market. In contrast, the offshore renminbi bond market held up well amid rising yields and reduced expectations of an appreciation in the renminbi exchange rate. As the movement of the renminbi exchange rate becomes more flexible, the offshore renminbi bond market in Hong Kong is expected to grow steadily.

The residential property market has been gradually consolidating. Housing prices fell 4.4% in the second half, albeit still standing at some 40% above the previous peak in mid-2008. While official data showed the transaction volume had dropped sharply, provisional records suggest a rebound in trading activity more recently. The non-residential property market has also seen similar signs of consolidation.

The scale of the market correction has so far seemed mild, particularly in light of the strong surge in housing prices over the preceding two years. The previous buoyant market activity resulted in a considerable divergence between house price inflation and household income growth. Despite the recent price adjustment, the price-to-income ratio, as a measure of housing affordability, still stands at 11, significantly higher than its 10-year average of eight. As interest rates remain lower than consumer price inflation and supply is still tight, a further build-up of risks in the housing market cannot be ruled out. The balance of risks, therefore, warrants maintaining the existing prudential requirements on residential mortgage lending by the HKMA.

Banking sector performance

The local banking sector remained robust despite the lingering euro zone sovereign debt crisis and heightened uncertainties in the external environment. However, the aggregate pre-tax profits of retail banks decreased by 13.7% in the second half of 2011 from the first half. The net interest margin (NIM) of banks was up in the second half to average 1.28%, from 1.21% in the first half, partly reflecting banks' move to raise their HIBOR-based mortgage interest rates. But the increase of NIM was offset by lower non-interest income and higher operating costs. As a result, the return on assets edged down to 1% from 1.2% in the first half of the year. As some banks have recently moved to reverse their previous action in raising mortgage interest rates, how the NIM may be affected is yet to be seen.

Liquidity in the local banking system tightened somewhat in the review period, although lately it appears to have eased slightly. During the second half, while the pace of credit growth moderated further, from a 4.4% increase in 2011 Q3 to 1% in 2011 Q4, total deposits grew slightly faster by 3.6%, having slowed to only 1.2% in the third quarter. Still, the Hong Kong dollar and all currency loan-to-deposit ratios stayed at relatively high levels of about 84.5% and 66.9% respectively at the end of 2011.

The domestic banking environment will continue to be affected by the volatile external environment. Box 4 shows that if a euro zone crisis-led recession occurred, Hong Kong would inevitably be affected by higher credit losses in the local banking sector. In addition, the de-leveraging pressures for European banks could also affect credit availability. In particular, the growth of foreign currency lending in Hong Kong would decelerate in the event of any drastic outflows of interbank funding by European banks. However, results of the stress tests show that the loan loss severity, even in extreme cases, would remain much lower than the actual loss registered after the Asian financial crisis. The impact on liquidity would also be significantly less severe than what happened during the global financial crisis of 2008-09, with credit supply remaining adequately supported by domestic funding. Nevertheless, banks face the challenges of continuing to manage their credit and liquidity risks prudently while positioning themselves to meet the new capital and liquidity standards under Basel III.

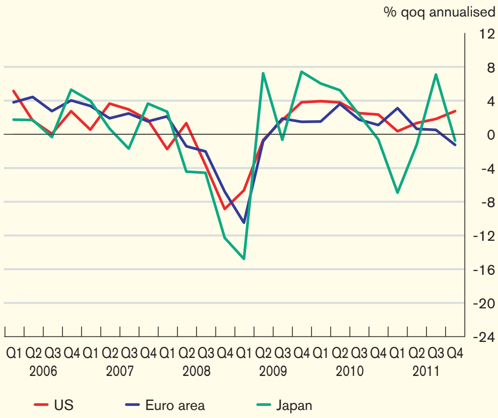
The Half-Yearly Report on Monetary and Financial Stability is prepared by the staff of the Research Department of the Hong Kong Monetary Authority.

2. Global setting and outlook

External environment

Growth momentum was subdued in major advanced economies amid intensification of the European sovereign debt crisis. While the situation seems to have stabilised temporarily going into 2012, advanced economies will likely be heading for a prolonged period of subdued recovery in the face of structural headwinds. This increases the incentives for major central banks to pursue further quantitative easing, which could add to economic and financial imbalances and render the global economic environment even more uncertain. For most East Asian economies, economic growth moderated distinctly in the second half amid slowing external demand, with future prospects largely depending on the European situation.

Chart 2.1
US, euro area and Japan: real GDP



Sources: Bureau of Economic Analysis, Eurostat and Cabinet Office of Japan.

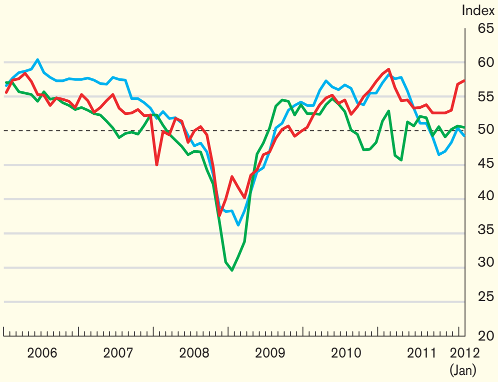
2.1 Real activities

Advanced economies generally grew at a moderate pace during the second half of 2011 with the escalation of the European sovereign debt crisis causing huge economic uncertainties and volatilities in global financial markets. Latest real GDP figures show the US economy grew by 3%, while the Japanese and the euro area economies contracted by 0.7% and 1.3% respectively in 2011 Q4 (Chart 2.1).[1]

With the sovereign debt crisis in Europe remaining unresolved, contagion fears finally engulfed Italy and Spain. Their borrowing costs at one point were pushed to levels that were widely regarded as unsustainable. Heightened fears of sovereign debt defaults have sparked severe volatility on global financial markets. Partly as a result of the impairment of business and consumer sentiments, the euro area economy contracted in Q4. In contrast, recovery in the US remained broadly on track, albeit at a modest pace, with economic activities largely unaffected by the debt crisis. In Japan, growth

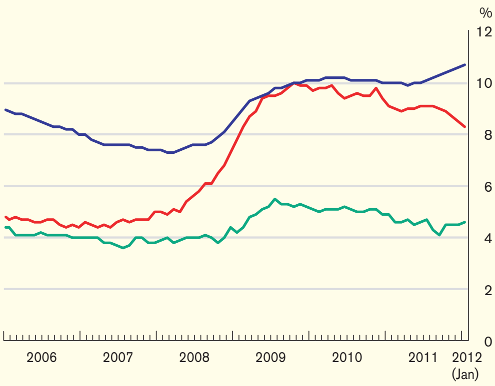
[1] For the US, euro area, Japan, and non-Japan Asia (excluding Mainland China), quarterly real GDP percentage changes are on a seasonally adjusted annualised basis, unless otherwise stated.

Chart 2.2
US, euro area and Japan: Purchasing Managers' Indices



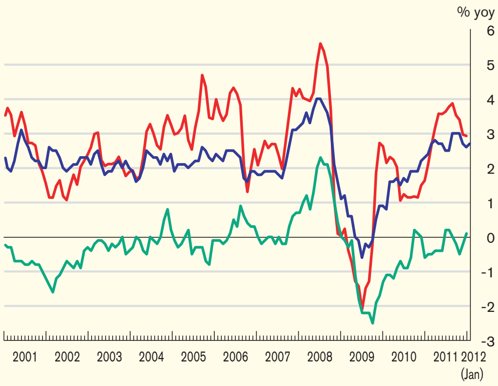
Source: Bloomberg.

Chart 2.3
US, euro area and Japan: unemployment rate



Source: Bloomberg.

Chart 2.4
US, euro area and Japan: headline inflation



Sources: US Department of Labour, Eurostat and Japan Ministry of Internal Affairs.

rebounded strongly in Q3 as activities recovered from the earthquake disaster in March, but the economy contracted again in Q4. The recent subdued readings in the Purchasing Managers' Indices (PMI) across most advanced economies indicate that growth will likely continue at a moderate pace (Chart 2.2).

As a result of the subdued economic growth, job creation remained slow in most advanced economies, with the unemployment rate staying at stubbornly high levels – around 8.3% in the US, above 10% in the euro area, and 4.6% in Japan (Chart 2.3). The high unemployment rate and excess capacity, together with the fall in global commodity prices, have eased headline CPI inflation in advanced economies with core inflation expected to follow soon over the course of 2012 (Chart 2.4).

Despite the continued efforts by European authorities and the International Monetary Fund (IMF) to resolve the debt crisis, there is a near-term risk that Europe could be sliding into a deeper-than-expected recession which could be prolonged and exacerbated by the tightening of bank credit. Until policy makers can agree on a comprehensive solution that addresses both the short-term refinancing needs and the longer-run competitiveness problems in the euro area, global financial markets will stay susceptible to market jitters and de-stabilising events. Thus, the risk of a global recession remains. Even if a global recession is avoided, advanced economies will likely be heading for a prolonged period of slow recovery in the face of structural headwinds. This, together with widespread and large-scale fiscal consolidations in place, mean there is an increasing likelihood that central banks across advanced economies could soon resort to further quantitative easing measures in an attempt to boost growth and employment. Further financial and macroeconomic imbalances could build up on further quantitative easing, making the global economic environment even more uncertain.

Table 2.A
Asia: Real GDP growth

(% qoq, annualised)	2010 Q3	2010 Q4	2011 Q1	2011 Q2	2011 Q3	2011 Q4
NIE-3:[1]	**0.8**	**2.7**	**8.5**	**2.0**	**2.0**	**0.3**
Korea	2.6	2.0	5.4	3.6	3.3	1.4
Singapore	-15.9	6.9	19.7	-3.0	2.0	-2.5
Taiwan	3.7	2.3	10.0	1.0	-0.2	-0.6
ASEAN-4:[1]	**2.2**	**7.5**	**6.3**	**2.8**	**4.4**	**-3.5**
Indonesia[2]	5.5	9.1	5.1	6.1	5.6	8.9
Malaysia[2]	-2.2	8.8	8.0	2.8	3.9	6.2
Philippines	1.0	1.9	8.1	1.1	3.3	3.5
Thailand	0.1	7.2	6.1	-1.9	3.4	-36.4
East Asia:[1]	**1.5**	**5.0**	**7.4**	**2.4**	**3.2**	**-1.5**

Notes:
1. Weighted average (weighted by contribution to world GDP value at Purchasing Power Parity).
2. Seasonal adjustment made by HKMA staff.

Sources: IMF, CEIC and HKMA staff estimates.

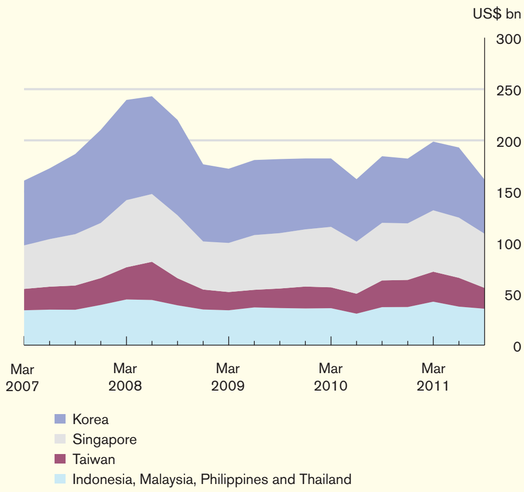
Table 2.B
Asia: Policy interest rates

	Policy interest rate[1]		
	15 Mar 2012 % p.a.	Recent high in 2011 % p.a.	Cumulative rate cut Percentage points
Indonesia	5.750	6.750	1.000
Korea	3.250	3.250	–
Malaysia	3.000	3.000	–
Philippines	4.000	4.500	0.500
Taiwan	1.875	1.875	–
Thailand	3.000	3.500	0.500

Note:
1. Indonesia: BI rate; Korea: base rate; Malaysia: overnight policy rate; The Philippines: overnight reverse repo rate; Taiwan: discount rate; Thailand: policy rate.

Sources: Bloomberg and HKMA staff estimates.

Chart 2.5
Asia: Liabilities to euro zone banks



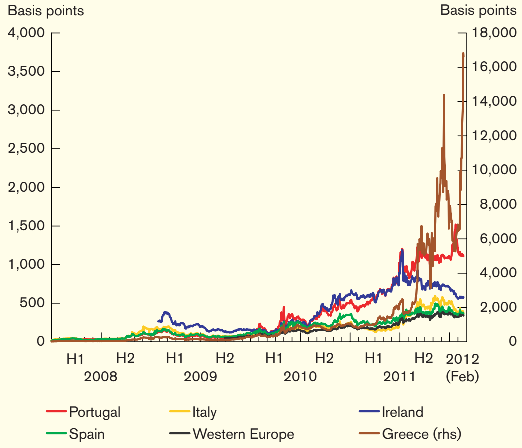
Sources: Bank for International Settlements and HKMA staff estimates.

Most East Asian economies have experienced a distinct weakening in economic growth in Q4, due mainly to a slowdown in external demand (Table 2.A).[2] Inflationary pressures appear to have eased, with average year-on-year CPI inflation for the region having declined to 3.5% in January 2012 from a peak of 4.3% in June 2011. In view of increased downside risks to growth, some central banks in the region loosened their monetary policy during the review period, but such a reversal of policy stance has been rather cautious (Table 2.B). Regional equity prices saw a sharper drop than those in the US when the European debt crisis intensified in September 2011, while many regional currencies registered their largest monthly falls against the US dollar since the collapse of Lehman Brothers. The situation appears to have reversed since the beginning of 2012, with exchange rates and equity prices rebounding markedly.

Solid domestic demand and sufficient scope for policy stimulus will support growth momentum, but the slowing external demand and the potential credit retrenchment stemming from sizable de-leveraging in European banks pose some downside risks. In fact, some European banks have recently pulled back lending from Asia (Chart 2.5), and this might become more apparent when approaching the June 2012 deadline for recapitalisation. However, if the European debt problems stabilise, the two-speed recovery of the global economy could lead to renewed capital inflows into emerging Asia, resuming upward pressures on asset and consumer prices. The consensus forecasts in mid-March suggest the region's GDP growth will moderate marginally from 4.1% in 2011 to 4.0% in 2012, and inflation will be 3.3% compared with 3.9% in 2011.

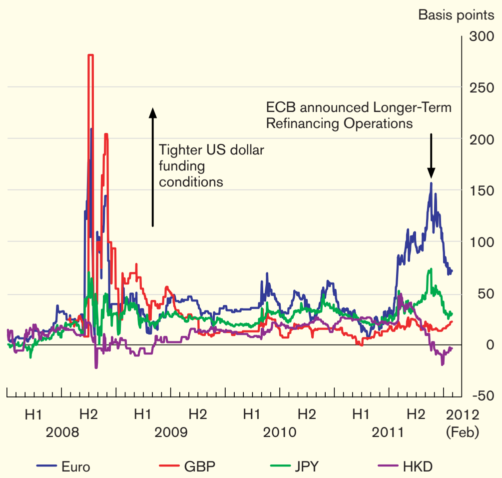
2 The sharp fall in Thailand's GDP in 2011 Q4 was mainly a result of the temporary disruption to manufacturing production and exports due to severe flooding.

Chart 2.6
Five-year sovereign CDS spreads of European countries



Source: Bloomberg.

Chart 2.7
Basis swap spreads of major currencies against the US dollar



Note: Basis swaps are used in cross-currency transactions, where two parties swap interest rate exposures. The base currency for the above series is the US dollar. An increase in the spread represents a higher cost for raising US dollar funding.

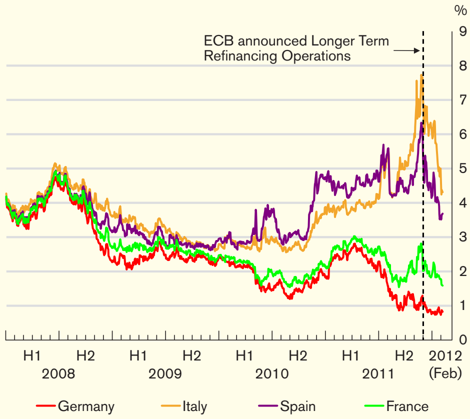
Sources: Bloomberg and HKMA staff calculations.

2.2 Global financial conditions

Global financial markets have remained volatile over the past six months, driven predominately by developments in Europe. A rapid spread of the European sovereign debt crisis – from the small peripherals (Greece, Portugal and Ireland) to the larger ones (Spain and Italy) and eventually to core euro area members (including France) – significantly shook investor confidence late last year. Credit default swap (CDS) spreads and borrowing costs of the peripherals rose sharply to euro-era highs (Chart 2.6), while increased safe-haven demand led German and US bond yields to record lows.

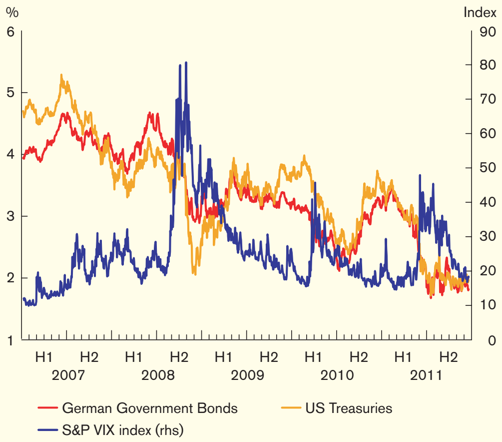
In addition to its influence on sovereign debt markets, the crisis has also had a profound impact on the European banking system. Sharp declines in peripheral bond prices caused concerns about the asset quality of European banks, leading to a significant increase in counterparty risk in the global banking system. US dollar funding spreads for European banks surged in the latter half of last year to levels unseen since the Lehman collapse, as offshore lenders tightened credit conditions and reduced their exposure to European banks (Chart 2.7).

Chart 2.8
Five-year government bond yields of large European countries



Source: Bloomberg.

Chart 2.9
Long-term government bond yields of developed economies and S&P 500 VIX index

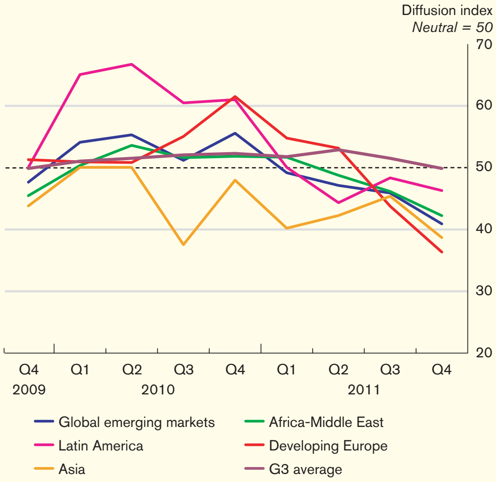


Source: Bloomberg.

Policymakers responded to the worsening situation by introducing a number of supportive measures, including leveraging the European Financial Stability Facility, lifting the bank capital ratios and establishing a fiscal compact. However, none of them was able to provide sustained relief to markets, until the Longer-Term Refinancing Operations of the European Central Bank (ECB), which provided banks three-year euro funding at well below market interest rates. Since the December operation, funding conditions have improved substantially, with money market spreads narrowing and bank issuance activity picking up. Sovereign bond yields of Italy and Spain have also declined following the liquidity injection, due to purchases by banks to profit from the wide interest rate differentials (Chart 2.8). In currency markets, the euro has rebounded strongly against the US dollar since the start of this year, with other risk-sensitive currencies also benefiting from the recovery in risk appetite.

Encouraged by the improved European situation, global equity markets have rebounded strongly since late December. Adding to the positive sentiment were continued improvement in US economic data and increased prospects of easy monetary policy in both developed and developing countries. In particular, the pledge by the US Federal Reserve to keep interest rates low until late 2014 has kept US Treasury bond yields at close to historical lows, despite the strong recovery in risk appetite (Chart 2.9).

Chart 2.10
Bank credit conditions for G3 economies and emerging markets



Notes:
1. G3 economies refer to the US, euro zone and Japan.
2. A reading above (below) 50 indicates easier (tighter) credit conditions.

Sources: Institute of International Finance and HKMA staff calculations.

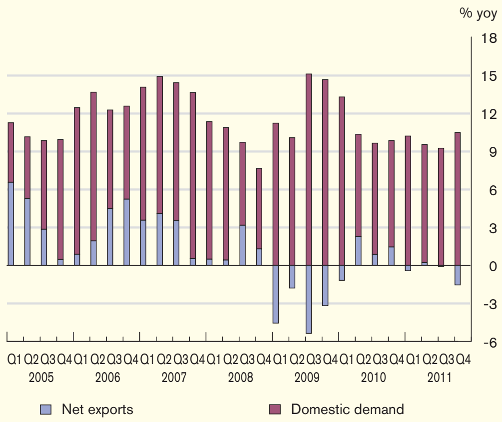
Notwithstanding the improvement seen over the past few months, the outlook for global financial markets remains highly uncertain. While the support measures from the ECB have significantly reduced the risk of a major liquidity crisis in the near term, the deep-rooted structural problems, stemming from the excessive debts of the peripheral sovereigns, remain unsolved. Meanwhile, faced with the challenge of meeting capital requirements, European banks may go through a period of de-leveraging, threatening to continue to tighten credit conditions globally. Recent experience suggests that emerging markets might again take the brunt of it (Chart 2.10). As the uncertainties over the global economic outlook continue, financial markets are likely to remain volatile in the period ahead.

Mainland China

Reflecting a moderation in external demand, growth has trended down and inflationary pressures have eased. Trade surplus declined significantly in part responding to a notable strengthening of the real exchange rate. Amid increased global risk aversion, signs of capital outflows and depreciation pressures on the RMB/USD exchange rate emerged in the last quarter of 2011. Market concerns about a hard landing of the economy have eased as the authorities actively manage risks associated with local government debts, informal lending and the property market. Domestic demand is expected to remain solid, but subject to some downside risks of a deceleration in property-related investment spending.

2.3 Output growth and inflation

Chart 2.11
Mainland China: contributions by domestic demand and net exports to GDP growth

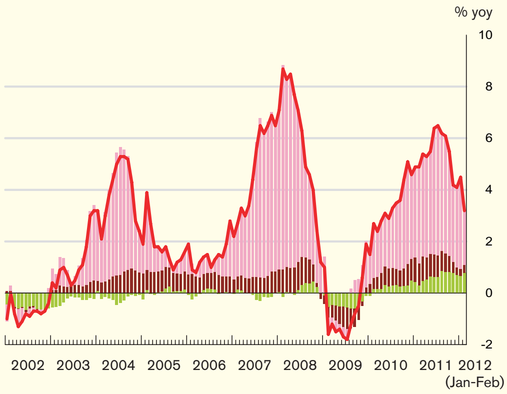


Sources: CEIC, National Bureau of Statistics and HKMA staff estimates.

Growth momentum of the Mainland economy softened in the second half of 2011 due mainly to a moderation in external demand, with net exports turning into a bigger drag (Chart 2.11). Consumption rose at a faster pace year on year, and investment growth remained largely stable. The trade surplus continued to drop as a share of GDP from 3.9% in 2010 to 2.6% last year. The narrowed trade surplus may be sustained beyond the next year or two, with a significant appreciation in the renminbi real exchange rate in the second half of 2011, as well as a sluggish external demand going forward.

While a further slowdown in exports and the property market will dampen investment activities, the economy is expected to grow at a rate close to the trend, which is somewhat slower than in the past decade, but still significantly faster than the major trading partners of Mainland China. The latest consensus forecasts suggest output will rise by 8.4% in 2012. Uncertainties over the euro area debt crisis remain a major risk to the broadly favourable outlook. Although the relative importance of the US and euro area markets for the Mainland's total exports has been declining in the past decade, exports to the two economies remain as important for the Mainland's growth. This is in large part because ordinary exports, whose contributions to Mainland's value-added are much larger than processing exports, have been increasing as a share of total exports and are still sensitive to growth in the US and euro area.

Chart 2.12
Mainland China: contributions to CPI inflation



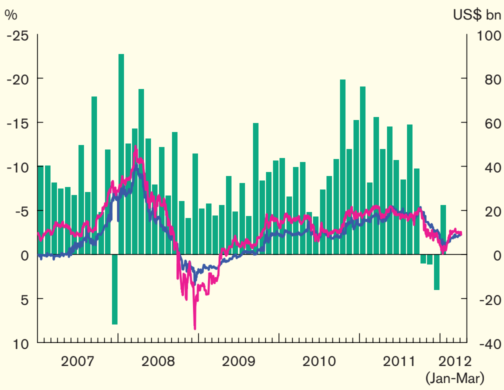
Sources: CEIC and HKMA staff estimates.

Inflationary pressures eased over the review period and are expected to be broadly contained in the near term. The headline CPI inflation rate trended downwards from a peak of 6.5% year on year in July 2011 to 3.2% in February 2012 (Chart 2.12). Looking ahead, global oil and commodity prices may rise with increased geopolitical risks in the Middle East and further quantitative easing in the advanced economies, while food prices are subject to potential supply-side shocks, such as bad weather conditions. However, the moderating demand pressures amid a prudent monetary policy stance and receding residence cost inflation will help reduce upward pressures. The latest consensus forecasts suggest the headline CPI inflation rate will be 3.3% in 2012, compared with 5.4% in 2011.

2.4 Monetary conditions, asset markets and banking risks

Market concerns over a sharp slowdown in the Mainland economy, together with increased risk-aversion among international investors during an intensification of the euro area debt crisis, generated some capital outflow pressure and downward pressure on the RMB/USD exchange rate. For instance, financial institutions' foreign exchange purchases reversed in Q4, while the foreign exchange reserves saw the first quarterly drop since the Asian financial crisis. The RMB/USD exchange rate experienced more significant two-way movements in Q4. Reflecting to some extent different perceptions about economic fundamentals among domestic and international investors, the spreads between the onshore and offshore RMB/USD exchange rates widened in Q4, but narrowed in January and February. Alongside the noticeable strengthening of the US dollar against other major currencies, the renminbi has appreciated distinctly in nominal and real effective terms by 6.6% and 5.1% respectively during September 2011 – January 2012.

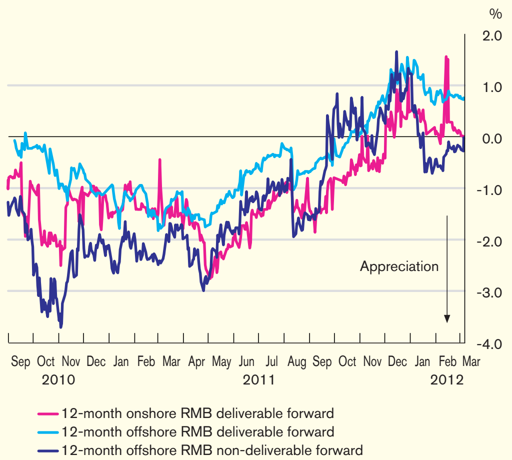
Chart 2.13
Mainland China: financial institutions' foreign exchange purchases and deviations from covered interest parity



Note: Negative deviation from the CIP indicates incentives for capital inflows, and vice versa.
Sources: CEIC and HKMA staff estimates.

Our estimate of the deviation from the covered interest parity (CIP) suggests that the incentives for capital outflows did increase in the latter part of 2011, but were much weaker than during the 2008-2009 global financial crisis, and have eased recently (Chart 2.13). Over the

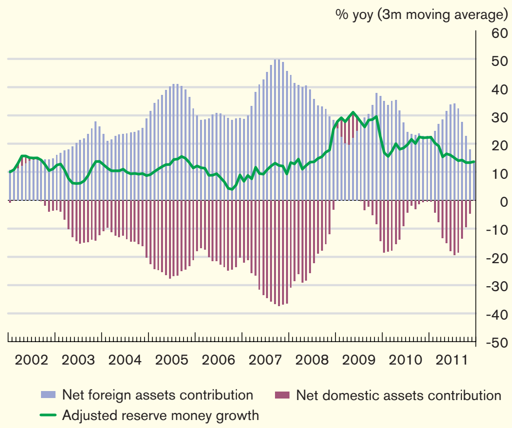
Chart 2.14
Mainland China: expected appreciation of the renminbi against the US dollar



Note: The expected rate of appreciation of the renminbi is calculated as the percentage difference between the spot rate and the forward rates. A negative number implies an appreciation of the renminbi against the US dollar.

Sources: Bloomberg and HKMA staff estimates.

Chart 2.15
Mainland China: contributions to reserve money growth



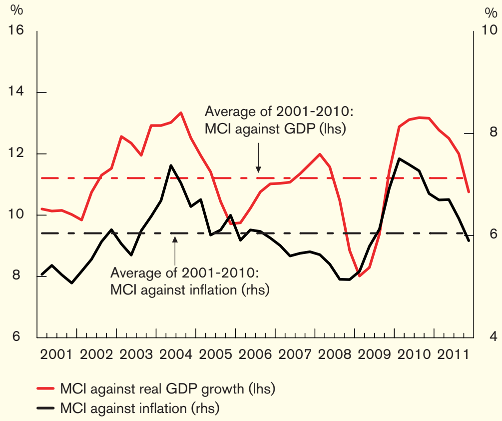
Note: Total reserve money is adjusted for the changes in the reserve requirement ratio.

Sources: CEIC and HKMA staff estimates.

medium term, international capital flows will be more balanced along with the deepening of domestic financial markets and gradual liberalisation of the Mainland's capital account restrictions. The forward exchange rates imply that the RMB/USD exchange rate still faces some downward pressure (Chart 2.14). From a medium-term perspective, however, there is unlikely to be sustained depreciation pressure on the renminbi exchange rate. The Mainland's relatively strong growth potential and expected stable path of its net foreign asset positions will continue to support the renminbi.

Following a largely tightening bias in the second half of 2011, the People's Bank of China (PBoC) started to fine-tune the policy stance towards the end of the year in view of the moderation in inflation, slowdown in growth momentum, and drops in net capital inflows. Reserve money growth continued to decelerate (Chart 2.15), and broad money and loan growth followed a similar trend year on year. The reserve requirement ratio (RRR) was cut twice by a total of 100 basis points in December 2011 and February 2012. Our analysis suggests that overall monetary conditions tightened further due partly to the appreciation in the real effective exchange rate (REER) of

Chart 2.16
Mainland China: Monetary Conditions Indices



Note: The Monetary Conditions Indices (MCIs) are compiled based on real money growth, the real interest rate and the real effective exchange rate. The GDP-based MCI measures the extent to which monetary conditions support growth, and the inflation-based MCI measures the extent to which monetary conditions support inflation. A rise (decline) in the MCI indicates a loosening (tightening) in monetary conditions.

Sources: CEIC and HKMA staff estimates.

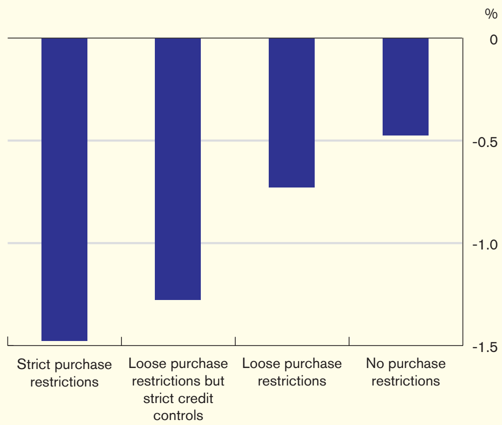
the renminbi, but have remained broadly supportive of growth. As shown in Chart 2.16, current monetary conditions are consistent with an output growth rate of about 11% year on year (compared with the implied 10-year average of 11.2%) and a CPI inflation rate of about 6% (close to the implied 10-year average of 6.1%). Further easing in inflationary pressures will provide more room for policy loosening, if needed, but a significant reversal in the policy stance is not expected unless the economic outlook deteriorates sharply.

Equity markets remained subdued amid the slowing growth momentum. Having under-performed most of the major stock markets in the second half, the benchmark indices rebounded in early 2012 amid speculation of a relaxation in credit controls and reduced concerns over European debt problems. The aggregate price-earnings ratio of Shanghai A shares had trended downwards before rising slightly to about 15 in February, still much lower than the past 10-year average of about 30. Equity prices are expected to remain volatile in the near term, as market sentiment will continue to be clouded by potential downside risks associated with the property market and uncertainties in global financial markets.

The housing market continued to moderate over the review period, with first- and second-tier cities having generally seen a larger price drop than third-tier cities. Transaction volumes in major cities have also trended downwards since mid-2011. This has continued to raise market concerns about the possibility of a sharp correction in the Mainland housing market.

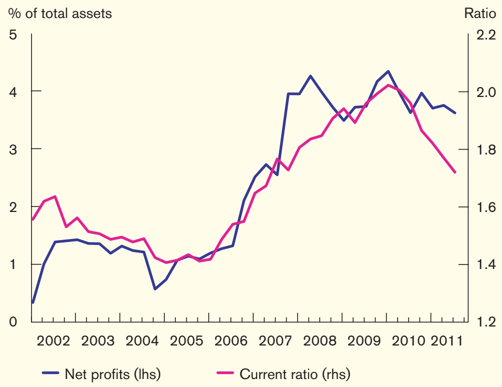
It is likely the housing market will weaken further in the near term. In particular, downside risks could be more significant for major cities that have seen stronger symptoms of overheating. Continued administrative controls could weaken the financial condition of property developers and hence their pricing power, which would in turn add downward pressure on the market. According to a PBoC survey conducted in 2011 Q4, 20.8% of depositors expected property prices to drop in the next couple of quarters, up from 8% in Q3. In particular, the proportion of depositors who expect property prices to decline increased more significantly in major cities, such as Beijing and Shanghai.

Chart 2.17
Mainland China: average house price changes across cities between June 2011 and January 2012



Sources: CEIC and HKMA staff estimates.

Chart 2.18
Mainland China: liquidity conditions of large real estate developers



Notes:
1. Average of 112 companies listed on the stock exchanges in Shanghai and Shenzhen.
2. Net profits are the 4-quarter moving sum and total assets are quarter-end figures.

Sources: WIND and HKMA staff estimates.

That said, the probability of a sharp correction in the housing market remains relatively low. In fact, the current slowdown in the housing market could be partly attributed to the administrative controls, including purchase restrictions and credit tightening, as cities with less stringent implementation of these measures have generally recorded smaller house price declines (Chart 2.17).

Structural factors, including on-going urbanisation, remain supportive of the property market. Despite some weakening in the financial condition of property developers, large developers, which account for a majority of market share, generally have good liquidity due to strong profitability over the past few years. Their current ratio (the ratio of current assets to current liabilities) and net-profit-to-asset ratio have remained high by historical standards (Chart 2.18). This suggests that the risk of a large-scale fire-sale of properties should not be overestimated.

While the banking sector of the Mainland has been healthy in recent years with high liquidity, sound asset quality, and strong capital, market concerns over a sharp worsening in the banking sector's asset quality remain. This is due partly to the fact that a deterioration in the property market would continue to weigh on land prices and in turn worsen local governments' ability to repay loans. However, the authorities have been actively managing the related risks.[3] Local government debts are mainly used to fund infrastructure projects which may have difficulty in generating cash flow in the early stages of developments, but can usually yield relatively good returns in the medium term. As such, local government debts present mainly a liquidity risk rather than a solvency risk. Meanwhile, the generally strong asset and sound fiscal positions should provide the central government the capacity to prevent any liquidity problems of local governments from escalating into a systemic banking crisis.

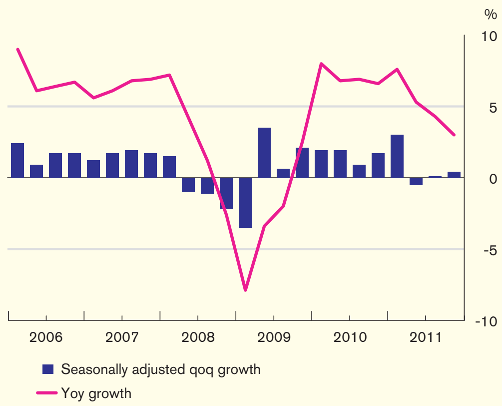
[3] It has been reported recently that major banks are being asked to roll over their loans to local governments.

3. Domestic economy

Demand

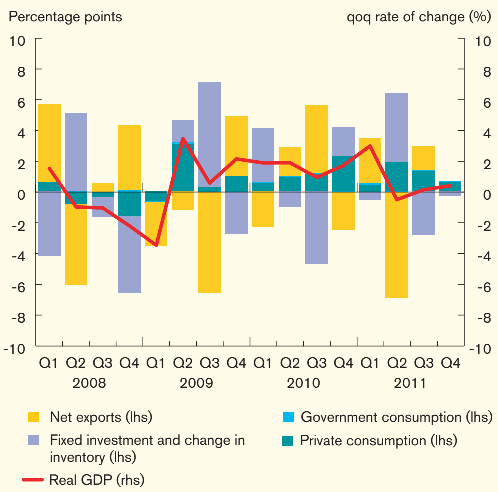
There was little growth momentum in the Hong Kong economy during the second half of 2011. The weakened external environment not only affected Hong Kong's exports, but also appears to have permeated the broader economy. Output growth will likely remain subdued in the immediate future, although recent data flows have been more positive. Nevertheless, the longer term outlook will hinge on developments in global economic and financial conditions, which remain in a state of flux.

Chart 3.1
GDP in chained (2009) dollars



Source: Census and Statistics Department (C&SD).

Chart 3.2
Contributions to quarter-to-quarter percentage change in real GDP



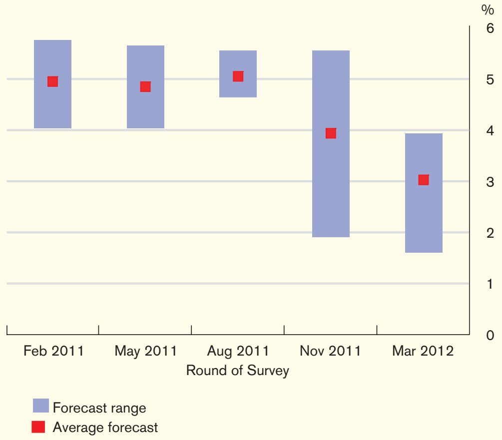
Sources: C&SD and HKMA staff estimates.

3.1 Aggregate demand

The Hong Kong economy failed to regain much momentum in the second half of 2011, with real GDP growing by a frail 0.1% in Q3 and 0.4% in Q4 on a seasonally adjusted quarter-to-quarter comparison (Chart 3.1). On the domestic front, private consumption and gross fixed investment stayed broadly resilient. Inventory investment, however, decelerated and became a drag on real GDP growth. In aggregate, domestic demand subtracted 1.4 percentage points from real GDP growth in Q3, followed by a positive contribution of 0.4 percentage points in Q4 (Chart 3.2). The overall export performance remained weak amid slackened external demand, although it fared better than imports to the extent that net exports made slight contributions to real GDP growth in Q3 and Q4. In tandem with the sluggish sequential momentum, the year-on-year GDP growth rate moderated to 4.3% in Q3 and a subpar 3.0% in Q4.

Growth momentum is expected to remain soft in the immediate future. The headwinds from the external environment – owing to sluggish growth prospects in advanced economies, an unresolved European sovereign debt crisis and the ensuing global market volatilities – are expected to remain a drag on Hong Kong's exports. The frigidity in the external environment will also likely continue weighing on domestic demand. While income conditions and the labour market are expected to remain largely favourable and continue to render some support, the weaker growth in local private consumption seen in 2011 Q4 may persist. Local firms' interests in investment projects may also be affected by the uncertain outlook. On the other hand, fiscal stimulus from the 2012/13 Budget should help support the economy with a robust pipeline of infrastructure projects and some relief measures in place. It is also encouraging to note that recent data have generally improved to the upside. Our composite index of leading economic indicators (LEI) moved notably higher towards the end of 2011, providing an early hint that growth may regain momentum towards mid-2012, although it remains to be seen whether the incipient rebound can be sustained. Box 1 discusses this LEI and the companion composite index of coincident economic indicators (CEI).

Chart 3.3
Consensus forecasts for 2012 real GDP growth



Source: Consensus Economics.

The current economic outlook is subject to an unusually high degree of uncertainty, with prominent binary risks. If the global environment sharply deteriorates, including a worsening in the European debt problems, the Hong Kong economy will be hit hard through both trade and financial channels, which could drag Hong Kong into an outright recession. However, if external conditions normalise, especially in relation to a stabilisation of the European debt problem, the continued two-speed global recovery and the possibility of further monetary easing in advanced economies could lead to renewed capital inflows, resuming upward pressures on asset and consumer prices in Hong Kong. Reflecting the highly uncertain prospects, private sector economists hold widely diverging views on Hong Kong's outlook. While the consensus forecast for 2012 GDP growth centres around 3.0%, the spectrum of forecasts is as wide as 2.3 percentage points (Chart 3.3). The Government also gives a wide-range forecast of 1.0 - 3.0% for 2012.

Box 1
Taking the pulse of the Hong Kong economy — introducing monthly coincident and leading economic indicators for Hong Kong[4]

GDP is the most comprehensive measure of *overall economic activity*, but does not provide timely information. In Hong Kong, it is available quarterly and with a time lag of six weeks from the close of the reference quarter. On the other hand, some other indicators that capture the key aspects of economic activity, such as retail sales and merchandise exports, are available monthly or an even higher frequency with a shorter reporting delay. The information embedded in these indicators can be systematically extracted to not only tell the strength of the economy in a more timely fashion, but also provide useful insights into the near-term trend of economic activity.

This box describes two in-house indices we have developed for these purposes[5]: the index of coincident economic indicators (CEI) combines four data series to summarise the current state of overall economic activity in one statistic, while the index of leading economic indicators (LEI) is constructed based on 10 data series to provide a broad indication of near-term overall economic conditions.

Index of coincident economic indicators

The CEI is estimated based on a dynamic single-factor model that consists of retail sales volume, equity market turnover, retained import volume and total export volume.[6] These component variables are methodologically selected out of some 300 data series

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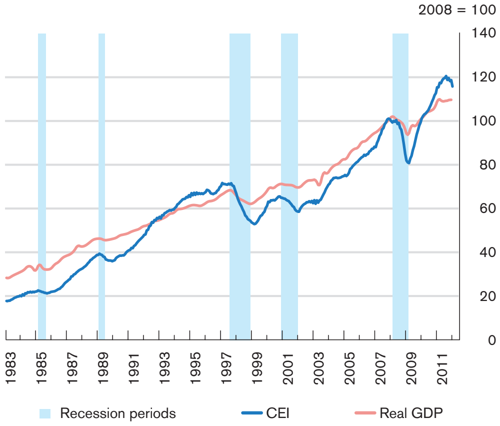
[4] We thank Alan Clayton-Matthews of the Northeastern University for providing the DSFM programme for estimating the CEI, Bart Hobijn of the Federal Reserve Bank of San Francisco for sharing his computer codes for the US Tech Pulse Index, and Robert Inklaar of the University of Groningen for providing the programme to perform the Bry-Boschan procedures.

[5] A similar study on the CEI for Hong Kong is Gerlach, S. and M. S. Yiu (2005), "A Dynamic Factor Model for Current-quarter Estimates of Economic Activity in Hong Kong", *Pacific Economic Review* 10(2), pages 279 - 292.

[6] See Stock, J. H. and M. W. Watson (1989), "New Indexes of Coincident and Leading Economic Indicators", *NBER Macroeconomics Annual 1989*, pages 351 - 393.

Chart B1.1
CEI and real GDP (at levels)



Note: Monthly GDP is estimated using the Denton temporal disaggregation technique in the ECOTRIM software package. We identify the recession periods by applying the procedures in Bry, G. and C. Boschan (1971), *Cyclical Analysis of Time Series: Selected Procedures and Computer Programs*, New York, NY: Columbia University Press.

Sources: C&SD and HKMA staff estimates.

Table B1.A
Correlation between the CEI and real GDP (January 2000 - December 2011)

Between CEI and real GDP	
levels	0.980
12-month rates of change	0.867
three-month rates of change	0.654

Source: HKMA staff estimates.

Table B1.B
Chronologies of the CEI and real GDP cycles

Peaks*		
Real GDP	CEI	
Date	Date	Lead (-) / Lag (+) number of quarters
1985 Q1	1985 Q1	+0
n.a.	1989 Q1	n.a.
1997 Q3	1997 Q3	+0
2000 Q4	2000 Q4	+0
2008 Q1	2007 Q4	-1
Average		**-0**

Troughs*		
Real GDP	CEI	
Date	Date	Lead (-) / Lag (+) number of quarters
1985 Q3	1985 Q3	+0
n.a.	1989 Q4	n.a.
1998 Q4	1999 Q1	+1
2001 Q4	2001 Q4	+0
2009 Q1	2009 Q1	+0
Average		**+0**

Note:
* Peaks and troughs are identified by the Bry-Boschan procedures. The Bry-Boschan procedures cannot identify any peak or trough of real GDP during 1989.

Sources: C&SD and HKMA staff estimates.

based on commonly accepted criteria.[7] The cross-correlation of the potential component series with real GDP is examined at different lead and lag lengths. Their cyclical behaviours are also analysed as to whether the turning points come close to, or coincide with, the peaks and troughs of real GDP.[8] Once the suitable component variables are identified, a model involving a system of five equations is built: one equation for each component variable and one equation for a latent factor that is reflected in each of the component variables. The latent factor represents the CEI.

Chart B1.1 traces the CEI against the real GDP of Hong Kong from 1983 onwards. Its trend and curvature provide useful information about the direction and pace of change in the contemporaneous economic conditions of Hong Kong. Several criteria can be used to assess the performance of a CEI. One way is to compare its correlation with the real GDP. We find that the CEI is highly correlated with real GDP and broadly conforms to the cycles of real GDP. The correlation coefficients between the CEI and GDP at levels is as large as 0.980, while their correlation in terms of 12-month and three-month growth is 0.867 and 0.654 respectively (Table B1.A). The CEI also traces the turning points of the real GDP reasonably well (Table B1.B).

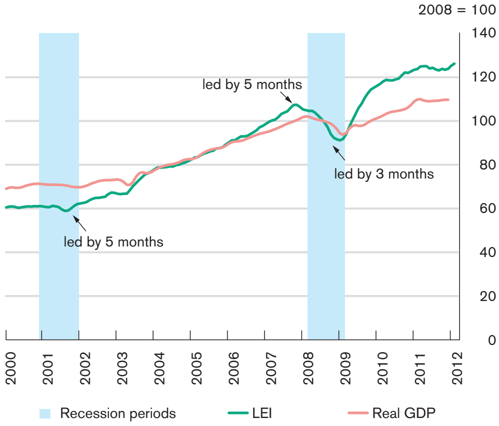
A caveat in interpreting the index is that the cardinal unit of the CEI is different from that of the real GDP, and therefore it is generally not feasible to form a precise numerical mapping between the two.[9] In other words, an increase in the CEI typically indicates a rise in real

7 Specifically, those criteria are set out by the National Bureau of Economic Research (NBER) so that component series should conform to the cycles of the reference series (Hong Kong's real GDP in this study) including the turning points. In brief, the criteria are (1) economic significance; (2) statistical adequacy; (3) historical conformity to business cycles; (4) cyclical timing record; (5) smoothness; and (6) promptness of publication. For details, see Moore, G. H. and J. Shiskin (1967), *Indicators of Business Expansions and Contractions*, New York, NY: National Bureau of Economic Research.

8 Synchronisation of cycles is measured in terms of the concordance index in Harding, D. and A. Pagan (2006), "Synchronisation of Cycles," *Journal of Econometrics* 132, pages 59 - 79.

9 One transformation method is to set the trend of the CEI equal to that of the reference series (real GDP in this study), as applied in the State Coincident Indexes by the Federal Reserve Bank of Philadelphia and the OECD Composite Leading Indicators.

Chart B1.2
LEI and real GDP (at levels)



Note: Monthly GDP is estimated using the Denton temporal disaggregation technique in the ECOTRIM software package. We identify the recession periods by applying the Bry-Boschan procedures to monthly GDP.

Sources: C&SD and HKMA staff estimates.

Table B1.C
Correlation between the LEI and real GDP (January 2000 - December 2011)

Between three-month lagged LEI and real GDP	
levels	0.990
12-month rates of change	0.822
three-month rates of change	0.526

Source: HKMA staff estimates.

Table B1.D
Chronologies of the LEI and real GDP cycles

Peaks*		
Real GDP	LEI	
Date	Date	Lead (-) / Lag (+) number of quarters
2000 Q4	n.a.	n.a.
2008 Q1	2007 Q4	-1
Average		-1

Troughs*		
Real GDP	LEI	
Date	Date	Lead (-) / Lag (+) number of quarters
2001 Q4	2001 Q3	-1
2009 Q1	2008 Q4	-1
Average		-1

* Peaks and troughs are identified by the Bry-Boschan procedures. The LEI series is only available from 2000 Q1 onwards. Despite the availability of only a few data points, the peak quarter of the LEI is identified as some time before 2000 Q4 by the Bry-Boschan procedures.

Sources: C&SD and HKMA staff estimates.

GDP, and a *faster* increase in the CEI usually suggests acceleration in real GDP expansion. However, an increase in the CEI by 1%, for instance, cannot be interpreted as implying a 1% increase in the real GDP. This caveat against numerical inferences also applies to the LEI discussed below.

Index of leading economic indicators

The LEI is constructed according to the conventional NBER method.[10] It is a weighted sum of 10 component variables: the Hang Seng Index, approvals of building plans, real broad money (M2 deflated by the CCPI), the HSBC Hong Kong Purchasing Managers' Index (PMI), the CUHK Indices of Consumer Sentiment and Employment Confidence, headline results of the Quarterly Business Tendency Survey (QBTS), the HKTDC Export Index, and the OECD Leading Indices for the US and Mainland China.[11 & 12] They are selected according to the NBER criteria to ensure all the components have a leading relationship with real GDP and show a leading cyclical behaviour. Chart B1.2 compares the LEI with the real GDP.

The LEI is capable of providing early signals of economic turning points and it generally leads GDP by three to four months. The three-month lagged LEI is highly correlated with real GDP. The correlation coefficient between the three-month lagged LEI and GDP at levels is as much as 0.990, while their correlation in terms of 12-month and three-month growth is 0.822 and 0.526 respectively (Table B1.C). It also leads the GDP peaks and troughs by about one quarter in the past decade (Table B1.D).[13]

10 See Moore and Shiskin (1967) and The Conference Board (2001), *Business Cycle Indicators Handbook*, New York, NY: The Conference Board.

11 The contribution of each LEI component is weighed by a standardisation factor which is based on the inverse of the standard deviation of the symmetric changes in the data series. See The Conference Board (2001) for details.

12 Some outlook sentiment indicators are available quarterly. The monthly figures are interpolated by the Denton temporal disaggregation technique in the ECOTRIM software package.

13 Owing to the limited availability of some outlook sentiment indicators, the LEI is a relatively short time series, starting from January 2000 onwards.

Table B1.E
Recent trends of the CEI and LEI

	% change over one month		% change over six months*
	CEI	LEI	LEI
2011			
Jan	2.4	0.6	3.7
Feb	-0.1	0.3	3.6
Mar	1.8	0.9	3.3
Apr	-0.2	0.1	2.4
May	1.2	0.0	2.5
Jun	0.7	-0.8	1.1
Jul	0.2	0.3	0.7
Aug	0.7	-0.6	-0.1
Sep	-1.5	-0.4	-1.4
Oct	0.8	0.6	-1.0
Nov	-1.2	-0.3	-1.3
Dec	0.4	0.3	-0.1
2012			
Jan	-2.5	1.1 p	0.8 p
Feb	n.a.	0.8 p	2.1 p

p Provisional.

* The 6-month rate of change of an LEI is commonly referred to for detection of any business cycles turning points.

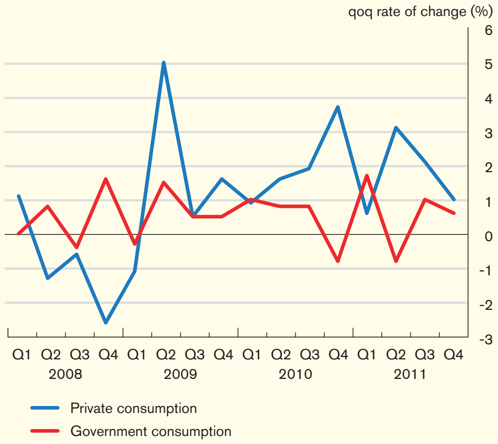
Source: HKMA staff estimates.

What do the CEI and LEI tell us about the strength of economic activity in the first half of 2012?

The recent readings of the CEI reflect that the Hong Kong economy started the year on a weak note (Table B1.E). The CEI slipped back in January, dampened by a sharp decrease in retail sales and the continually sluggish trade performance. This January figure is however susceptible to seasonal distortions of the Chinese New Year holidays, which fell in January this year but February last year. In order to better gauge the current trends, the first two months may need to be read together. On the other hand, the LEI has moved notably higher for three consecutive months, providing tentative signs of a re-start in momentum for the Hong Kong economy further ahead. Its component data generally arrived with better readings than expected amid improvement in both the domestic and external environments, although drags continued to come from sentiment indicators, such as the QBTS and the HKTDC Export Index.

As with any forecasts, assessments based on the CEI and LEI are highly data-driven. Whether the incipient rebound can be sustained is likely to depend on the evolution of external conditions.

Chart 3.4
Private and government consumption



Source: C&SD.

3.2 Domestic demand

Consumption

Private consumption largely held up in the second half, reflecting robust income growth and labour market resilience. Demand for consumer goods, particularly durable goods, remained strong, and service consumption increased steadily. Looking at the quarterly profile, however, reveals some sequential softening, from a quarter-on-quarter growth rate of 2.1% in Q3 to 1.0% in Q4 (Chart 3.4). While some moderation in private consumption growth had been anticipated following two years of above-trend growth, the slowdown also reflected the negative wealth effect of an under-performing stock market and weaker consumer confidence in late 2011 amid a challenging global environment. In 2012, the notable job and income growth over the past year is expected to cushion private consumption against a subdued output growth. The relief measures recently announced in the 2012/13 Budget will also be supportive. Overall, private consumption growth momentum will likely be tepid in the near term and gather pace again later in the year. The mean consensus forecast for private consumption growth is now 4.1% for 2012, less than half of the 8.6% growth in 2011.

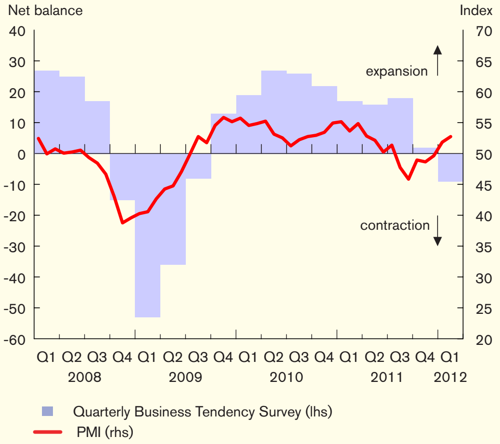
Government consumption increased steadily by 1.0% in Q3 and 0.6% in Q4. However, it is expected to strengthen in the future as outlined in the 2012/13 Budget, where the recurrent part of public expenditure is projected to increase by 6.8% in real terms in the coming fiscal year, slightly higher than the 6.5% increase in 2011/12.[14]

Investment

Overall investment spending weakened in the second half due to a slowdown in inventory investment. However, gross fixed investment remained buoyed by a sharp revival in business capital spending and a sustained increase in public construction works. Private construction activities also improved gradually, although

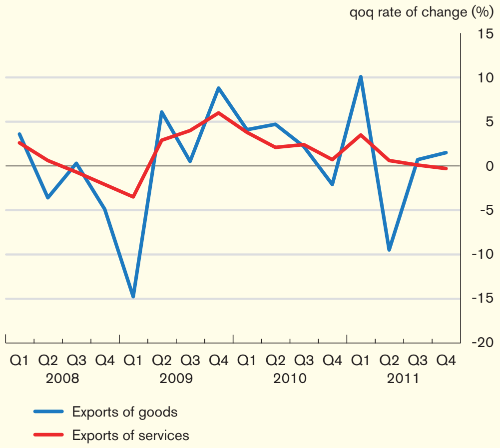
[14] The 6.5% increase in recurrent public expenditure in 2011/12 is based on the 2011/12 Budget projections.

Chart 3.5
Business sentiment



Sources: C&SD and Markit Economics.

Chart 3.6
Exports of goods and services



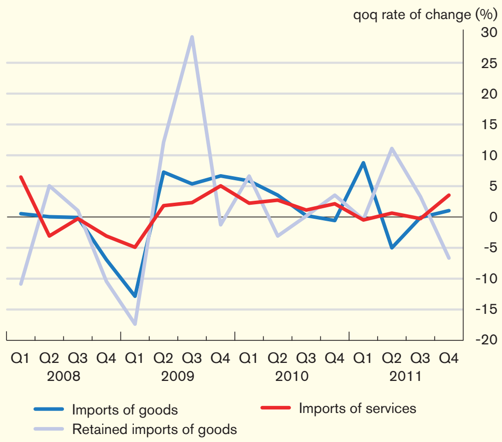
Source: C&SD.

at a much slower rate. In 2012, construction activities should continue to be underpinned by a robust pipeline in public sector infrastructure works. And, in association, there will be a positive spill-over effect to public capital investment. However, private fixed investment is likely to weaken. Essentially, the latest results of the Quarterly Business Tendency Survey have painted a pessimistic business outlook for Q1, the most downbeat since 2009 Q3 (Chart 3.5). The PMI also remained soft, only crawling above the expansion-contraction cut-off more recently, after a five-month slump towards the end of last year. In this light, firms will likely be cautious about their capital spending in the near term. Private construction activities are also expected to be restrained, as indicated by a low level of building permits. The latest market consensus now sees growth in gross fixed investment to weaken to 4.2% in 2012, from 7.2% in 2011.

3.3 External trade

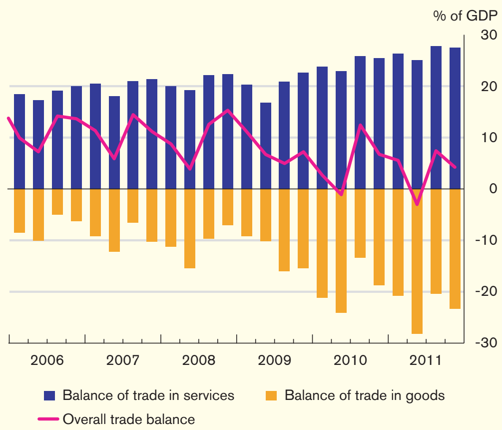
The overall export performance remained weak in the second half of 2011. Exports of goods are yet to recover from the sharp decline in Q2, only edging up 0.7% in Q3 and 1.5% in Q4 (Chart 3.6). Demand from advanced economies continued to falter, while shipments to the Mainland and other Asian markets also slackened due to dwindling processing trade. As for exports of services, a 0.1% increase was reported for Q3, but was then followed by a 0.3% decline in Q4. The trade-related and transportation components exerted a sizable drag throughout the two quarters, while growth in inbound tourism and exports of financial and other business services has been weakening.

Chart 3.7
Imports of goods and services



Sources: C&SD and HKMA staff estimates.

Chart 3.8
Trade balance by component (in nominal terms)



Source: C&SD.

Imports of goods fell by 0.2% in Q3 and then picked up by 0.9% in Q4 (Chart 3.7). Export-induced demand was sluggish, as reflected in re-exports of goods and retained imports of raw materials and semi-manufactures. Imports for domestic use and consumption continued to hold up well. Services imports also displayed a similar divergence. There was a fall in the trade-related and transportation components alongside the slowdown in merchandise trade flows. However, outbound tourism and imports of financial services continued to grow at a fast pace. In aggregate, imports of services dropped by 0.4% in Q3 and then bounced up 3.4% in Q4.

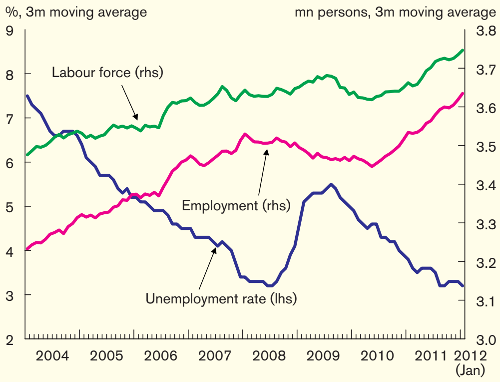
Net exports added 1.5 percentage points to real GDP growth in Q3, but their contribution became negligible in Q4. In value terms, the seasonally unadjusted overall trade balance reverted from a deficit of HK$13.4 billion (equivalent to 3.0% of GDP) in Q2 to a surplus of HK$21.4 billion (4.2% of GDP) in Q4 (Chart 3.8).

It is likely the world economy will remain mired in a slow-growth path and be subjected to substantial downside risks this year. The dampened external demand conditions will, therefore, continue to undermine Hong Kong's export performance, particularly in the first half of the year. Signalling pessimism in the export sector, the HKTDC Export Index has slipped below 50 for three consecutive quarters since 2011 Q3. The market consensus now projects merchandise exports to grow by 5.5% in nominal terms in 2012, down from 10.1% in 2011. The projection would likely be even smaller if cast in real terms. On the services side, inbound tourism and financial services will likely continue to give some support, but with an offset from trade-related and transportation services. In anticipation also of a gradual slowdown in domestic demand, imports of goods and services are expected to soften further.

Labour market conditions

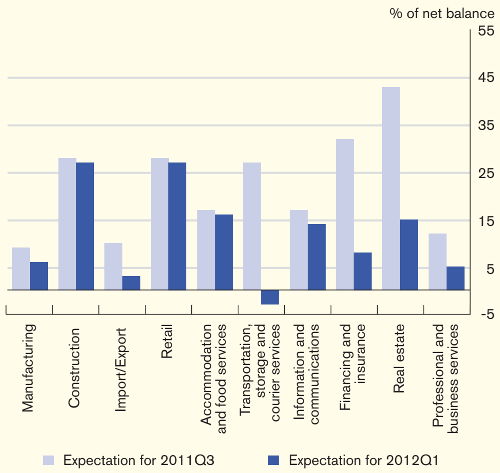
The labour market remained tight in the second half, with the unemployment rate fluctuating between 3.2% and 3.3%. Meanwhile, by late 2011 job creation continued to remain strong despite deteriorating economic environment.

Chart 3.9
Labour market conditions



Source: C&SD.

Chart 3.10
Quarterly business tendency survey for 2012 Q1: employment



Notes:
1. Net balance refers to the difference between the percentage points of respondents expecting a rise over those expecting a decline.
2. Sectors are classified according to the new Hong Kong Standard Industrial Classification Version 2.0 (HSIC V2.0).

Source: C&SD.

3.4 Labour market conditions

Labour market conditions held up well despite weakening growth momentum in the economy. The seasonally adjusted three-month moving-average unemployment rate remained at a low 3.2% in January 2012 after averaging 3.3% in the second half (Chart 3.9). Employment grew robustly, reaching 3.63 million by January. The current strength of the labour market is broad-based, with the unemployment rate of both the higher-skilled and lower-skilled segments staying at low levels in the second half.

On the labour demand side, job creation continued to be strong in late 2011. Employment in some major business sectors such as retail, accommodation and food services, and financing, insurance, real estate, professional and business services reached multi-quarter high in Q4. Labour supply remained strong in the second half, with the overall labour force participation rate staying at around 60.3% in the review period.

The near-term outlook for the labour market has been clouded by increasing downside risks to the external economic conditions. The latest Quarterly Business Tendency Survey for 2012 Q1 shows that while a majority of respondents expect employment to expand in the near term, the percentage of responses expecting a reduction has increased significantly compared with the survey conducted six months ago (Chart 3.10). The reduction was particularly significant in the sectors of real estate, financing and insurance, and transportation, storage and courier services.

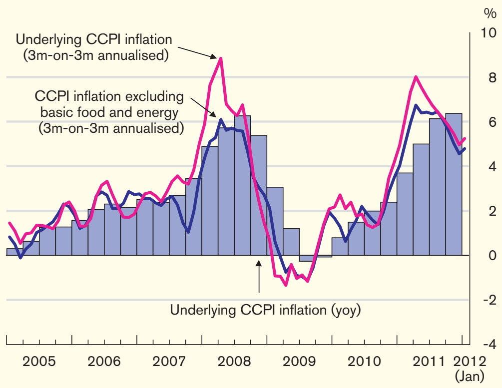
Costs and prices

Inflationary pressures in Hong Kong's economy may have peaked as sequential inflation momentum has decreased, reflecting a slower pass-through of market rentals into consumer prices, lower inflation on the Mainland, and stabilised commodity prices. They are likely to moderate gradually on the back of a further slowing in the pace of the residential rental pass-through and some easing in labour cost pressure.

3.5 Consumer prices

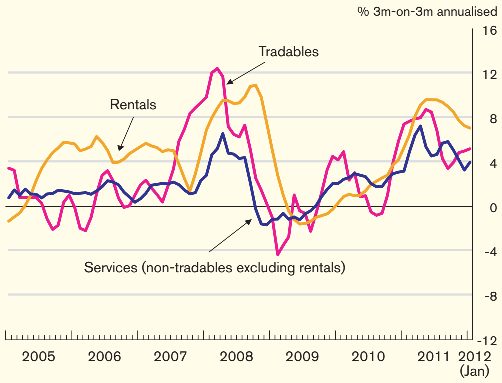
Inflationary pressures in the economy might have peaked. On an annualised three-month-on-three-month basis, the underlying inflation rate dropped continuously from 6.8% in July to 5.0% in December 2011 (Chart 3.11). This downward trend in the rate, however, was disturbed in January, as the rate rebounded to 5.3% on the back of the Lunar New Year effect, which is expected to eventually fade out. The core inflation rate (the CCPI inflation excluding the volatile components of basic food and energy from the CCPI basket) also followed a similar pattern, as the decrease in the sequential inflation momentum over the period was mainly driven by a slower pace of increase in the housing component of the CCPI. Along with this, the year-on-year underlying inflation rate also showed signs of stabilising in recent months, staying at 6.4% from September to December 2011.

Chart 3.11
Different measures of consumer price inflation



Sources: C&SD and HKMA staff estimates.

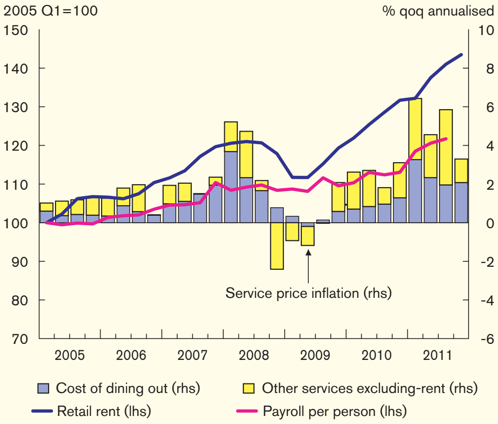
Chart 3.12
Consumer price inflation by broad component



Sources: C&SD and HKMA staff estimates.

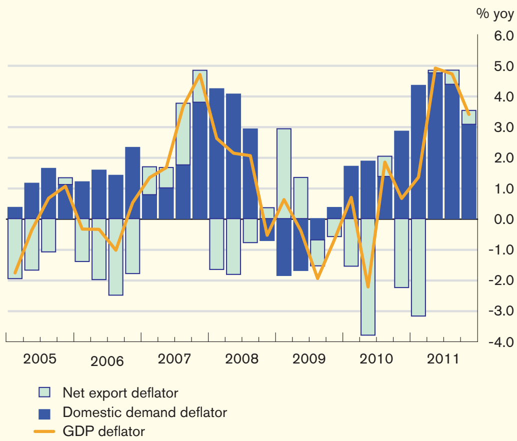
The inflation rate of all three major components of the CCPI, rentals, tradables and non-tradables drifted down (Chart 3.12). In particular, a downward trend is now evident in the three-month-on-three-month inflation rate of the rental component. This means the momentum of the pass-through process of increased market rentals into the inflation rate of the rental component has slowed down after running for some time. The inflation rate of the tradable component also fell from 6.9% in July to 5.2% in January, as the inflation momentum of basic food, durable goods, clothing and footwear components decreased. On the other hand, the inflation rate of the non-tradable component increased from 4.7% in July to 5.9% in September, and then

Chart 3.13
Service price inflation excluding rent



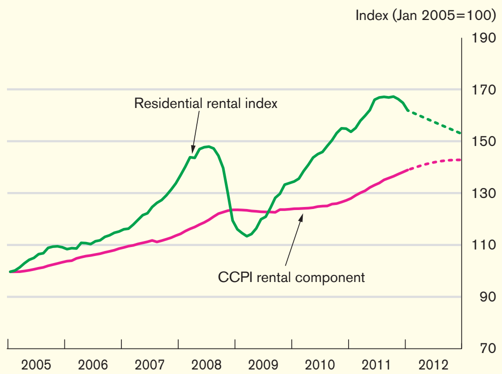
Sources: Rating and Valuation Department, C&SD and HKMA staff estimates.

Chart 3.14
GDP deflator and broad components' inflation



Sources: C&SD and HKMA staff estimates.

Chart 3.15
CCPI rental component and market rentals



Note: CCPI rental component is excluding the effects of one-off special relief measures.
Sources: Rating and Valuation Department, C&SD and HKMA staff estimates.

decreased to 4.0% in January, largely reflecting fluctuations in the inflation rate of the miscellaneous services component, which in turn was subject to the pass-through of increased retail rentals and labour costs (Chart 3.13).

Inflationary pressures, measured from the national account perspective, also eased during the review period. The year-on-year inflation rate of the GDP deflator decreased to 3.4% in 2011 Q4 from 4.7% in Q3, driven by the decline in the inflation rate of the domestic demand component (Chart 3.14). However, the domestic demand component was still the main driver of GDP deflator inflation, despite the pick-up in the inflation rate of the net exports component over the period (i.e. the relative inflation of export to import prices).

Looking ahead, inflationary pressures are likely to moderate. While the outlook for residential property prices and rentals are uncertain in the near term, the pace of the pass-through of the earlier increases in residential rentals into the CCPI rental component are likely to continue to slow down gradually (Chart 3.15). As the rental component plays a key role in shaping inflation, local inflationary pressures are also expected to recede gradually for the rest of the year.

The pace of decline in inflationary pressures, however, will also hinge on how cost pressures evolve in the economy. In particular, while labour cost pressures are expected to be constrained by the increased downside risks to the labour market outlook, retail rental cost pressures are expected to stay firm with the strong retail sector performance. Thus, cost pressures may remain high in the economy, causing inflationary pressures to moderate only gradually in the near term.

However, the expected moderation in inflationary pressures during the year could be hindered by some upside risks, stemming mainly from developments in the external environment. While oil prices could pick up substantially on the back of geopolitical tensions related to Iran, a new round of quantitative easing in the US could fuel further commodity price increases, and the associated weakening in the US dollar and hence the Hong Kong dollar could pose upward pressure on Hong Kong's import prices.

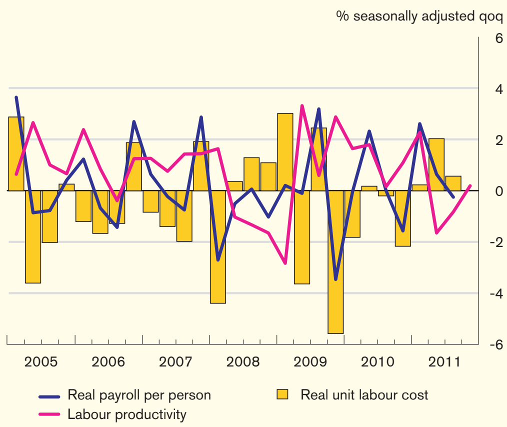
3.6 Output gap and labour costs

The output gap narrowed during the second half of 2011. The potential output was boosted by an elevated labour force participation rate, although the actual output was restrained by the weak aggregate demand. As a result, the actual output expanded at a slightly slower pace than that of the potential output, with the output gap narrowing to slightly above zero, down from above 1% in the first half. Labour market conditions remained tight, with the unemployment rate hovering well below the estimated non-accelerating inflation rate of unemployment (NAIRU) during the review period.

With tight labour market conditions, labour cost pressures increased. Notwithstanding a slowdown in the sequential growth momentum, real payroll per person for Q2 and Q3 combined recorded an increase of 1.8% over the previous six-month period (Chart 3.16). At the same time, labour productivity growth was dragged by the sluggish local economic growth in Q2 and Q3, and this pushed real unit labour costs up by 0.6% quarter on quarter in Q3, following an increase of 2.0% in Q2.

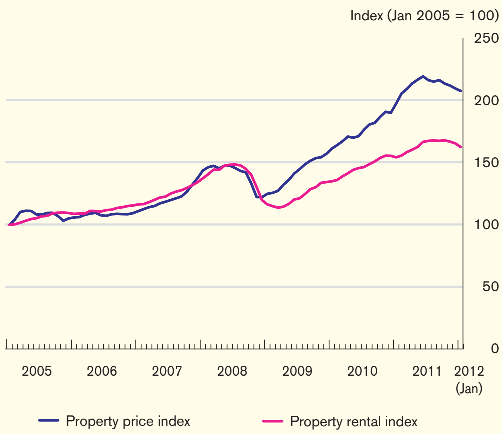
The domestic economy is expected to grow at sluggish rates in 2012 amid the unfavourable external environment. As such, the output gap may narrow further, with the possibility of falling back into negative territory. If this is realised, the unemployment rate will be pushed up, which should help constrain labour cost pressures.

Chart 3.16
Unit labour cost and labour productivity



Sources: C&SD and HKMA staff estimates.

Chart 3.17
Residential property price and rental indices



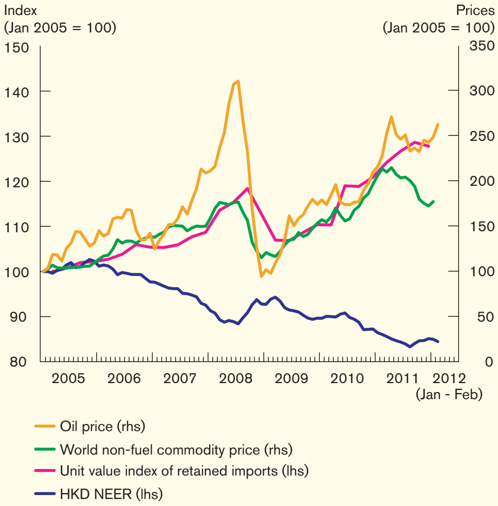
Source: Rating and Valuation Department.

3.7 Rental costs

Residential property rentals showed signs of stabilising on the back of the decline in residential property prices. After peaking in June, residential property prices settled into a downward trend since then, resulting in a cumulative decline of 5.3% (Chart 3.17). Against this background, the residential property rentals segment also stabilised during the second half, registering its first decline in November 2011, after rising by a cumulative 47.6% from its trough in 2009.

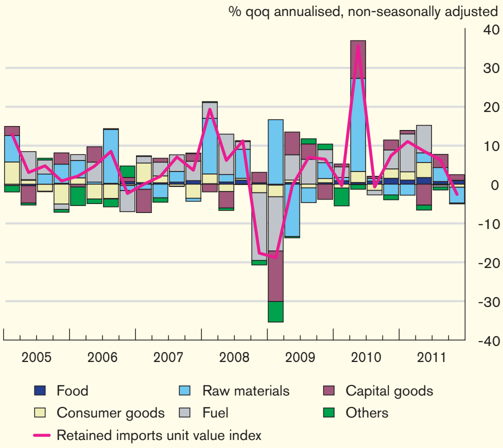
The outlook for the property market is also uncertain. Less favourable global economic prospects and weakened market sentiments will weigh on residential property prices and rentals, while tight supply conditions and the low interest rate environment will support property prices and rentals.

Chart 3.18
Commodity and import prices



Sources: C&SD and IMF.

Chart 3.19
Contributions to import price inflation



Sources: C&SD and HKMA staff estimates.

3.8 Commodity and import prices

Import price inflation decreased amid the deepening European debt crisis and unfavourable global economic prospects. The quarter-on-quarter annualised inflation rate of import prices dropped further to -2.6% in Q4, from 6.2% in Q3 and 8.5% in Q2, helped by stabilised commodity prices and moderating inflation on the Mainland (Chart 3.18). A breakdown by end-use category of import prices revealed that the moderation recorded in the second half of 2011 was, to a large extent, driven by softened prices for consumer goods and fuel (Chart 3.19).

The outlook for import price inflation remains unclear. While lowered inflation on the Mainland and weak global prospects are expected to contain commodity prices and thus import price inflation, the negative supply-side developments in the world oil market may trigger sharp spikes in oil prices. In particular, any hope of additional quantitative easing in the US may further support global commodity prices. Despite the safe-haven demand driven by the European debt crisis, any further quantitative easing could weaken the US dollar, with the resulting drag on the Hong Kong dollar, exacerbating potential import price pressures. As such, there is a possibility that import price pressures could increase considerably at some point in the future, and pose upside risks to the inflation outlook.

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.

Chart 4.1
Hong Kong dollar exchange rate

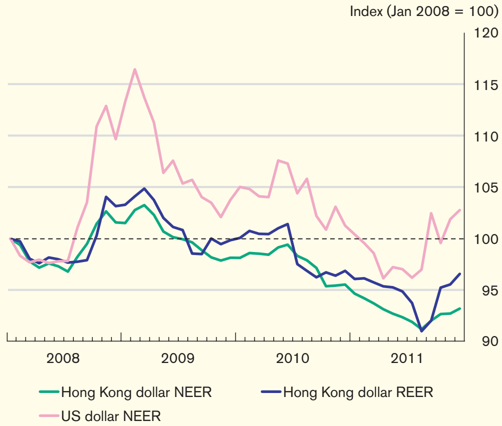
Source: HKMA.

4.1 Exchange rate and interest rates

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.

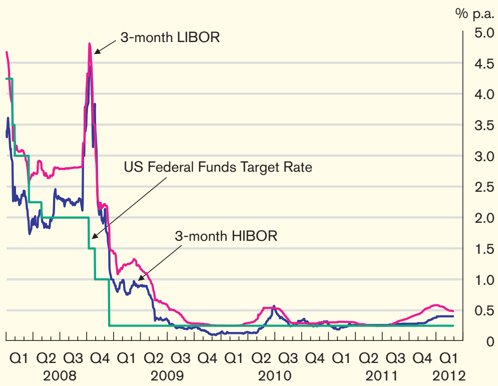
Stepping into 2012, the Hong Kong dollar spot exchange rate strengthened to close at 7.7549 on 29 February, compared with 7.7685 on 30 December 2011. The strengthening trend partly reflected an improvement in market sentiment amid the US Federal Open Market Committee's forecast of exceptionally low interest 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



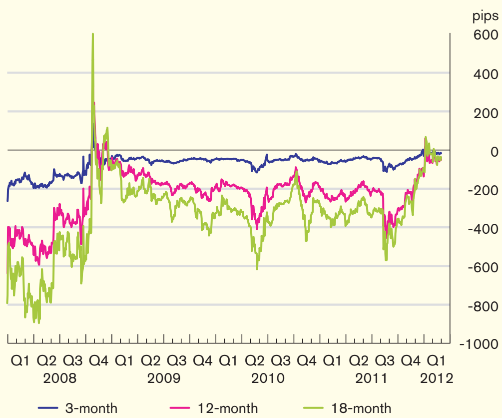
Note: Real effective exchange rate index is seasonally adjusted.
Sources: C&SD, CEIC and HKMA staff estimates.

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



Source: CEIC.

Chart 4.4
Hong Kong dollar forward exchange rates



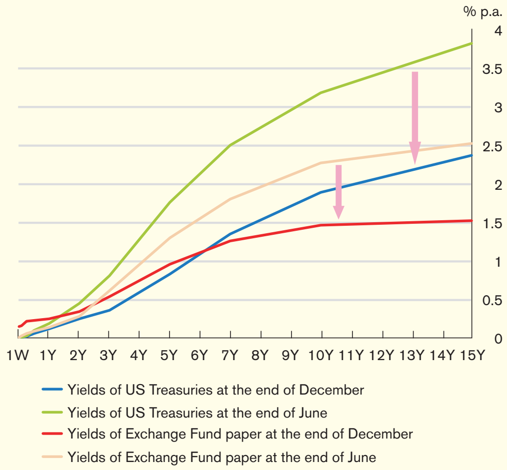
Sources: HKMA and Bloomberg.

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.

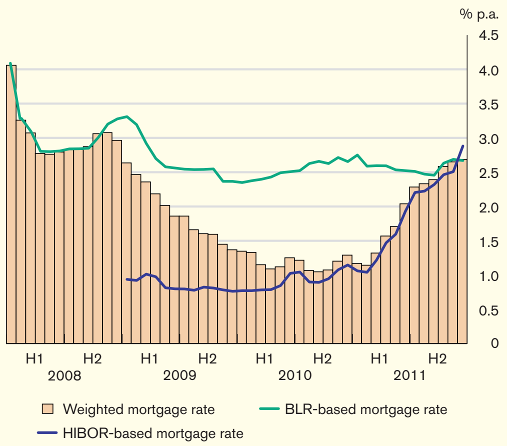
Tighter Hong Kong dollar funding conditions towards the end of 2011 was also evident in the foreign exchange forward market, as there was a greater demand by some market participants to tap collateralised term funding by swapping US dollars for Hong Kong dollars. Such transactions put weakening pressure 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



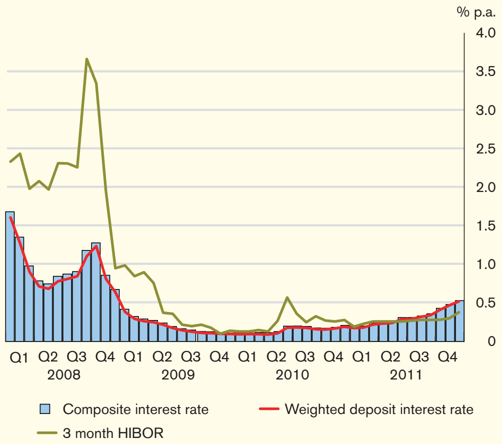
Note: The share of HIBOR-based mortgage plans was small in 2008. All mortgage rates are estimates only.

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

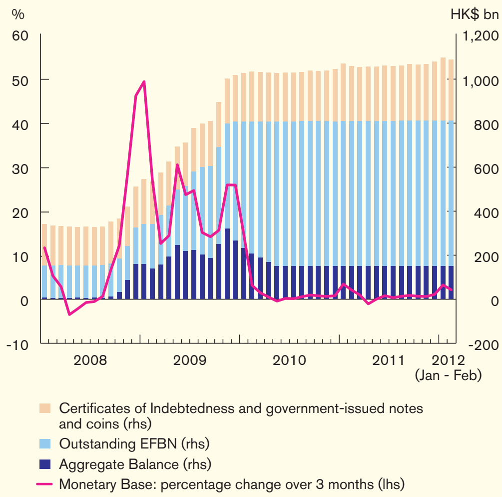


Sources: HKMA and CEIC.

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

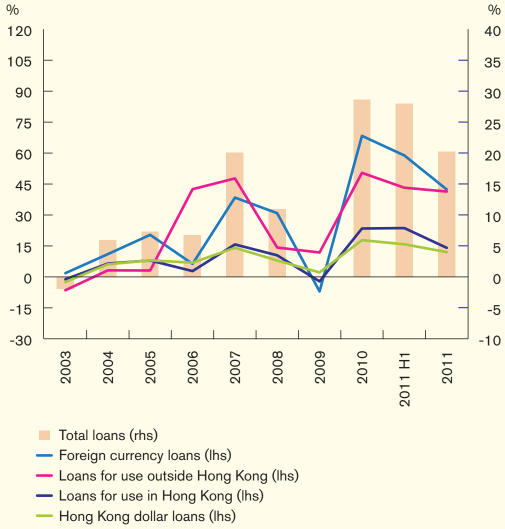


Source: HKMA.

4.2 Money and credit

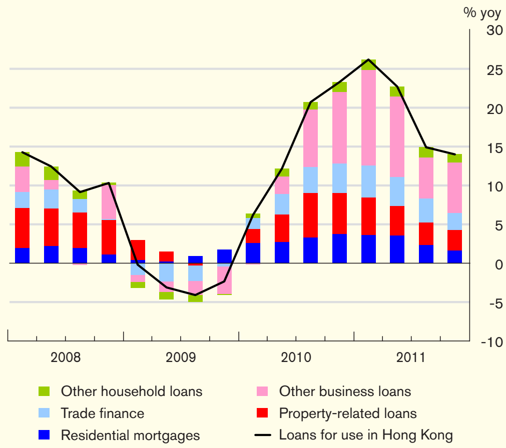
During the second half, the Monetary Base increased slightly mainly because of seasonal demand for banknotes (Chart 4.8). In particular, the new series of HK$50 and HK$100 banknotes that have been in circulation since 22 November contributed to an expansion in outstanding Certificates of Indebtedness 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



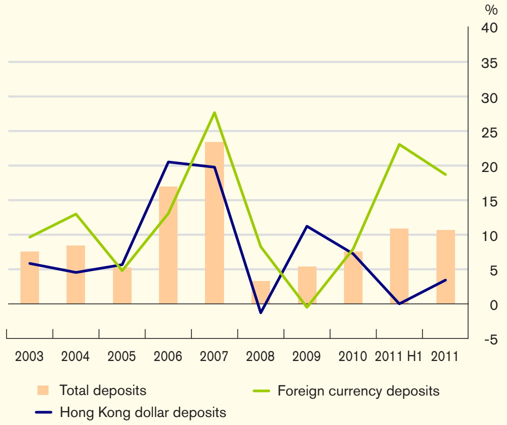
Source: HKMA.

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]

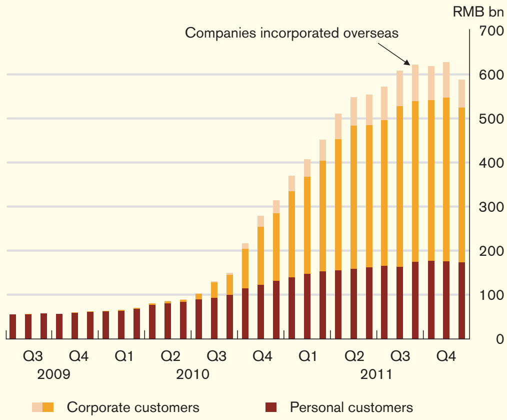
[15] As indicated by a roughly stable level of net respondents which refer to the percentage of respondents expecting loan demand to increase minus the percentage expecting loan demand to decline.

Chart 4.11
Growth in deposits



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

Chart 4.12
Renminbi deposits in Hong Kong

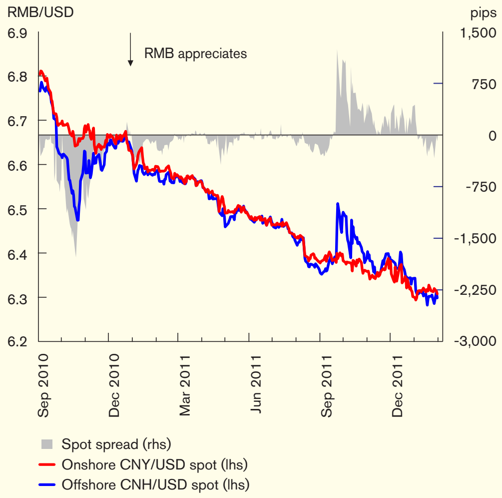


Source: HKMA.

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.

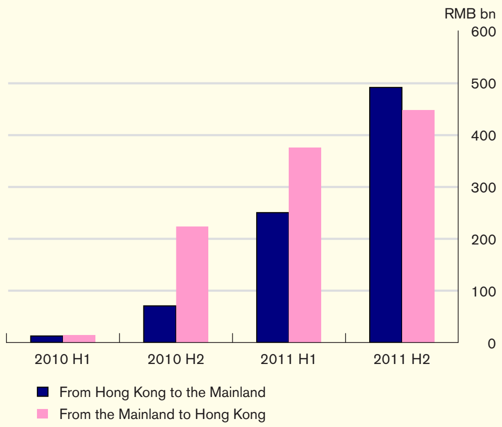
Total deposits expanded by a solid 5.4% and 4.9% respectively in the first and second half of 2011. For the year as a whole, the increase in total deposits of 10.6% was faster than the 7.5% rise in 2010 (Chart 4.11). Partly helped by a stepped-up competition for new deposits and the resulting increase 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

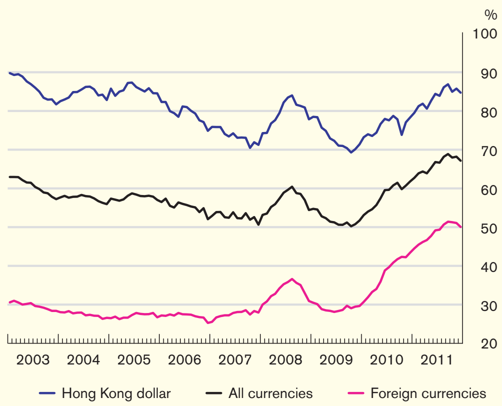
	2010	2011
	(RMB bn)	
Outstanding renminbi certificates of deposits	5.7	72.0
Outstanding renminbi loans	1.8	30.8
Amount due from overseas banks	10.9	121.7
Amount due to overseas banks	19.6	116.4
	(Number)	
Renminbi correspondent accounts set up by overseas banks at Hong Kong banks	187	968

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.

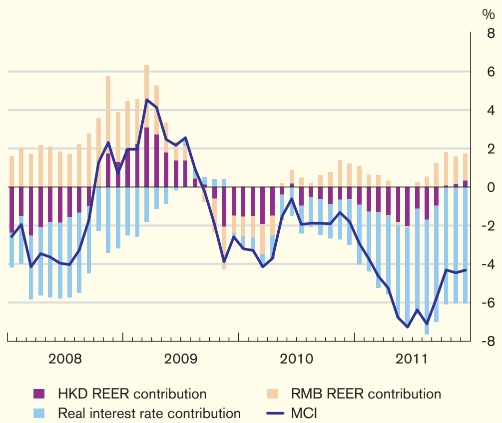
Despite the short-term fluctuations in renminbi deposits, the underlying growth in Hong Kong's offshore renminbi banking business remained strong. Renminbi trade settlement conducted through Hong Kong banks rose from around RMB800 billion in the first half of 2011 to RMB1,100 billion in the second half. 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.

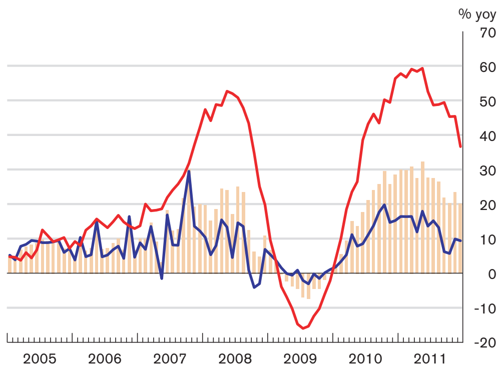
direct investments on the Mainland and the introduction of a Renminbi Qualified Foreign Institutional Investors scheme for investing in Mainland China's securities markets.

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?

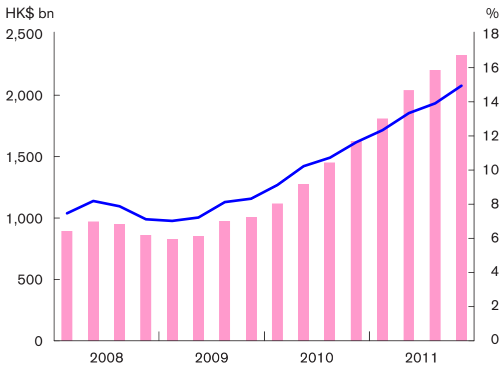
Chart B2.1
Year-on-year growth in loans



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



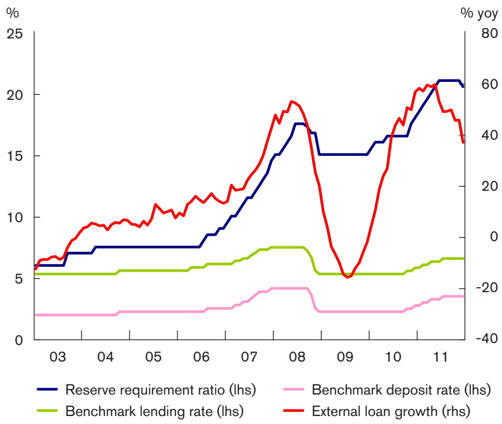
Source: HKMA.

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.

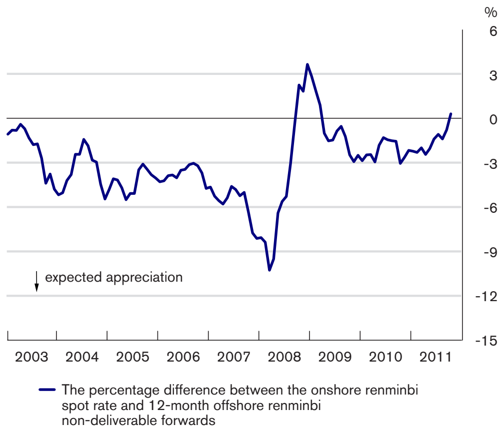
[16] See D. He, F. Leung and P. Ng (2007), "How Do Macroeconomic Developments in Mainland China Affect Hong Kong's Short-term Interest Rates?", *HKMA Working Paper 17/2007*.

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



Source: Bloomberg.

Possible determinants of credit demand from the Mainland

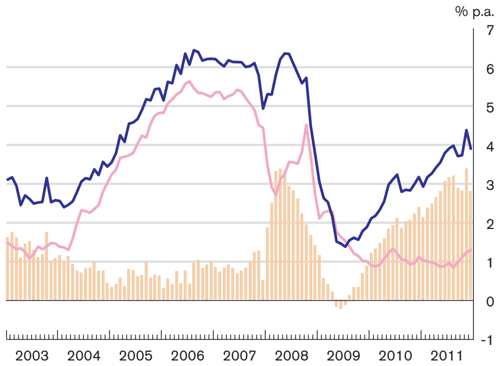
Monetary conditions in Mainland China could have an impact not only on the overall credit needs of its own entities, but also to some extent their choice of markets in which to satisfy those needs. This analysis focuses on the following four monetary condition variables on the Mainland.

- *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 (Unexpected movements)	Estimated effects on: Year-on-year growth in external loans	Estimated effects on: 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

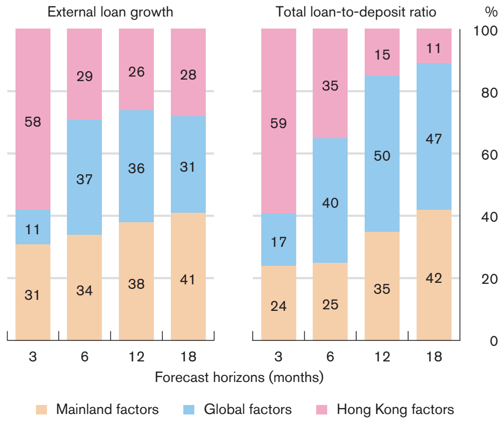
To understand the dynamic responses of Hong Kong's external loan growth and total LTD ratio to Mainland shocks, we estimate a vector autoregression model with 11 variables, including global and other Mainland factors as control.[17] The sample period is between early 2003 and September 2011.

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

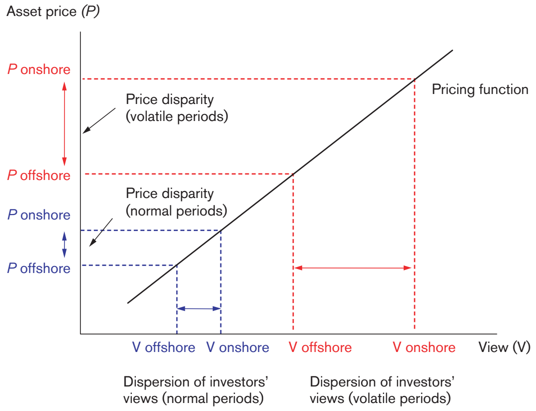
As the Mainland's capital account has yet to be fully liberalised, an institutional separation exists between the onshore and offshore financial markets for the same underlying asset. Prominent examples include the A- and H-shares, the onshore deliverable forwards (DF) and offshore non-deliverable forwards (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.

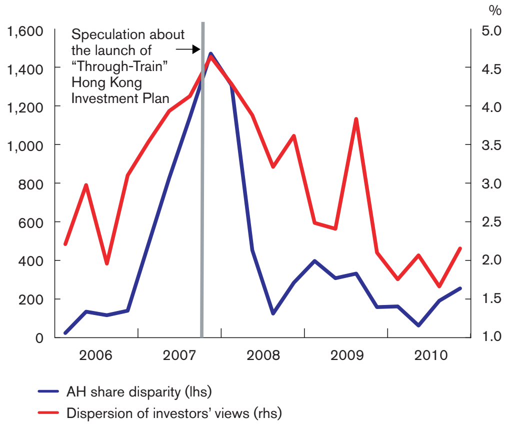
19 The analytical framework refers to the structural pricing model developed in the following two papers. For the stock markets, see T. Chung et al. (2011), "Explaining share price disparity with parameter uncertainty: Evidence from Chinese A- and H-shares", *HKIMR working paper No.33*. For the forward 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.

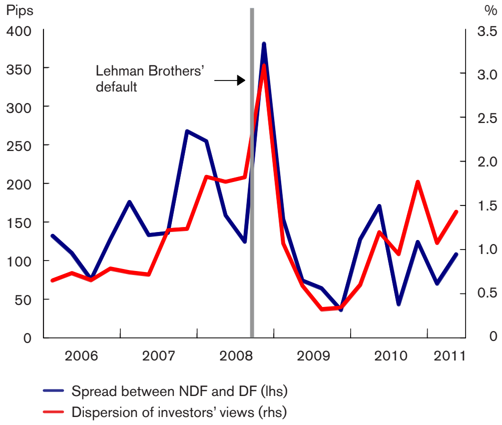
Empirical results testing the above relationship are shown in Charts B3.2 and B3.3 for the A- and H-share markets and the renminbi forward markets respectively.[22] For both markets, the price disparities are found to move in tandem with the measures of the corresponding dispersion of investors' views. 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



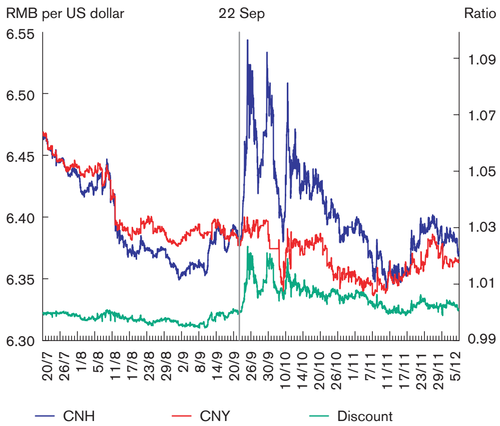
Notes:
1. Sample period: 2006 Q1 to 2011 Q2.
2. Spread is the absolute difference between the onshore DF rate and the offshore NDF rate.

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.

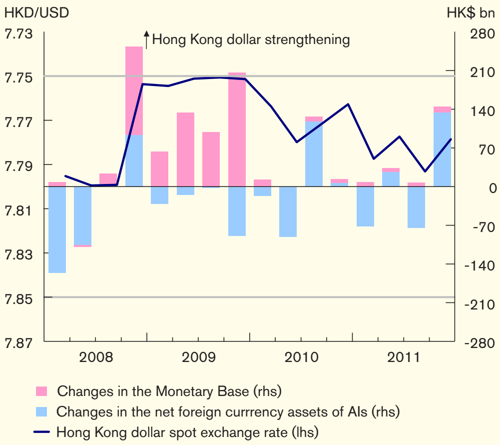
[25] Similar causality tests have also been applied to the A- and H-shares and the forward markets using daily data. In both markets, it is estimated that the onshore and offshore prices influence each other and there is no clear statistical evidence of a volatility spill-over that runs from the offshore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

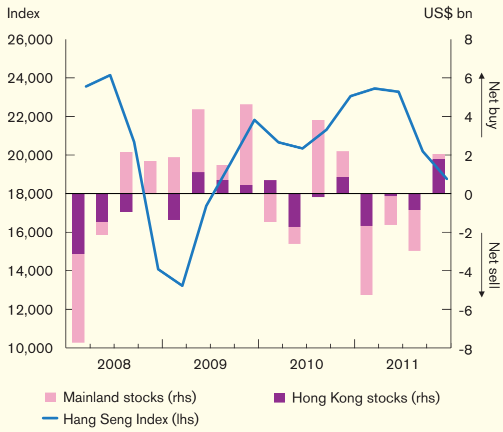
In such a volatile environment, the demand for the Hong Kong dollar was generally soft through the third quarter of 2011, but fluctuated more in the final quarter, according to both price and quantity indicators. The Convertibility Undertakings were not triggered and the Hong Kong dollar spot exchange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

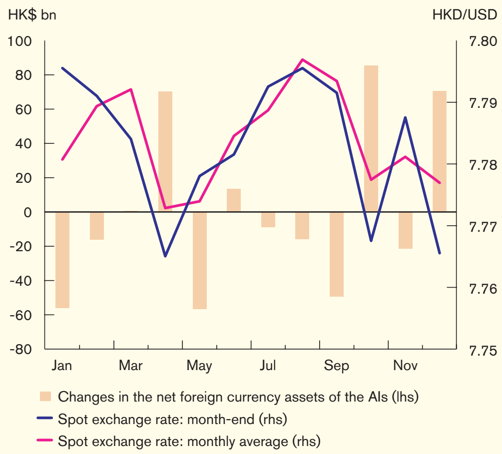
Chart 4.18
Market survey of equity-related flows



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



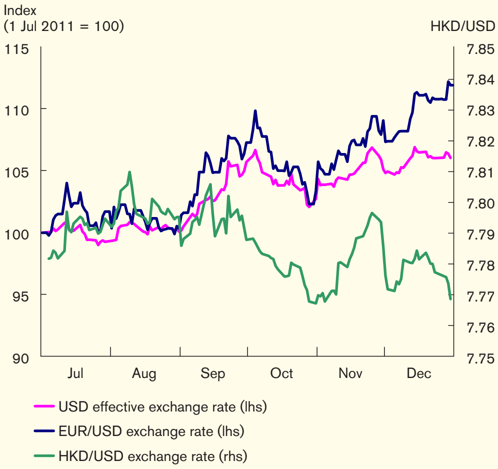
Note: A positive change in the net foreign currency assets of AIs signals inflows.

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.

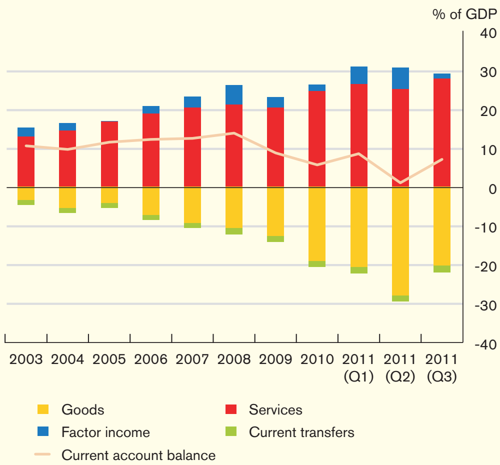
The fluctuations in the Hong Kong dollar demand between October and December were partly driven by risk-on-risk-off sentiments linked to the developments in the euro zone sovereign debt crisis and banks' year-end funding needs. In particular, the Hong Kong dollar spot exchange rate strengthened amid 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.

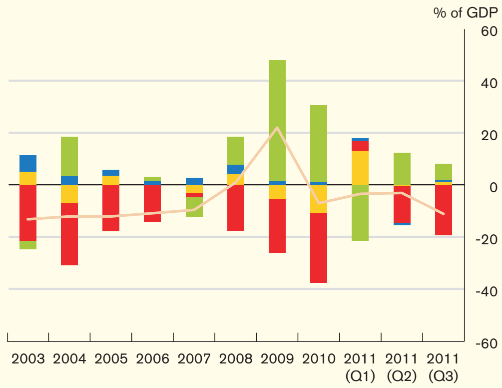
Chart 4.21
Current account surplus



Source: C&SD.

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 4.22
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

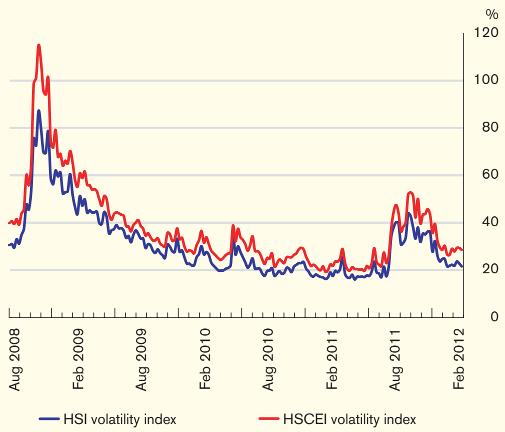
The local equity market experienced a roller coaster ride in the past six months. A sharp sell off at the start of the review period was followed by a rebound as the global outlook improved and risk appetite increased. The Hong Kong dollar debt market expanded mildly, while the offshore renminbi bond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

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.

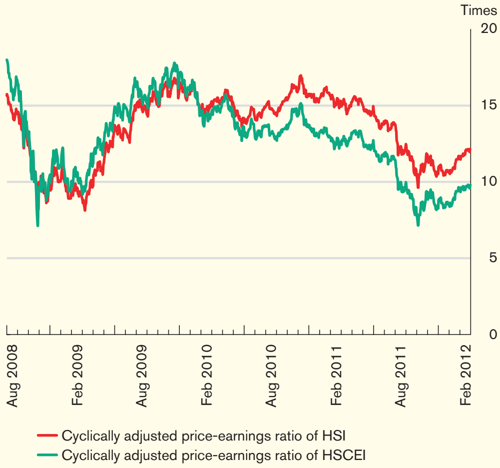
Chart 4.25
Volatility indices of the Hang Seng Index and Hang Seng China Enterprises Index



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

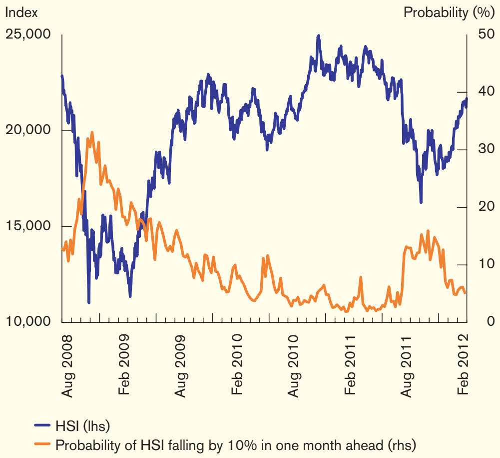
Sources: Bloomberg and HKMA staff estimates.

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

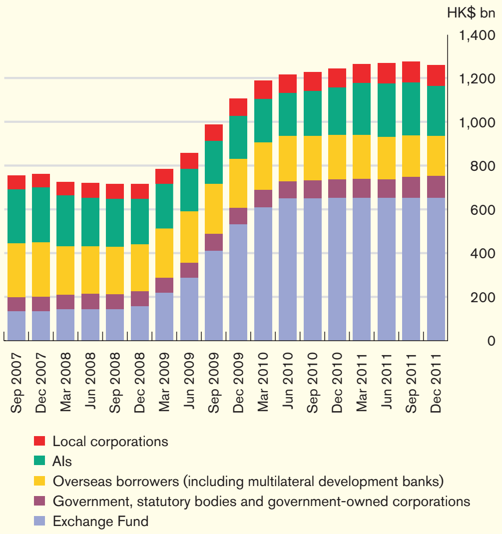


Sources: Bloomberg and HKMA staff estimates.

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.

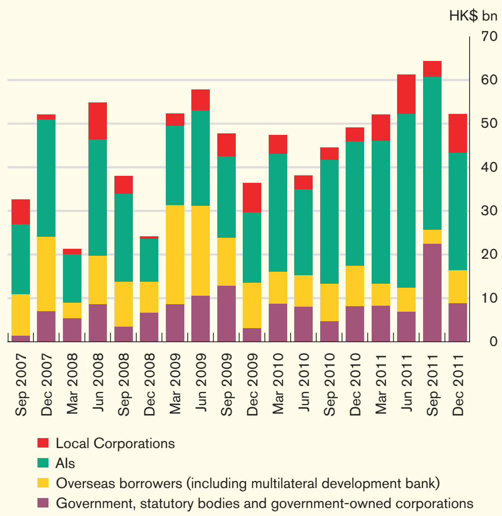
Looking forward, trading is likely to continue to be volatile in view of a more uncertain global market outlook, although the option-implied probability of a sharp fall in the near term has diminished considerably (Chart 4.27). A slowing economy or even a recession in Europe is well expected. The key 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



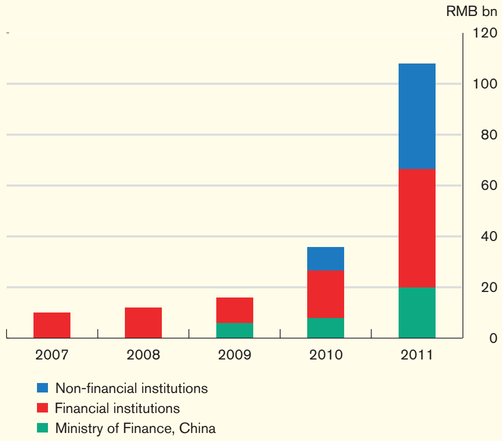
Source: HKMA.

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.

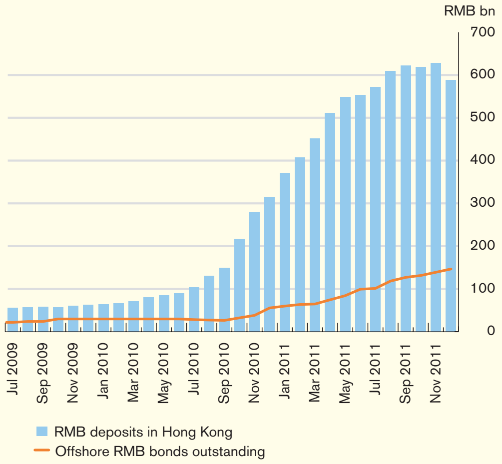
New debt issuance rose 2.9% year on year to $2,071.3 billion in 2011. The Exchange Fund and AIs provided the main growth driver, issuing HK$24.6 billion and HK$22.0 billion more debt respectively last year. These represented a combined contribution of 2.3 percentage points to the increase in total issuance. 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



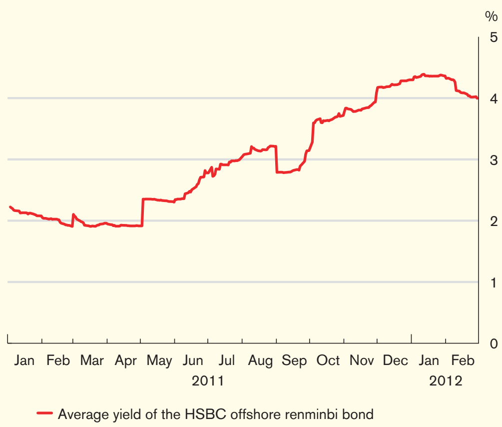
Source: Newswires and HKMA staff estimates.

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.

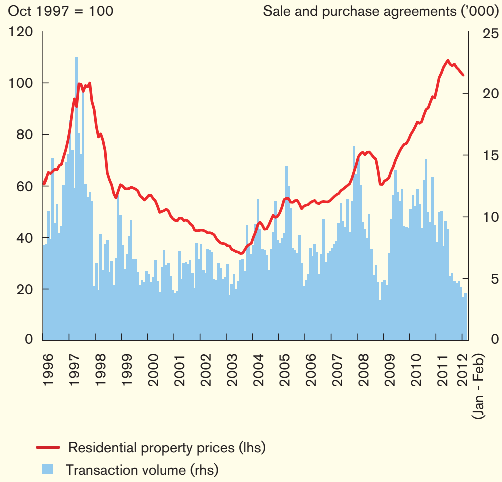
This year will likely see steady growth in the offshore renminbi bond market. On the demand side, the opening up of the renminbi financial asset market to foreign and Hong Kong investors is still at an early stage and it will take some time for the current amount of holdings to reach the optimal level. 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

Residential property market

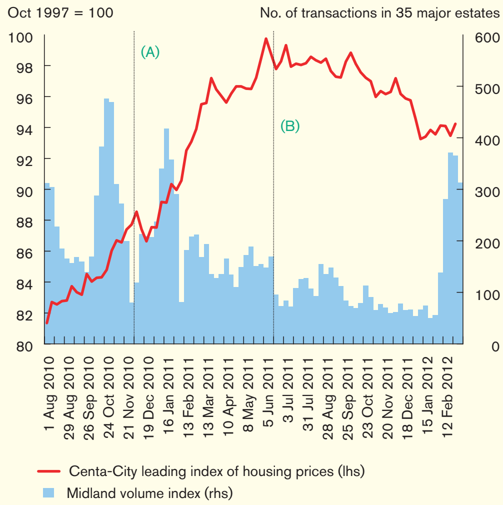
The residential property market has cooled down since mid-2011, reflecting the combined impact of stabilising policy measures, tighter credit conditions, weaker market sentiment and rising economic uncertainties. Property trading shrank by around 50%, with only about 4,900 sale and purchase agreements 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

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.

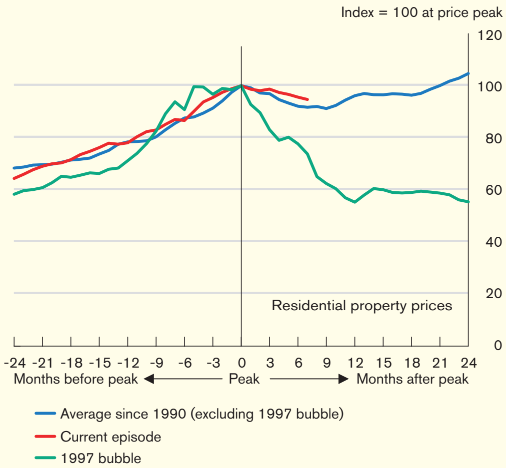
Table 4.C
Property cycle chronology

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.

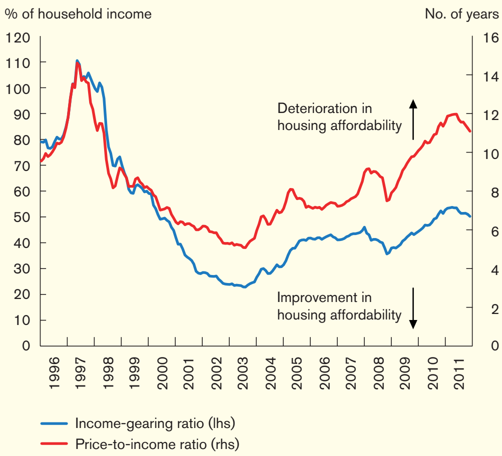
relatively shallow (with an average decline of 13%) and brief (with an average duration of 11 months) (Table 4.C and Chart 4.35).

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.

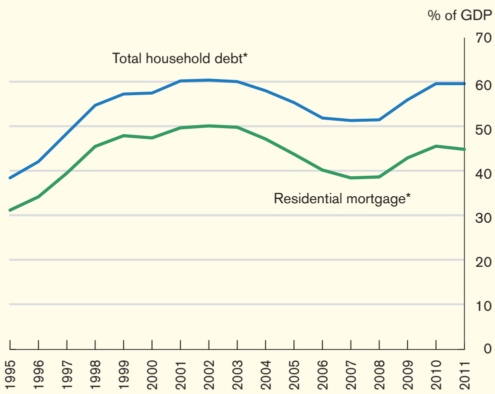
[28] The price-to-income ratio and the income-gearing ratio (to be discussed) are calculated based on the average price of a typical 50m^2 flat and the median pre-tax income of households living in private housing. The corresponding ratios for the luxury segment were higher. They are calculated based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



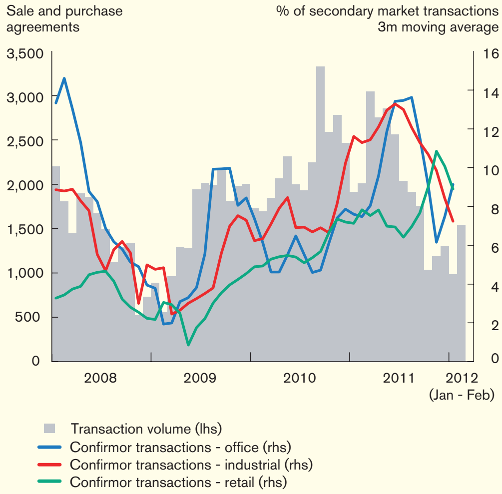
* Non-bank lending to the household sector is not covered in the statistics.

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.

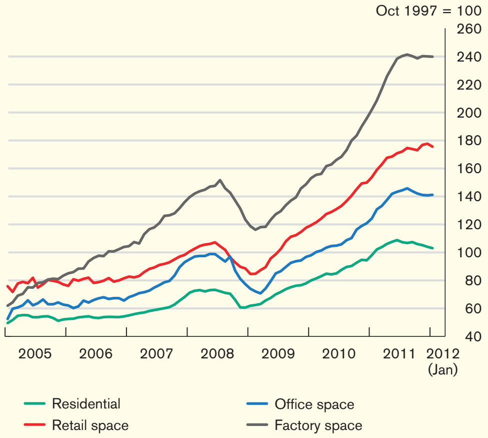
Considering the prevailing state of the market and the balance of risks ahead, the HKMA is maintaining its current prudential requirements on mortgage lending. Continued restraint on the build-up of leverage in the system could guard against a possible return in overheating pressures in the property 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.

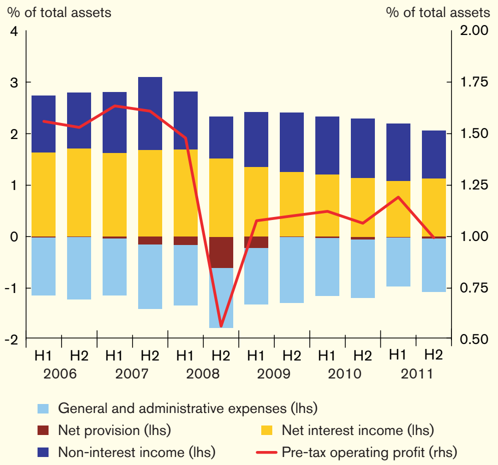
Commercial and industrial property markets

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.

5. Banking sector performance

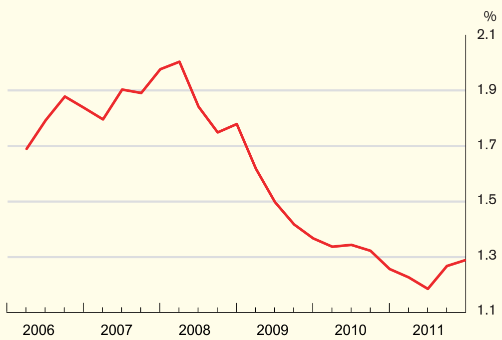
The banking sector remained robust in the second half, despite the continuing European sovereign debt crisis. Liquidity tightened somewhat during the review period. Although lately it appears to have eased slightly, given continued external uncertainties and the already high loan-to-deposit ratios, domestic liquidity conditions need to be closely monitored. Looking ahead, the domestic banking environment will likely continue to be affected by the European debt problem. Continued vigilance is warranted regarding possible spill-over effects of the debt crisis on the global banking system and the risk of a sudden outflow of funds.

Chart 5.1
Profitability of retail banks



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

Chart 5.2
Net interest margin of retail banks



Note: Quarterly annualised figures.
Source: HKMA.

5.1 Profitability and capitalisation

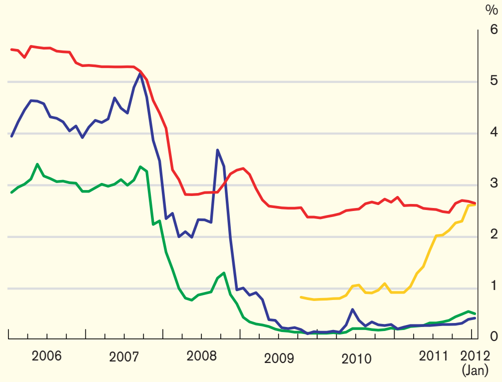
Profitability

Despite the weak global environment, retail banks[29] sustained a steady level of revenues in the second half, decreasing by only 0.5% from the first half (Chart 5.1). However, their aggregate pre-tax profits fell by 13.7%. While net interest income increased significantly by 9.3%, the gain was offset by lower non-interest income and higher operating costs. As a result, the return on assets edged down to 1% in the second half, from 1.2% in the first half.

The net interest margin (NIM) of banks improved further in the second half to average 1.28% (Chart 5.2), from 1.21% in H1, partly reflecting banks' move to raise their HIBOR-based mortgage interest rates. It is noteworthy that some banks have recently moved to reverse their previous raising of mortgage interest rates due to intense competition. How this may affect the NIM is yet to be seen.

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

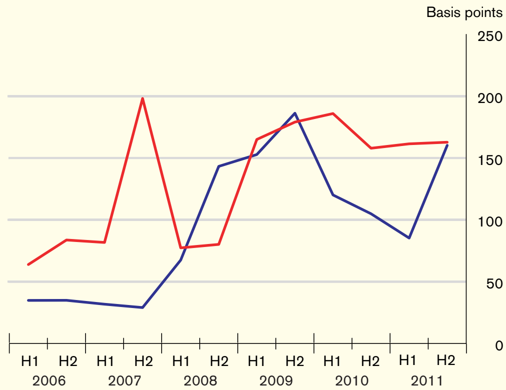
Chart 5.3
Interest rates



Notes:
(a) End of period figures.
(b) Period-average figures for approved loans.

Sources: HKMA and HKMA staff estimates.

Chart 5.4
Average pricing of syndicated loans



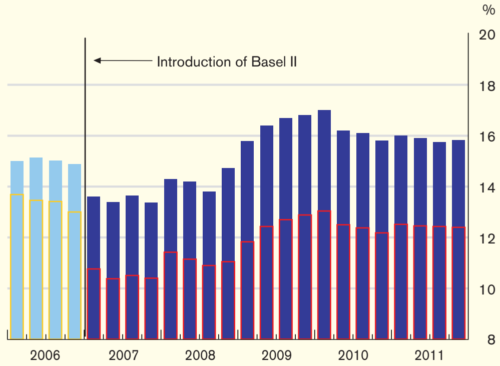
Note: The average pricing of syndicated loans is weighted by the loan amounts and it refers to the spread over the reference rate.

Source: HKMA staff estimates based on data from Bloomberg.

The average mortgage rate for HIBOR-based mortgages picked up significantly in the second half to almost match the rate for BLR-based mortgages (Chart 5.3). The share of BLR-based mortgages in newly approved mortgage loans increased to 59.7% in the second half and 93.6% in January 2012, compared with 9.9% in H1.

The composite interest rate, which reflects the average cost of funds of banks, increased since the second half by 18 basis points to 0.49% at the end of January 2012. The average pricing of syndicated loans also rose (Chart 5.4), with prices for Hong Kong dollar loans rising to 160 basis points above the reference rate in the second half, from 85 basis points in H1. These trends suggest that domestic liquidity tightened somewhat during the review period.

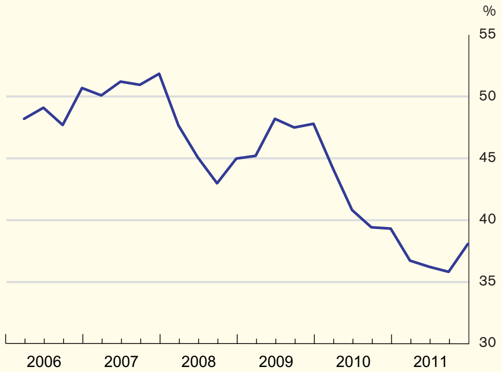
Chart 5.5
Capitalisation of locally incorporated AIs



Notes:
1. Consolidated positions.
2. With effect from 1 January 2007, a revised capital adequacy framework (Basel II) was introduced for locally incorporated AIs. The capital adequacy ratios from March 2007 onwards are therefore not directly comparable with those up to December 2006.

Source: HKMA.

Chart 5.6
Liquidity ratio of retail banks



Note: Quarterly average figures.
Source: HKMA.

Capitalisation

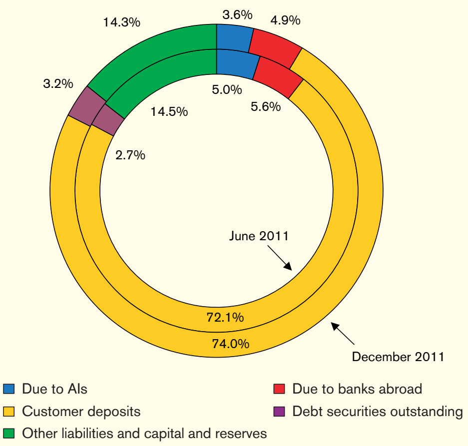
Capitalisation of the banking sector remained well above minimum international standards. The consolidated capital adequacy ratio of locally incorporated AIs was steady at 15.8% at the end of December, down marginally from 15.9% at the end of June 2011 (Chart 5.5), and the tier-one capital adequacy ratio (the ratio of tier-one capital to total risk-weighted assets) decreased slightly to 12.4%, from 12.5%.

The HKMA has started consulting the banking industry on the implementation of the new Basel III framework in Hong Kong. Given that banks in Hong Kong are well capitalised, traditionally placing significant reliance on common equity to meet their regulatory capital requirements, and that most of the Basel III regulatory adjustments are already required to be deducted from banks' capital base under Hong Kong's existing capital rules, Hong Kong banks should have little difficulty in meeting the higher capital requirements.

5.2 Liquidity and funding

Liquidity conditions of the banking system remained sound, with the average liquidity ratio rising slightly, having declined continuously since 2010 Q1. For retail banks, the ratio edged up to 38% in 2011 Q4, from 36.2% in 2011 Q2 (Chart 5.6), remaining well above the regulatory minimum of 25%.

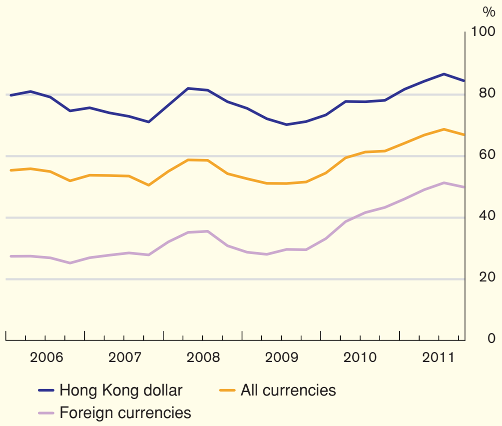
Chart 5.7
Liabilities structure of retail banks



Notes:
1. Figures refer to the percentage of total liabilities (including capital and reserves).
2. Debt securities comprise negotiable certificates of deposit and all other negotiable debt instruments.

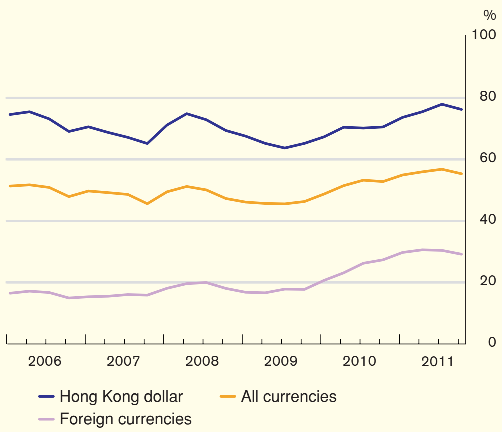
Source: HKMA.

Chart 5.8
Loan-to-deposit ratios of all AIs



Source: HKMA.

Chart 5.9
Loan-to-deposit ratios of retail banks



Source: HKMA.

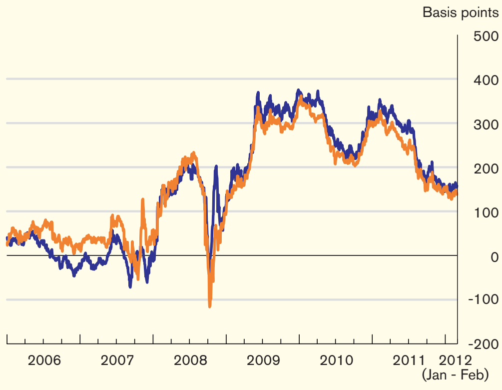
Customer deposits continued to be the primary funding source for retail banks. At the end of December, the share of customer deposits to banks' total liabilities rose to 74% from 72.1% at the end of June (Chart 5.7). As banks moved to offer higher interest rates to attract longer-term deposits in the second half, the share of time deposits to total customer deposits rose further from 41.2% at the end of June to 43.3% at the end of December. However, it remained significantly lower than the corresponding share of over 50% in 2008 and in years prior to that. This suggests the average maturity of deposits in retail banks may be relatively lower than in previous periods and hence their liquidity could be potentially affected more by the impact of capital outflows.

The Hong Kong dollar loan-to-deposit ratio stayed relatively high at 84.5% at the end of December, compared with 84.2% at the end of June (Chart 5.8). And the all currency loan-to-deposit ratio stood at 66.9% at the end of December, compared with 66.6% at the end of June. For retail banks, the Hong Kong dollar and all currency loan-to-deposit ratios also stayed at relatively high levels of 76.2% and 55.3% respectively at the end of December (Chart 5.9). Since early 2011, domestic liquidity conditions have shifted from a previously abundant level to a somewhat tighter level. Although lately local liquidity appears to have eased slightly, domestic liquidity conditions need to be closely monitored, given continued uncertainties in the external environment and the already high loan-to-deposit ratios.

Foreign currency position

The banking sector's capability to repay liabilities denominated in foreign currencies can be assessed by reference to the aggregate net open position of AIs for all foreign currencies. This position amounted to HK$24 billion at the end of December 2011, which was equivalent to 0.2% of total assets of AIs, suggesting that the overall exposure of AIs to foreign exchange risks may not be of significant concern.

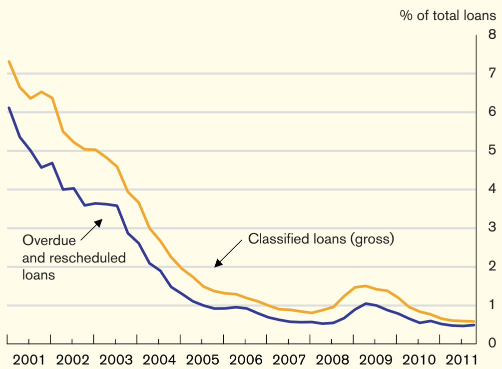
Chart 5.10
Term spreads of Hong Kong and US dollars



Note: Term spreads are defined as 10-year swap rates minus three-month money market rates of the respective currencies.

Source: HKMA staff estimates based on data from Bloomberg.

Chart 5.11
Asset quality of retail banks



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

Source: HKMA.

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

(% of total respondents)	Mar 2011	Jun 2011	Sep 2011	Dec 2011
Considerably higher	0	0	0	0
Somewhat higher	62	38	14	19
Same	33	52	62	67
Somewhat lower	0	5	19	10
Considerably lower	5	5	5	5

Source: HKMA.

5.3 Interest rate risk

High spreads between the long- and short-term interest rates for the US dollar and Hong Kong dollar (Charts 5.10) are potential sources of interest rate risk to the banking system, since banks may be tempted to take higher interest rate risk by borrowing short-term funds to purchase long-term interest-bearing assets. A low interest rate environment makes these search-for-yield activities more appealing, potentially resulting in greater maturity mismatches and increased interest rate risk.

Although the spreads decreased somewhat during the review period, they remained well above the levels prevailing prior to the global financial crisis. Banks should be vigilant in monitoring and managing the potential mark-to-market loss for their financial investments, which could arise from changes in the yield spreads.

5.4 Credit risk

The asset quality of retail banks' loan portfolios remained steady, with the classified loan ratio falling to 0.59% at the end of December from 0.61% at the end of June 2011 and the ratio of overdue and rescheduled loans edging up to 0.49% from 0.48% (Chart 5.11).

The pace of credit growth moderated further in 2011 Q4 to 1% from a 4.4% increase in the previous quarter. Of the total, property-related lending[30] grew by 0.2%, following a 2.2% increase, and its share to total domestic lending remained high at over 47%. The slowdown in credit expansion partly reflected efforts by the HKMA urging banks to exercise restraint in their lending to ensure they have sufficient stable funding to support their loan growth.

Credit may continue to grow at a slow pace, according to the results of the HKMA Opinion Survey on Credit Condition Outlook in December. The results suggest that a majority of surveyed AIs expect domestic loan demand to remain the same in the next three months (Table 5.A).

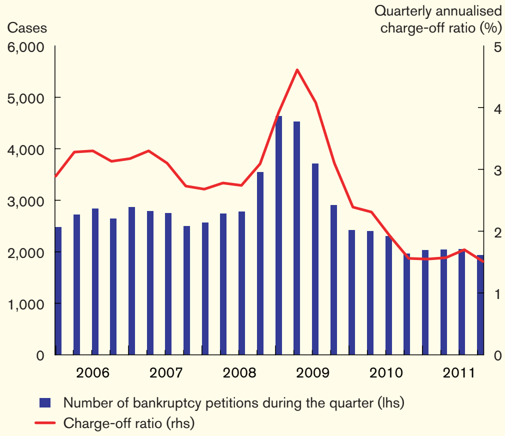
[30] Property lending includes mortgage loans and credit for building, construction, property development and investment.

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

(%)	2009		2010		2011	
	H1	H2	H1	H2	H1	H2
Mortgages	1.7	5.6	5.1	8.6	5.5	1.2
Credit cards	-9.6	5.7	-0.9	17.9	-1.4	15.9
Other loans for private purposes	-8.1	8.9	7.9	6.6	9.4	3.8
Total loans to households	-0.8	6.1	5.1	8.9	5.6	2.7

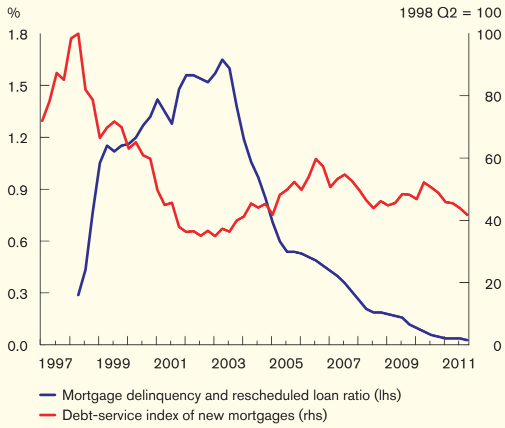
Source: HKMA.

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



Sources: Official Receiver's Office and HKMA.

Chart 5.13
Delinquency ratio of banks' mortgage portfolios and household debt-service burden of new mortgages



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

Household exposure

The growth of household loans[31] slowed further to 2.7% in the second half, from 5.6% in H1. The moderation in growth was primarily attributable to the slowdown in mortgage lending, resulting partly from the move by banks to raise mortgage lending rates and partly from the prudential measures introduced by the HKMA to tighten underwriting standards.[32] Other types of household lending registered a mixed performance. Credit card lending increased by 15.9% in the second half, after a 1.4% decline in H1, while the growth of other loans for private purposes slowed to 3.8% after a 9.4% growth (Table 5.B). In line with the recent slowdown in household loans, the level of household debt leverage, as measured by the ratio of household loans to GDP, edged down to 59.7% at the end of December, from 60.4% at the end of June.

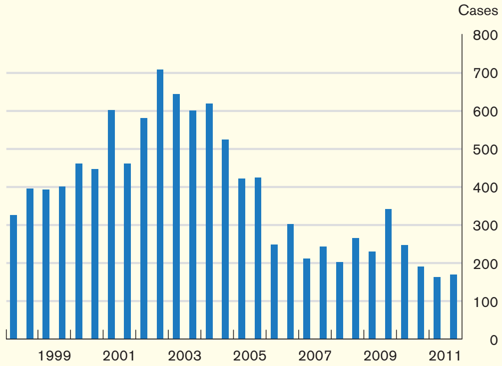
The credit risk of unsecured household loans continued to be well-contained, with the quarterly annualised charge-off ratio for credit card lending improving to 1.51% in 2011 Q4, from 1.57% in Q2 (Chart 5.12). The number of bankruptcy petitions decreased by 2.3% in the second half, having reduced by 4.3% in H1.

Various other indicators also suggest a moderate improvement in the credit risk of household loans. The delinquency and rescheduled loan ratio of banks' mortgage portfolios fell further to a record low of 0.03% at the end of December (Chart 5.13), and the debt-service index of new mortgages declined to 42 in 2011 Q4 from 46 in Q2. The improvement in the debt-service index mainly reflected a reduction in the size of the average mortgage loan. However, with the average contractual life of new mortgage loans at a high level of 284 months,

[31] Loans to households constitute lending to professional and private individuals, excluding those for business purposes. Mortgage lending accounts for a major proportion of household loans, while the remainder comprises mainly unsecured lending through credit card lending and other personal loans for private purposes. At the end of December, the share of household lending in domestic lending was 30.4%.

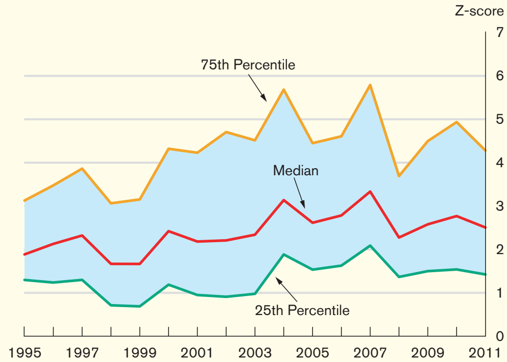
[32] The HKMA introduced additional prudential measures for property mortgage loans on 10 June 2011 requiring banks to further tighten underwriting standards for mortgage lending, subsequent to earlier measures implemented on 19 November 2010, 13 August 2010 and 23 October 2009. For details, see relevant press releases and circulars, which are available on the HKMA website.

Chart 5.14
Number of winding-up orders of companies



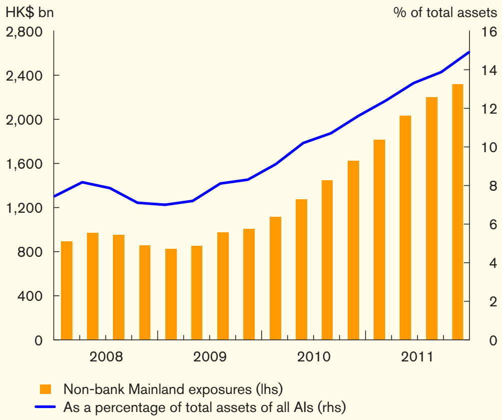
Source: Official Receiver's Office.

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



Note: A lower Z-score indicates a higher likelihood of default.
Source: HKMA staff estimates based on data from Bloomberg.

Chart 5.16
Non-bank Mainland exposures of all AIs



Note: Figures include exposures booked in AIs' banking subsidiaries in Mainland China.
Source: HKMA.

the monthly repayments of these long tenor mortgage loans have become increasingly sensitive to a rise in interest rates. Mortgage rates have been on a moderate upward trend recently, and how this may impact on the debt-service burden of households should be closely watched.

Corporate exposure[33]

The growth of domestic loans to corporations[34] moderated in the second half to only 1.6%, after a 14.6% increase in H1. At the end of December, corporate loans accounted for 69.3% of domestic lending.

A number of indicators suggest a slight deterioration in the credit risk for banks' corporate lending. The number of compulsory winding-up orders of companies increased slightly to 170 in the second half, representing a 4.3% increase over the preceding six-month period (Chart 5.14). The Altman's Z-score[35], a credit risk measure based on accounting data, edged down slightly, indicating a mild deterioration in the financial health of the non-financial corporate sector (Chart 5.15).

Mainland exposure

The banking sector increased its credit exposure to Mainland-related business during the review period. The total non-bank Mainland exposure of all AIs rose to HK$2,318 billion (14.9 % of total assets) at the end of December, from HK$2,030 billion (13.3% of total assets) at the end of June (Chart 5.16). Of this, retail banks' non-bank Mainland exposure[36] increased to HK$1,573 billion (15.8% of total assets) from HK$1,427 billion (14.5% of total assets).

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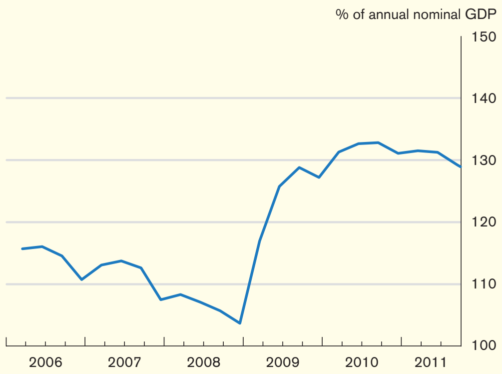
33 Excluding interbank exposures.

34 Loans to corporations comprise domestic lending except lending to professional and private individuals.

35 Altman's Z-score is a credit risk measure based on accounting data. It is a typical credit risk measure to assess the health of the corporate sector based on an array of financial ratios reported in companies' financial statements. The accounting ratios used to derive the Z-score are working capital/total assets, retained earnings/total assets, earnings before interest and taxes/total assets, market value of equity/book value of total liabilities, and sales/total assets.

36 Including exposures booked in retail banks' banking subsidiaries in Mainland China.

Chart 5.17
Credit-to-GDP ratio in Mainland China



Note: Credit-to-GDP ratio is defined as the ratio of claims on private sector to the sum of quarterly nominal GDP for the latest four quarters.

Sources: IMF International Financial Statistics and CEIC.

Chart 5.18
Distance-to-default index for the Mainland corporate sector

Note: Distance-to-default index is defined as the simple average of the distance-to-default values of non-financial constituent companies (i.e. excluding investment companies and those engaged in banking, insurance and finance) of the Shanghai Stock Exchange 180 A-share index.

Source: HKMA staff estimates.

The performance of Hong Kong banks will continue to be influenced by macroeconomic developments in Mainland China. While the credit-to-GDP ratio on the Mainland improved slightly to 127% at the end of December 2011, from 131% at the end of June, it remained significantly higher than the more normal level prevailing before the surge in credit expansion at the end of 2008 (Chart 5.17). Although market-based indicators continued to suggest stable credit risk in respect of the corporate sector on the Mainland, with the aggregate distance-to-default index[37] staying at a significantly more favourable level than prior to the global financial crisis (Chart 5.18), banks should remain vigilant about credit risk management.

Impact of the European sovereign debt crisis

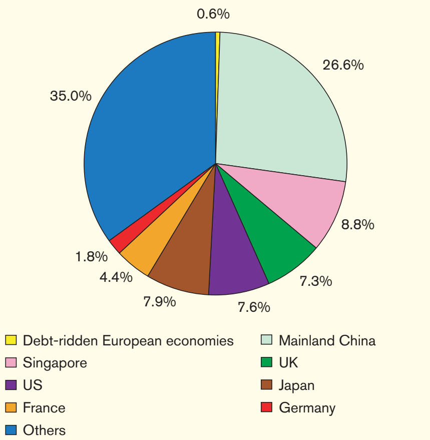
While the support measures[38] introduced by policy makers have significantly reduced the risk of a major liquidity crisis in the near term, the deep-rooted structural problems remain unsolved. The ECB has identified several potential factors that may trigger further contagion risk. In particular, any political uncertainties in vulnerable countries, combined with fiscal consolidation lagging behind EU recommendations and programme plans, have been regarded as the most important factor.[39]

[37] The distance-to-default is a market-based default risk indicator based on the framework by R. Merton (1974), "On the pricing of corporate debt: the risk structure of interest rates", *Journal of Finance*, Vol. 29, pages 449 - 470, in which equity prices, equity volatility, and companies' financial liabilities are the determinants of default risk. In essence, it measures the difference between the asset value of a firm and a default threshold in terms of the firm's asset volatility.

[38] For details, please refer to Section 2.2 of the Report.

[39] Other factors include: (1) negative news on euro area banks' profitability and solvency; (2) any further deterioration of the credit ratings of euro area sovereigns and banks, or from the activation of higher margin calls or collateral requirements; (3) the potential for any lingering uncertainties about details relating to private sector involvement in Greek sovereign bonds; and (4) implementation risk for the new fiscal compact and the effective size of the European Financial Stability Facility. For details, see *Financial Stability Review*, published by the ECB on December 2011.

Chart 5.19
External claims of the Hong Kong banking sector on major economies (all sectors) at the end of December 2011



Source: HKMA.

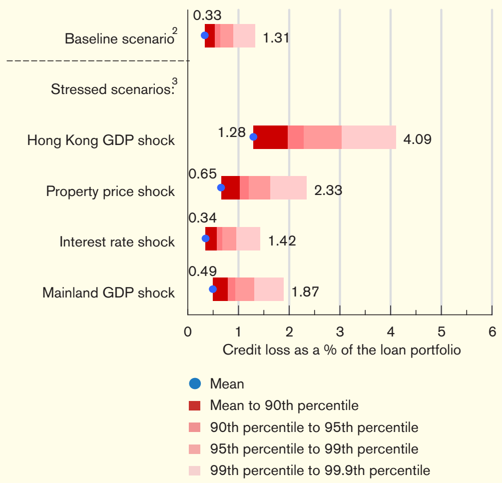
Given that the exposure of the Hong Kong banking sector to banks in the UK, France and Germany is not immaterial (Chart 5.19), and these banks in turn have significant exposures to the debt-ridden European economies, the possible contagion risk and its implications for banks in Hong Kong merit close attention.

The UK Independent Commission on Banking recently proposed a ring-fencing reform to improve stability of the UK banking system.[40] The proposal, if adopted, would lead to higher credit risk in respect of interbank lending from Hong Kong to the UK, as the UK Government will cease providing guarantees. The reform would reinforce the existing pattern that interbank lending from Hong Kong plays a minor role in funding UK banks in normal times, but a much stronger role in times of stress. Given the large presence of UK-incorporated banks in Hong Kong, if the proposal is adopted, vigilance would be required for any sharp increase in interbank lending from Hong Kong to the UK due to heightened uncertainties in Europe.

Box 4 shows that if a euro zone crisis-led recession occurred in Hong Kong, it would inevitably lead to higher credit losses for local banks. In addition, the de-leveraging pressures for European banks would affect the availability of local credit. While results of the stress tests show that the loan loss severity, even in extreme cases, would remain much lower than the actual loss registered after the Asian financial crisis, and the impact on liquidity would be significantly less severe than what occurred during the global financial crisis of 2008-09, continued vigilance is required about possible spill-over effects of the debt crisis on the global banking system and the risk of a sudden outflow of funds.

[40] For details, see *Final Report* published by the UK Independent Commission on Banking on 12 September 2011.

Chart 5.20
The mean and value-at-risk statistics of simulated credit loss distributions[1]



Notes:
1. The assessments assume the economic conditions in 2011 Q4 as the current environment. The Monte Carlo simulation method is adopted to generate the credit loss distribution for each scenario.
2. Baseline scenario: no shock throughout the two-year period.
3. Stressed scenarios:
   Hong Kong GDP shock: reductions in Hong Kong's real GDP by 2.3%, 2.8%, 1.6%, and 1.5% respectively in each of the four consecutive quarters starting from 2012 Q1 to 2012 Q4.
   Property price shock: Reductions in Hong Kong's real property prices by 4.4%, 14.5%, 10.8%, and 16.9% respectively in each of the four consecutive quarters starting from 2012 Q1 to 2012 Q4.
   Interest rate shock: A rise in real interest rates (HIBORs) by 300 basis points in the first quarter (i.e. 2012 Q1), followed by no change in the second and third quarters and another rise of 300 basis points in the fourth quarter (i.e. 2012 Q4).
   Mainland GDP shock: Slowdown in the year-on-year annual real GDP growth rate to 4% in one year.

Source: HKMA staff estimates.

Macro stress testing of credit risk [41 & 42]

Results of the latest macro stress testing on retail banks' credit exposure suggest that the Hong Kong banking sector remains resilient and should be able to withstand rather severe macroeconomic shocks, similar to those during the Asian financial crisis.

Chart 5.20 presents the simulated future credit loss rate of retail banks in 2013 Q4 under four specific macroeconomic shocks[43] using information up to 2011 Q4.

The expected credit losses for retail banks' aggregate loan portfolios two years after the different hypothetical macroeconomic shocks are estimated to be moderate, ranging from 0.34% (interest rate shock) to 1.28% (Hong Kong GDP shock).

Taking account of tail risk, banks' maximum credit losses (at the confidence level of 99.9%) under the stress scenarios range from 1.42% (interest rate shock) to 4.09% (Hong Kong GDP shock), which are significant, but smaller than the loan loss of 4.39% following the Asian financial crisis.[44]

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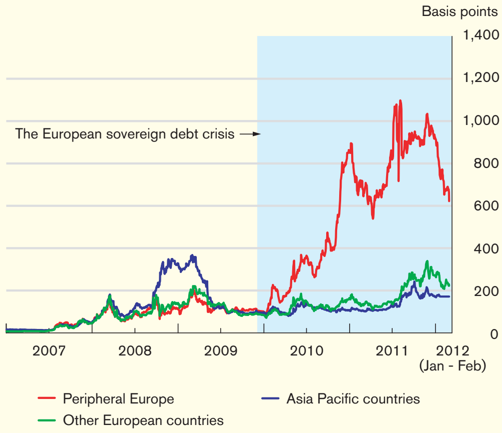
41 Macro stress testing refers to a range of techniques used to assess the vulnerability of a financial system to "exceptional but plausible" macroeconomic shocks. Details of the model adopted in this exercise can be found in J. Wong et al. (2006), "A framework for stress testing banks' credit risk", *Journal of Risk Model Validation*, Vol. 2(1), pages 3 - 23. An updated framework is used for the current estimations.

42 All estimates of credit loss for the overall loan portfolio of Hong Kong banks presented in this Report are based on a revised stress testing framework. They are not strictly comparable to those estimates from the past framework that appeared in previous Reports prior to the September 2011 issue due mainly to different definitions of credit losses in these two frameworks. Specifically, credit losses in two years after any shock under the revised framework are measured by the estimated specific provision ratio at the end of the second year plus 50% of the estimated specific provision ratio at the end of the first year after the shock, while credit loss estimates from the past framework are derived based on an estimated delinquency ratio at the end of the second year multiplied by a loss-given-default estimate, which is determined by the simulated property price change over the two-year horizon.

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

44 The credit loss to banks two years after the Asian financial crisis was estimated to be about 4.39%.

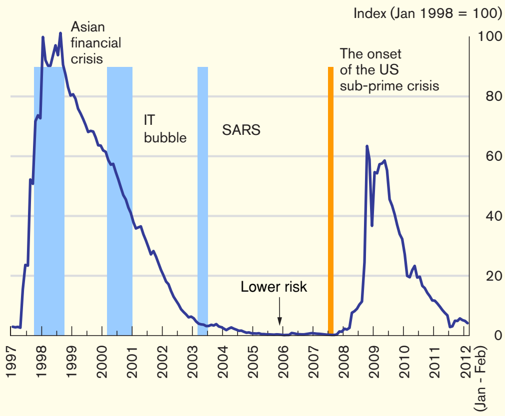
Chart 5.21
Credit default swap spreads of banks in Europe and Asia



Notes:
1. Median of 5-year CDS spreads of the respective groups
2. Peripheral Europe includes Greece, Ireland, Italy, Portugal and Spain.

Source: Bloomberg.

Chart 5.22
The banking distress index



Source: HKMA staff estimates based on data from Bloomberg.

5.5 Systemic risk to the banking system

While the CDS spreads for European banks remained large, as the European sovereign debt crisis dragged on, the corresponding spreads for Asian banks stayed relatively small (Chart 5.21), suggesting the systemic risk to the banking sectors in Asia, so far, has not been severely affected.

In Hong Kong, the banking distress index, a market-based systemic risk indicator for the local banking sector, increased slightly to 4.1 in February from 3.1 in August 2011 (Chart 5.22). However, the risk of contagion in the banking system remained low and the probability of an occurrence of multiple bank defaults is small. This optimistic market view was broadly consistent with the latest assessment result of the composite early warning system.[45] The estimated banking distress probability remained within the range of the low fragility category, indicating the banking sector remained stable and resilient.[46]

The domestic banking environment will continue to be affected by the European debt problem. Continued vigilance is warranted regarding possible spill-over effects of the debt crisis on the global banking system and the risk of a sudden outflow of funds.

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

[45] The composite early warning system is capable of estimating banking distress probability based on 10 leading indicators. These include macroeconomic fundamentals, currency crisis vulnerability, default risk of banks and non-financial companies, asset price misalignments, credit growth, and the occurrence of banking distress in other Asia-Pacific economies. For details, see J. Wong et al. (2010), "Predicting banking distress in the EMEAP economies", *Journal of Financial Stability*, Vol. 6(3), pages 169 - 179.

[46] The composite early warning system is a four-level risk rating system. A. Demirgüc-Kunt and E. Detragiache (2000), "Monitoring Banking Sector Fragility: A Multivariate Logit Approach", *World Bank Economic Review*, Vol. 14(2), pages 287 - 307, has been followed in the selection of the upper bounds of each of the four fragility classes so that type I error associated with the bounds are 10%, 30%, 50% and 100% respectively.

Table 5.C
Key performance indicators of the banking sector[1] (%)

	Dec 2010	Sep 2011	Dec 2011
Interest rate			
1-month HIBOR[2] (quarterly average)	0.22	0.21	0.24
3-month HIBOR (quarterly average)	0.29	0.27	0.31
BLR[3] and 1-month HIBOR spread (quarterly average)	4.78	4.79	4.76
BLR and 3-month HIBOR spread (quarterly average)	4.71	4.73	4.69
Composite interest rate[4]	0.21	0.36	0.53
		Retail banks	
Balance sheet developments[5]			
Total deposits	1.9	1.0	2.9
Hong Kong dollar	-2.2	-0.8	3.0
Foreign currency	8.4	3.3	2.8
Total loans	1.1	2.5	0.3
Domestic Lending[6]	-1.2 r	1.5 r	-1.3
Loans for use outside Hong Kong[7]	18.8 r	8.5 r	9.5
Negotiable instruments			
Negotiable certificates of deposit (NCD) issued	28.5	19.7	5.6
Negotiable debt instruments held (excluding NCD)	0.0	-0.2	2.3
Asset quality[8]			
As percentage of total loans			
Pass loans	97.95	98.21	98.29
Special mention loans	1.28	1.19	1.12
Classified loans[9] (gross)	0.77	0.60	0.59
Classified loans (net)[10]	0.45	0.35	0.35
Overdue > 3 months and rescheduled loans	0.60	0.47	0.49
Profitability			
Bad debt charge as percentage of average total assets[11]	0.03	0.03	0.03
Net interest margin[11]	1.32	1.23	1.25
Cost-to-income ratio[12]	49.9	45.9	46.8
Liquidity ratio (quarterly average)	39.3	35.8	38.0
		Surveyed institutions	
Asset quality			
Delinquency ratio of residential mortgage loans	0.01	0.01	0.01
Credit card lending			
Delinquency ratio	0.20	0.18	0.19
Charge-off ratio — quarterly annualised	1.56	1.70	1.51
— year-to-date annualised	1.91	1.56	1.49
		All locally incorporated AIs	
Capital adequacy ratio (consolidated)	15.8 r	15.7	15.8

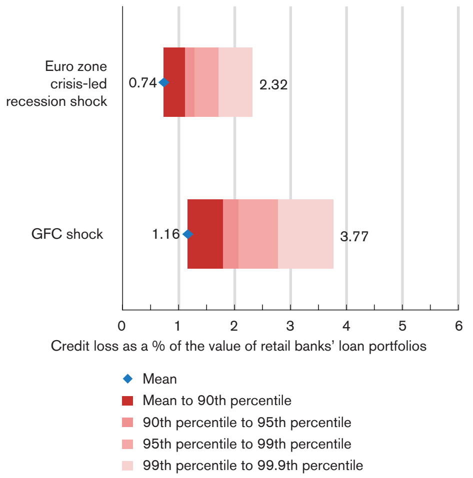
Notes:

1. Figures are related to Hong Kong office(s) only except where otherwise stated.
2. With reference to the Hong Kong dollar Interest Settlement Rates released by the Hong Kong Association of Banks.
3. With reference to the rate quoted by The Hongkong and Shanghai Banking Corporation Limited.
4. The composite interest rate is a weighted average interest rate of all Hong Kong dollar interest-bearing liabilities, which include deposits from customers, amounts due to banks, negotiable certificates of deposit and other debt instruments, and Hong Kong dollar non-interest-bearing demand deposits on the books of banks. Further details can be found in the HKMA website.
5. Quarterly change.
6. Loans for use in Hong Kong plus trade finance.
7. Includes "others" (i.e. unallocated).
8. Figures are related to retail banks' Hong Kong office(s) and overseas branches.
9. Classified loans are those loans graded as "substandard", "doubtful" or "loss".
10. Net of specific provisions/individual impairment allowances.
11. Year-to-date annualised.
12. Year-to-date figures.

r Revised figure.

Box 4
A stress-testing analysis of the impact of the European sovereign debt crisis on the Hong Kong banking sector

Chart B4.1
Simulated credit loss distribution of the Hong Kong banking sector



Notes:
1. The assessment assumes the economic conditions in 2011 Q4 as the current environment. The Monte Carlo simulation method is adopted to generate the credit loss distribution for each scenario.
2. **Euro zone crisis-led recession scenario**: the annual growth rate of Hong Kong's real GDP in 2012 falls by 4.5 percentage points below a baseline scenario.
3. **GFC scenario**: quarter-on-quarter growth rate of Hong Kong's quarterly real GDP is assumed to be -1.0%, -1.1%, -2.2%, and -3.5% respectively in each of the four consecutive quarters starting from 2012 Q1.

Source: HKMA staff estimates.

Recent increases in the pressure for European banks to de-leverage may signal that the unresolved European sovereign debt crisis has already threatened the loan supply of the European banking sector. This development points to weaker growth prospects for the euro area, raising concerns about the spill-over effect on the global economy. The large presence of European banks in Hong Kong also suggests that significant de-leveraging on their part could affect credit availability and fund flows within the Hong Kong banking sector. This box examines the implications for the credit and funding risks of banks in Hong Kong using stress testing analysis.

Macro stress-testing of credit risk

The major channel through which the credit risk of the Hong Kong banking sector may be affected by the European sovereign debt problem is through its impact on Hong Kong's economic growth. A recent analysis by the International Monetary Fund considered a hypothetical euro zone crisis-led recession scenario.[47] Here, we draw on the scenario specification from the IMF analysis by assuming that the annual growth rate of Hong Kong's real GDP in 2012 will fall by 4.5 percentage points *below a baseline scenario* as a result of a global economic slowdown. The impact of this stressed scenario in terms of the potential credit loss of the Hong Kong banking sector is then assessed by the macro stress-testing framework[48] using latest information up to the end of 2011. Chart B4.1 presents the simulated credit loss in 2013 Q4 (i.e. two years after the beginning of the shock) for the euro zone crisis-led recession scenario along with an historical stressed scenario, which assumes that the actual four consecutive quarter-on-quarter falls in Hong Kong's real GDP during the 2008-09 global financial crisis (GFC) were to occur from 2012 Q1 to 2012 Q4.

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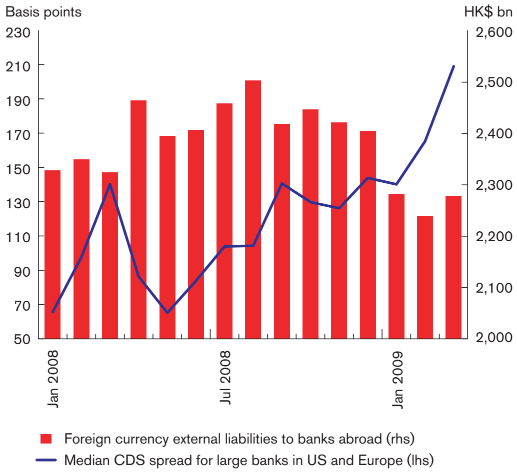
[47] See International Monetary Fund (2011) "People's Republic of China – Hong Kong Special Administrative Region – 2011 Article IV Consultation Discussion".

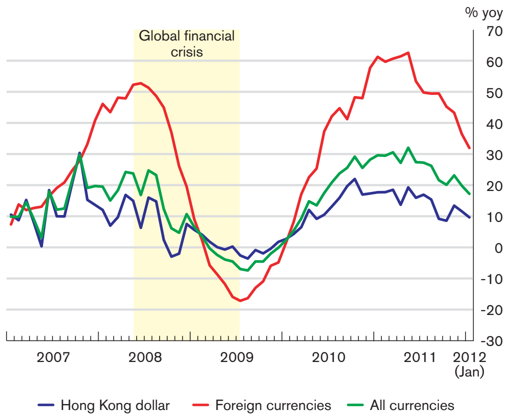
[48] For details, see "Macro stress testing of credit risk" Sub-section of Section 5.4.

Chart B4.2
Hong Kong banking sector's foreign currency external liabilities to banks during the global financial crisis of 2008-09



Note: Locational basis.
Sources: Bloomberg, HKMA and staff estimates.

Chart B4.3
Credit growth of the Hong Kong banking sector during the global financial crisis of 2008-09



Source: HKMA.

Under this scenario, the average credit loss rate of retail banks in Hong Kong would increase to 0.74%. The tail risk, which is proxied by the estimated credit loss rate at the 99.9% confidence level, would be 2.32%, considerably smaller than the estimated impact of the GFC scenario (3.77%) and the actual credit loss rate of 4.39% after the Asian financial crisis.[49] The stress-testing result suggests that the impact of such a recession on the credit risk of the Hong Kong banking sector would be manageable.

An assessment of fund flows and foreign currency lending

One persistent stress factor affecting the European banking sector is the concern about counterparty risk which arises from uncertainty over the potential losses on banks' holdings of problem sovereign debt. Heightened counterparty risk, as evidenced in the GFC, could lead to sharp reductions in the supply of cross-border interbank funds. In fact, Hong Kong's experience during the GFC indicates there were significant withdrawals of foreign currency (FC) funding by distressed banking sectors where banks generally were exposed to significant liquidity risk (Chart B4.2). This partially contributed to an apparent reduction in FC lending growth in Hong Kong (Chart B4.3). The effect on Hong Kong dollar lending, by contrast, was much more moderate, as Hong Kong dollar loans are mainly funded by local retail deposits, which are much more stable.

Based on that experience in the GFC, if European banks were to withdraw their cross-border interbank funds, as a result either of de-leveraging or elevated counterparty risk in the euro area, there may be a significant impact on FC lending in Hong Kong given the large presence of European banks. To estimate the impact, an empirical model is specified to examine the determinants of FC lending of the Hong Kong banking sector. The model is estimated using the Engle-Granger method based on monthly data for the period January 2003 to December 2011. The model suggests that reductions in FC customer deposits and FC interbank borrowing from abroad, lower world GDP growth, increases in FC interbank lending to abroad and narrower FC lending rate spreads between

[49] See footnote 44.

Table B4.A
The determinants of foreign currency lending to non-bank customers

Variables	Estimated results
FC customer deposits	• With regard to supply factors, FC customer deposits are estimated to have long-run and short-run impacts on FC lending. • A 1% decrease in FC customer deposits would reduce FC lending by 0.5% and 2.3% in the short- and long-run respectively.
FC interbank borrowing from abroad	• Apart from customer deposits, FC interbank borrowing from abroad is estimated to be a significant supply factor of FC lending. • A decline in FC interbank borrowing from abroad by 1% would reduce FC lending of the Hong Kong banking sector by 0.2% in the short-run and by 0.6% in the long-run. • The relatively small estimated impact partially reflects diverse business models of foreign banks. In particular, some foreign banks position their Hong Kong offices as a liquidity management centre to allocate intra-group funding rather than a lending arm.
World GDP	• For demand factors, FC lending of the Hong Kong banking sector is found to be positively related to global economic activities (measured by world GDP). • A fall in the world GDP by 1% would reduce FC lending by around 1.8% in the short run.
FC interbank lending to abroad	• FC interbank lending to abroad, a substitute for FC customer lending in banking assets, is estimated to have negative long- and short-run impacts on FC lending. • An increase in FC interbank lending to abroad by 1% would reduce FC customer lending by 0.2% in the short-run and 1.7% in the long-run.
The FC lending rate differential between the Mainland and Hong Kong	• FC lending in Hong Kong is estimated to be partially driven by FC lending rate differentials between the Mainland and Hong Kong. • The lending rate differential, proxied by 1-year US dollar lending rate on the Mainland minus the 1 year US dollar LIBOR, is estimated to have a positive short-run impact on FC loans in Hong Kong. • The estimation result, however, suggests that a reduction in the lending differential by one percentage point would only reduce FC customer lending slightly by around 0.02%.

the Mainland and Hong Kong banking sectors[50], would lead to slower FC lending growth in Hong Kong. Only lagged terms of FC customer deposits, FC interbank borrowing from abroad and FC interbank lending to abroad are considered as explanatory variables in the model so that potential endogeneity problems could be avoided.[51] Table B4.A summarises the estimation result.

A stress-testing exercise is conducted using the estimated model. We specify a hypothetical stressed scenario by assuming that there is a drastic increase in the median credit default swap (CDS) spread for European banks[52], which could be taken to occur as a result of (i) renewed concerns about the potential losses on European banks' holdings of sovereign debt or (ii) the knock-on effect of further sovereign credit rating downgrades for European countries.

In response to the increased difficulty in borrowing external funds due to heightened default risk among European banks, we assume that European banks repatriate their cross-border interbank funds. The extent to which they withdraw their interbank funds from Hong Kong is estimated using a negative empirical relationship between the median CDS spread for international banks and the Hong Kong banking sector's FC external liabilities to banks observed during the GFC[53], with an assumption that the maximum amount

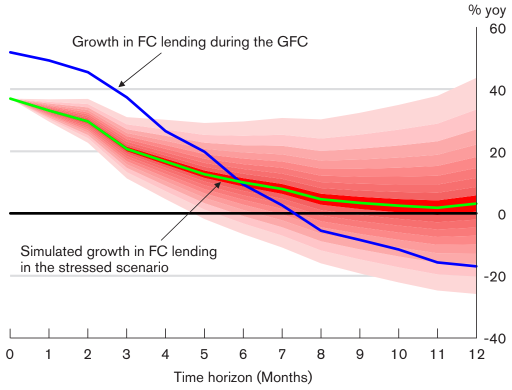
[50] The positive relationship partly reflects the US dollar funding needs of Mainland corporations in Hong Kong. Since the US dollar lending rate on the Mainland can differ significantly from that in the international market (including Hong Kong) due to the Mainland's capital account restrictions, a higher US dollar lending rate on the Mainland than that in Hong Kong might encourage Mainland corporations to borrow their US dollar funding from Hong Kong.

[51] A general-to-specific modelling approach is adopted in that one-month to three-month lags of the variables are included in the initial model. The final model includes only those lagged terms that are statistically significant.

[52] We assume that the median CDS spread for European banks increases from the current level of 250 basis points to 410 basis points. The magnitude of increase is consistent with the 95% quantile based on the generalised extreme value distribution estimated using data on the median CDS spread of the selected large European banks.

[53] Using monthly data for the period January 2008 to March 2009, a negative empirical relationship between the median CDS spread (in basis points) of selected large banks in US and Europe (x) and the Hong Kong banking sector's foreign currency external liabilities to banks (y) is found (i.e. $y = -0.0044x + 0.8311$). All estimated coefficients are statistically significant at the 1% level.

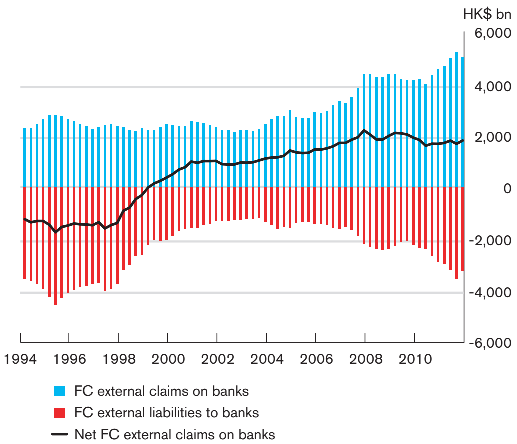
Chart B4.4
Simulated paths of year-on-year growth in foreign currency lending in the stressed scenario



Notes:
1. FC external liabilities to European banks are assumed to be negatively correlated with the median CDS spread of selected large European banks based on an empirical relationship shown in footnote 53, with an assumption that the maximum amount of FC interbank outflow is limited by the amount of FC external liabilities to European banks maturing in one month or less (i.e. a liquidity shock lasting for one month).
2. Annual world GDP growth falls by three percentage points below a baseline scenario.
3. Hong Kong banking sector's FC external liabilities to non-European banks, FC external claims on banks and FC customer deposits remain unchanged.
4. The FC lending rate spread remains constant.
5. The blue line represents the yoy growth rate of FC lending for the period August 2008 to July 2009.
6. The fan chart shows the possible range of future value in the stressed scenario (i.e. the lighter the colour, the less is the likelihood to occur).

Source: HKMA staff estimates.

Chart B4.5
Hong Kong banking sector's foreign-currency external claims on and liabilities to other banking sectors



Notes:
1. Locational basis.
2. Net claims are defined as external claims minus external liabilities.

Source: HKMA.

of FC interbank outflow is limited by the amount of external liabilities to European banks maturing in one month or less (i.e. a liquidity shock lasting for one month). To be consistent with the euro zone crisis-led recession scenario in the previous section, a three percentage-point decline in world GDP growth from a baseline scenario[54] is also assumed.

Chart B4.4 presents a fan chart showing the simulated impact on FC lending in Hong Kong along with the actual change registered during the GFC. Major assumptions in the simulation are shown in the notes under the chart. The result suggests that in the face of severe outflows of interbank funds by European banks, coupled with a global economic slowdown, FC lending in Hong Kong is expected to decelerate from the current year-on-year growth rate of 37% to around 3% in the next one-year horizon (the green line). This compares with the more drastic slowdown from 52% to -17% registered during the GFC (the blue line).

Although the fan chart indicates that a more severe slowdown in FC lending than that observed during the GFC remains possible statistically, in reality the chance is likely to be small for two reasons. First, in the stressed scenario, we assume that interbank lending to abroad by Hong Kong banks remains unchanged. Such exposure, however, may be reduced in times of stress, implying that more domestic FC funding should become available in the domestic market to fill the credit supply gap left by European banks. Secondly, and more importantly, the Hong Kong banking sector is a net FC lender in the global banking system (Chart B4.5), suggesting that fundamentally FC lending in Hong Kong is less reliant on overseas funding.[55]

[54] This assumption of a three percentage point decline in world GDP growth from a baseline scenario, which is based on the downside scenario discussed in the IMF's World Economic Outlook (September, 2011), is consistent with the euro zone crisis-led recession scenario in the previous section of this box.

[55] It should be noted that this stress-testing result is for the banking system as a whole, which does not exclude the possibility that some individual banks may experience more credit loss and/or liquidity difficulties than the average bank.

In summary, this stress-testing exercise shows that a euro zone crisis-led recession in Hong Kong, if it occurred, would inevitably lead to higher credit losses in the Hong Kong banking sector, but the loss severity, even in extreme cases, would remain much lower than the actual loss registered after the Asian financial crisis. In the event of drastic outflows of interbank funding by European banks, foreign currency lending growth in Hong Kong would decelerate. However, the impact would be significantly less severe than that occurred during the 2008-09 global financial crisis. Sufficient domestic funding would remain supportive of adequate credit supply in the economy. Notwithstanding the stress-testing results, continued vigilance should be maintained with regard to the possible spill-over effects of the crisis on the global banking system and the risk of a sudden outflow of funds.

Glossary of terms

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

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

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

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

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

Composite Interest Rate
The composite interest rate is a weighted average interest rate of all Hong Kong dollar interest bearing liabilities, which include deposits from customers, amounts due to banks, negotiable certificates of deposit and other debt instruments, and Hong Kong dollar non-interest bearing demand deposits on the books of banks. Data from retail banks, which account for about 90% of the total customers' deposits in the banking sector, are used in the calculation. It should be noted that the composite interest rate represents only average interest expenses. There are various other costs involved in the making of a loan, such as operating costs (e.g. staff and rental expenses), credit cost and hedging cost, which are not covered by the composite interest rate.

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

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

Convertibility Zone

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

Exchange Fund Bills and Notes (EFBN)

Debt instruments issued by the HKMA for the account of the Exchange Fund. Introduced in March 1990, the Exchange Fund Bills and Notes programme has expanded over the years, with a maturity profile ranging from three months to 15 years. These instruments are fully backed by the foreign reserves. The HKMA has undertaken that new Exchange Fund paper will only be issued when there is an inflow of funds, thus enabling the additional paper to be fully backed by the foreign reserves. Since 1 April 1999, interest payments on Exchange Fund paper have been allowed to expand the Monetary Base. Additional Exchange Fund paper is issued to absorb such interest payments. This is consistent with the Currency Board discipline since interest payments on Exchange Fund paper are backed by interest income on the US dollar assets backing the Monetary Base.

Liquidity Ratio

All authorized institutions in Hong Kong are required to meet a minimum monthly average liquidity ratio of 25%. This is calculated as the ratio of liquefiable assets (e.g. marketable debt securities and loans repayable within one month subject to their respective liquidity conversion factors) to qualifying liabilities (basically all liabilities due within one month). The method of calculation and its components are specified in the Fourth Schedule to the Banking Ordinance.

Monetary Base

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

Monetary Conditions Index (MCI)

An index that shows the overall monetary conditions of an economy. Usually it is defined as a weighted sum of some measures of real interest rate and real effective exchange rates, with the weights reflecting their relative effects on aggregate demand or inflation.

Nominal and Real Effective Exchange Rate (NEER and REER)

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

Abbreviations

3m moving average	Three-month moving average
3m-on-3m	Three-month-on-three-month
ASEAN	Association of Southeast Asian Nations
AIs	Authorized Institutions
ASP	Agreement for sale and purchase
BIS	Bank for International Settlements
bn	Billion
BLR	Best lending rate
CCPI	Composite Consumer Price Index
CDS	Credit default swap
CEI	Composite index of coincident economic indicators
CIP	Covered interest parity
CIs	Certificates of Indebtedness
C&SD	Census and Statistics Department
CPI	Consumer Price Index
DF	Deliverable forwards
ECB	European Central Bank
EFBN	Exchange Fund Bills and Notes
EMEAP	Executives' Meeting of East Asia Pacific Central Banks
FC	Foreign currency
GDP	Gross Domestic Product
GFC	Global financial crisis
HIBOR	Hong Kong Interbank Offered Rate
HKD	Hong Kong dollar
HKMA	Hong Kong Monetary Authority
HSCEI	Hang Seng China Enterprises Index
HSI	Hang Seng Index
IMF	International Monetary Fund
LEI	Composite index of leading economic indicators
LIBOR	London Interbank Offered Rate
lhs	Left-hand scale
LTD	Loan-to-deposit
MCI	Monetary Conditions Index
mn	Million
NAIRU	Non-accelerating inflation rate of unemployment

NBER	National Bureau of Economic Research
NCD	Negotiable Certificates of Deposit
NDF	Non-deliverable forwards
NEER	Nominal effective exchange rate
NIE	Newly industrialised economies
NIM	Net interest margin
p.a.	Per annum
PBoC	People's Bank of China
PMI	Purchasing Managers' Index
QBTS	Quarterly Business Tendency Survey
qoq	Quarter-on-quarter
R&VD	Rating and Valuation Department
REER	Real effective exchange rate
repo	Repurchase agreement
rhs	Right-hand scale
RMB	Renminbi
RRR	Reserve requirement ratio
S&P 500	Standard & Poor's 500 Index
US	United States
USD	US dollar
yoy	Year-on-year

This Report is extracted from the
HKMA Quarterly Bulletin
March 2012 issue.

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

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Printed in Hong Kong
ISSN 2221-5727 (Print version)
ISSN 2222-1514 (Online version)
HK$60