HONG KONG MONETARY AUTHORITY
香港金融管理局

HALF-YEARLY MONETARY AND FINANCIAL STABILITY REPORT

September 2013

This Report reviews statistical information between the end of February 2013 and the end of August 2013.

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

Capital outflow pressures emerged in the Asian region, amid a sharp upward shift of the US dollar yield curve triggered by expectations of a scaling-down of asset purchases by the US Federal Reserve. In contrast, the Hong Kong dollar exchange rate has remained stable, hovering near the strong-side Convertibility Undertaking (CU) of 7.75.

The property market has been subdued, but fragility remains. Mainland exposure of Hong Kong banks has continued to increase, but are under more intensive supervisory scrutiny as the Mainland economy slows visibly and corporate leverage rises. Banks are advised to prepare for more adverse scenarios from credit, interest rate and liquidity risks.

The external environment

Global financial markets have witnessed sharp gyrations over the past six months, as market participants reappraise the prospect of normalisation of monetary policy in the US. Markets initially experienced sharp sell-offs and the US dollar appreciated sharply when US Fed Chairman Ben Bernanke outlined a roadmap for tapering and eventually stopping the open-ended asset purchase programme. Subsequently, global stock markets have recovered most of their lost ground as the Fed clarifies that "the end of asset purchase does not necessarily imply imminent rate hikes" and major advanced economies show better-than-expected economic performance.

In the US, the strong second quarter GDP figure defies concerns about the summer soft patch amid fiscal drags. As such, the Fed seems to be on track to follow its plan to start to scale back its asset purchases by the end of 2013. In Europe, economic contraction seems to have stabilised but a recovery remains elusive. The European Central Bank (ECB) introduced in the July Governing Council meeting a forward guidance by stating that it "expects the key ECB interest rates to remain at present or lower levels for an extended period of time". In Japan, economic recovery has gained traction and asset markets have had a good run giving "quantitative and qualitative monetary easing" (i.e. QQE) and "Abenomics" a good start, but it remains to be seen whether the Abe government can deliver on much-hoped structural reforms.

The biggest swing factor for global monetary and financial stability at present is whether the US Fed can manage an orderly unwinding of its asset purchase programme. The abrupt rises in global long-term bond yields and synchronised global stock market declines on fear of Fed tightening back in late May - June 2013 serves as a rehearsal of what would happen in the case of a disorderly exit. The announcement of the Fed's quantitative easing tapering has also led to a repricing of risks, resulting in a reversal of fund flows in emerging market economies (EMEs).

Along with the emerging market sell-off, signs of capital outflows in East Asia were pronounced in late May and late August as worries over the Fed's tapering of its asset purchases triggered a sell-off in the region's risky assets, posing downward pressures on some regional economies' currencies. This might have also reflected a repricing of risks by investors amid relatively stronger US recovery and softening of the region's economic growth, including in Mainland China.

Box 1 attempts to explain the recent divergence between credit expansion and GDP growth in Mainland China. Our analysis suggests this possibly reflects the lengthening of the credit intermediation chain, and at the same time credit might not have been allocated to those firms that have the capacity to generate higher investment and output. Indeed, excess leverage seems to be concentrated among large firms in sectors that already have excess capacity.

The domestic economy

In Hong Kong, real GDP grew at a below-trend rate of 0.2% and 0.8% quarter on quarter in the first two quarters respectively. Net exports continued to be the main drag on growth due to weak demand from the advanced economies and growth moderation of the Mainland economy and the region. Domestic consumption remained relatively strong, albeit with signs of moderation emerging in the second quarter. Overall investment spending, however, seemed to lack growth momentum.

The labour market continued to hold up despite moderate growth momentum in the economy. The seasonally adjusted three-month moving average unemployment rate continued to stay low at about 3.4% in the first seven months of 2013, while total employment further increased to 3.75 million in July from 3.71 million in January. The tightness of the labour market appears to be at odds with an economy judged to be operating below its potential in the past several quarters.

Local inflationary pressure stayed firm during the first four months of 2013 but has slightly moderated since May. On an annualised three-month-on-three-month basis, the underlying inflation rate edged down to 3.1% in July after reaching 5.3% in April. The alleviation in the sequential momentum was largely driven by the non-tradables and rentals, while the inflationary pressure of tradables edged up between April and June before retreating in July. Looking ahead, the sequential inflation momentum is likely to ease slightly amid more moderate housing rentals increase. However, the inflation outlook is subject to risks on both sides. On the upside, the geopolitical tension in Middle East may boost the oil price. On the downside, the US Fed's tapering of its asset purchase programme may dampen asset prices and domestic economic activity and consequently local inflationary pressure.

The below-trend growth path of the Hong Kong economy is expected to continue into the rest of the year. On one hand, external demand will be supported by stronger recovery in the advanced economies, particularly in the US. On the other hand, less favourable wealth effect from weaker asset markets amid Fed's tapering of asset purchase as well as slower real income growth will translate into softer growth in domestic private consumption. Private sector analysts have revised downward the 2013 growth forecast for Hong Kong to an average of 2.9%, while the Government sees growth in the 2.5 - 3.5% range and our in-house composite index of leading indicators points to moderate growth ahead. Box 2 discusses the potential impact of a sharp rise in the US interest rates on Hong Kong by looking at the experience of the 1994 US bond market crash.

Monetary conditions and capital flows

While the global and domestic financial conditions were volatile in the first half, the Hong Kong dollar exchange market has continued to trade in an orderly manner and the exchange rate has stayed close to 7.75. In the money market, the overnight and three-month HIBOR fixing edged down to 0.09% and 0.38% respectively. On the other hand, retail banks' weighted deposit rates picked up in May and June largely due to increased liquidity demand, thus leading to a modest uptick in their overall funding cost. Meanwhile, the yield curve of Exchange Fund paper has steepened along with that of the US Treasuries in the face of increased concerns about the Fed's tapering of asset purchases and eventual rate hikes.

Demand for Hong Kong dollar assets from the non-bank private sector has weakened somewhat. This contrasted with the strong demand and inflow pressures in the final quarter of last year when there was an inflow of more than HK$100 billion into the Hong Kong dollar. But on the whole, outflow pressures in the non-bank private sector were not particularly large in the first half. The Hong Kong dollar exchange rate still stayed close to the strong-side CU, and there was no significant decrease in the net spot foreign currency positions of authorized institutions (AIs). In the meantime, banks' increased demand for the Hong Kong dollar has provided a partial offset to the outflow pressures.

With limited outflow pressures, the Hong Kong dollar monetary aggregates held relatively steady. The Hong Kong dollar broad money supply (HK$M3) increased marginally, within which bank customers' deposits and negotiable certificates of deposits held by the non-bank sector edged down by an annualised rate of 0.4% and 0.5% respectively.

On the asset side, total loan growth accelerated to an annualised rate of 19.0% in the first half of 2013. Within the total, loans for domestic use rose by 20.5%, reflecting a strong upsurge in trade finance. Loans for external use also expanded by a solid 15.4%, roughly the same pace as in 2012. Hong Kong dollar loans grew moderately by an annualised rate of 9.4%, while foreign currency lending picked up noticeably due to the upsurge in trade finance. As a result, the Hong Kong dollar and foreign currency loan-to-deposit ratios rose to recent highs of 83.7% and 60.4% respectively. However, there are signs of moderation in loan growth more recently and the liquidity conditions have alleviated somewhat. The latest HKMA Opinion Survey on Credit Condition Outlook also points to soft credit demand in the period ahead.

Renminbi financing activities in Hong Kong continued to grow at a robust pace in the first half of 2013, with outstanding loans increasing by 39.8% (not annualised) from six months ago to RMB110.5 billion at the end of June. At the same time, the liquidity pool of renminbi also expanded steadily, with the total outstanding amount of renminbi deposits and certificates of deposit rising by 19.5% to RMB860.7 billion. Within the total, customers' deposits rose by 15.7%, largely driven by corporate accounts amid the growing popularity of renminbi as a settlement currency. Meanwhile, personal customer deposits also increased, of which a growing share, amounting to 4.8% or RMB10.8 billion by the end of June this year, were held by non-resident personal customers. As a result, the proportion of renminbi deposits grew to 10.4% of total deposits with the AIs at the end of June.

Asset markets

Equities went on a roller coaster ride amid a series of negative external shocks in the last six months. The inconclusive election outcome in Italy and the banking crisis in Cyprus initially weighed on equities across the globe including the local market. Although signs of strengthening of the US economy subsequently boosted confidence, they also prompted the Fed to be more vocal and explicit about the exit path from its extraordinary monetary accommodation. This, coupled with a liquidity crunch on the Mainland, triggered a sharp downward adjustment. While the market recouped part of its losses following Chairman Bernanke's clarification of the Fed's policy intentions, uncertainties surrounding the global economic outlook, especially for the EMEs, are expected to continue to weigh on the local equity market.

The domestic debt market expanded further despite the more difficult external environment. Box 3 reviews the developments of the bond market in Hong Kong in recent years and discusses the driving factors. In the past six months, there was a decline in bond issuance by the private sector. The decline was, to some extent, attributed to a reduction in appetite for bonds in June, as uncertainties over quantitative easing tapering sent investors to the sideline. In contrast, the offshore renminbi debt market continued to steam ahead. Corporate issuance rose particularly strongly alongside a rising proportion of speculative grade debt, which may be attributable to the recent tight liquidity conditions on the Mainland. Looking ahead, in view of an increasingly refined financial infrastructure (e.g. the launch of the CNH HIBOR fixing), the offshore renminbi debt market is expected to remain on a steady growth path in the foreseeable future.

Housing prices have softened and transaction volume declined noticeably since February this year following the introduction of additional stamp duty and prudential measures by the Administration and the HKMA. However, housing affordability has continued to deteriorate, and property market imbalances are still elevated. The once-buoyant non-residential market has also cooled quite notably, but prices continued to increase moderately. Rentals were relatively resilient, and overall rental yields remained close to the historical low of 2 - 3%. Potential overvaluation risks and pressure of higher rentals on business activities would remain a key concern. The impending reversal of low interest rates and continued soft growth in Hong Kong's domestic economic activity may cloud the prospects of the property market.

Banking sector performance

Notwithstanding an uncertain external environment and the slowdown of the Mainland economy, the Hong Kong banking sector continued to post vibrant performance, with the aggregate pre-tax profit of retail banks growing by 30.9% in the first half of 2013, from the second half of 2012. Average pre-tax return on assets also rose to 1.39% during the first half, compared with a return of 1.1% in the second half of 2012. Improvements in both net interest and non-interest incomes, plus better control of operating expenses and lower net provisions, were the main drivers of profitability growth. Net interest income was partly boosted by higher net interest margins which rose to 1.41% due to a fall in banks' average funding costs.

Bank lending grew more rapidly by 9.5% in the six months ended June 2013, compared with an increase of only 4.7% in the preceding six months. The pick-up in credit expansion was largely attributable to a significant growth in foreign-currency loans, in particular trade finance. As loan growth outpaced deposit growth, the loan-to-deposit ratios of the banking system rose in the first half of 2013, in particular the ratio for foreign currency lending rose significantly to 60.4% by the end of June, from 54.2% at the end of 2012. Nevertheless, domestic liquidity conditions remained healthy, with banks' liquidity ratios staying well above the regulatory requirements.

Looking ahead, the banking sector will face rising domestic and external risks in the year to come. Domestically, the risk of interest rate volatility is expected to escalate amid lingering global financial uncertainties. Specifically, in the process of the likely eventual normalisation of US monetary policy, the possible impact of any shift in the yield curve on banks' balance sheets may not be small. In addition, any significant rise in interest rates would likely have adverse effects on banks' asset quality. In particular, the rise in corporate leverage over the past year suggests that corporations' debt servicing abilities could be under test, while property prices could be under significant pressures. To the extent that a large outflow of funds from Hong Kong may take place as a result of US tapering, as some market participants anticipate, the situation would be aggravated. Box 4 examines factors behind the rising loan spreads of syndicated loans after the global financial crisis and suggests that, even if the near-zero interest rate environment remains unchanged in the near term, a significant change in domestic liquidity conditions due to external factors could drive the loan pricing in Hong Kong noticeably.

Externally, the rising share of banks' Mainland exposure continues to be a significant risk factor. Despite that banks' lending to Mainland-related customers is largely backed by guarantees or collateralised, given market's rising concerns about Mainland's growth outlook, corporate leverage and funding conditions, banks should continue to maintain their stringent prudential management of their Mainland exposure.

At the initiative of the Financial Stability Board, the Macroeconomic Assessment Group on Derivatives conducted an assessment of the costs and benefits of the over-the-counter derivatives reform. Box 5 presents key findings of the exercise, which estimates that the reform could generate median net benefits equivalent to 0.12% of GDP across 16 jurisdictions. For Hong Kong, the net benefits are estimated to be around 0.13% of GDP.

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

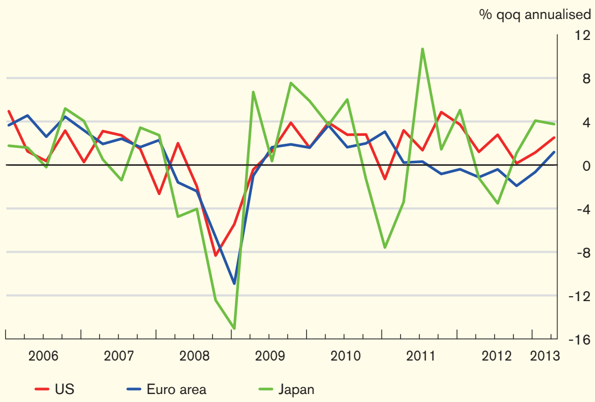
External environment

Economic conditions in major advanced economies have generally improved over the past six months although growth continued to remain moderate. The normalisation of monetary policy in the US has heightened volatility in global financial markets. East Asian economies generally registered moderate growth, with a slowdown in some emerging economies. Uncertainties surrounding the tightening monetary conditions amid capital outflows point to the prospect of softening growth ahead.

2.1 Real activities

Economic conditions in major advanced economies have generally improved over the past six months. Nevertheless, growth continued to remain moderate. Latest GDP figures show the US and Japanese economies expanded by 2.5% and 3.8% respectively in the second quarter of 2013 (Chart 2.1)[1] while the euro area expanded by 1.2%.

Chart 2.1
US, euro area and Japan: real GDP



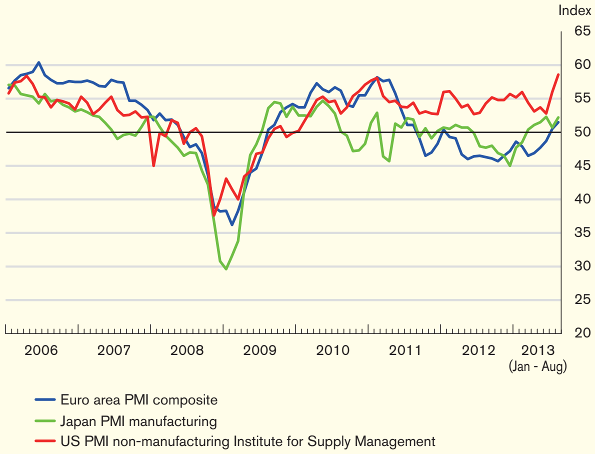
Sources: Bureau of Economic Analysis, Eurostat and Cabinet Office of Japan.

In the euro area, growth resumed following six consecutive quarters of contraction. Fiscal policy has recently become less restrictive with the European Commission softening its fiscal targets for several member countries while the ECB also relaxed its collateral eligibility requirement and provided forward guidance on monetary policy. Nevertheless, economic fundamentals in the region remained weak with widespread balance sheet adjustment continuing to weigh on domestic demand and bank lending. As such, the region remains some way off from a sustainable recovery. Across the Atlantic, the US labour market recovery has continued. This, together with surging forward-looking survey indicators, suggests the US economy can continue to overcome the drag from fiscal consolidation and expand at a steady pace. In Japan, there are early signs of a stronger recovery driven by consumption and net exports following the launch of Abenomics. The latest Purchasing

[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.

Managers' Indices point to moderate growth in Japan and the US while that in the euro area has also returned to expansionary territory. (Chart 2.2).

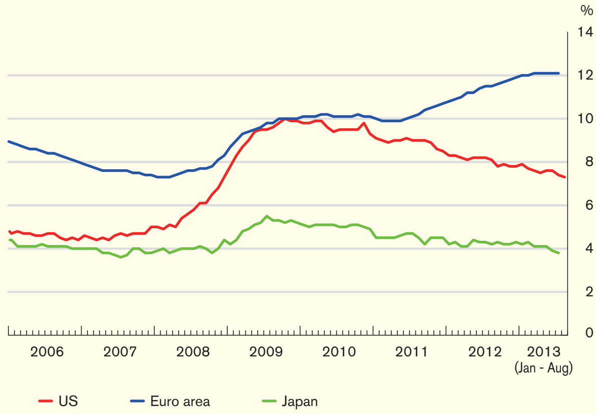
Chart 2.2
US, euro area and Japan: Purchasing Managers' Indices



Source: Bloomberg.

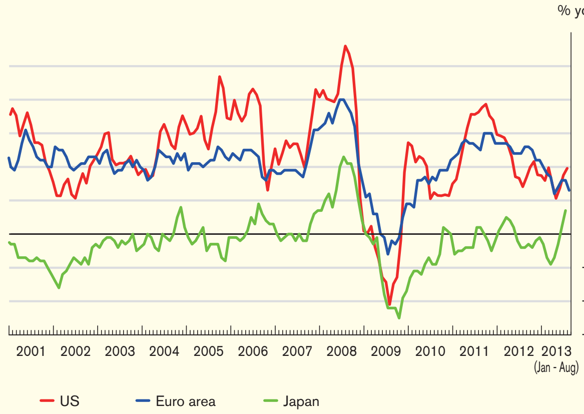
As a result of the prolonged recession, job creation remained slow in Europe with the overall and youth unemployment rate hitting record highs of 12.1% and 24%, respectively, in July. In contrast, employment has been growing at a solid pace in the US with the unemployment rate falling slowly but steadily to 7.3% in August while that in Japan dropped to a five-year low of 3.8% in July (Chart 2.3). The high degree of economic slack, together with the recent fall in commodity prices, has kept headline CPI inflation down in the advanced economies with core inflation likely to remain subdued in 2013 (Chart 2.4).

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.

The normalisation of monetary policy in the US has heightened volatility in global financial markets. While an earlier-than-expected and disorderly normalisation of monetary conditions in the US will almost certainly lead to extreme volatility in the global financial markets, it is likely that an orderly but de-synchronised monetary exit by the Fed would still push up longer term interest rates and have negative spillover effects on Japan and countries in Europe where economic recoveries are not yet firmly established. The problem is, at a time when many of these economies are saddled with excessive private and public sector debts, rising borrowing costs could derail their nascent recoveries and even ignite or reignite a sovereign debt crisis. Indeed, in Europe, structural reforms and policy efforts toward closer fiscal, political and banking integration are still on-going and will take time to bear fruit. Meanwhile, the ECB's Outright Monetary Transactions programme remains largely untested for its effectiveness of holding down sovereign bond yields. Similarly in Japan, it remains highly uncertain if Abenomics could drive a sustained and higher growth and overcome deflation before Japanese Government Bond yields climb further along with higher inflation expectations. As such, rising borrowing costs could become an important economic and policy challenge for Japan and peripheral countries in Europe.

East Asian economies in general grew moderately in the first half of 2013 with mixed performances (Table 2.A). Domestic demand, which remained the key driver of the growth, softened in some regional economies. External demand saw some stabilisation, but remained far from a meaningful recovery in absence of a solid boost from advanced economies. Inflationary pressure was contained with the average CPI inflation rate for the region as a whole edging up to 2.6% in July from the preceding 2.3%, driven mainly by a surge in Indonesia's inflation due to a reduction in fuel subsidy. Despite the rise, the inflation still remained well below an average of 3% in 2012 and 4% in 2011. Meanwhile, central banks in the region in general maintained a benign monetary policy environment with an exception of Bank Indonesia.[2]

Table 2.A
Asia: real GDP growth

(% qoq, annualised)	2012 Q1	2012 Q2	2012 Q3	2012 Q4	2013 Q1	2013 Q2
NIE-3:[1]	**4.6**	**0.7**	**0.5**	**3.3**	**1.3**	**5.1**
Korea	3.3	1.2	0.2	1.1	3.4	4.5
Singapore	7.8	0.1	-4.6	3.3	1.7	15.5
Taiwan	5.7	0.0	3.0	7.1	-2.5	2.4
ASEAN-4:[1]	**17.7**	**6.9**	**6.2**	**8.5**	**1.8**	**4.0**
Indonesia[2]	5.6	6.5	5.4	6.8	5.4	5.5
Malaysia[2]	7.0	5.0	4.9	9.1	-2.5	6.0
Philippines	9.7	5.4	7.0	7.8	9.6	5.7
Thailand	53.7	10.1	7.9	11.4	-6.5	-1.4
East Asia:[1]	**10.9**	**3.7**	**3.2**	**5.8**	**1.6**	**4.6**

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

Sources: International Monetary Fund (IMF), CEIC and HKMA staff estimates.

Expectation of the Fed tapering its asset purchases has fuelled some pressures on capital outflows in the region. So far the market appeared to be differentiating among the regional economies. While currencies in those economies with weak fundamentals have been volatile and notably weakened against the US dollar, currencies in the newly industrialised economies held relatively stable (Table 2.B). Sell-offs in both equity and bond market were pronounced in a few economies in late May and late August. Long-term sovereign bond yields in general drifted higher with yields in some economies even rising at a faster pace over their US counterparts and resulting in widening yield spreads. The rapid accumulation of foreign reserves stalled in most regional economies in recent months, with sizable drop in some economies (e.g. Indonesia and Thailand). Looking ahead, capital outflow pressure may remain with rising anticipation of the Fed moderating its pace of asset purchases and the region's weakening economic prospect.

Table 2.B
Asia: changes in major financial market indicators and foreign reserves[1]

Between 22 May 2013 and 9 Sep 2013	Exchange rates against USD (%)	FX reserves[2] (USD bn)	Equities (%)	Change in yield spreads (bps)[3]
NIE-3:				
Korea	2.5	2.3	-1.0	-18.9
Singapore	-0.2	0.2	-10.6	17.9
Taiwan	0.2	4.2	-2.5	-45.9
ASEAN-4:				
Indonesia	-14.2	-14.3	-19.5	228.0
Malaysia	-8.2	-5.5	-2.1	-19.2
Philippines	-6.8	0.0	-18.8	-24.1
Thailand	-6.9	-9.6	-15.1	7.6

Notes:
1. The Fed Chairman Ben Bernanke hinted at tapering the quantitative easing programme in testimony before the Joint Economic Committee on 22 May 2013.
2. Calculated using monthly data from the end of April to the end of August 2013.
3. Changes in yield spreads between 10-year sovereign bonds and the US Treasury.

Sources: CEIC, Bloomberg and HKMA staff calculations.

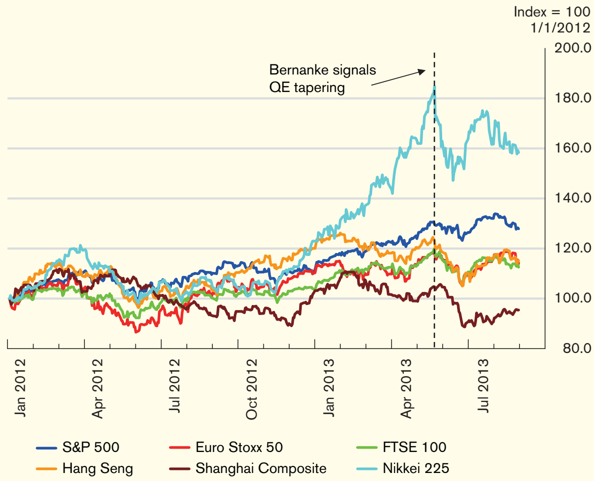
2 Bank Indonesia has raised its benchmark rate by a cumulative 150 basis points to 7.25% since June, in response to the rising inflation and the recent market sell-offs amid capital outflows.

The near-term economic outlook for the region has been softening. Although exports may benefit from weakening currency and marginally improved domestic demand in the US, a slowdown in major emerging market economies, in particular Mainland China, could pose downside risks. Government spending will continue to lend support to the economies with infrastructure projects and fiscal stimulus plans, but the growth of private consumption and investment could be, to some extent, restrained by uncertainties associated with late-cycle risks and tightening monetary conditions amid steepening yield curve in the US and continued capital outflows. Inflationary pressure is expected to stay low in most regional economies on the back of moderating domestic demand and benign commodity price outlook. The latest consensus forecasts project the region's GDP to grow by 3.9% as a whole in 2013, lower than 4.0% in 2012, while inflation rate would edge down to 2.9% compared with the preceding 3.0%.

2.2 Global financial conditions

Global financial conditions have again turned turbulent following a period of relative stability. Global equity markets staged a strong rally initially, but some of the gains have been pared back on concerns about the Fed exiting its quantitative easing policy (Chart 2.5). Debt markets took the biggest brunt of the impact, with yields rebounding sharply. Uncertainties about the Fed's policy outlook and rising economic risks in major emerging markets will likely keep financial markets volatile in the coming months.

Chart 2.5
Global equity market performance

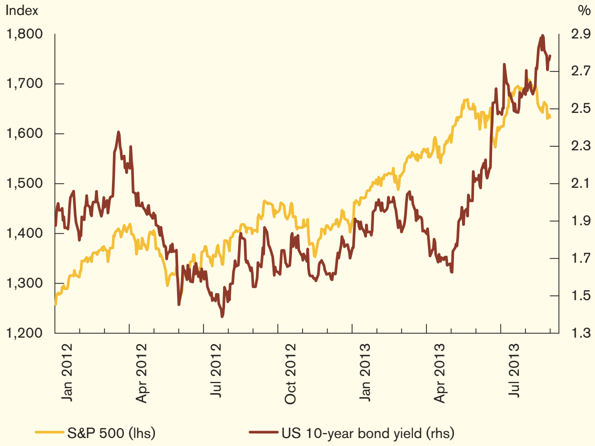


Source: Bloomberg.

The US has been a bright spot in the global financial markets in the past six months. Reduced concerns about the "fiscal cliff" and continued monetary stimulus have supported a continued recovery in the economy and asset prices. The S&P 500 index has now recouped all the losses since the onset of the global financial crisis in 2008, while housing prices – measured by the Case-Shiller Index – have recently posted their largest annual increase in seven years. Improved economic fundamentals and rising investor confidence have also driven up the US dollar and long-term Treasury bond yields.

The upward movements in the dollar and interest rates were exacerbated recently by changing market expectations about the Fed's policy outlook. The central bank signalled for the first time in May on the timing of ending its quantitative easing policy, causing heightened volatility. In particular, investors were surprised by Fed Chairman Ben Bernanke's comments that the Fed "*may start moderating the pace of asset purchases later this year*", prompting significant declines in equity and bond prices. However, these comments were later expanded to emphasise the Fed's policy path was "*data dependent*" and not on a "*preset course*". Equity markets took comfort in the reassurance and quickly reversed early losses, but bond markets remained highly cautious in view of an earlier-than-anticipated Fed policy exit (Chart 2.6).

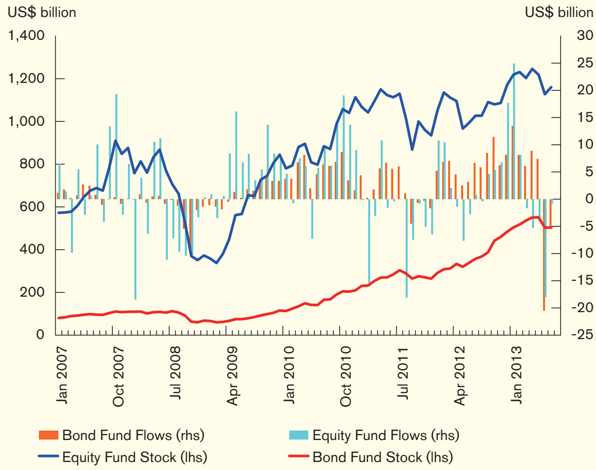
Chart 2.6
S&P 500 index and US 10-year Treasury bond yields



Source: Bloomberg.

The policy exit by the Fed will likely have important implications for other countries, particularly those in emerging markets. As the Fed's quantitative easing has propelled significant capital inflows into emerging markets over the past few years, a reversal of these policies could make them vulnerable to sudden capital exits. The observed fund outflows from emerging market equity and bond markets since late May serve as a clear warning that emerging markets need to be prepared (Chart 2.7).

Chart 2.7
Capital flows in/out of emerging markets

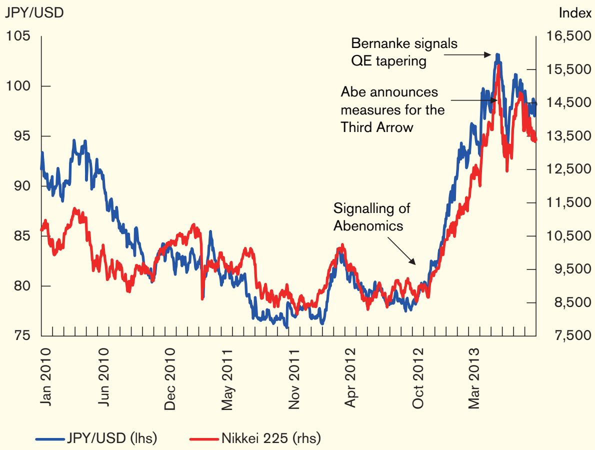


Source: EPFR Global.

Besides the Fed, the Bank of Japan (BoJ) has also been a major focus in financial markets. The announcement of an open-ended asset purchase programme in April gave legitimacy to the sharp equity rally and yen weakness since last November.[3] However, these moves were interrupted recently by a combination of concerns about the Fed's quantitative easing exit and scepticism over the efficacy of Japan's own economic polices (Chart 2.8). The Nikkei 225 plunged by more than 20% and the JPY/USD rose by 9% in June, as investors expressed disappointment about the "Third Arrow" of Abenomics. While markets have since recovered most of the losses, significant uncertainty remains as to whether Abenomics can truly deliver the economic outcomes that justify the elevated market expectations.

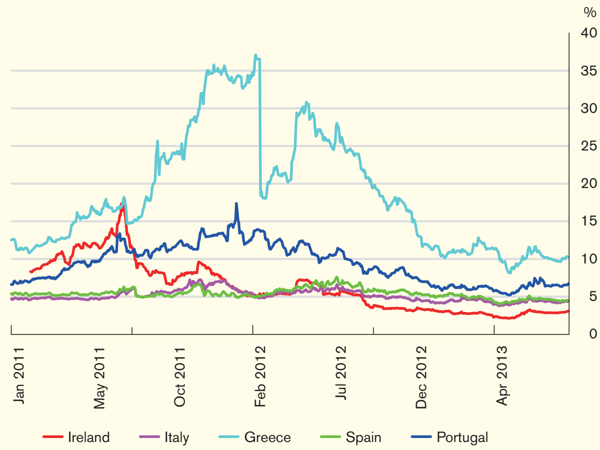
[3] While foreign investors have been major buyers of Japanese equities since last November, they have actively hedged out their currency exposures by shorting the yen. A weaker yen, driven by BoJ's reflationary policy, has in turn supported the equity rally by driving up yen-denominated earnings of corporate profits earned overseas. This helps to explain the negative co-movement between the currency and equity markets.

Chart 2.8
Japanese yen and Nikkei 225



Source: Bloomberg.

Chart 2.9
Ten-year bond yields of peripheral European countries



Source: Bloomberg.

With market focus shifting to the US and emerging markets, Europe has enjoyed a period of relative calmness in recent months. Equity markets have risen in tandem with others, while peripheral bond yields have stabilised at levels that are significantly lower than they were a year ago (Chart 2.9). Financial conditions have eased for high-quality corporations including banks, with corporate bond issuance picking up strongly since the start of the year. However, weaker banks in the peripheral countries are still relying on support from the ECB, and their lending capacity is constrained by still-elevated balance sheet leverage. Markets expect further deleveraging to take place by weak European banks in the coming year.

Overall, global financial conditions have become more uncertain and future developments critically depend on how major central banks, especially the Fed, steer their monetary policy in the period ahead. This is particularly true when the outlook for the global economy remains weak and fragile. This rather cautious macro picture stands in sharp contrast with the buoyancy embedded in asset prices, prompting additional concerns over the sustainability of the recent market rally.

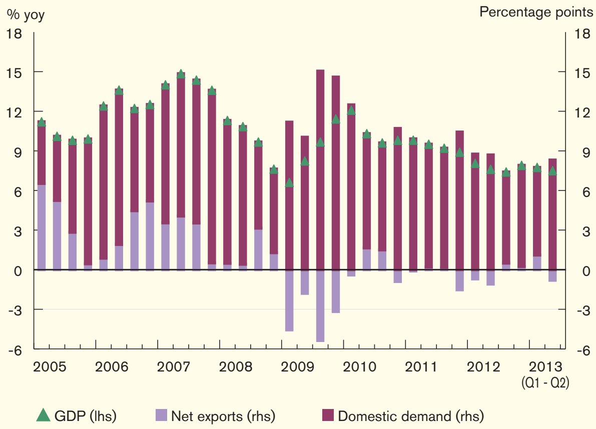
Mainland China

Growth momentum of the Mainland economy slowed visibly, led by a deceleration of investment in the manufacturing sector. Weak external demand was compounded by rising corporate leverage. Asset quality of the banking sector has come under some pressure as overcapacity in the manufacturing sector worsened. Looking ahead, growth momentum is expected to recover moderately along with the authorities' focus on more sustainable longer-term growth supported by structural reforms.

2.3 Output growth and inflation

The Mainland economy expanded at a slower-than-expected pace, with real GDP increasing by 7.5% year on year in the second quarter, down from 7.7% in the previous quarter (Chart 2.10). Infrastructure and real estate investment continued to grow at a firm pace, but manufacturing investment activities weakened amid tepid export growth and lingering overcapacity in major sectors.

Chart 2.10
Mainland China: contributions by domestic demand and net exports to GDP growth

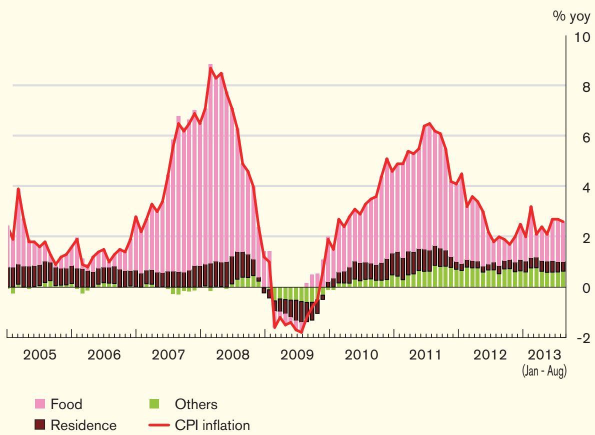


Sources: CEIC and HKMA staff estimates.

Growth momentum is expected to recover moderately going forward. Export growth will likely remain soft, and domestic demand would continue to grow at a mild pace amid the lukewarm market sentiment and deleveraging pressures on major sectors. On the other hand, the risk of a sharp deterioration in the outlook remains low. The authorities have adopted new measures to boost growth recently (for instance, tax cuts for small businesses), while structural reforms expected to be launched in the period ahead would help enhance investor confidence and steer the economy towards a more sustainable growth path. The consensus forecasts in September project GDP to grow by 7.5% for 2013 as a whole.

Inflationary pressures were contained and would stay mild in the near term. Headline CPI inflation rate was 2.5% year on average in the first eight months of the year (Chart 2.11), while the PPI continued to decline, albeit at a slower pace in recent months. Recent reforms in energy prices may add upward pressures to domestic costs, but relatively weak demand and the lingering overcapacity problem would continue to dampen overall inflationary pressures. Meanwhile, sluggish global growth, appreciation of the US dollar and possible tapering of the quantitative easing by the Fed would help contain global commodity prices and Mainland import prices. The consensus forecasts in September project the CPI inflation rate to be 2.6% for 2013 as a whole.

Chart 2.11
Mainland China: contributions to CPI inflation



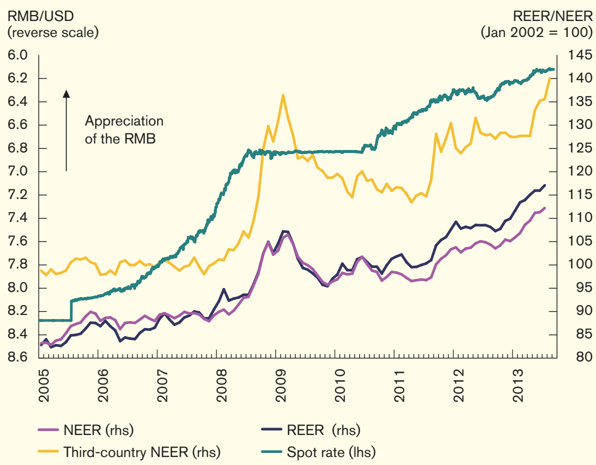
Sources: CEIC and HKMA staff estimates.

2.4 Monetary conditions, asset markets and banking risks

The Mainland saw significant capital inflows in the first quarter, but outflow pressure has emerged in recent months along with a moderation in growth momentum. The authorities' efforts to curb capital inflows through informal channels and the implementation of a new rule on banks' net foreign exchange open position, which reduced banks' incentives to extend foreign currency loans, might have dampened capital inflows as well. Changes in official reserves netting out the trade balance, foreign direct investment and valuation effect registered a two-year high in the first quarter but turned negative in the second quarter, while net foreign exchange purchases by financial institutions continued to drop in recent months.

The renminbi maintained the largely strengthening momentum (Chart 2.12). The RMB/USD exchange rate had appreciated by about 1.6% in the first five months before experiencing two-way movements recently, and the real effective exchange rate (REER) of the renminbi has strengthened by around 6.3% year to date. The third-country nominal effective exchange rate (NEER), which takes into account the competition that China faces in foreign markets from other economies exporting similar products, had been largely stable for more than a year but strengthened sharply recently, as currencies of China's competitors generally weakened against the US dollar on expectation of the Fed tapering its quantitative easing programme.

Chart 2.12
Mainland China: the renminbi exchange rates

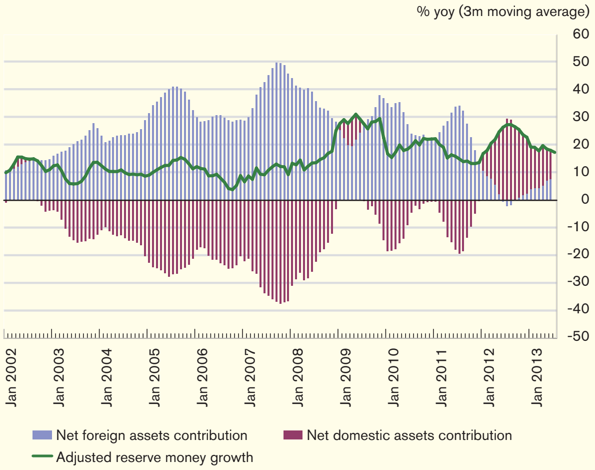


Note: A higher effective exchange rate index indicates a stronger renminbi. The methodology of constructing the third-country effective exchange rate is presented in Box 2 of the December 2006 issue of this Report.

Sources: Bank for International Settlements, Bloomberg and HKMA staff estimates.

The People's Bank of China (PBoC) has maintained a stable monetary policy stance. Reserve money growth declined from a three-year high in the latter part of 2012 but has been largely stable over the review period (Chart 2.13), while benchmark interest rates and reserve requirement ratios were unchanged.

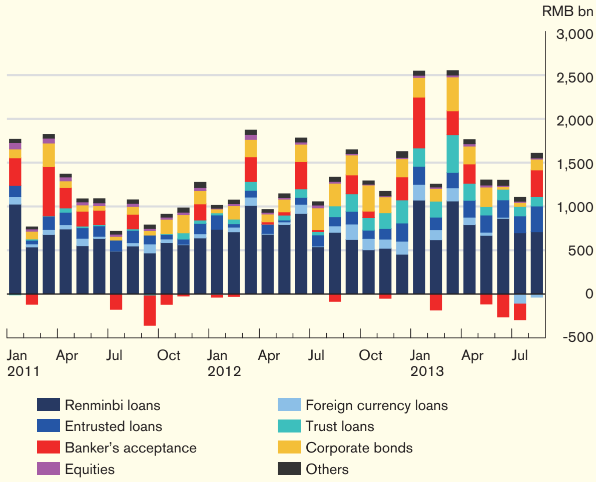
Chart 2.13
Mainland China: contributions to reserve money growth



Note: Total reserve money is adjusted for the changes in the reserve requirement ratio.
Sources: CEIC and HKMA staff estimates.

Broad money (M2) continued to expand at a robust pace, and bank loan growth has been broadly stable year on year. Total social financing had grown rapidly before slowing down more recently amid the authorities' efforts to clean up interbank bond market trading and to contain the risks related to shadow banking activities (Chart 2.14). However, as discussed in Box 1, it seems that an increasing proportion of credit has been extended to the less productive sectors, and monetary conditions might have been tighter than suggested by quantity indicators due to a lengthening in the credit intermediation chain. Meanwhile, price indicators such as interest rates may have become more informative of Mainland monetary conditions along with continued financial liberalisation.

Chart 2.14
Mainland China: total social financing

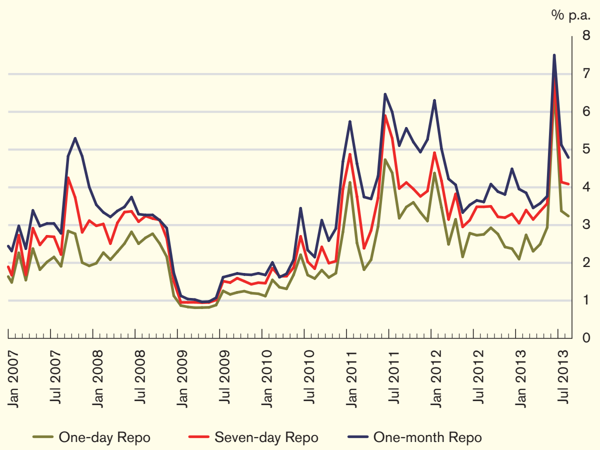


Source: CEIC.

Indeed, our analysis shows that overall monetary conditions have turned less accommodative than a few months ago amid continued appreciation in the renminbi real exchange rate as well as an increase in real interest rates. However, borrowing costs appear to differ significantly in real terms across sectors. Real interest rates have been much higher in sectors such as manufacturing that still face downward price pressures than those that see upside risks to inflation. The real estate sector is a case in point. Lending rates for private and smaller enterprises also remained elevated. For instance, the private lending composite rate in Wenzhou, though having trended downwards in recent months, is still around 20% a year.

Liquidity conditions had remained accommodative early in the year but tightened towards the end of the second quarter, as evidenced by the sharp increase in the Repo rates in June (Chart 2.15). The liquidity squeeze reflected the result of multiple factors such as a drop in capital inflows and a seasonal rise in demand for money by enterprises to pay taxes. It was reported that some interbank market participants had engaged in excessive arbitrage activities and were lax in liquidity risk management. In late June, the PBoC announced that it would proactively smooth abnormal short-term interbank liquidity fluctuations, and interbank liquidity conditions have eased recently.

Chart 2.15
Mainland China: money market rates



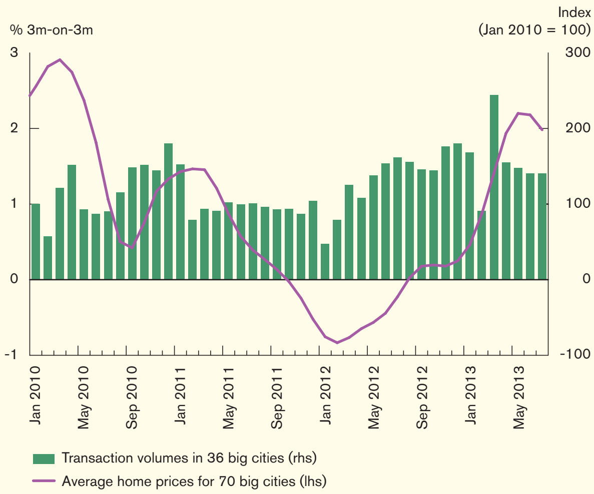
Sources: CEIC and WIND.

The PBoC took an important step in interest rate liberalisation by removing the floor for banks' lending rate effective from 20 July.[4] This policy move is not expected to have much immediate impact on banks' net interest margin as the previously imposed lending rate floor had been barely binding in practice.

Equity markets were subdued and have under-performed major markets amid continued weakening of corporate profitability, increased downside risks to the growth prospect as well as concerns over the liquidity squeeze in June. The price-to-earnings ratio of Shanghai A shares dropped from a recent high of 13 in early February to an historical low of 10 in late June before improving somewhat in recent weeks.

Housing market activities have regained some momentum in the past few months. The authorities launched another round of measures to dampen speculative demand in late March. As these measures turned out to be less stringent than expected by markets, and underlying demand remained strong, property prices have continued to rise, albeit at a slower pace more recently (Chart 2.16). Property transaction volumes held steady in recent months after a surge in March when some market participants rushed for deals amid specification of impending implementation of a new round of policy measures.

Chart 2.16
Mainland China: house prices and sales



Notes:
1. The transaction volume index is constructed based on the number of units sold in each month in 36 big cities, including Beijing, Shanghai, the provincial capital cities and major prefecture-level cities for which data are available.
2. Average home prices are the simple averages of the price indices for the 70 major cities published by the National Bureau of Statistics.

Sources: CEIC, WIND and HKMA staff estimates.

[4] The ceiling for banks' lending rate was removed in 2004.

The outlook for housing markets appears to have become more diverse across different geographical locations. Buoyancy in big cities is expected to continue as the overall underlying demand would stay robust amid the on-going urbanisation process and strong home improvement needs. Incentives for developers to cut prices would also largely remain weak given that solid growth in sale revenues would help reduce their financing pressures. However, small cities, particularly those in inland areas, may see more downside pressures amid a continued increase in property supply. Indeed, according to some market analysis, property inventories in some low-tier cities have increased significantly in recent years. [5]

The banking sector has generally performed well. Commercial banks continued to achieve double-digit profit growth in the first half. [6] The weighted capital adequacy ratio remained at around 12% as of the end of June, and commercial banks' loan loss reserves stayed at around 2.9 times of bad loans on average. The aggregate non-performing loan ratio remained low at 0.96% in June.

Nevertheless, the banking sector appears to be facing some pressures on asset quality. Specifically, market concerns over credit risks for those sectors with overcapacity problems and heavy dependence on exports have risen. Indeed, bad loans have been increasing in such sectors as steel and photovoltaic industries, as well as in the Yangtze Delta area where small- and medium-sized enterprises are more concentrated. Special-mentioned loans and overdue loans also rose at a fast pace in 2012, pointing to a further pick-up in bad loans going forward. [7]

Concerns over shadow banking activities in the Mainland financial system have grown. In contrast to shadow banking activities in major advanced economies, banks have been actively involved in a majority of shadow banking activities in Mainland China and these activities have been under regulatory oversight. Bank-originated off-balance sheet lending generally has higher underwriting standard and thus should face lower credit risks, but its funding risks could be more of a concern. Specifically, products financed by short-term deposit-like instruments such as banks' wealth management products (WMPs) appear to have maturity mismatch between their assets and liabilities. [8]

Reflecting these concerns, the authorities have stepped up prudential supervision of shadow banking activities. Specifically, in late March the China Banking Regulatory Commission issued a basket of new rules on banks' WMPs. Banks were required to link the source and usage of each WMP, and to manage, book and settle each product separately. For those WMPs that had been invested in the "non-standard" products but had not met these requirements by the announcement date of the new regulations, banks should make loss provisions accordingly by the end of 2013. [9] An upper limit was also set on the proceeds from the sales of WMPs that can be invested in non-standard products. [10] As long as these regulations are well enforced, risks relating to shadow banking activities would unlikely become systemic.

5 For instance, see "The outlook for China's property market in the second half of 2013" by China Index Academy.

6 The China Banking Regulatory Commission reports that commercial banks' net profit growth was 13.8% year on year in the first half of 2013, compared with 14.3% in the second half of 2012 based on our calculation using data from the Commission.

7 See "2013 China Financial Stability Report" by the PBoC. Special-mentioned loans and overdue loans rose by 8% and 46% respectively in 2012.

8 Official data show that the maturity of banks' WMPs has been shorter than three months in most cases, while the maturity of the products purchased through the WMP proceeds (for instance, trust products) could be relatively longer. The maturity of trust products is about two years on average.

9 "Non-standard" products refer to debt-based products that are not traded in interbank markets or security exchanges, such as trust loans, entrusted loans and acceptance bills.

10 Banks are prohibited from investing more than 35% of the total proceeds from the sales of WMPs, or more than 4% of their total assets recorded at the end of the previous year, whichever is the lower, in the non-standard products.

Box 1
Credit allocation and corporate leverage in Mainland China

Credit on the Mainland has continued to expand at a fast pace in the past few quarters, but real GDP growth declined further in the first half of the year. Accordingly, market analysts have raised the question, where has the money gone? Why has the "bang for the buck" been declining? This box attempts to shed some light on credit allocation across different sectors in Mainland China, and discusses the implications for economic growth. We start with credit distribution between financial and non-financial sectors, and then illustrate credit allocation across different industries within the non-financial sector.

Credit allocation between financial and non-financial sectors

One explanation for the divergence between credit and output growth is that the financial intermediation chain on the Mainland has become longer, with an increasing proportion of credit being channelled into the financial sector. This could reflect a structural change in the relationship between financial services and real economic activities. Allocation of credit between financial and non-financial sectors appears to be closely related to the development of an economy's financial markets. For instance, credit used for financial transactions in Japan increased from about 20% of total credit in the early 1980s to nearly 40% by the end of that decade along with the acceleration in financial liberalisation. [11] Credit circulating in the financial sector also increased sharply in the US during the period prior to the 2008 financial crisis amid rapid development of the shadow banking sector. [12] Other factors, such as strong expectations of financial asset price increases and an increase in the number of arbitrage opportunities in financial markets, could also pull more credit into the financial sector.

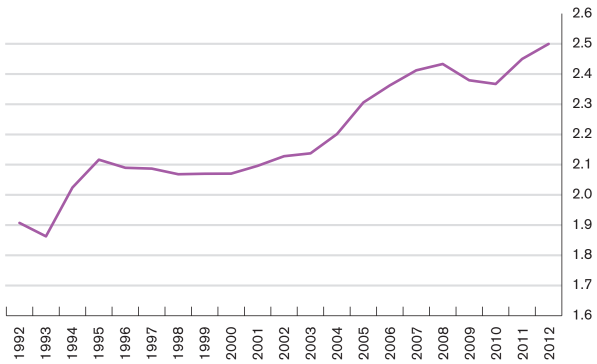
Fast development of financial markets in Mainland China suggests the financial sector may have absorbed an increasing proportion of credit. The credit intermediation chain index (CICI), which is constructed as the ratio of liabilities of all sectors (financial and non-financial sectors) to the liabilities of non-financial sectors (end users), could help illustrate the relative importance of the financial sector as destination for credit. This index can be interpreted as the average number of steps for funds to pass from ultimate lenders to ultimate borrowers. An increase in the CICI suggests credit would stay longer in the financial sector and thus relatively more credit would be used for financial transactions.

[11] See "Towards a new monetary paradigm: a quantity theorem of disaggregated credit, with evidence for Japan" by R. A. Werner, *Kredit und Kapital*, Vol. 30, No. 2, July 1997.

[12] See "Financial intermediation and the post-crisis financial system" by H. S. Shin, BIS Working Papers No. 304.

Indeed, the CICI estimated with flow-of-funds data has been trending upwards since the early 1990s, particularly in the past decade when financial markets developed at a fast pace (Chart B1.1).[13] It declined slightly during the global financial crisis but renewed its upward trend afterwards. In addition to financial deepening, cyclical factors might also have contributed to the continued increase in the Mainland CICI. For instance, it was reported that some market participants have used credit for excessive arbitrage activities in financial markets in recent quarters.

Chart B1.1
The Mainland credit intermediation chain index



Sources: CEIC and HKMA staff estimates.

This analysis also has important implications for judging monetary conditions in Mainland China. The increase in the CICI suggests that quantity indicators may have become less informative of monetary conditions than before. In contrast, price indicators could have become more useful amid continued interest rate deregulation and rising importance of market-driven prices of financial instruments.

Credit allocation across industries within the non-financial sector

Allocation of credit across industries within the non-financial sector also matters much for economic growth, as fund-use efficiency could differ significantly among industries. Because of market imperfections and structural impediments, credit might not have been allocated to those firms that have the capacity to generate higher investment and output. Indeed, anecdotal evidence shows that excess leverage seems to be concentrated among large firms in sectors that already have excess capacity. Asset price bubbles may also affect credit allocation. For example, banks have shown great interest in accommodating the demand for funds in the real estate sector amid strong expectation of property price increases. To have a clearer picture of credit allocation in different sectors, we analyse the build-up of leverage by using firm-level data.[14]

Partly reflecting the robust expansion of credit in recent years, leverage for the corporate sector in Mainland China has increased. The ratio of debt to total assets for listed non-financial firms renewed its upward trend in recent years to around 0.6 in the first quarter of 2013, following a drop in 2007 when monetary policy tightened (Chart B1.2). While the current level of leverage for the corporate sector as a whole is still far from being alarming,[15] leverages for a few major industries have increased much more significantly. Specifically, the real estate and major industries that already had overcapacity problems before the global financial crisis, such

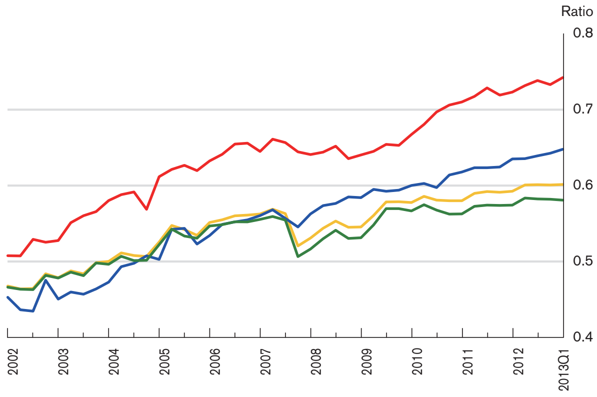
[13] As flow-of-funds data are only available up to 2010, data on government debt, corporate bonds, and bank loans for businesses and households are used to estimate non-financial liabilities for 2011-2012. For financial sector, balance sheet data of financial sector from the People's Bank of China are used for estimation of 2011-2012.

[14] The analysis below is based on data of all non-financial firms listed in Shanghai Stock Exchange and Shenzhen Stock Exchange.

[15] In fact, some industries such as health care, consumer staples, and information technology industries, have deleveraged in recent years.

as steel, coal chemical, aluminium, cement and photovoltaic, have continued to increase their leverages at a rapid pace (Chart B1.2).

Chart B1.2
Debt-to-assets ratio for listed non-financial firms

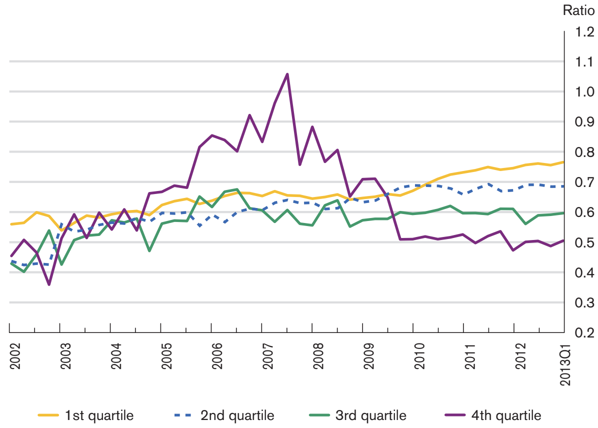


Note: Overcapacity industries include glass, cement, steel, photovoltaic, aluminium, shipbuilding and coal chemical.

Sources: Bloomberg and HKMA staff estimates.

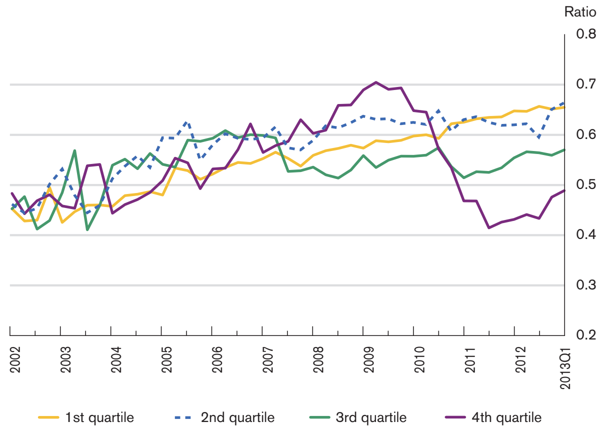
Leverage of bigger firms in the real estate and overcapacity industries has risen even faster than that of smaller ones as it is easier for large firms to borrow. For instance, the average leverage ratio for the top quartile of real estate developers in terms of asset size was close to 0.8 in the first quarter of 2013, while that for the lowest quartile stayed largely stable at around 0.5 in recent years (Chart B1.3). Similarly, the leverage ratio for top quartile of firms in overcapacity industries was around 0.65 in recent quarters, compared with around 0.5 for the lowest quartile of firms (Chart B1.4). Specifically, the leverage ratios of large coal chemical firms reached 0.8 in the first quarter of 2013, while those of big ship building and aluminium firms were around 0.7 recently (Chart B1.5).

Chart B1.3
Debt-to-assets ratio for listed real estate developers by asset size



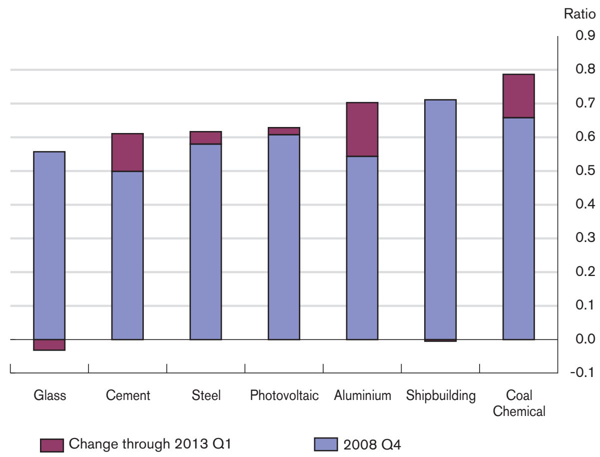
Sources: Bloomberg and HKMA staff estimates.

Chart B1.4
Debt-to-assets ratio for listed firms in industries with overcapacity problems



Sources: Bloomberg and HKMA staff estimates.

Chart B1.5
Debt-to-assets ratio for top quartile of firms in overcapacity industries

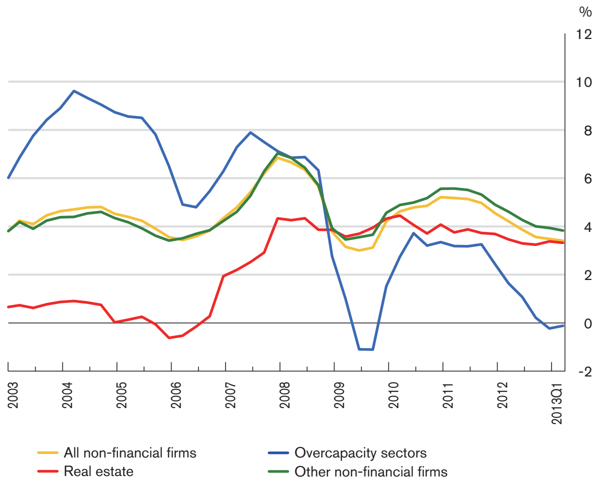


Sources: Bloomberg and HKMA staff estimates.

Significant increases in the leverages of these industries suggest their borrowing has likely grown at a faster pace than other industries. Continued property price increases and strong expectation of house price growth might have been a driving force for robust credit growth in the real estate industry, while government support for the "priority" industries, which are crucial for GDP growth and employment, might also have been a factor, especially in the wake of the global financial crisis. Some of these firms might have borrowed further in recent quarters just to maintain operation instead of expanding investment. Accordingly, fund-use efficiency in the manufacturing industries may have worsened, while lingering uncertainties over property prices, particularly in low-tier cities where concerns about oversupply have emerged, point to a decline in capital productivity in the real estate industry as well.

Indeed, the profitability of the listed firms in the real estate and overcapacity industries has been declining in recent years. Return on assets (ROA) of property developers has been lower than the average ROA of non-financial firms, and weakened in the past three years (Chart B1.6).[16] The ROA for overcapacity industries has trended downwards in the past decade, dropped at a fast pace in the past two years following a temporary recovery in 2010, and even became negative recently.

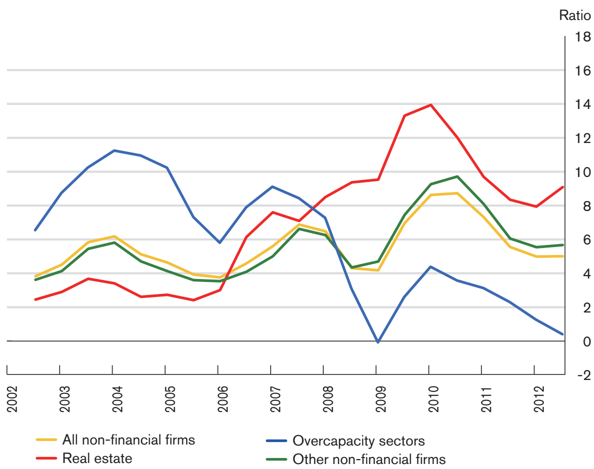
Chart B1.6
Return on assets for listed non-financial firms



Sources: Bloomberg and HKMA staff estimates.

Accordingly, these industries' debt repayment ability has posed a concern. The interest coverage ratio for real estate developers as a whole reversed the upward trend in 2009, but is still higher than the average ratio of non-financial firms (Chart B1.7). However, the interest coverage ratio for overcapacity industries has been trending downwards over the past decade and even touched zero in the second half of 2012. The situation is even more of a concern by looking at the interest coverage ratio for firms across asset sizes. Specifically, the interest coverage ratio for smaller listed developers has been much lower than that for larger ones recently (Chart B1.8). The interest coverage ratios for firms in the industries with overcapacity generally dropped regardless of asset sizes (Chart B1.9), and larger firms, which feature higher leverages, have seen lower interest coverage ratios than smaller ones.

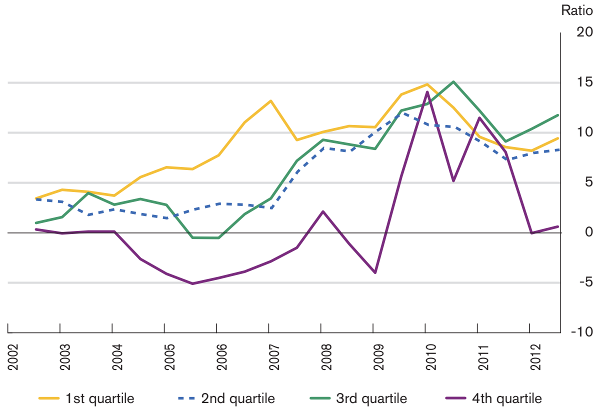
Chart B1.7
Interest coverage ratio for listed non-financial firms



Sources: Bloomberg and HKMA staff estimates.

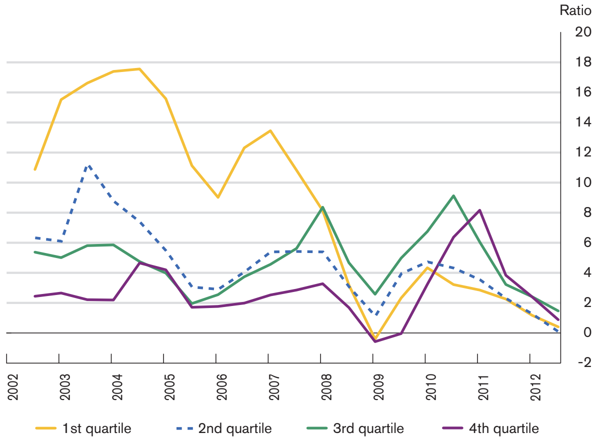
[16] Data up to 2011 suggest that profitability for non-listed developers had been much lower than for listed ones.

Chart B1.8
Interest coverage ratio for developers by asset size



Sources: Bloomberg and HKMA staff estimates.

Chart B1.9
Interest coverage ratio for listed firms in overcapacity industries



Sources: Bloomberg and HKMA staff estimates.

Concluding remarks

The main messages of this analysis are summarised as follows:

- The credit intermediation chain has continued to lengthen in recent quarters, with an increasing proportion of credit being channelled into the financial sector. This could reflect on-going changes in the structure of financial services and financial markets.

- Level of leverage for the corporate sector as a whole is less worrying, but leverages for real estate and the industries with overcapacity problems have increased more significantly (particularly for larger firms). This suggests credit to the less productive industries has likely grown at a faster pace than other industries.

- Accordingly, fund-use efficiency has generally weakened, partly explaining the recent widened divergence between credit expansion and economic growth. Looking ahead, corporate deleveraging and rationalisation of the overcapacity industries should help improve the efficiency of credit allocation.

3. Domestic economy

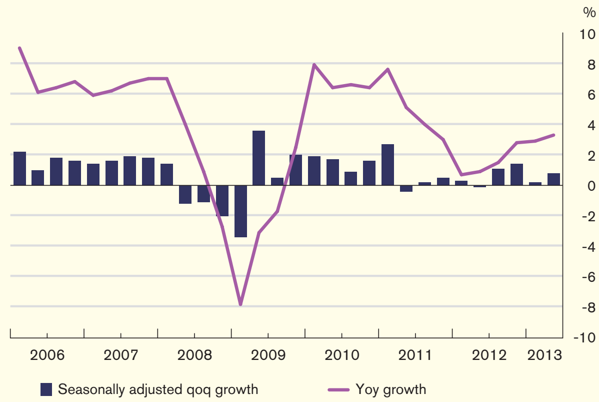
The Hong Kong economy grew slowly in the first half due to drags from trade in goods and moderating domestic demand. For the remainder of 2013, the sequential growth momentum is expected to remain moderate, possibly with stronger external demand being offset by softer private consumption amid increased asset market uncertainty. Inflationary pressure has alleviated slightly since May and is likely to remain steady in the rest of the year.

The labour market held up, with the unemployment rate hovering at a low level. The slightly negative output gap appears to have little impact on the labour demand.

3.1 Aggregate demand

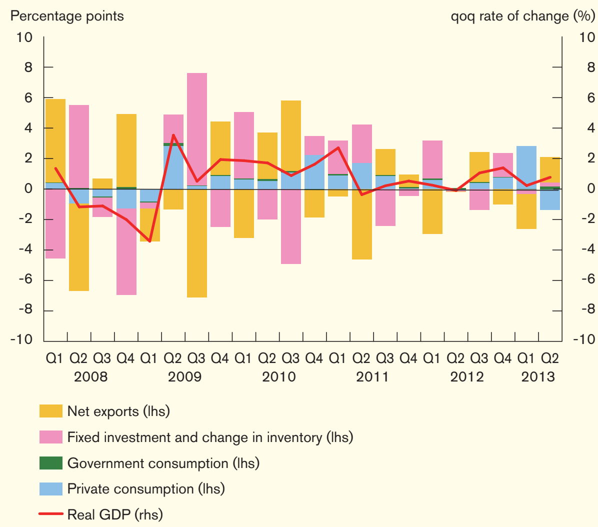
The Hong Kong economy continued to grow at a relatively slow pace during the first half of 2013. On a seasonally adjusted quarter-on-quarter basis, real GDP increased by 0.2% in the first quarter and 0.8% in the second quarter (Chart 3.1). While domestic demand remained the major contributor to growth for the first half as a whole, signs of moderation in private consumption emerged in the second quarter owing in part to increased macroeconomic uncertainty and more volatile financial market conditions (Chart 3.2). Exports of goods continued to be a drag on growth amid feeble demand in the advanced economies and weaker intra-regional trade, while exports of services, particularly inbound tourism, still provided some support. Taken together, net exports remained a drag on real GDP growth for the first half as a whole. Along with the moderate sequential momentum, the year-on-year real GDP growth stalled at 2.9% in the first quarter and rose a little to 3.3% in the second quarter, still some way off the annual average growth of 4.6% over the past 10 years.

Chart 3.1
Real GDP growth



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.

This below-trend growth path is expected to continue into the rest of the year. As the recovery in the US economy progresses steadily and the euro area has returned to slow growth by the second quarter, external demand is likely to improve somewhat going forward. However, slower real income growth and less favourable wealth effect from weaker asset markets may translate into softer growth in domestic private consumption, even though the still-positive consumer confidence and resilient employment conditions will continue to render support. While large-scale infrastructure works and private-sector building and construction activities will sustain moderate growth, the momentum of private-sector capital investment is expected to remain weak in the face of concerns over interest rates and liquidity conditions, and cautious business sentiment.

As to GDP forecasts, private-sector analysts have seen less upside to Hong Kong's real GDP and have successively revised downward their growth forecasts to an average of 2.9% for 2013, compared with a high of 3.5% in earlier rounds of forecasts (Chart 3.3). Meanwhile, the Government has narrowed the growth forecast to 2.5 - 3.5% in August, more in line with the range suggested by private-sector forecasters. The softening of the HKMA in-house composite index of leading indicators (in terms of the six-month rate of change) also points to moderate economic growth ahead (Table 3.A).

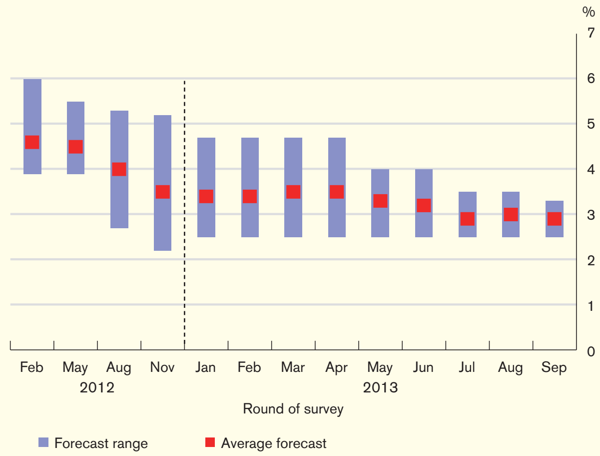
Table 3.A
Recent trends of the coincident economic indicator and the leading economic indicator

	% change over one month		% change over six months	
	CEI	LEI	CEI	LEI
2013				
Jan	1.6	0.9	8.1	3.9
Feb	0.2	0.3	7.1	4.0
Mar	1.3	0.3	7.4	3.9
Apr	1.7	0.4	8.2	3.4
May	-1.1	0.2	5.0	2.9
Jun	0.3	0.0	4.1	2.1
Jul	n.a.	0.5	n.a.	1.7

Note: The six-month rate of change of a leading economic indicator is commonly referred to for detection of any business cycles turning points.

Source: HKMA staff estimates.

Chart 3.3
Consensus forecasts for 2013 real GDP growth



Source: Consensus Economics.

This growth outlook is subject to a number of uncertainties and risks. On the downside, uncertainties surrounding the US monetary stance remain acute and the Mainland China economy still faces latent macro-financial risks. All these could aggravate volatilities in the financial market conditions, fund flows and liquidity situations and overshadow Hong Kong's growth prospects. On the domestic front, risks in the property market still linger, threatening broader macroeconomic adjustments and asset price corrections when external shocks such as interest rate hikes occur. Box 2 further discusses how interest rate hikes in the US could potentially affect the Hong Kong economy by looking at the experience during the 1994 US bond market crash. On the upside, better-than-expected economic performance of the advanced economies and the Mainland China economy could lift global growth and international trade flows, thereby raising Hong Kong's external demand and boosting consumption expenditure perhaps through improved consumer sentiment.

Box 2
Experience of the 1994/95 interest rate up-cycle and its impact on Hong Kong

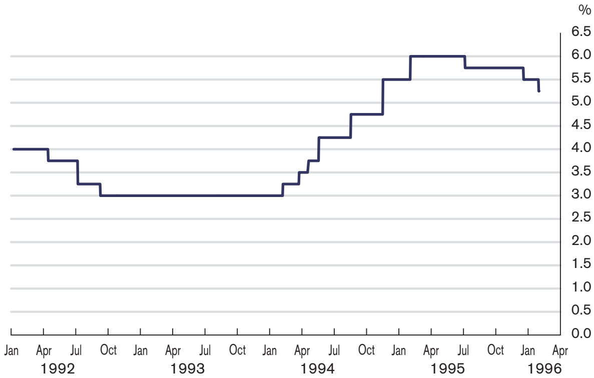
Interest rates have been at extremely low levels in the US since late 2008 as the US Federal Reserve (Fed) lowered the Federal Funds Target Rate to 0 - 0.25% and implemented a series of quantitative easing measures. Now after almost five years, with signs of the US economy on a firmer footing, there is much talk about how the Fed would exit from the easy-money policy. Considerable policy uncertainties remain that could easily upset the financial markets and have important ramifications on the macro-economy.

In the Fed's history, there was an episode of policy tightening that might provide a guide to what could happen as the Fed exits its quantitative easing policy. In this Box, we review the experience of policy normalisation by the Fed during 1994-95 and its economic and financial impact on Hong Kong.

Experience of the 1994/95 interest rate up-cycle

In February 1994, the Fed started to tighten its monetary policy stance after keeping the policy rate unchanged at a multi-decade low of 3% for more than five quarters (Chart B2.1). In the following 12 months, it raised the policy rate by a total of 300 basis points to 6%. This rate hike cycle was largely triggered by the Fed's concerns about re-acceleration of inflation at that time. The economy had been out of the recession of the early 1990s for almost two years (during which the Fed had maintained a monetary stance more accommodative than that implied by the Taylor rule to stimulate growth as well as to support a banking sector which was hit by the savings and loan crisis) and growth momentum was accelerating, narrowing the negative output gap. Although inflation had not yet picked up notably, the Fed decided to hike policy interest rate so as to pre-empt inflation rate and normalise the overly-accommodative monetary stance.

Chart B2.1
US Federal Funds Target Rate in 1992-96



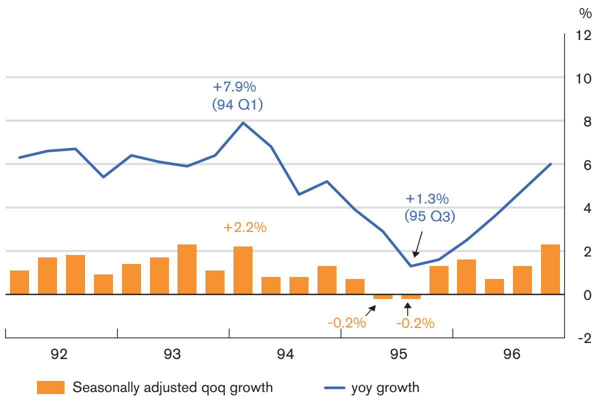
Source: Board of Governors of the Federal Reserve System.

The rapid interest rate hikes shocked the US financial markets, ensuing sell-offs in the Treasury market. The benchmark constant maturity 10-year Treasury yield shot up from 5.8% just before the first rate hike in early February 1994 to a peak of about 8% in November. Short-term Treasury yields rose even more, flattening the yield curve. The low and stable interest rate environment and steep yield curve before the February 1994 rate hike fostered the perception of one-way bet. As a result, financial institutions took up sizable leveraged position in the bond market by going long longer-term fixed income securities funded by short-term borrowing, i.e. carry trade. The budding derivatives market added fuel to the fire.

As the Fed tightened, the market suddenly realised that liquidity had been very concentrated and everyone was in the same trade. In other words, there was a bubble in the bond market. The simultaneous liquidation of leveraged positions following the Fed's rate hike burst the bubble and led to a panic sell-off and crash in the US bond market. This was accompanied by wholesale dumping of bonds in Europe and Asia as well. In terms of real activities, there was no severe impact on the US, with real output and unemployment continuing to improve amid stable inflation.

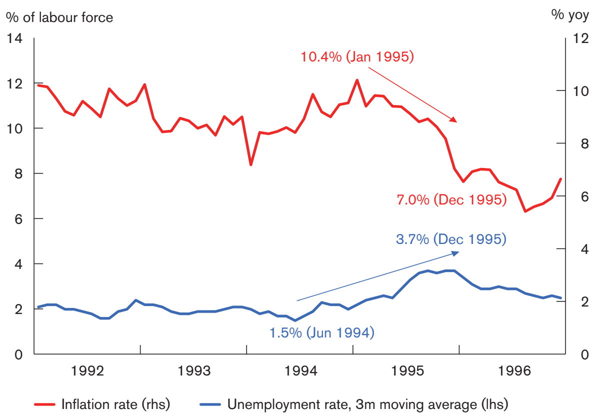
The impact on Hong Kong was mildly negative, without degenerating into a full-blown financial crisis. Hong Kong's real GDP growth moderated below trend for six quarters between the second quarter of 1994 and the third quarter of 1995 (Chart B2.2). Private consumption softened due to worsening employment conditions, fragile sentiment and the negative wealth effect of asset price adjustments, while fixed investment remained supported by large-scale infrastructure works and private-sector capital spending. The unemployment rate climbed from 1.5% in June 1994 to 3.7% in December 1995, while inflationary pressure began to ease from early 1995 (Chart B2.3).

Chart B2.2
Hong Kong's real GDP growth in 1992-96



Source: C&SD.

Chart B2.3
Inflation and unemployment in 1992-96

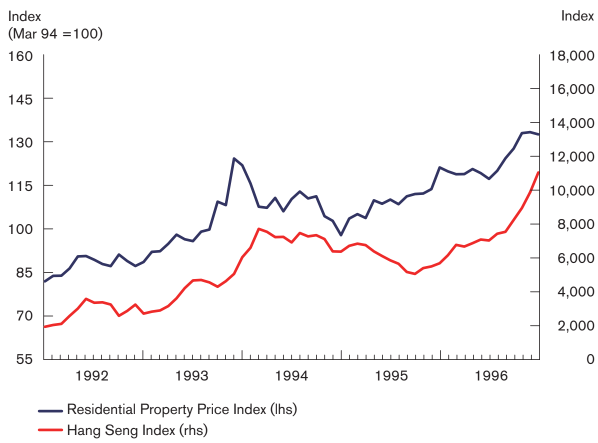


Source: C&SD.

Monetary conditions also tightened noticeably, with the Hong Kong dollar interbank rates rising in close parallel with their US dollar counterparts and loan growth slowing. By January 1995, the three-month HIBOR had risen to around 7.2%. Compared with the 300-basis-point increase in the Fed Funds Target Rate, Hong Kong's Best Lending Rate climbed by 250 basis points to 9.0% and the average mortgage interest rate rose by the same amount to 10.75%. Growth in domestic credit moderated on a broad base from 18.0% in 1994 to 12.0% in 1995.

Meanwhile, the equity market faced significant sell-off pressure, with the Hang Seng Index plunging 43% over a year (Chart B2.4). Though it bounced back in 1995, the Hang Seng Index remained 17% off the high before the market sell-off. Based on our crude estimates, there were net outflows of about HK$24 billion (2% of GDP) from Hong Kong, although this only occurred briefly in February - May 1994 and was quickly offset by inflows later in the year.[17] Housing prices saw a protracted decline and fell 16% over 19 months, while transaction volume fell by about one-third. But on the whole, the tighter credit conditions and asset price corrections did not severely weigh on Hong Kong's macroeconomic and financial stability.

Chart B2.4
Equity prices and housing prices in 1992-96



Sources: R&VD and CEIC.

[17] The estimates are based on the combined changes in AI's net spot foreign currency positions, the banking sector's balances and Exchange Fund papers. Roughly speaking, the estimates refer to net Hong Kong dollar fund flows into and out of the non-bank private sector.

Conclusions

The lesson from the 1994/95 episode of policy normalisation is that market reactions triggered by policy surprises can be very large, particularly if imbalances had already built up during a prolonged extreme policy environment. While the impact of the 1994/95 episode on Hong Kong was relatively mild, this was in large part due to stronger external demand partially offsetting the negative impact from repricing of the yield curve. Fast forward to the present, the potential impact on Hong Kong from Fed's policy normalisation could be larger, given that some domestic imbalances have been building up, particularly in the property market. Therefore, readers should be vigilant and brace themselves for the potential volatilities and shocks from the Fed's policy normalisation.

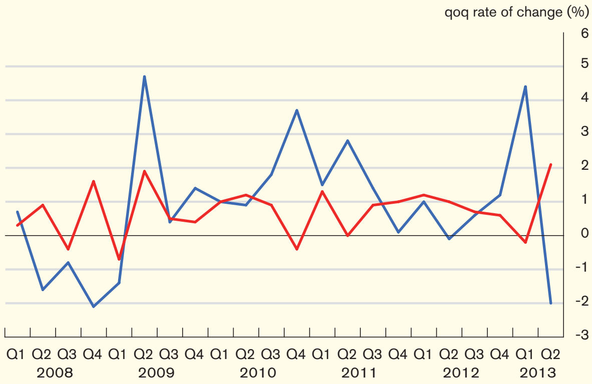
3.2 Domestic demand

Consumption

Private consumption remained relatively strong in the first half on the back of broadly supportive labour market conditions. The sequential path was however volatile, with an outsized growth of 4.4% in the first quarter followed by a 2.0% decrease in the second quarter. The ease-back appeared to be largely a technical decline due to the high base effect, though it also partly reflected somewhat softer consumption demand dragged by weaker local stock market performance and increased macro-financial uncertainties (Chart 3.4). However, given that consumer confidence is still broadly positive and the employment conditions remain resilient, it is expected that private consumption will sustain moderate growth in the remainder of the year. Overall, the latest market consensus expects a 4.5% growth for 2013, compared with 3.0% in 2012.

By contrast, government consumption contracted a little by 0.2% in the first quarter and rebounded strongly by 2.1% in the second quarter (Chart 3.4). Its growth rate is expected to remain robust in the rest of the year. According to the 2013/14 Budget, the recurrent part of public expenditure is projected to rise by 8.4% in real terms in the current fiscal year, higher than the 6.8% increase in 2012/13.

Chart 3.4
Private and government consumption



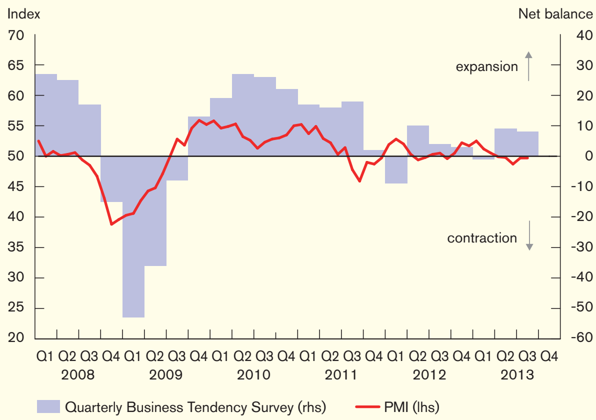
Source: C&SD.

Investment

Overall investment spending went through a soft patch, with a mild dip in the first quarter roughly compensated by a pick-up in the second quarter. In particular, gross fixed capital formation improved sequentially in the second quarter amid stronger private-sector building and construction activities and a revival in business capital spending (partly driven by increased purchases of aircraft). Public-sector infrastructure works continued to moderate after several years of strong growth. Inventory investment was relatively stable.

Looking ahead, building and construction activities are expected to progress steadily in the remainder of the year as private-sector building approvals have broadly trended up. The on-going large-scale public infrastructure works should also render support, but only modestly due to the high base effect. As for private-sector capital investment, the near-term outlook continues to be less certain amid headwinds from the volatile stock markets and increased concerns over interest rates and liquidity conditions. Business sentiment also remains cautious, with a mixed bag of data from the Quarterly Business Tendency Survey (QBTS) and the PMI readings (Chart 3.5). The latest market consensus expects growth in gross fixed capital formation to moderate to 4.8% in 2013 from 9.4% last year.

Chart 3.5
Business sentiment

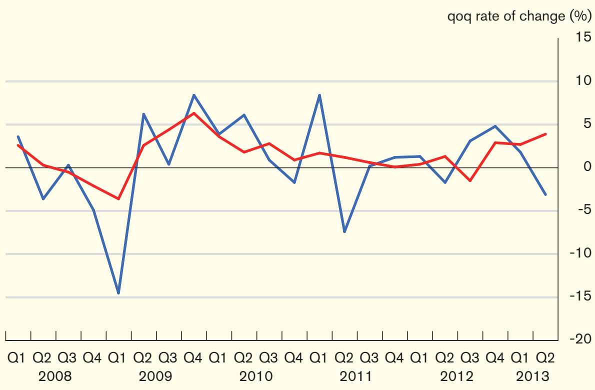


Sources: C&SD and Markit Economics.

3.3 External trade

Hong Kong's export performance was sluggish in the first half due to weak demand from the advanced economies and moderating intra-regional trade. Exports of goods fell by 3.1% in the second quarter after increasing by a modest 1.8% in the previous quarter (Chart 3.6). The markets of the US, European Union and Japan were weak throughout the first half and exports to Mainland China slowed visibly in the second quarter. In contrast, exports of services grew faster at 3.9% in the second quarter compared with 2.7% in the first quarter. While inbound tourism continued to render support, contributions from merchanting and financial services were subdued amid lacklustre merchandise trade flows.

Chart 3.6
Exports of goods and services



Source: C&SD.

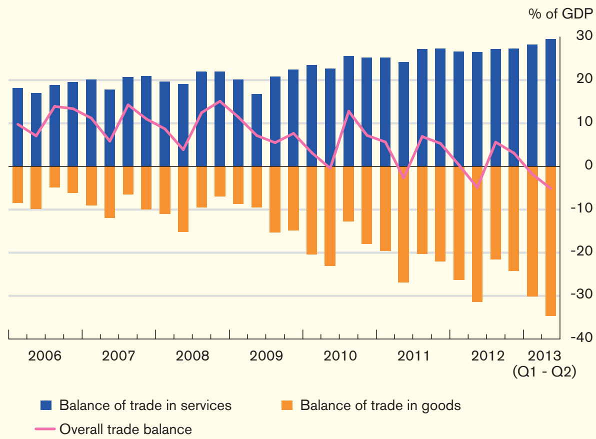
Imports of goods grew by 3.1% in the first quarter but weakened to post a 2.2% decline in the second quarter (Chart 3.7). This was mainly due to renewed drags from export-induced import demand (as reflected in re-exports of goods). Retained imports, on the other hand, picked up in the second quarter after a moderate decrease in the first quarter. Meanwhile, weaker outbound tourism and demand for professional and financial services caused imports of services to fall by 3.0% in the second quarter, offsetting the 1.9% increase in the first quarter.

Chart 3.7
Imports of goods and services

Sources: C&SD and HKMA staff estimates.

Net exports added 1.7 percentage points to real GDP growth in the second quarter after two quarters of notable drags. But this improvement was largely due to the weaker performance of imports than that of exports. In value terms, the seasonally unadjusted overall trade balance recorded a deficit of $34.5 billion (3.5% of GDP) in the first half of 2013, compared with a $21.6 billion (2.3% of GDP) deficit in the first half of 2012 (Chart 3.8).

Chart 3.8
Trade balance by component (in nominal terms)



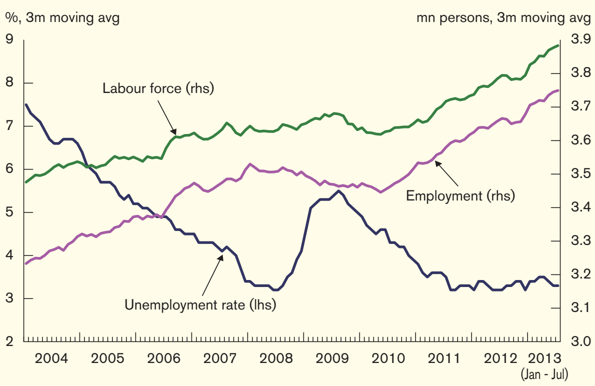
Source: C&SD.

Going forward, despite some slowdown in Mainland China's economy and in the region, overall external demand for Hong Kong's exports is likely to grow modestly on the back of the accelerating pace of recovery in advanced economies (especially the US). The latest QBTS also pointed to a slight improvement in Hong Kong's exports of goods. On the other hand, softening inbound tourism and weak external demand for professional and financial services would weigh on Hong Kong's services exports. With domestic demand starting to moderate, imports of goods and services will likely progress quite steadily.

3.4 Labour market conditions

The labour market held up despite moderating growth momentum in the economy. The seasonally adjusted three-month moving-average unemployment rate returned to 3.3% in July 2013 after edging up to 3.5% in March and April (Chart 3.9). The labour force participation rate remained on the uptrend, increasing to 61.6% in July 2013, the highest level since 2007. Meanwhile, the employment figure also reached a record high of 3.75 million in the same month. Tightness in the labour market was broad-based, with the unemployment rate in major sectors, such as financing, insurance, real estate, professional and business services and transportation, storage, postal, courier services, information and communications, staying low in the period.

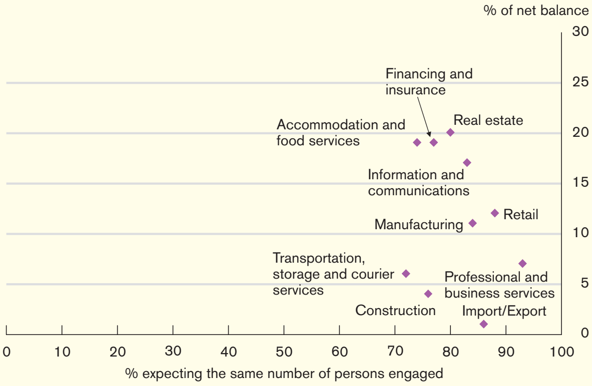
Chart 3.9
Labour market conditions



Source: C&SD.

In the near term, the labour market will continue to be supported by the resilient domestic demand. In the latest QBTS for the third quarter 2013, respondents from all surveyed sectors anticipate a rise in their employment in the near term, indicating the robust demand for labour (Chart 3.10).

Chart 3.10
Quarterly Business Tendency Survey for third quarter: 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.

While the potential output continued to edge up in the first half amid the expansion of labour force and its participation rate, the actual economic growth was at a relatively moderate pace, driving the economy to operate at a level slightly below its potential. Nonetheless, the narrow negative output gap appears to have little impact on the labour market, with the unemployment rate staying relatively low.

Labour costs edged up slightly in the first quarter of 2013 when compared with the previous quarter. While the real payroll per person drifted down by 0.2% in the first quarter (Chart 3.11), the faltering momentum of output growth has weighed more on labour productivity, driving up the real unit labour costs up by 0.8% in the period.

Chart 3.11
Unit labour cost and labour productivity

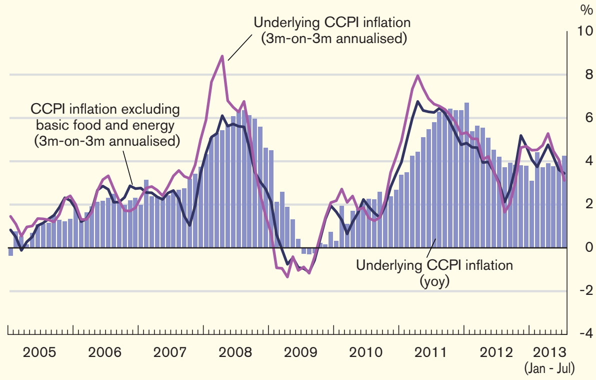
Sources: C&SD and HKMA staff estimates.

Looking ahead, the overall labour market is expected to remain tight, as the resilient domestic sector continues to support job creation. Nonetheless, hiring sentiment may become cautious, reflecting concerns over the Fed tapering its asset purchase programme and the Mainland China's slowdown.

3.5 Consumer prices

Local inflationary pressure stayed firm during the first four months of 2013 but has slightly moderated since May. After reaching 5.3% in April, the annualised three-month-on-three-month underlying inflation rate slowed to 3.1% in July (Chart 3.12). Excluding the volatile components of basic food and energy, the core underlying inflation rate shared a similar trend, indicating that the upward price pressures may have moderated. Despite the swings in the sequential momentum, the year-on-year underlying inflation rate remained relatively stable at about 3.9% during the first seven months of 2013 except for the fluctuation in January and February due to differences in the timing of the Chinese New Year.

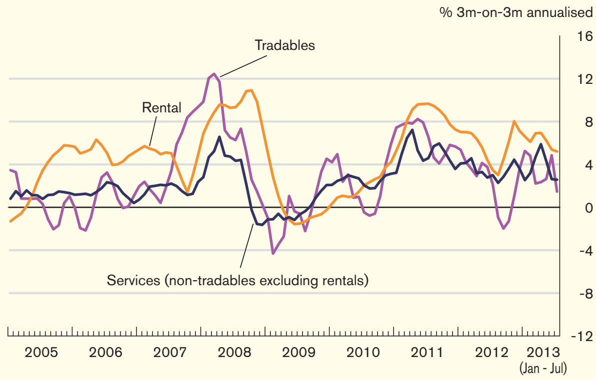
Chart 3.12
Different measures of consumer price inflation



Sources: C&SD and HKMA staff estimates.

The recent alleviation in the sequential inflation momentum was largely driven by the non-tradables and rentals (Chart 3.13). In particular, the non-tradable component inflation rose to 5.9% in April before coming down to 2.6% in July, mainly attributable to a similar trend in the miscellaneous service component. The rental component inflation also slowed to 5.2% in July from 6.9% in April. On the other hand, driven by the basic food component, the tradable component inflation edged up between April and June before retreating in July.

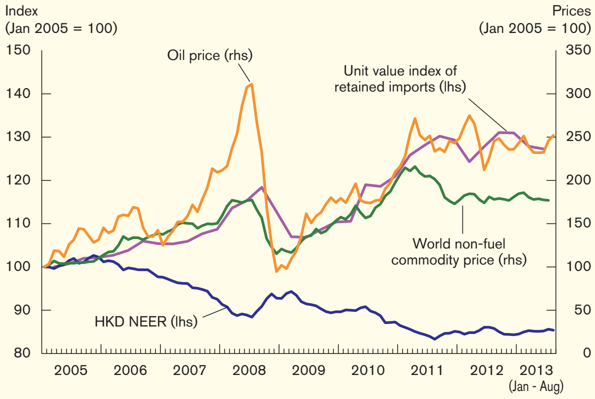
Chart 3.13
Consumer price inflation by broad component



Sources: C&SD and HKMA staff estimates.

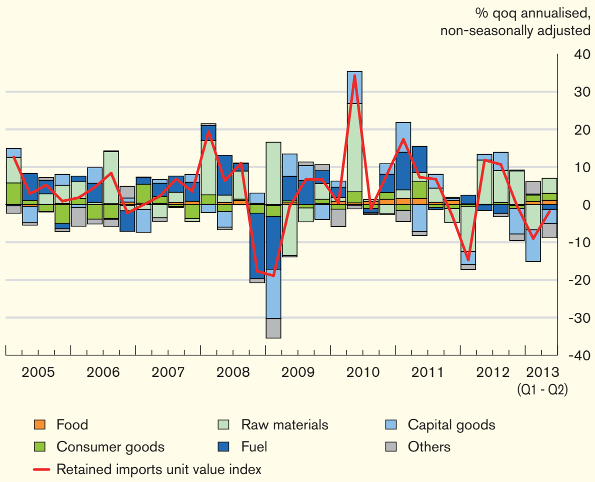
Import price inflationary pressures eased in the first half of 2013 amidst softened global commodity prices. The quarter-on-quarter annualised inflation rate decreased to -9.0% in the first quarter and only moderated to -1.8% in the second quarter (Chart 3.14). Analysed by end-use category, capital goods component has become the main driver of import price decline (Chart 3.15).

Chart 3.14
Commodity and import prices



Sources: C&SD and IMF.

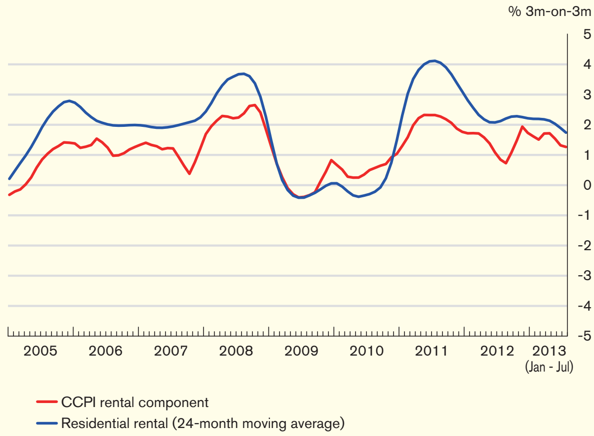
Chart 3.15
Contributions to import price inflation



Sources: C&SD and HKMA staff estimates.

Looking ahead, the sequential inflation momentum is likely to ease slightly amid the alleviated housing rentals (Chart 3.16). The annual year-on-year inflation rates in 2013 may remain steady, with the latest Government forecast for the underlying inflation rate revised downward slightly from 4.2% to 4.0%. Moreover, the local output gap is estimated to be slightly negative in the first half of 2013, restraining the near-term labour cost pressures.

Chart 3.16
CCPI rental component and market rentals



Note: CCPI rental component excludes the effects of one-off special relief measures.
Sources: Rating and Valuation Department (R&VD), C&SD and HKMA staff estimates.

The inflation outlook is subject to risks on both sides. On the upside, the geopolitical tension in Middle East may boost the oil price. On the downside, the US tapering its asset purchase programme and Mainland China's slowdown may pose negative risks to global economic activity and, consequently, local inflationary pressure.

4. Monetary and financial conditions

Exchange rate, interest rates and monetary developments

The Hong Kong dollar exchange market has continued to trade in an orderly manner and the exchange rate has stayed close to the strong-side Convertibility Undertaking (CU). Growth of Hong Kong dollar monetary aggregates has remained subdued, but growth of credit, particularly loans for external use, has regained some momentum and may raise prudential concerns.

4.1 Exchange rate and interest rates

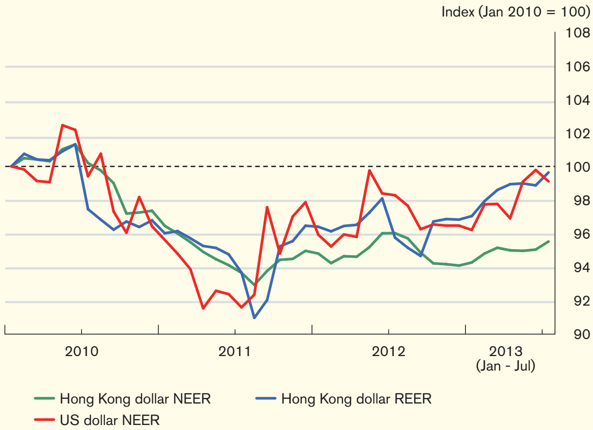
The Hong Kong dollar exchange market has continued to trade in an orderly manner and the spot exchange rate stayed within a tight band of 7.751 - 7.765 in the first half of 2013, despite volatile global and domestic financial conditions during the period. The first quarter saw the Hong Kong dollar exchange rate easing back slightly from the strong-side CU level along with the consolidation in the local equity market (Chart 4.1). In the second quarter, the local equity market faced even more sell-off pressure amid concerns about a tapering of asset purchases by the US Fed and a slowing Mainland China economy. But the Hong Kong dollar exchange rate instead strengthened modestly due to banks' rising liquidity demand. In July and August, the spot exchange rate continued to move in a tight range and closed at 7.7551 at the end of August.

Chart 4.1
Hong Kong dollar exchange rate

Source: HKMA.

The trade-weighted Hong Kong dollar nominal effective exchange rate index (NEER) rose by 1.0% during the first half of 2013 (Chart 4.2). This mainly reflected the appreciation of the US dollar against most major currencies amid improving growth prospects of the US economy. Meanwhile, the Hong Kong dollar real effective exchange rate index (REER) strengthened at a faster pace relative to the Hong Kong dollar NEER, due to slightly higher inflation in Hong Kong relative to its trading partners.

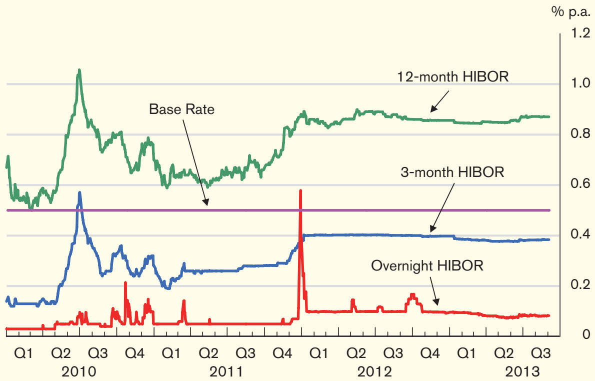
Chart 4.2
Nominal and real effective exchange rates



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

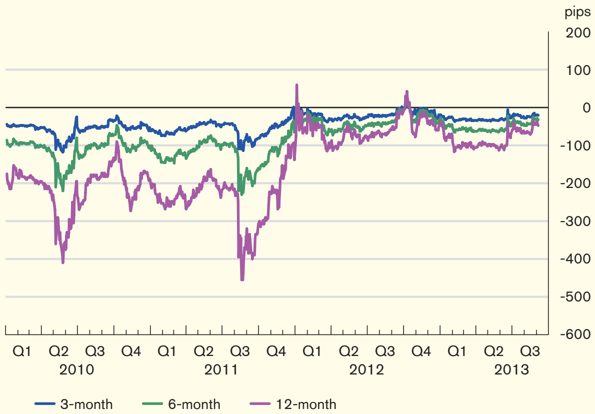
The Hong Kong dollar interest rates continued to stay low in the first half of 2013 (Chart 4.3). The Base Rate under the Discount Window operated by the HKMA remained unchanged at 0.5% with the Federal Funds Target Rate kept at 0 - 0.25%. In the Hong Kong dollar money market, the interbank rates were also generally stable, with the overnight and three-month HIBOR fixing edging down to 0.09% and 0.38% at the end of June. The 12-month HIBOR fixing however increased by one basis point to 0.87%. Mainly reflecting a decline in the US dollar LIBORs, the Hong Kong dollar forward discount broadly narrowed in the first half of 2013 (Chart 4.4).

Chart 4.3
Hong Kong dollar interest rates



Sources: CEIC and HKMA.

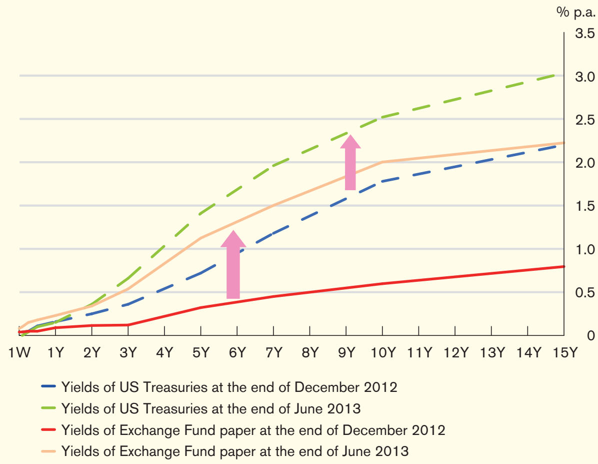
Chart 4.4
Hong Kong dollar forward points



Source: HKMA.

On the other hand, the yields of Exchange Fund paper broadly moved up and steepened along with their US dollar counterparts (Chart 4.5). The pick-ups were particularly notable in the second quarter amid heightened concerns of a tapering in asset purchases by the US Fed and an earlier-than-expected policy rate hike. Overall, the yields of Exchange Fund paper saw slightly larger increases, thus leading to a modest narrowing in the long-dated yield spreads with the US Treasuries.

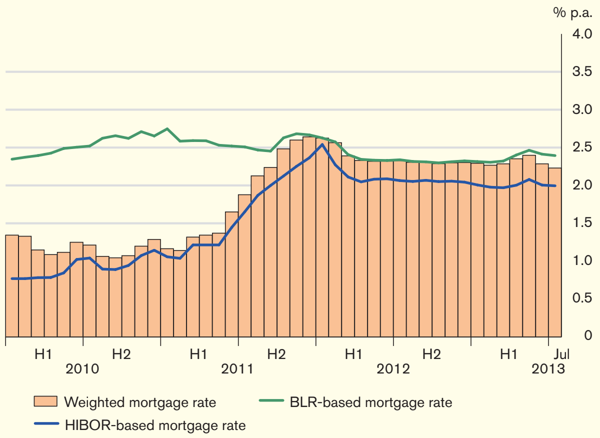
Chart 4.5
Yield curve movements in the first half of 2013



Source: HKMA.

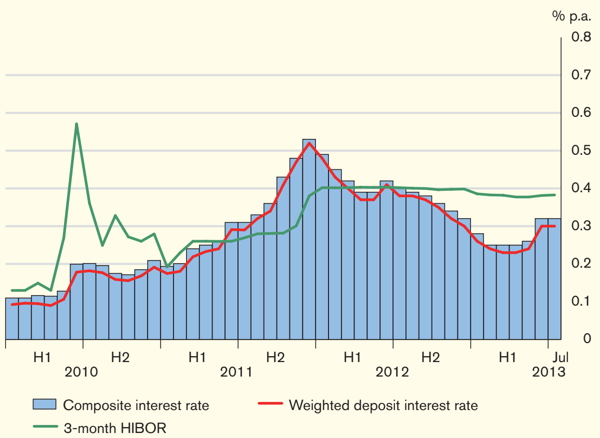
At the retail level, the Hong Kong dollar interest rates remained low in the first half of 2013. While the Best Lending Rates (BLR) was stable at 5.00% or 5.25%, the average mortgage interest rate for new mortgages fluctuated mildly between 2.27% and 2.40%. In particular, banks raised the mortgage rates in April and May reportedly due to the impact of a mandatory increase in the risk-weight floor for residential mortgages, but later in June they offered more attractive HIBOR-based mortgage schemes (Chart 4.6). On the funding side, after stabilising at a low of 0.23% in March and April, the weighted deposit rates picked up in May and June largely due to increased liquidity demand from banks (Chart 4.7). As such, the composite interest rate, which indicates the average cost of funds for banks, climbed to 0.32% in June after decreasing to a recent low of 0.25% in February.

Chart 4.6
Mortgage interest rates for newly approved loans



Note: All mortgage rates are estimates only.
Source: HKMA staff estimates.

Chart 4.7
Deposit interest rates and the average cost of funds



Sources: HKMA and CEIC.

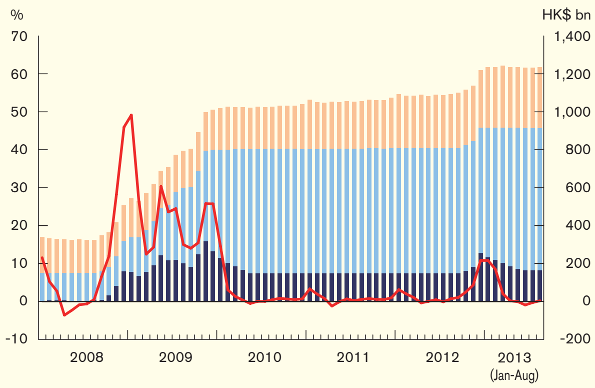
Interest rates edged down again more recently at both the wholesale and retail levels along with improvement in banks' liquidity conditions, yet the long-dated yields of Exchange Fund paper continued to stay at recent high levels. In the near term, the low interest rate environment is expected to continue in Hong Kong. The latest consensus estimates project the three-month HIBOR to be roughly stable in the range of 0.4 - 0.5% over the next 12 months. Broadly tracking the movements of interbank rates, lending and deposit rates are likely to remain relatively low in the near term, although the exact pricing would still hinge on the relative demand and supply conditions for loans and deposits.

But further ahead in the medium term, the latest term structure of swap rates has pointed to steeper increases in the Hong Kong dollar interbank rates, for example, by some 200 basis points for the three-month HIBOR in three years' time. In fact, markets remain nervous about any change in the Fed's monetary stance and could be responsive to incoming economic data and Fed's communications. As such, it is expected the US dollar and Hong Kong dollar interest rates, as well as the bond markets, could see much volatility in the period ahead.

4.2 Money and credit[18]

The Monetary Base stood at HK$1,231.8 billion (or 59.2% of GDP) at the end of June and little changed from the end of 2012, with small fluctuations stemming from changes in the outstanding Certificate of Indebtedness (CIs) and currency notes (Chart 4.8). In the absence of net inflows, the strong-side CU was not triggered. This contrasted with the repeated triggering in the fourth quarter last year that had led to inflows of HK$107.2 billion during the quarter. On the other hand, the Aggregate Balance fell in the first half of 2013, to HK$163.9 billion at the end of June upon the additional issuance of HK$92.0 billion of Exchange Fund Bills.

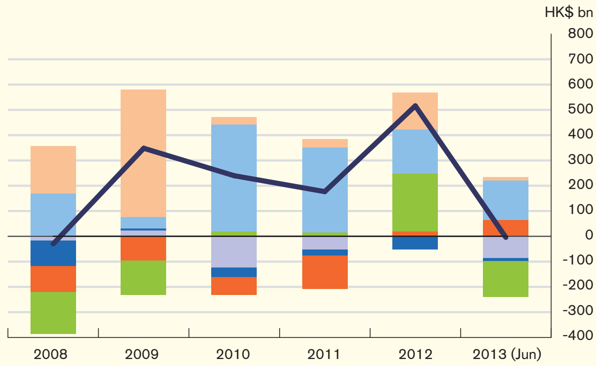
Chart 4.8
Monetary Base components



Source: HKMA.

The Hong Kong dollar monetary aggregates also held steady after recording a brisk increase in 2012. The Hong Kong dollar broad money supply (HK$M3) only increased marginally by an annualised 0.4% during the first half of 2013. Within the HK$M3, coins and notes in the hands of the public rose by an annualised 12.5%, while bank customers' deposits and negotiable certificates of deposits held by the non-bank sector decreased by 0.4% and 0.5% respectively. Analysed by the asset-side counterparts of the HK$M3 under the framework of monetary survey, AIs' net foreign currency assets and their capital and reserves (which were part of net other items), were contractionary on broad money supply, while robust growth in domestic credit and an increase in AI's claims on banks abroad provided an offset (Chart 4.9). On the other hand, the seasonally adjusted Hong Kong dollar narrow money supply (HK$M1) grew much faster than the HK$M3, at an annualised rate of 16.1% due to fast increases in coins and notes in the hands of the public and demand deposits.

Chart 4.9
Changes in the HK$M3 and the asset-side counterparts



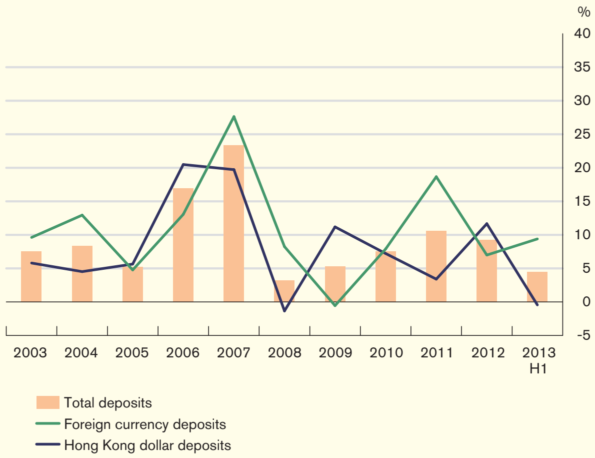
Note: The HK$M3 in the monetary survey has been adjusted to include foreign currency swap deposits and to exclude government deposits and Exchange Fund deposits with licensed banks.

Source: HKMA staff estimates.

[18] Unless otherwise stated, the annualised rate of change presented in this section is prorated based on the year-to-June rate.

During the first half of 2013, Hong Kong dollar deposits edged down by an annualised 0.4%, but foreign currency deposits continued to increase robustly by 9.4% (Chart 4.10). Within the latter, US dollar deposits declined notably, while deposits in other currency denominations picked up due partly to a sharp rise in renminbi deposits. The recent developments of renminbi deposits are discussed in further detail later in this section. Overall, total deposits with the AIs increased by an annualised 4.4% in the first half of 2013, slower than the 9.3% increase for the whole of 2012.

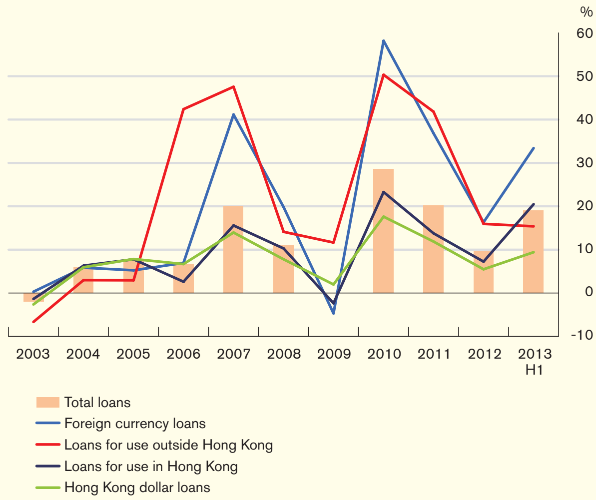
Chart 4.10
Deposit growth



Note: Growth rates in 2013 H1 are annualised.
Source: HKMA.

On the credit side, total loan growth accelerated sharply to an annualised rate of 19.0% in the first half of 2013, yet with most of the expansion being recorded in the second quarter (Chart 4.11). Driven by sturdy growth in trade finance and rising liquidity demand by multinational corporations, foreign currency lending rose an annualised 33.4% in the first half. Hong Kong dollar loans grew by an annualised 9.4%, compared with the 5.5% increase for 2012 as a whole.

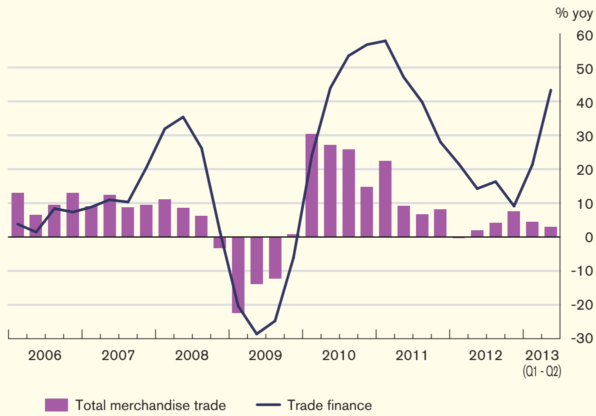
Chart 4.11
Loan growth



Note: Growth rates in 2013 H1 are annualised.
Source: HKMA.

Meanwhile, loans for use outside Hong Kong expanded a solid 15.4% in annualised terms, roughly the same pace as in 2012. Loans for use in Hong Kong however rose at a faster rate of 20.5%, in part due to a 95.9% surge in trade finance. The notable increase in trade finance was in sharp contrast with Hong Kong's subdued trade flows (Chart 4.12). This has raised the HKMA's concerns about banks' credit standards and the latent funding risks.

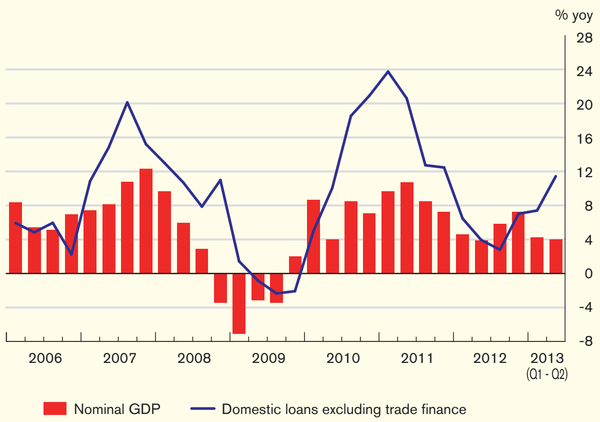
Chart 4.12
Trade finance and merchandise trade



Sources: HKMA and C&SD.

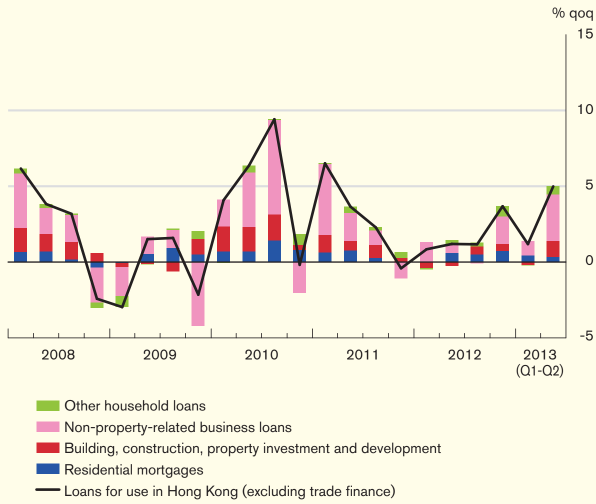
Excluding loans for trade finance, other loans for use in Hong Kong also saw a faster increase, particularly in the second quarter of 2013, and their growth rate had also exceeded the nominal GDP growth (Chart 4.13). Loan growth was mainly supported by lending to the non-property-related sectors (Chart 4.14), within which lending for wholesale and retail trade expanded briskly on the back of strong business in this sector. Loans to financial concerns and stockbrokers also gathered strength. Lending for property development picked up after a slight decline in the first quarter, yet the pace of expansion in the residential mortgage loans slowed gradually, largely reflecting the dampening impact of stamp duty and prudential measures on the housing market. While credit card advances grew at a modest pace, loans for other private purposes recorded a faster increase compared with last year. Overall, the increase in consumer credit and residential mortgage loans has pushed the household debt-to-GDP ratio further to a record 62% by mid-2013, compared with 51% at the end of 2008 (Chart 4.15).

Chart 4.13
Other domestic loans and nominal GDP



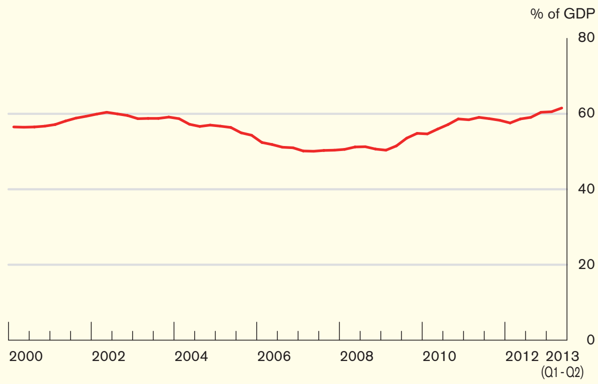
Sources: HKMA and C&SD.

Chart 4.14
Other domestic loans by sector



Source: HKMA.

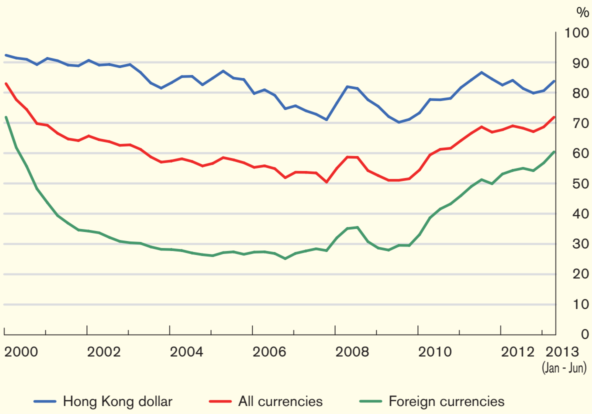
Chart 4.15
Household debt-to-GDP ratio



Note: Only borrowings from the AIs are covered.
Sources: HKMA and C&SD.

As Hong Kong dollar loans expanded while its deposit counterpart declined, the Hong Kong dollar loan-to-deposit ratio climbed to 83.7% in June 2013 from 79.8% in December 2012 (Chart 4.16). Due to rapid expansion in foreign currency lending, the foreign currency loan-to-deposit ratio also rose sharply to a 13-year high of 60.4% in June 2013 from 54.2% in December last year.

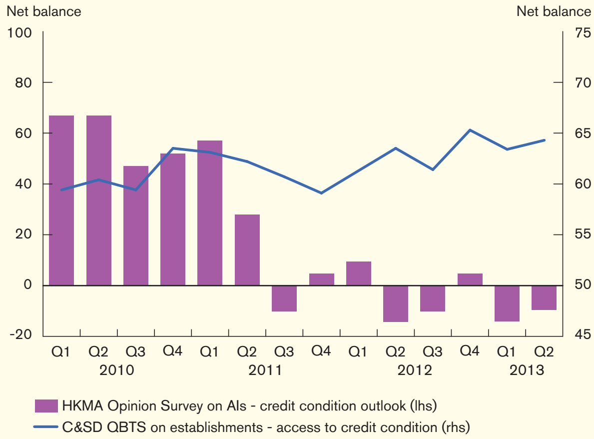
Chart 4.16
Loan-to-deposit ratios



Source: HKMA.

However, there are signs of moderation in loan growth more recently and the liquidity conditions have alleviated somewhat. Growth in trade finance and other domestic lending slowed in July, and the Hong Kong dollar loan-to-deposit ratio decreased slightly. Moreover, the latest HKMA Opinion Survey on Credit Condition Outlook still points to weak credit demand in the period ahead, with the net balance of responses (the difference between the proportion of surveyed AIs expecting an increase and those expecting a decrease) remaining in the negative territory (Chart 4.17). On the other hand, credit supply is expected to remain accommodative with the continuation of the low interest rate environment. The latest Quarterly Business Tendency Survey also indicates no signs of deterioration in credit access for the non-bank private sector.

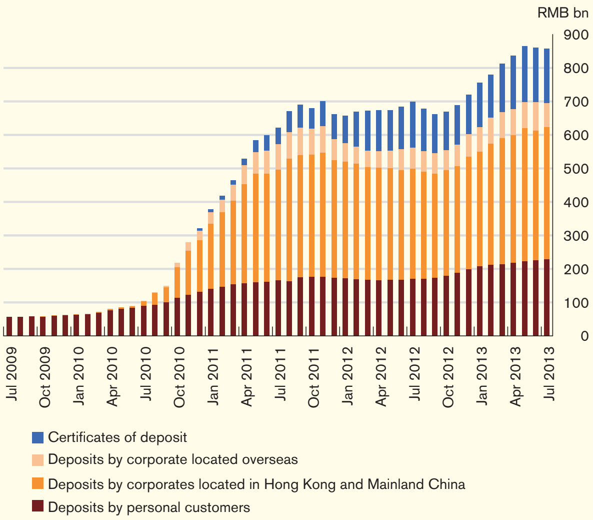
Chart 4.17
Surveys on credit demand and credit access



Sources: HKMA and C&SD.

The liquidity pool of Hong Kong's offshore renminbi banking business continued to expand steadily in the first half of 2013. The total outstanding amount of renminbi deposits and certificates of deposit (CDs) rose notably by 19.5% (not annualised) from last year to RMB860.7 billion at the end of June (Chart 4.18). Within the total, customer deposits rose firmly by 15.7%, largely driven by the corporate customer accounts with the growing popularity of renminbi as a settlement currency. Meanwhile, personal customer deposits also increased, with share of deposits held by non-resident personal customers amounting to 4.8% of total personal customer deposits. As renminbi deposits grew faster than deposits in other currency denominations, the proportion of renminbi deposits in the banking system rose to 10.4% of total deposits at the end of June.

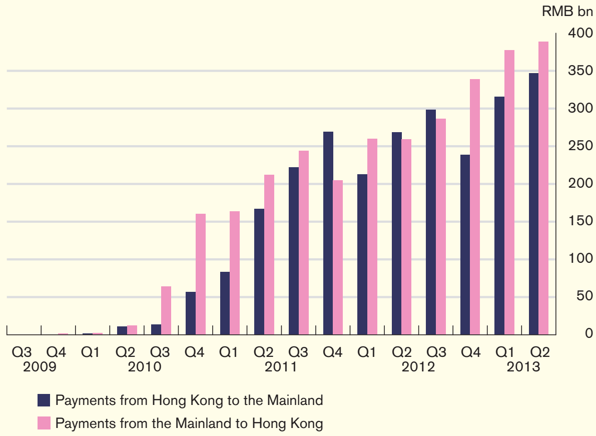
Chart 4.18
Renminbi deposits and outstanding certificates of deposit in Hong Kong



Source: HKMA.

Renminbi trade settlement conducted through Hong Kong banks grew to RMB1,695.3 billion in the first half of 2013 from RMB1,419.4 billion in the preceding half-year period. The amount of inward remittances to Hong Kong and outward remittances to Mainland China were largely balanced, with the ratio of inward to outward remittances staying at 1.2 in the first half (Chart 4.19).

Chart 4.19
Flows of renminbi trade settlement payments



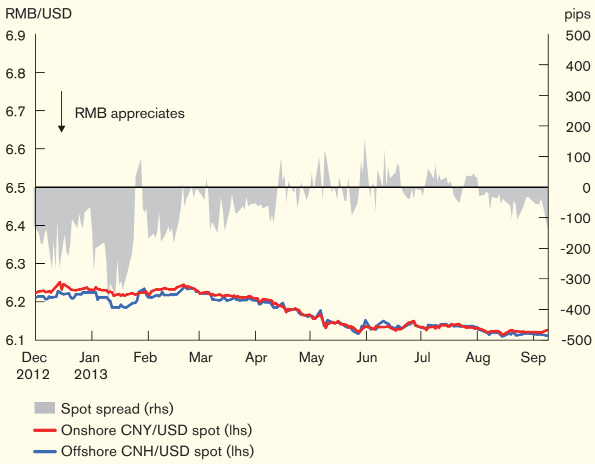
Source: HKMA.

Other renminbi banking business also witnessed solid growth during the first half. In particular, renminbi financing activities in Hong Kong continued to grow vibrantly, with outstanding loans expanding by 39.8% from six months earlier to RMB110.5 billion. The number of participating banks in Hong Kong's renminbi clearing platform rose to 208 at the end of June from 204 six months ago. A total of 1,623 renminbi correspondent accounts were set up by overseas banks at banks in Hong Kong at the end of June, up from some 1,400 accounts at the end of 2012. Meanwhile, amounts due to and from overseas banks were RMB127.2 billion and RMB139.7 billion respectively. The net amount due from overseas banks continued to be positive, suggesting that Hong Kong banks are providers of renminbi funds to their overseas counterparts.

The Hong Kong's offshore renminbi exchange rate (CNH) tracked closely with the onshore counterpart (CNY), with the spread between CNH and CNY narrowing to about 40 pips in August from an average of around 200 pips in January (Chart 4.20). The CNH interbank market saw notable advancement in recent months, with the establishment of CNH HIBOR fixing in June, and the enhancements in July of renminbi liquidity facilities provided by the HKMA. The three-month CNH HIBOR fixing was largely stable in July and August, closing at 2.77% at the end of August. Looking ahead, the CNH interbank market is expected to expand steadily along with the healthy development of renminbi business in Hong Kong.

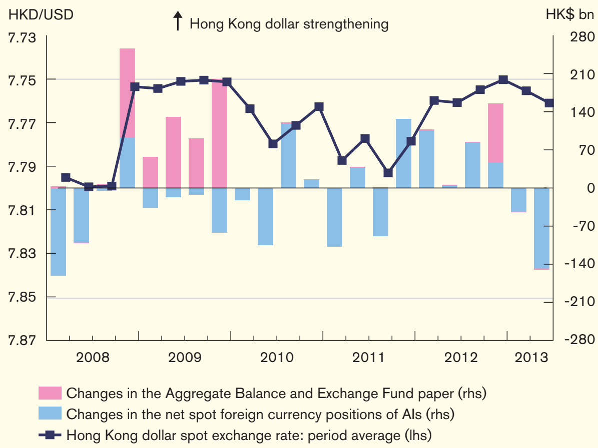
This contrasted with the strong demand and inflow pressures in the final quarter of last year, when the HKMA injected more than HK$100 billion into the banking system. But on the whole, outflow pressures in the non-bank private sector were not particularly strong in the first half, as shown by the price and quantity indicators as well as anecdotal reports (Chart 4.21). The Hong Kong dollar spot exchange rate only eased moderately, and there was no significant decrease in the AIs' net spot foreign currency positions, except in June when a correction in the local equity market was underway.[19] Still, banks' increased demand for the Hong Kong dollar has provided a partial offset to those outflow pressures.

Chart 4.20
Onshore and offshore renminbi exchange rates



Source: Bloomberg.

Chart 4.21
Fund flow indicators (quarterly)



Note: For quantity indicators, a positive change indicates inflows.
Source: HKMA.

4.3 Capital flows

Demand for Hong Kong dollar assets

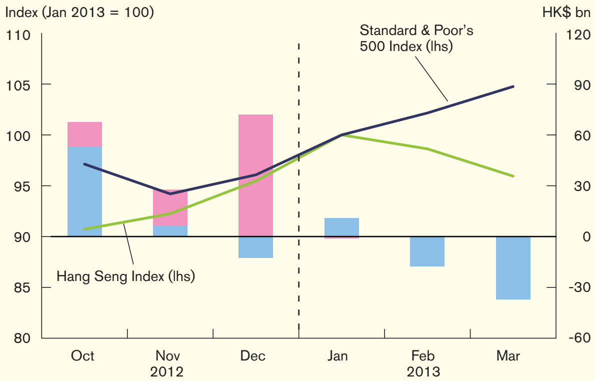
Demand for Hong Kong dollar assets from the non-bank private sector weakened somewhat during the first half of 2013 amid a volatile global economic and financial environment.

There was only mild selling pressure on the Hong Kong dollar in the first quarter, reportedly driven by asset reallocation strategies of global investors towards the US currency and equities amid signs of improvements in the US economy and the stellar performance of the US equity market. This was evidenced by a stronger US dollar and relative underperformance of the Hong Kong

[19] It should be noted that changes in the net spot foreign currency positions of the AIs, or the equivalent of their net spot Hong Kong dollar positions, 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.

equity market compared with the US market (Chart 4.22). Shifting market sentiment also affected the fund flow pattern, with concerns about hot money inflows in January being overtaken by worries over capital drain since February due to a stronger US dollar, rising US treasury yields, the Cypriot financial turmoil and uncertainties over Japan's reflationary policies. As a result, the Hong Kong dollar spot exchange rate eased gradually while AIs' net spot foreign currency positions decreased during the first quarter, signalling weaker Hong Kong dollar demand from the non-bank private sector.

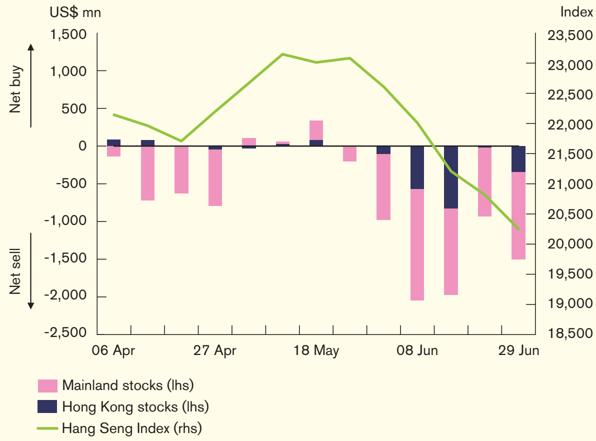
Chart 4.22
Stock market performance and fund flow indicators (monthly)



Note: For fund flow indicators, a positive change indicates inflows.
Sources: HKMA and CEIC.

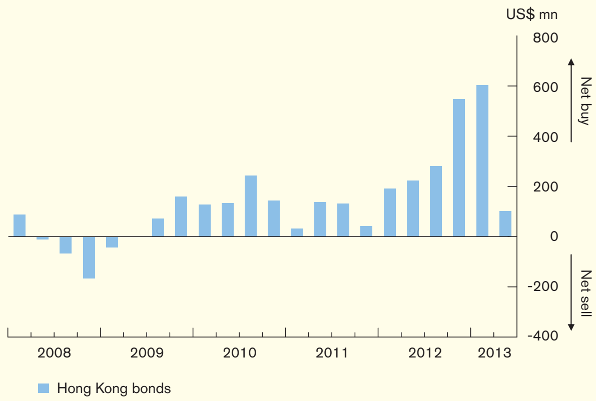
Fund flow pressures remained moderately negative in the second quarter with most activity occurring mainly after the US Fed Chairman's taper comments on 22 May. Hong Kong dollar outflow pressures in the non-bank private sector partly reflected increased demand from the banking sector, resulting in the Hong Kong dollar spot exchange rate easing slightly, from an average of 7.7554 in the first quarter to 7.7610 in the second quarter. Meanwhile, AIs' net spot foreign currency positions declined, partly signalling Hong Kong dollar funds flowing from the non-bank private sector to the banking sector in June. According to market surveys, global mutual funds off-loaded equities of the regional markets (including Hong Kong) much more aggressively in June, attributable in part to heightened concerns about the US Fed's exit strategy on quantitative easing (Chart 4.23). There was also a sharp retreat of net foreign buying of Hong Kong bonds, in line with the trend that large firms were reported to have turned more to banks for funds (Chart 4.24). At around the same time, however, banks increased their buying of the Hong Kong dollar, in part reflecting stronger liquidity demand towards the half-yearly closing. This was corroborated by the visible upticks in the average funding costs of banks and a slight strengthening of the Hong Kong dollar against the US dollar towards the end of June (Chart 4.25).

Chart 4.23
Market survey of equity-related flows (weekly)



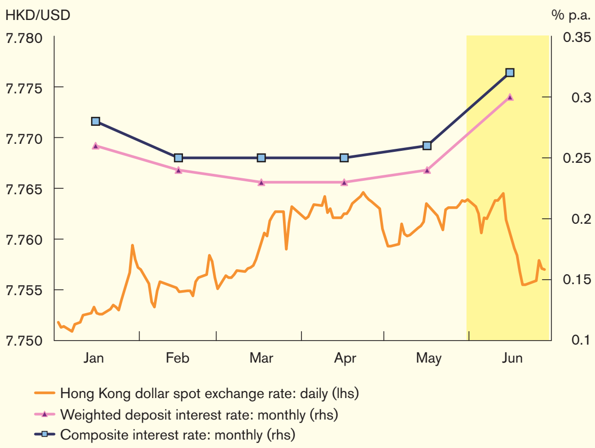
Note: "Mainland stocks" include H-shares, red-chips listed on the Hong Kong Stock Exchange and those shares listed on the Mainland stock markets.
Sources: CEIC and EPFR Global.

Chart 4.24
Market survey of bond-related flows (quarterly)



Source: EPFR Global.

Chart 4.25
Liquidity conditions and exchange rate



Source: HKMA.

During the first half of the year, two more observations can be made. First, recent experiences reveal that Japan's QQE has yet to cause substantial Hong Kong dollar fund flows, in contrast with what had happened soon after the US' third round of quantitative easing. Secondly, the Linked Exchange Rate System continued to enjoy high market credibility, serving as an anchor for the stability of Hong Kong dollar exchange rate. For example, notwithstanding a strong expectation of renminbi appreciation in the early part of this year, there were no signs of exchange-rate speculation against the Linked Exchange Rate System.

Balance of Payments and cross-border capital flows

The Balance of Payments (BoP) statistics showed that reserve assets expanded only slightly by HK$16.4 billion (3.2% of GDP) in the first quarter, mainly due to increases in CIs and incomes from foreign currency assets, which were more related to the normal operation of the Currency Board instead of autonomous inflow pressures. This compared with an increase of HK$94.3 billion (16.9% of GDP) in reserve assets in the fourth quarter of last year when the HKMA conducted foreign exchange operations on a large scale (Table 4.A). Recent HKMA data indicate that the foreign currency reserve assets of the Exchange Fund declined somewhat in the second quarter.

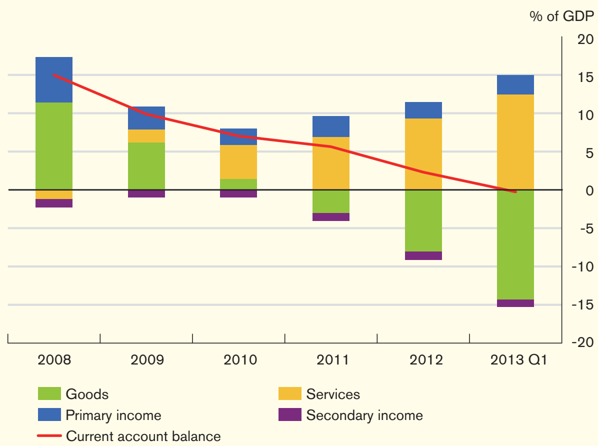
Table 4.A
Balance of Payments account by standard component

	2011	2012	2012				2013
In percent of GDP			Q1	Q2	Q3	Q4	Q1
Current Account	5.6	2.3	1.1	-1.4	6.0	3.1	-0.3
Capital and Financial Account	-5.8	-1.8	2.9	6.6	-9.8	-5.8	-2.5
Capital transfers	-0.1	-0.1	0.0	-0.2	0.0	-0.1	0.0
Financial non-reserve assets (net change)	-1.3	7.5	16.1	5.3	-2.5	11.2	0.8
Direct investment	0.1	-3.6	-1.8	2.0	-3.7	-9.8	-18.1
Portfolio investment	-0.6	-0.6	40.2	3.7	-10.2	-30.8	6.7
Financial derivatives	1.1	0.7	0.3	0.1	0.2	2.1	0.8
Other investment	-1.9	10.9	-22.6	-0.5	11.2	49.6	11.5
Reserve assets (net change)	-4.5	-9.3	-13.2	1.5	-7.2	-16.9	-3.2
Net errors and omissions	0.2	-0.5	-4.0	-5.2	3.8	2.7	2.7

Source: C&SD.

Despite a slight improvement in the terms of trade, the current account registered a small deficit of HK$1.3 billion (0.3% of GDP) in the first quarter, extending the broadly weakening trend since 2008 (Table 4.A and Chart 4.26). The decline in the current account balance was due to an increase in the merchandise trade deficit, which exceeded a rise in the service trade surplus. While the second quarter current account figure was not available at the time of writing, the national income data revealed that the overall trade balance turned into a deficit during that quarter. This may presage a further weakening of the current account position in the second quarter, given that factor income is small relative to the trade balance.

Chart 4.26
Current account balance



Source: C&SD.

Net private-sector financial capital inflows also tapered off markedly, declining to HK$4.0 billion (0.8% of GDP) in the first quarter from HK$62.6 billion (11.2% of GDP) in the previous quarter (Table 4.A). On a net basis, the inflow was primarily propelled by portfolio investments and other investments relating to loans and deposits, whereas direct investment outflows provided only a partial offset.

A closer look at the portfolio investment statistics suggested there were equity inflows by both residents and non-residents (Table 4.B). Local banks also increased their holdings of short-term debts issued by non-residents quite substantially. However, non-residents purchased less Hong Kong debt securities, although local enterprises continued to tap into the overseas bond markets partly with a view to lock in cheap US dollar funding.

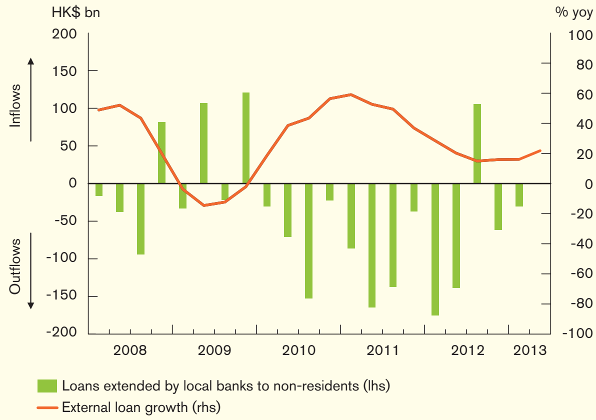
Table 4.B
Cross-border portfolio investment flows

	2011	2012	2012				2013
(HK$ bn)			Q1	Q2	Q3	Q4	Q1
By Hong Kong residents							
Equity and investment fund shares	-237.3	-133.8	83.4	-27.5	-84.3	-105.3	24.8
Debt securities	81.5	-135.4	-4.4	38.9	-49.0	-121.0	-39.8
By non-residents							
Equity and investment fund shares	47.1	193.9	74.5	2.4	65.7	51.3	46.2
Debt securities	97.7	62.7	41.4	3.8	13.9	3.6	2.6

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

The account of other investment recorded net inflows, in part driven by large currency and deposit inflows by local residents including banks. However, it should be noted that this type of capital flows tends to be volatile and may not necessarily involve the conversion of Hong Kong dollars, so it may not reliably reflect the Hong Kong dollar fund flow conditions. On the other hand, capital outflows relating to external loans persisted, extending the broad trend between 2010 and 2012 (Chart 4.27). The recent demand for these loans was in part supported by interest rate and exchange rate arbitrage activities between Mainland China and Hong Kong.

Chart 4.27
Loans extended by local banks to non-residents



Note: External loans refer to loans for use outside Hong Kong and foreign currency loans for use in Hong Kong.
Sources: C&SD and HKMA.

Outlook for capital flows

The baseline outlook is for net fund flow pressure to remain fairly moderate in the remainder of the year, with manageable gross inflows and outflows from time to time. As such, the spot exchange rate may continue to move sideways within a narrow range near the strong side, and the size and direction of fund flows are likely to display short-term variations owing to fickle market sentiment, the evolving global outlook and seasonal liquidity demand due perhaps to IPO activity and year-end financial reporting.

That said, in view of the recent fluctuations in the global financial markets and regional exchange rates, this baseline outlook is subject to considerable uncertainty, with Hong Kong dollar fund flows probably facing much greater volatility. On the downside, concerns about the tapering of asset purchases by the US Fed remains acute and this could heighten global financial market volatility, thereby adversely feeding through to fund flows. Domestically, overvaluation risks in the property markets and signs of macroeconomic imbalances point to risks of broader economic adjustments and asset price corrections. In the event that these risks materialise, large outflows might happen. On the upside, a possible revival in stock market fund-raising activities may bolster Hong Kong dollar demands.

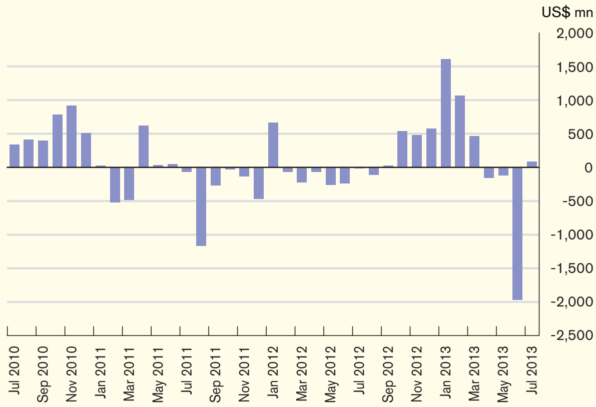
Asset markets

Local equity prices have come under pressure amid a number of negative external developments over the past six months. The market is expected to remain volatile in the period ahead in view of increasing uncertainties over the policy outlook for the US and Mainland China, and escalated Syrian geopolitical tensions. The domestic debt market, however, was resilient despite the recent turbulence in global bond markets. Issuance of offshore renminbi debt securities has continued to expand rapidly. The property market showed signs of moderation amid concerns about interest rate hikes and uncertain economic prospects. However, property valuation remained highly stretched, with housing affordability deteriorating further and the gap between rental yield and interest rate shrinking considerably.

4.4 Equity market

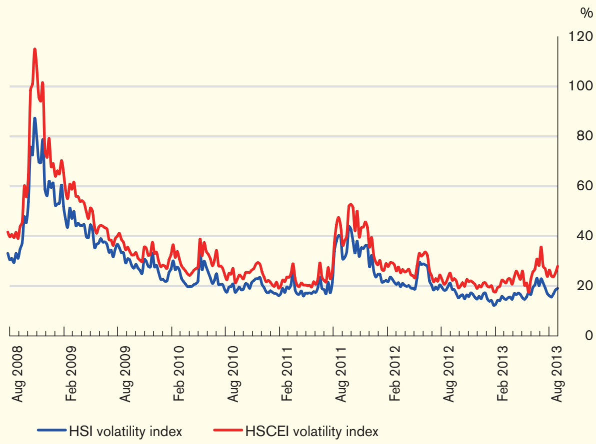
The equity market in Hong Kong has taken a roller coaster ride over the past six months amid a series of negative developments on the external front. The inconclusive Italian election results, along with contagion fears stemming from the banking crisis in Cyprus, weighed on the market in March. Investors regained their risk appetite subsequently as the US labour market showed signs of strength. However, market sentiment turned negative when Fed Chairman Ben Bernanke signalled that the central bank may scale back its stimulus programme soon in his testimony to the Congress in May. Following the June Federal Open Market Committee (FOMC) meeting, the Fed unveiled its plan for tapering the quantitative easing. This coincided with a liquidity crunch in China, triggering a pullback of foreign investors in local equity funds (Chart 4.28). Implied volatility of local equities surged to a one-year high (Chart 4.29). Although local equities pared some of their losses following Bernanke's dovish comments in his semi-annual testimony, the market came under pressure again towards the end of August as comments from FOMC members prompted speculation that the Fed may start to slow its asset purchase in September.

Chart 4.28
Equity fund flows into Hong Kong



Source: EPFR Global.

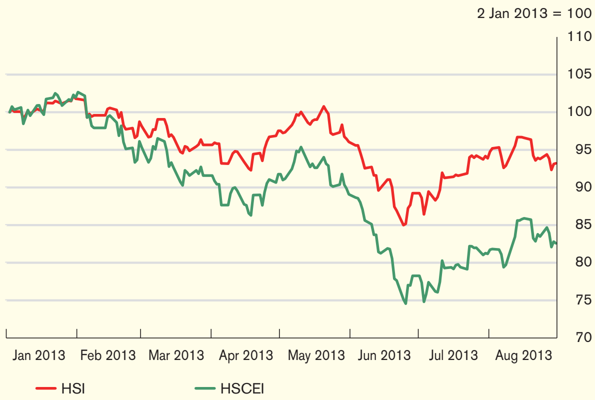
Chart 4.29
Volatility indices of the Hang Seng Index and Hang Seng China Enterprises Index



Sources: Bloomberg and HKMA staff estimates.

In view of the deteriorating external environment, the Hang Seng Index (HSI) fell below the 20,000 level in June, keeping investors on the sideline. The average daily turnover dwindled to HK$51.5 billion in July. Overall, the HSI decreased by 5.6% from March to August. Meanwhile, the Hang Seng China Enterprises Index (HSCEI), also known as the H-share index, fell notably by 14.1% as the slowdown of the Mainland economy and the tight funding conditions continued to weigh on the H-share market (Chart 4.30).

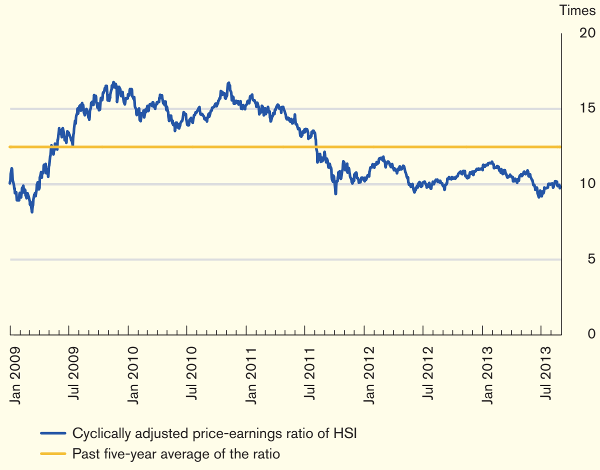
Chart 4.30
The Hang Seng Index and Hang Seng China Enterprises Index



Source: Bloomberg.

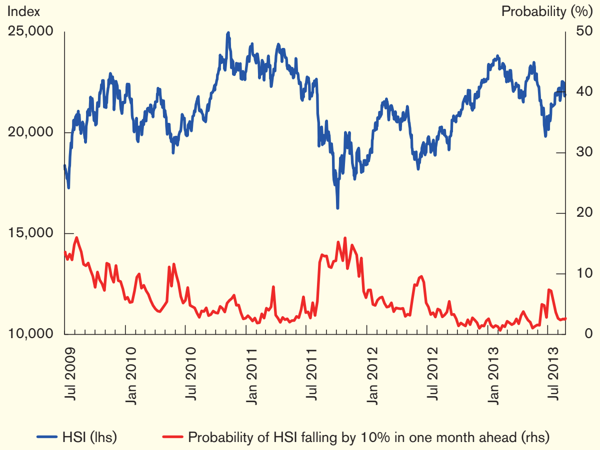
Looking ahead, the downside risk of the market, as measured in terms of the probability of a 10% fall in the HSI in one month ahead, appears limited, given that local equities still offer attractive valuation relative to the past five-year average (Charts 4.31 and 4.32). However, the market is likely to be volatile for the rest of the year as sentiment is highly susceptible to external market conditions. In particular, how and when the Fed will finally taper quantitative easing can potentially lead to sharp adjustment in local asset valuation. The pace of global economic recovery, especially given the uncertain outlook for the Mainland and increased tensions in Syria, will continue to cast a shadow over local equities.

Chart 4.31
Cyclically adjusted price-earnings ratios of the Hang Seng Index



Sources: Bloomberg and HKMA staff estimates.

Chart 4.32
Hang Seng Index and its option-implied probability of falling by 10% in one-month

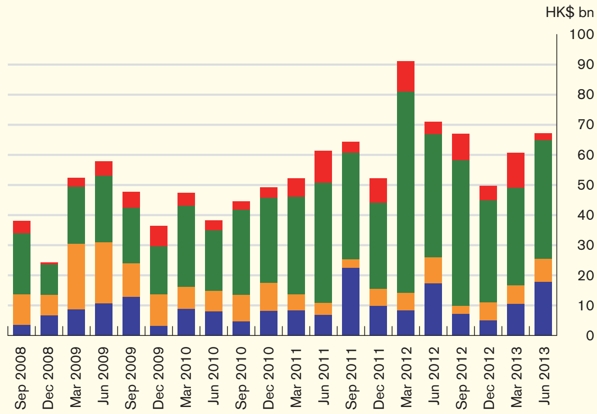


Sources: Bloomberg and HKMA staff estimates.

4.5 Debt market

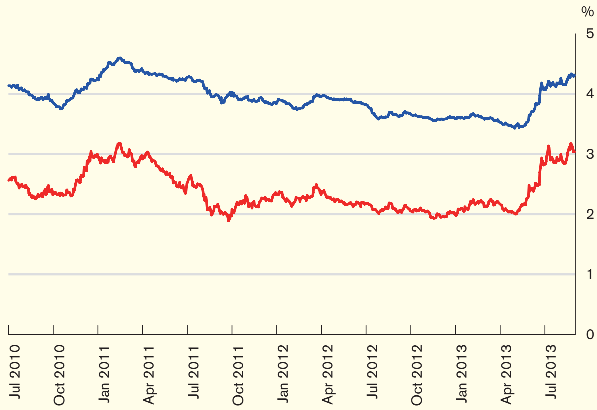
The Hong Kong dollar debt market grew despite heightened volatility in global bond markets. In the first half of 2013, total issuance rose markedly by 8.8% year on year to HK$1,174.4 billion (Chart 4.33). The public sector provided the main growth driver, issuing HK$131.2 billion or 13.9% more debt than the same period in 2012.[20] In contrast, the local private sector, which is composed of AIs and local corporations, saw a significant decline in its debt issuance.[21] This was, to some extent, attributed to reduced issuance towards the end of June amid the Fed's announcement of its quantitative easing tapering plan, which reduced investors' appetite for bond investment and sparked a massive sell-off in global bond markets, including the Hong Kong dollar debt market. Average bond yields rose sharply and thus reduced private sector debt issuance in June (Chart 4.34). Meanwhile, issuance of longer-tenor bonds also dropped as market sentiment weakened. The proportion of newly issued private sector debt securities (excluding CDs) maturing in more than five years declined to 37.5% of total issuance in the first half of 2013 from 40.7% recorded during the same period in 2012.[22]

Chart 4.33
New issuance of non-Exchange Fund Bills and Notes Hong Kong dollar debt



Source: HKMA.

Chart 4.34
Average yields of Asian and Hong Kong Local Bonds



Source: Bloomberg.

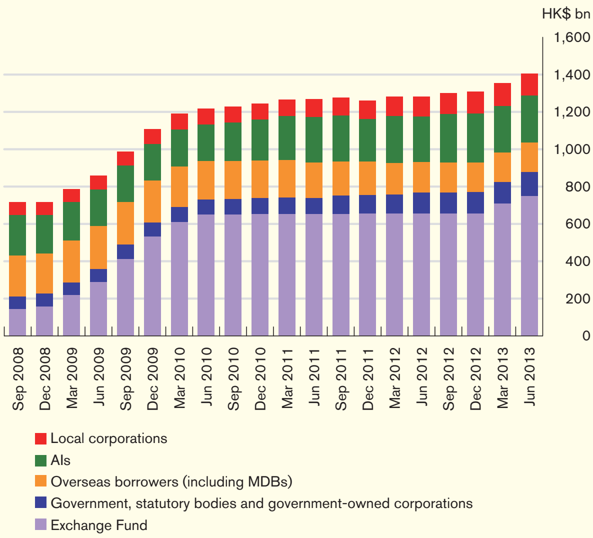
[20] Exchange Fund paper issuance accounted for 89.1% of total issuance of Hong Kong dollar debt. The Government issued a total amount of HK$20.0 billion worth of bonds under its Government Bond Programme. Debt issued by statutory bodies/government-owned corporations jumped by 34.4% to HK$8.4 billion.

[21] New debts issued by AIs and local corporations fell by 33.1% and 2.4% to HK$72.1 billion and HK$13.8 billion respectively.

[22] The "private sector" consists of AIs, local corporations and non-MDB overseas borrowers.

With notable growth in total issuance, the outstanding amount of Hong Kong dollar debt rose by 9.7% year on year to a record high of HK$1,405.0 billion at the end of June (Chart 4.35).[23] Overseas borrowers including multilateral development banks (MDBs) continued to see their debt outstanding contract by 1.9%, while the outstanding amount of debt issued by the local private sector registered a year-on-year growth of 5.1% despite the considerable decline in issuance.

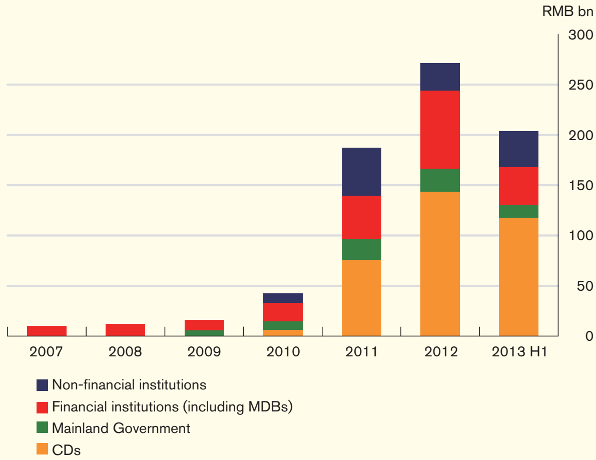
Chart 4.35
Outstanding Hong Kong dollar debt



Source: HKMA.

Notwithstanding the recent turbulence in global bond markets, the offshore renminbi debt securities market in Hong Kong continued to flourish with rapid growth in issuance. A total amount of RMB203.9 billion worth of debt securities were issued in the first half of 2013, up remarkably by 26.4% from the same period in 2012 (Chart 4.36). While the primary market continued to be dominated by financial institutions, participation by non-financial institutions increased significantly. During the review period, debt issued by local and Mainland non-financial institutions amounted to RMB35.1 billion, more than triple the RMB11.2 billion recorded in the same period of 2012. As a result, the proportion of non-financial debt in total issuance excluding CDs jumped to 41.6%, almost equivalent to the share of debt issued by financial institutions (including MDBs).

Chart 4.36
New issuance of offshore renminbi debt securities

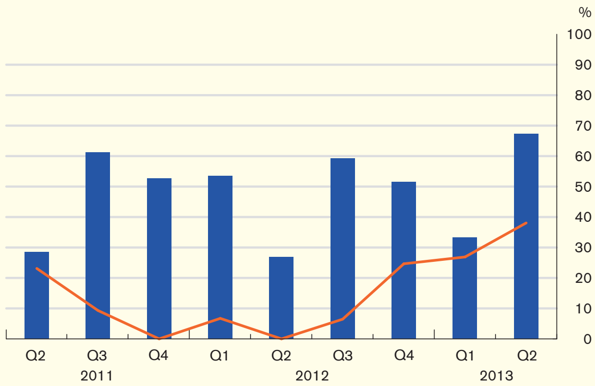


Sources: Newswires and HKMA staff estimates.

[23] This was equivalent to 30.9% of the Hong Kong dollar M3 or 25.0% of Hong Kong dollar denominated assets of the entire banking sector.

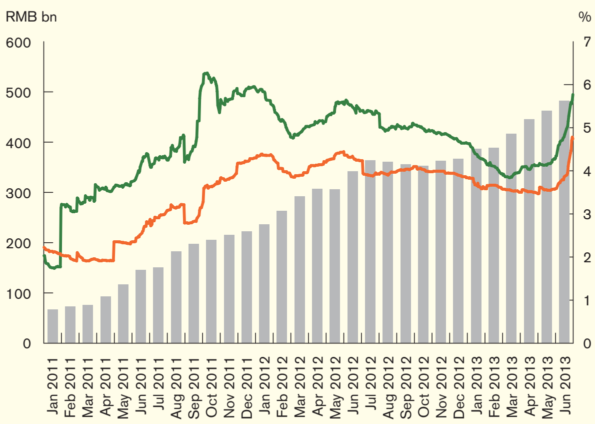
Meanwhile, the market saw an increase in issuance of speculative grade debt securities. In the first six months of 2013, issuance of debt securities rated BB+ or below amounted to RMB16.0 billion, almost triple the RMB5.5 billion recorded during all of 2012. This was equivalent to 35.1% of total rated new issues (excluding CDs) during the period (Chart 4.37). The issuance of speculative grade debt securities, coupled with the recent sell-off in global bond markets, contributed to a rise in the average yields of offshore renminbi bonds (Chart 4.38).

Chart 4.37
Proportions of rated new issues and speculative grade issues (excluding CDs)



Sources: Newswires and HKMA staff estimates.

Chart 4.38
Offshore renminbi debt securities outstanding and offshore renminbi bond yields



Sources: Bloomberg, Newswires and HKMA staff estimates.

The fast growth in issuance pushed the outstanding amount of offshore renminbi debt securities in Hong Kong higher by 40.7% year on year to a record level of RMB481.8 billion as at end-June 2013 (Chart 4.38). Despite weaker investors' appetite for bond investment, the market is expected to expand steadily, particularly with the removal of the 25% renminbi liquidity ratio requirement and the launch of CNH HIBOR fixing. Starting from 25 April 2013, participating banks are no longer required to hold at least 25% of their total renminbi deposits in eligible renminbi liquefiable assets. This gives banks more flexibility in managing their assets and thus may boost the demand for debt securities. Separately, with the launch of CNH HIBOR fixing on 24 June 2013, the market will likely see a more diverse mix of debt securities as the fixing provides a reliable benchmark for pricing floating-rate debt and interest rate hedging instruments.

In recent years, there has been a tendency for domestic corporates to shift from bank and equity financing to the bond market to meet their funding needs. This has significantly boosted the growth of the local bond market, widely defined to cover not only bonds denominated in Hong Kong dollar but also those issued in other currencies by entities operating in Hong Kong. Box 3 discusses the driving forces behind this development.

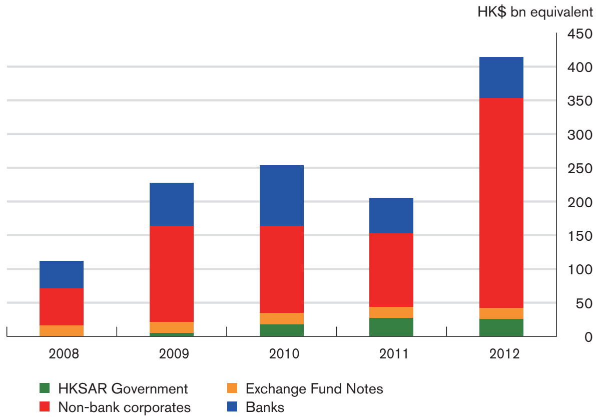
Box 3
Driving forces behind the recent rapid growth of the Hong Kong bond market[24]

In Hong Kong, corporates have traditionally relied on bank loans or the equity market for funding needs. The bond market has thus been much less developed, as compared with those in advanced economies. However, in recent years, there has been a shift of corporates from bank and equity financing to the bond market for their long-term financing. This box reviews the recent developments of the bond market in Hong Kong and discusses the driving factors behind its recent growth.

An overview of the recent developments

The Hong Kong bond market has grown rapidly over the past few years. Issuances reached HK$414.0 billion in 2012, more than three times the amount in 2008 (Chart B3.1). Much of the growth was driven by issuances of local corporates, accounting for 73.4% of the total. A significant portion of the issuances came in the form of longer-dated papers, with average maturity of new issuances lengthening to 7.9 years in 2012 from 6.5 years in 2008 (Chart B3.2). Corporate bonds denominated in US dollar have increased particularly strongly (Chart B3.3).

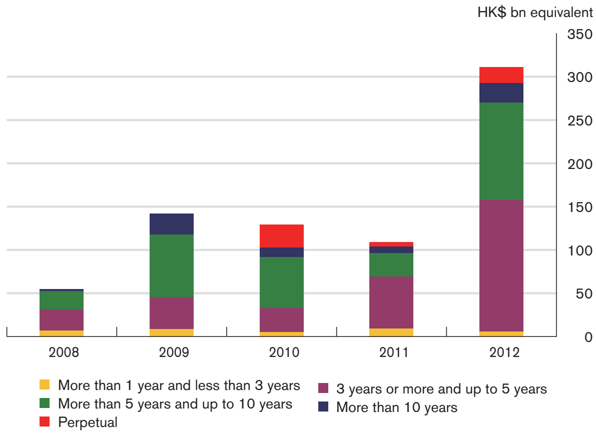
Chart B3.1
New issuances in the Hong Kong bond market



Note: Only notes with original maturity of more than one year are included in calculations.

Sources: Newswires and HKMA staff estimates.

Chart B3.2
New corporate bond issuances by maturity

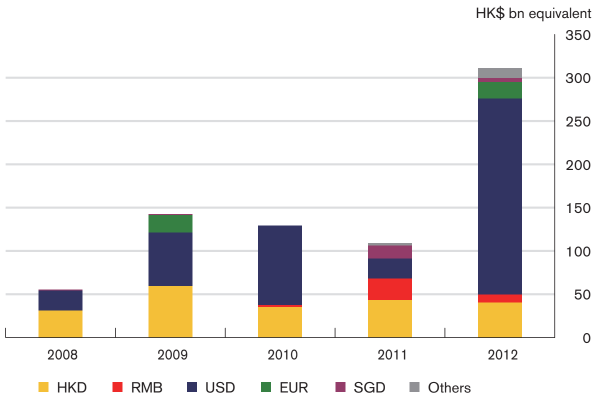


Note: Only notes with original maturity of more than one year are included in calculations.

Sources: Newswires and HKMA staff estimates.

[24] In this study, the Hong Kong bond market refers to the market covering (i) bonds denominated in Hong Kong dollar, regardless of the nationality of the issuers; and (ii) bonds denominated in all other currencies, issued by any entities operating in Hong Kong. This definition largely reflects two considerations, namely, the financing needs of the borrowers based in Hong Kong and the availability of statistics.

Chart B3.3
Corporate bond issuances by currency

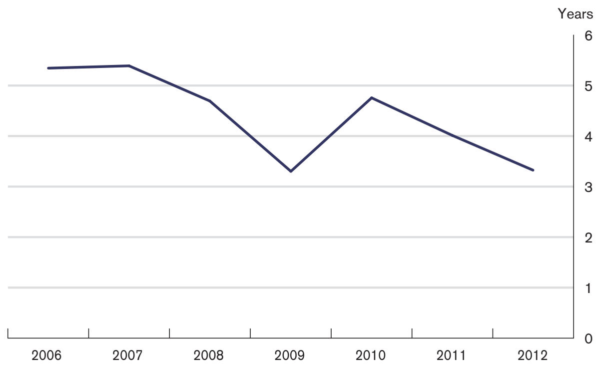


Note: Only notes with original maturity of more than one year are included in calculations.

Sources: Newswires and HKMA staff estimates.

exacerbated by the deleveraging undertaken by European banks. Average tenor of syndicator loans shortened to 3.3 years in 2012 from 4.7 years in 2008 (Chart B3.4). Tight credit conditions in this market segment, coupled with increased global financial volatility in recent years, have pushed up long-term borrowing costs sharply. [25]

Chart B3.4
Average tenor of Hong Kong syndicated loans



Sources: Bloomberg and HKMA staff estimates.

Driving forces behind the recent developments

The recent strong growth of the Hong Kong bond market, especially with respect to corporate issuances, can to a significant extent be attributed to a host of supply- and demand-side factors.

Supply-side factors

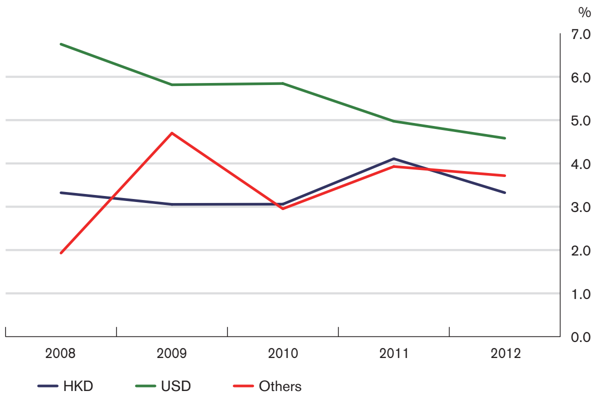
- *Diminished access to the loan market*: a number of global macroeconomic factors have reduced banks' capacity and willingness to make long-term loans. In the aftermath of the global financial crisis, increased uncertainty about the outlook for the global economy to some extent reduced the appetite of the banking sector for longer-tenor exposures. The resulting decline in long-term bank credit was

- *Increased competitiveness of bond financing:* extraordinary accommodative monetary policies adopted by advanced economies following the global financial crisis have flooded the market with liquidity and pushed interest rates down to historical lows. As a result, there has been a global tendency for investors to move into the corporate bond market which offers relatively higher returns. This "search for yield" phenomenon caused corporate bond yields to fall, which in turn allowed

[25] For instance, in the Hong Kong syndicated loan market, loan costs jumped to 252 basis points above the reference rate in the second half of 2012 from 122 basis points in the same period of 2008.

corporates to raise funds at relatively low costs (Chart B3.5). In Hong Kong, investors have also gradually become more receptive to bonds issued by some well-known, but unrated or sub-investment grade, local issuers. This increased willingness of investors to take risk has paved the way for new corporate entrants to tap the market.

Chart B3.5
Weighted average yields of new corporate bond issuances

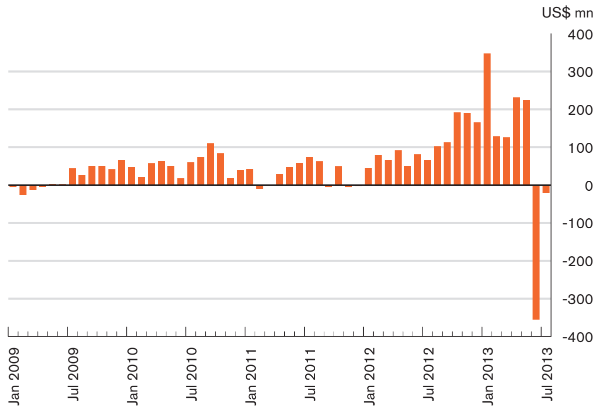


Note: Only notes with original maturity of more than one year are included in calculations.
Sources: Newswires and HKMA staff estimates.

Demand-side factors

- *Improved fundamentals in Asia*: in sharp contrast with the US and Europe, economic fundamentals have generally improved in Asia. Credit ratings of a number of economies in the region have either been upgraded or affirmed since the global financial crisis. This positive development has to a significant extent revalued Asian assets and attracted institutional investors globally. As these investors increased the weighting of Asian bonds in their portfolio, Hong Kong as well as many other Asian economies have benefited from the resulting fund flows (Chart B3.6).

Chart B3.6
Bond fund flows into Hong Kong



Source: EPFR Global.

- *Increased sophistication of Asian investors*: investors have in general become more sophisticated in Asia and hence more receptive to investable assets other than stocks. As the global financial crisis revealed the importance of assessing credit risk, many financial institutions in the region have developed in-house credit risk evaluation for their own or their clients' investments, which has indirectly opened the door for them to enter the market of higher yielding products such as corporate bonds.

- *Rising popularity of medium-term note (MTN) programme*: MTN programme in Hong Kong has grown in popularity in recent years.[26] The programme, which can speed up the bond issuance process considerably, has made it convenient for private bankers to approach issuers through "reverse enquiry".[27]

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26 MTN programme is a debt issuance programme which allows companies to quickly and efficiently issue bonds using standardised documentation.

27 Reverse enquiry is a common practice whereby investors approach and ask the companies-of-interest to issue bonds specifically for them, instead of passively waiting for public tenders.

Concluding Remarks

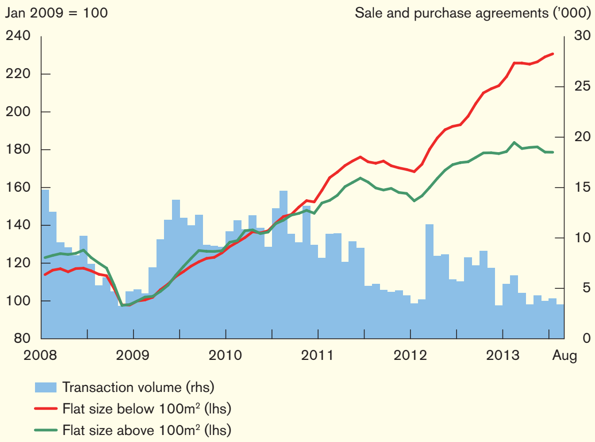
The bond market has grown considerably in Hong Kong in recent years. While the growth, to some extent, is driven by the cyclical "search for yield" phenomenon in the wake of the low interest rate environment, the structural forces that are taking place should not be downplayed. Moreover, over the past few years, the HKSAR Government has made significant strides in promoting the bond market including, among others, the implementation of the Government Bond Programme in 2009. To the extent that these forces remain at work, the growth of the market is likely to continue, although the momentum of the shift may weaken somewhat as interest rates rebound globally.

4.6 Property markets

Residential property market

Housing prices have softened and transaction volume has declined noticeably since February this year following the introduction of stamp duty and prudential measures by the Administration and the HKMA. The weaker property market also in part reflected more cautious sentiment amid less promising economic prospects and rising expectation of future interest rate hikes. On the other hand, holding power of home owners remained relatively strong amid a still-favourable labour market environment. This, together with rather tight supply, has helped prevent significant falls in housing prices. However, as property valuation remains highly stretched, property market imbalances are still elevated and continue to entail macroeconomic and financial stability risks for Hong Kong.

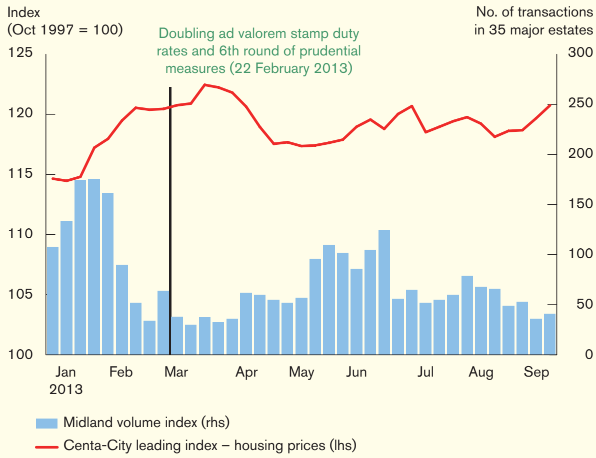
Chart 4.39
Residential property prices and transaction volumes



Sources: R&VD and Land Registry.

The overall housing prices rose sharply in the first quarter of 2013 but then stayed flat in the second quarter (Chart 4.39). This led to a cumulative increase of 6.8% in housing prices during the first half, compared with a 25.7% increase for the whole of 2012. In the upper-middle and luxury segment, prices increased at a lot more moderate pace of 0.4% for the first half as a whole. Housing prices continued to show slight softening in the third quarter according to provisional transaction records from agents, with the Centa-City leading index staying virtually unchanged in July and August (Chart 4.40).

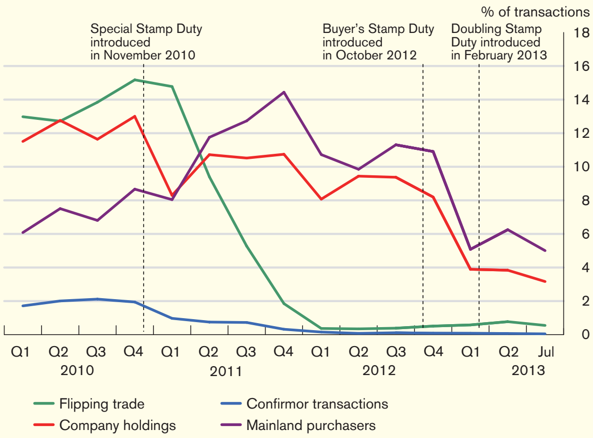
Chart 4.40
Residential property prices and transaction volumes estimated by realties



Sources: Midland Realty and Centaline Property Agency Limited.

On the other hand, transaction volume has contracted significantly, with only about 28,000 sale and purchase agreements being lodged with the Land Registry in the first half of 2013, down from some 40,100 agreements in the preceding half-year period. In particular, secondary-market transactions dropped by about one-third in the first half. Speculative activities, as indicated by confirmor transactions and flipping trade, also remained largely contained, while company holdings and non-local demand have dropped significantly after the introduction of the Buyer's Stamp Duty and doubling of the ad valorem stamp duty rates (Chart 4.41). Meanwhile, primary-market transactions fell by 26.1%, in part because developers have slowed, at least temporarily, their pace of launching new projects with the Residential Properties (First-hand Sales) Ordinance taking effect since late April. Anecdotal news suggests transactions in the secondary market remained weak in the third quarter, while the launch of the first-hand flats has quickened somewhat.

Chart 4.41
Confirmor transactions, flipping trade, company holdings and Mainland purchasers

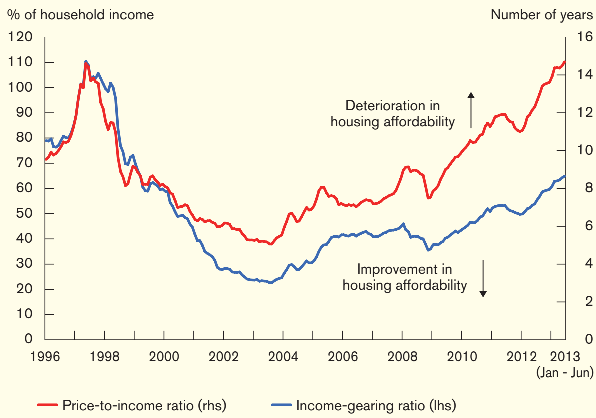


Note: Mainland purchasers are distinguished based on pinyin names rather than residency status.

Source: Centaline Property Agency Limited.

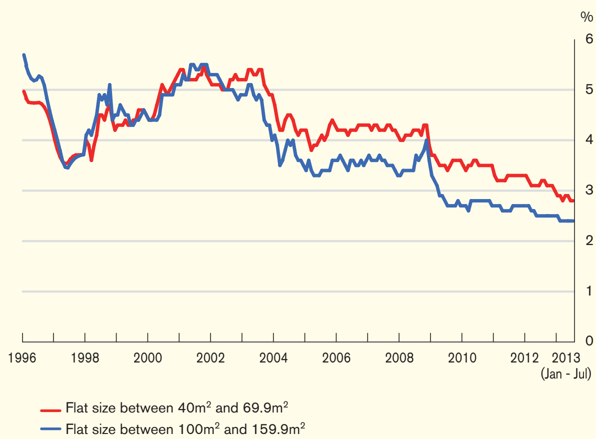
Nevertheless, property valuation is still highly stretched. As growth in private household income failed to catch up with housing price growth, housing affordability has continued to deteriorate. The HKMA's estimated price-to-income ratio climbed to 14.7 in mid-2013, just above the peak reached in 1997 (Chart 4.42).[28] The income-gearing ratio also rose to a high of 65% in June, notably above the long-term average of 50%.[29] Moreover, if the mortgage interest rate were much higher, say three percentage points above the current level, the income-gearing ratio would have reached an even more acute level of 84%. Another sign of misalignment in housing prices is the record-low rental yield, which on average has dropped to 2 - 3% (Chart 4.43). In particular, from an asset-pricing perspective, the rental yield could be low relative to the mortgage costs, risk premia, expected capital gains and other costs of ownership.

Chart 4.42
Indicators of housing affordability



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

Chart 4.43
Housing rental yield for fresh leases



Source: R&VD.

[28] The price-to-income ratio measures the average price of a typical 50 square-metre flat relative to the median income of households living in private housing, from a potential home buyer's perspective with reference to the prevailing housing prices.

[29] The income-gearing ratio compares the amount of mortgage payment for a typical flat of 50 square metres (under a 20-year mortgage scheme with a 70% loan-to-value ratio) with the median income of households living in private housing, from a potential home buyer's perspective with reference to the prevailing housing prices. As such, the income-gearing ratio is not the same as a borrower's actual debt-servicing ratio, which is subject to a maximum cap by the HKMA prudential measures.

In contrast to the upbeat outlook over the past few years, Hong Kong's housing market is expected to see some consolidation in the period ahead. While the low interest rate environment has fuelled the rapid upsurge in property prices, such favourable conditions may reverse earlier and sharper than expected. Indeed, long-dated interest rates in Hong Kong have recently increased amid concerns about a tapering of asset purchases by the US Federal Reserve, although the feed-through to the local mortgage interest rate has remained slow. However, when interest rates return to more normal levels, this could lead to a sharp rise in mortgagors' repayment burden, by about 10% for each percentage-point rate increase under a 20-year mortgage according to our in-house estimates. Moreover, rental yields could become less attractive and this could put a drag on property valuation.

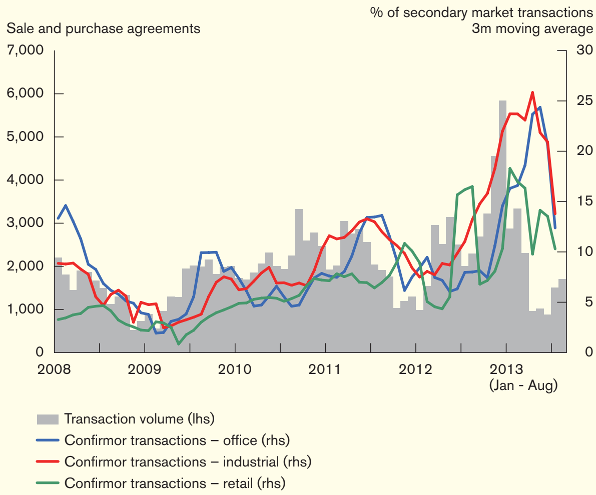
Besides, moderation of Hong Kong's domestic economy as well as unstable regional economic environment could also cloud the prospects of the housing market. Tail risks in the global economy and the financial markets also have not disappeared, and if realised, could exert further pressure on housing prices. Stamp duty and prudential measures will also continue to restrain investment and non-local demand.

The prudential measures implemented so far have helped bring down the actual loan-to-value ratio for new mortgages from an average of 64% before policy measures to 56% recently, and the debt-servicing ratio from an average of over 40% to 36%. In any case, banks should continue to strengthen their risk management in mortgage lending business and maintain a conservative credit stance in order to mitigate the risks of interest rate hikes and the rapidly changing macro-financial conditions. Meanwhile, home buyers should stay vigilant on property market and interest rate developments and avoid stretching themselves with excessive borrowing.

Commercial and industrial property markets

The once-buoyant non-residential market has also cooled quite notably. Total transactions contracted substantially, with only about 11,400 sale and purchase agreements being lodged with the Land Registry in the first half of 2013, down from 20,600 agreements in the preceding half-year period (Chart 4.44). Indeed, just in the second quarter, transaction volume fell by about two-thirds from the first quarter. Confirmor transactions, a measure of speculative activities, also decreased significantly but were still high in terms of proportion to total transaction volume.

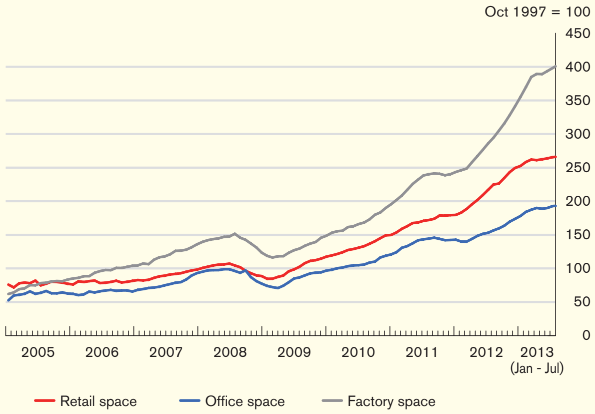
Chart 4.44
Transactions in non-residential properties



Sources: Land Registry and Centaline Property Agency Limited.

On the other hand, prices of non-residential properties continued to increase, by 5 - 8% for office and retail space and 12% for flatted factories during the first half of 2013 (Chart 4.45). Rentals were also resilient, picking up on a broad base by 6 - 7% for these three types of properties, and overall rental yields remained close to the historical low of 2 - 3%. According to property consultancy firms, the support to prices and rentals was mainly from properties in suburban locations, while prime location properties saw a modest decrease in valuation and rentals.

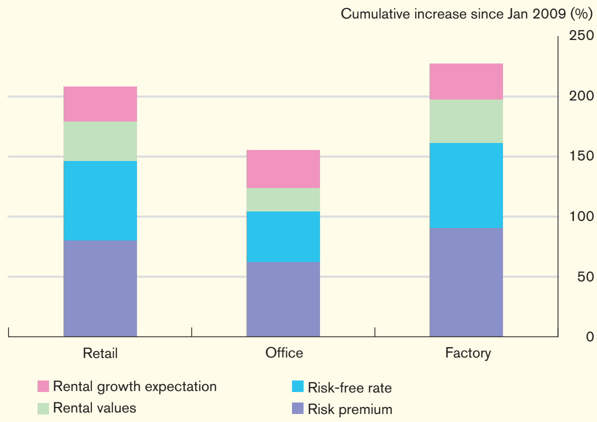
Chart 4.45
Non-residential property price indices



Source: R&VD.

Potential overvaluation risks in the non-residential property market would remain a key concern in terms of macroeconomic and financial stability. Our study shows that increased risk appetite (partly reflecting expectations of future capital gains) and the low interest rate environment have made outsized contributions to the rapid run-up in non-residential property prices since 2009 (Chart 4.46).[30] Given that these two factors are subject to cyclical reversals, abrupt property price corrections could be triggered. In terms of banking and financial stability, this could lead to a rise in non-performing loans and a deterioration in banks' asset quality. As such, it is critically important that banks should restrain their exposure to property-related lending and maintain a prudent stance when granting new mortgages and asset-backed loans.

Chart 4.46
Decomposition of non-residential property price increases since 2009



Sources: R&VD and HKMA staff estimates.

The upsurge in non-residential property prices and rentals also has implications for Hong Kong's macroeconomic stability and external competitiveness. Higher rental costs would make Hong Kong companies more vulnerable to sudden deteriorating economic and business environment, possibly with great impact on bankruptcy and unemployment. With that said, the build-up of rental pressures may be mitigated to some extent in the second half of the year, due to wavering investment sentiment in the property market, the effects of prudential policy measures, and subdued demand for business premises in light of uncertain growth prospects.

[30] A three-stage dividend discount model (DDM) is adopted, based on the approaches developed by the Bank of England. The DDM breaks down changes in prices into development in expected rental value growth, rental value, the risk-free interest rate, and the risk premium. An increase in property prices would be attributed to higher current or expected rents but lower risk-free rate or risk premium. For more details on the DDM, see J. Benford and O. Burrows (2013), "Commercial property and financial stability", *Bank of England Quarterly Bulletin*, First Quarter, pages 48 - 58. and N. Panigirtzoglou and R. Scammell (2002), "Analysts' Earnings Forecasts and Equity Valuations." *Bank of England Quarterly Bulletin*, Spring, pages 59 - 66.

5. Banking sector performance

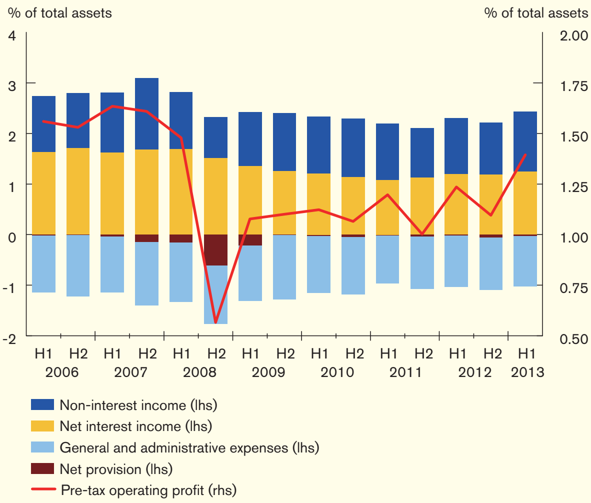
Notwithstanding an uncertain external environment and the slowdown of the Mainland China economy, the Hong Kong banking sector continued to post vibrant earnings performance. While bank lending grew more rapidly in the first half of 2013, domestic liquidity conditions remained healthy. However, the banking sector will face rising risks in the year to come. Domestically, the risk of interest rate volatility is expected to escalate. In the process of the eventual normalisation of US monetary policy, the impact of any shift of the yield curve or significant rise in interest rates on banks' balance sheets and asset quality may not be small. In particular, corporations' debt servicing ability would be under test given rising corporate leverage, and property prices could be under significant pressures. Externally, the rising share of banks' Mainland exposure continues to be a significant risk factor. The need for continued stringent prudential management of such exposure cannot be over-emphasised.

5.1 Profitability and capitalisation

Profitability

The banking sector continued to post vibrant performance, with the aggregate pre-tax operating profits of retail banks[31] growing by 30.9% in the first half of 2013 from the second half of 2012. Their return on assets[32] also rose to 1.39%, compared with a return of 1.1% in the previous six months (Chart 5.1). Improved net interest and non-interest incomes, which grew by 7.8% and 19.6% respectively, plus better control of operating expenses and lower net provision, were the main drivers of profitability growth.

Chart 5.1
Profitability of retail banks



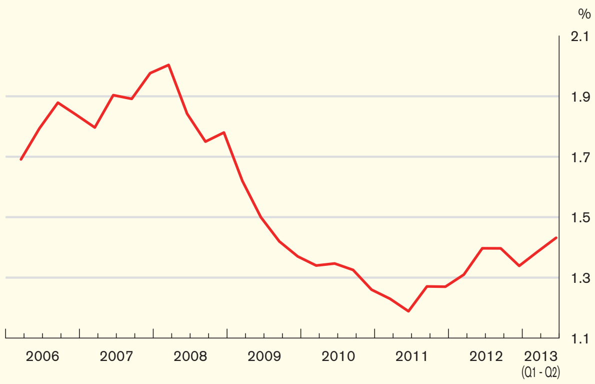
Note: Semi-annually annualised figures.
Source: HKMA.

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

[32] Return on assets is calculated based on aggregate pre-tax operating profits.

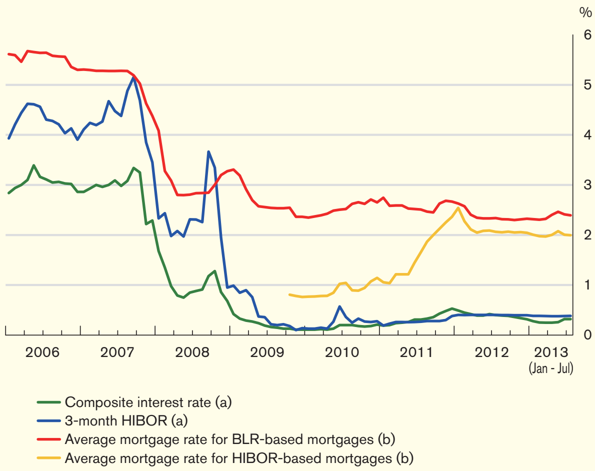
The net interest margin of retail banks improved further in the first half of 2013 to 1.41%, from 1.37% in the second half of 2012 (Chart 5.2), partly due to an easing of banks' funding pressure. The composite interest rate, a measure of the average cost of Hong Kong dollar funds of retail banks, averaged 0.27% in the first half, down from 0.37% in the second half of 2012 (Chart 5.3).

Chart 5.2
Net interest margin of retail banks



Note: Quarterly annualised figures.
Source: HKMA.

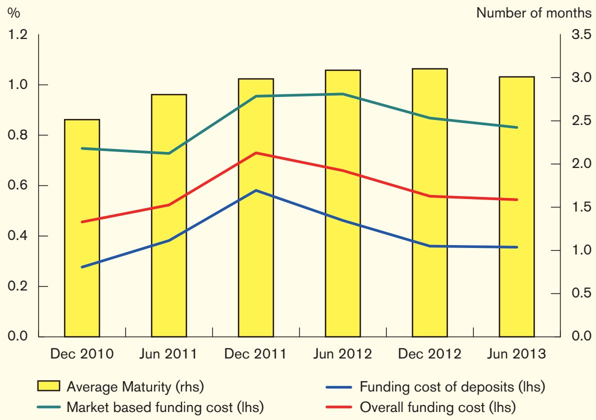
Chart 5.3
Interest rates



Notes:
(a) End of period figures.
(b) Period-average figures for approved loans. All mortgage rates are estimates only.
Sources: HKMA and staff estimates.

An analysis of licensed banks' data shows that their overall interest costs have fallen, with the market-based funding cost down by 4 basis points and the deposit funding cost remaining largely stable (Chart 5.4).[33]

Chart 5.4
Hong Kong and US dollar funding cost and maturity of licensed banks



Source: HKMA.

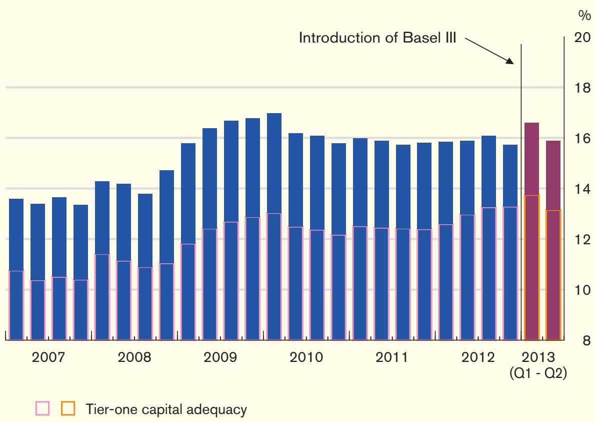
Mortgage rates on average remained low in the first quarter of the year, with the best lending rate-based (BLR-based) rate edging higher but the HIBOR-based rate softening marginally. Partly in response to the rise in BLR-based rate, the share of BLR-based mortgages amongst newly approved mortgage loans decreased to 82.4% in the first half of 2013, from 92.8% in the second half of 2012.

[33] Market-based funding cost is measured by the interest costs of banks' non-deposit interest bearing liabilities.

Capitalisation

Capitalisation of the banking sector remained well above the minimum international standards. The consolidated capital adequacy ratio of locally incorporated AIs edged up to 15.9% at the end of June, from 15.7% at the end of 2012 (Chart 5.5), with the tier-one capital adequacy ratio (the ratio of tier-one capital to total risk-weighted assets) edging lower to 13.2%, from 13.3%.

Chart 5.5
Capitalisation of locally incorporated AIs



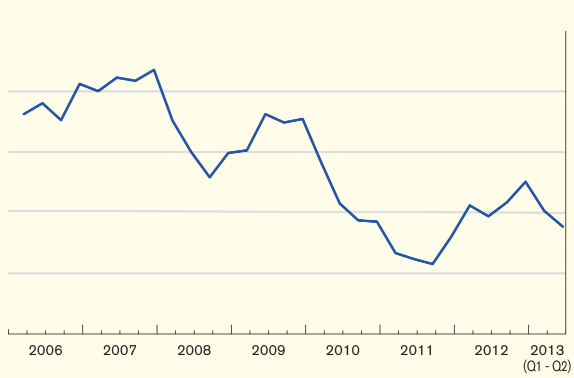
Notes:
1. Consolidated positions.
2. With effect from 1 January 2013, a revised capital adequacy framework (Basel III) was introduced for locally incorporated AIs. The capital adequacy ratios from March 2013 onwards are therefore not directly comparable with those up to December 2012.

Source: HKMA.

5.2 *Liquidity and funding*

Domestic liquidity conditions remained healthy. Although the average liquidity ratio of all AIs fell moderately in the first half of 2013, it remained well above the regulatory minimum of 25%. For retail banks, the ratio decreased to 38.9% at the end of June, from 42.6% at the end of 2012 (Chart 5.6). The fall partly reflected banks' recent moves of reallocating assets from more liquid instruments (such as interbank claims) into less liquid assets (such as customer loans and advances).

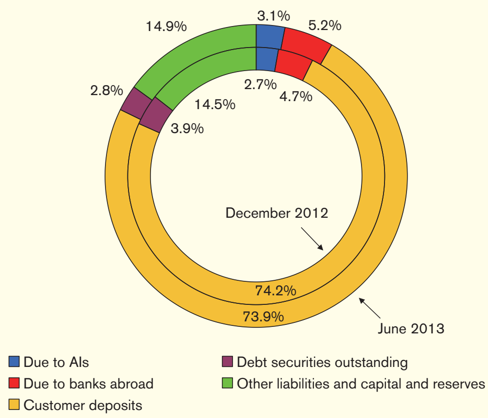
Chart 5.6
Liquidity ratio of retail banks



Note: Quarterly average figures.
Source: HKMA.

Customer deposits continued to be the primary funding source for retail banks, although their share to banks' total liabilities decreased marginally to 73.9% at the end of June, from 74.2% at the end of 2012 (Chart 5.7).

Chart 5.7
Liabilities structure of retail banks

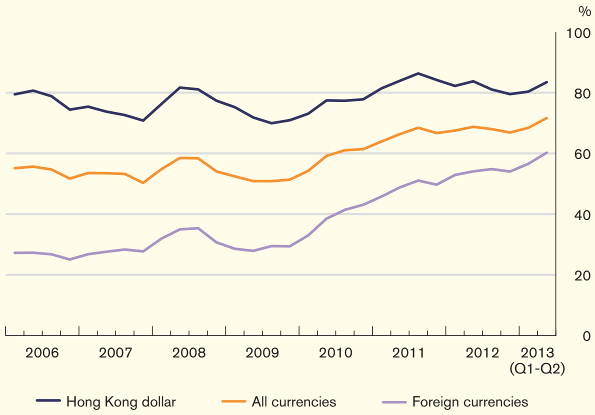


Notes:
1. Figures may not add up to total due to rounding.
2. Figures refer to the percentage of total liabilities (including capital and reserves).
3. Debt securities comprise negotiable certificates of deposit and all other negotiable debt instruments.

Source: HKMA.

Due to a much stronger credit demand in the first half of 2013, which outpaced the moderate growth of deposits, the all currency loan-to-deposit (LTD) ratio of all AIs rose to 71.9% at the end of June, from 67.1% six months earlier (Chart 5.8). In particular, the foreign currency LTD ratio rose sharply by 6.2 percentage points to 60.4%, which was mostly driven by a significant increase in foreign currency loans and trade financing.[34]

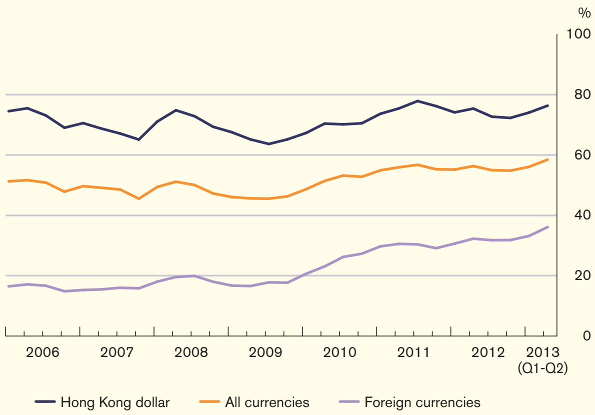
Chart 5.8
Loan-to-deposit ratios of all AIs



Source: HKMA.

For retail banks, the all currency LTD ratio rose to 58.5% from 54.8%, with both the Hong Kong dollar and foreign currency LTD ratios increasing notably (Chart 5.9).

Chart 5.9
Loan-to-deposit ratios of retail banks



Source: HKMA.

[34] For details, please refer to Section 4.2 of the report.

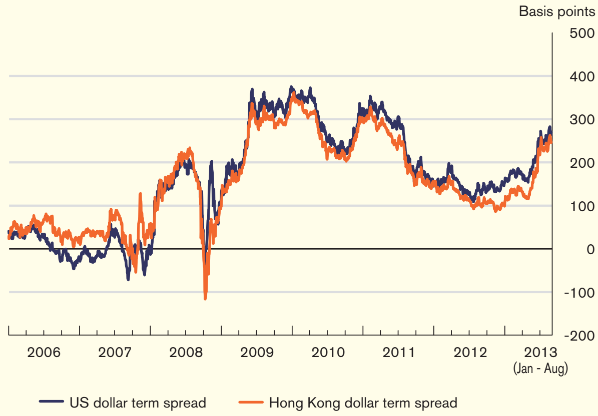
Foreign currency position

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$69 billion at the end of June 2013, which was equivalent to 0.4% of total assets of AIs, indicating that the overall exposure of AIs to foreign exchange risks may not be of significant concern.

5.3 *Interest rate risk*

The spreads between the long- and short-term interest rates for the US dollar and Hong Kong dollar continued their upward trends, widening further to over 200 basis points in August 2013 (Chart 5.10). This suggests that the incentive for banks to search for yield by borrowing short-term funds to purchase long-term interest-bearing assets may have increased. This could potentially lead to greater maturity mismatches and increased interest rate risk.

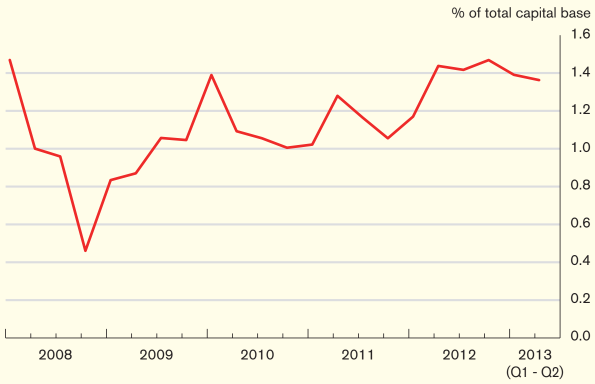
Chart 5.10
Term spreads of Hong Kong and US dollars



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.

Such interest rate risk should not be underrated, as the possible impact of any significant shift in the yield curve or rise in interest rates on banks' balance sheets in the process of the eventual normalisation of US monetary policy could be severe. It is estimated that under a hypothetical shock of an across-the-broad 200-basis-point increase in interest rates, the economic value of retail banks' interest rate positions could be subject to a decline equivalent to 1.4% of their total capital base as of June 2013 (Chart 5.11). While the impact appears to be manageable[35], a significantly larger interest rate hike or an unfavourable change in the shape of the yield curve could result in a much bigger impact.

Chart 5.11
Impact of interest rate shock on retail banks



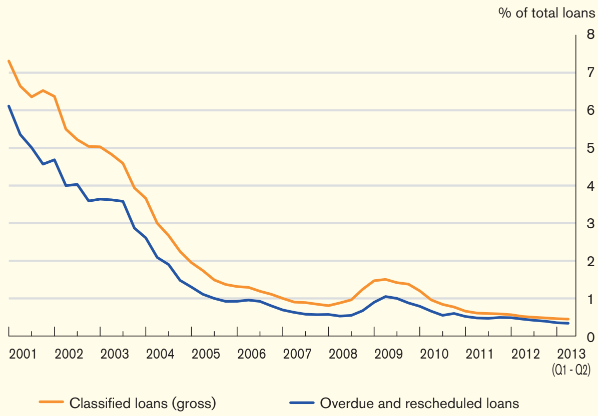
Notes:
1. Interest rate shock refers to a standardised 200-basis-point parallel rate shock to institutions' interest rate risk exposures.
2. The impact of the interest rate shock refers to its impact on the economic value of banking and trading book[36], expressed as a percentage of the total capital base of banks.

Source: HKMA staff estimates.

5.4 Credit risk

The asset quality of retail banks' loan portfolios continued to improve in the first half of the year, with the classified loan ratio falling further to 0.45% at the end of June, from 0.48% six months earlier. The ratio of overdue and rescheduled loans also edged down to 0.34% from 0.39% (Chart 5.12) during the period.

Chart 5.12
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.

Loan growth in the banking sector accelerated in the first half of 2013. Total domestic lending[37] of AIs increased by 10.2% in the first half, following an increase of 4.1% in the preceding six months. The rapid credit expansion was mainly contributed by trade finance and loans to corporations, whereas property-related loans registered a more moderate increase of 3.2%, after rising by 4.3% in the second half of 2012.

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35 The HKMA will be particularly attentive to the capital sufficiency of "outlier AIs" – those whose interest rate risk leads to an economic value decline of more than 20% of their capital base as a result of applying the standardised interest rate shock to the banking book. For details, see HKMA Supervisory Policy Manual's module "Interest Rate Risk Management" issued in December 2002.

36 Locally incorporated AIs subject to the market risk capital adequacy regime are required to report positions in the banking book only. Other locally incorporated AIs exempted from the market risk capital adequacy regime and overseas incorporated institutions are required to report aggregate positions in the banking book and trading book.

37 Defined as loans for use in Hong Kong plus trade-financing loans. If other loans for use outside Hong Kong are included, the growth in bank lending in the six months ended June 2013 is 9.5%, compared with 4.7% in the preceding six months.

Looking ahead, the rapid growth in lending may moderate. As suggested by results of the HKMA Opinion Survey on Credit Condition Outlook of June 2013, while more than two-thirds of the respondents expected loan demand to remain at the current level, the share of surveyed AIs expecting lower loan demand in the next three months had exceeded those expecting higher loan demand (Table 5.A).

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

(% of total respondents)	Sep 2012	Dec 2012	Mar 2013	Jun 2013
Considerably higher	0	0	0	0
Somewhat higher	10	14	10	10
Same	71	76	67	71
Somewhat lower	19	10	24	19
Considerably lower	0	0	0	0
Total	100	100	100	100

Note: Figures may not add up to 100% due to rounding.

Source: HKMA.

Household exposure

Household loans [38] showed signs of moderation, with the half-yearly growth rate slowing down to 3.8%, from 6.5% in the second half of 2012. Mortgage lending, which is the major component of household loans, grew at a slightly slower pace of 3.1%, after expanding by 5% in the second half of 2012, partly reflecting softened property prices and reduced transaction volumes. As a result, the share of mortgage lending to total domestic loans edged down to 21.5% (Table 5.B).

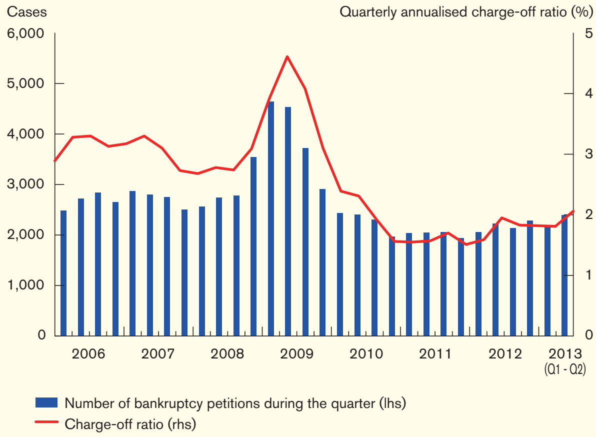
Table 5.B
Half-yearly growth of loans to households of all AIs

	2010		2011		2012		2013
(%)	H1	H2	H1	H2	H1	H2	H1
Mortgages	5.1	8.6	5.5	1.2	2.5	5.0	3.1
Credit cards	-0.9	17.9	-1.4	15.9	-1.6	15.3	-4.0
Other loans for private purposes	7.9	6.6	9.4	3.8	5.0	9.3	10.9
Total loans to households	5.1	8.9	5.6	2.7	2.6	6.5	3.8

Source: HKMA.

The credit risk of unsecured household exposure remained contained, with the annualised credit card charge-off ratio and the number of bankruptcy petitions staying low, albeit edging up slightly (Chart 5.13).

Chart 5.13
Charge-off ratio for credit card lending and bankruptcy petitions

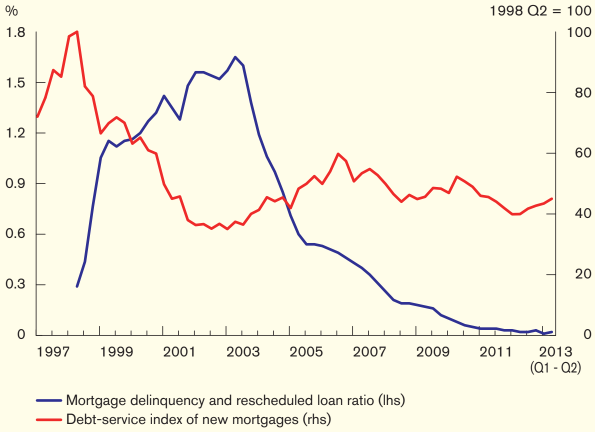


Sources: Official Receiver's Office and the HKMA.

[38] Loans to households constitute lending to professional and private individuals, excluding lending for other 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 June 2013, the share of household lending in domestic lending was 29%.

Meanwhile, the delinquency ratio of banks' mortgage portfolios remained healthy (Chart 5.14). However, it is worth noting that the debt-service index of new mortgages further deteriorated to 45 in June 2013, from 43 at the end of 2012. The increase in debt-servicing burden mainly reflected the rise in both the average size of new mortgage loans and the effective mortgage rate. Banks should be vigilant about the impact of a rise in interest rates on their mortgage portfolios, both in terms of households' debt repaying ability and the risk of a possible property price correction.

Chart 5.14
Delinquency ratio of banks' mortgage portfolios and household debt-servicing burden in respect of new mortgages



Note: The calculation of the index is based on the average interest rate for BLR-based mortgages.

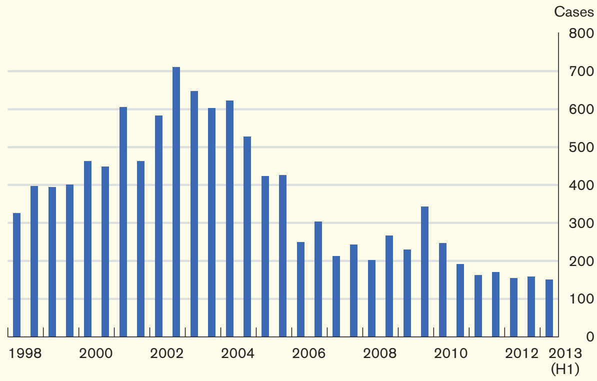
Sources: HKMA and staff estimates.

Corporate exposure[39]

The growth of domestic loans to corporations[40] accelerated to 13.2% in the first half of 2013, from 3.0% in the second half of 2012. At the end of June 2013, corporate loans accounted for 70.5% of domestic lending.

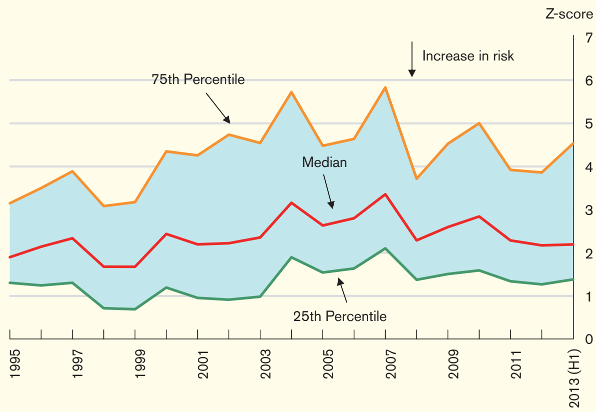
There are some initial signs that the credit risk of banks' corporate exposures may be building up. While the number of compulsory winding-up orders of companies (Chart 5.15) and the Altman's Z-score[41] remained steady (Chart 5.16), the debt leverage of the corporate sector has increased in recent years, with the ratio of assets to shareholders' fund reaching 1.76 times at the end of 2012 (Chart 5.17). Meanwhile, the interest coverage ratio of local corporations, which gauges their abilities to cover interest expenses by earnings, showed a marked deterioration. These indicators suggest that the debt-servicing ability of the corporate sector could be under test when interest rates rise.

Chart 5.15
Number of winding-up orders of companies



Source: Official Receiver's Office.

Chart 5.16
Altman's Z-score: A bankruptcy risk indicator of listed non-financial companies



Note: A lower Z-score indicates a higher likelihood of a company default.

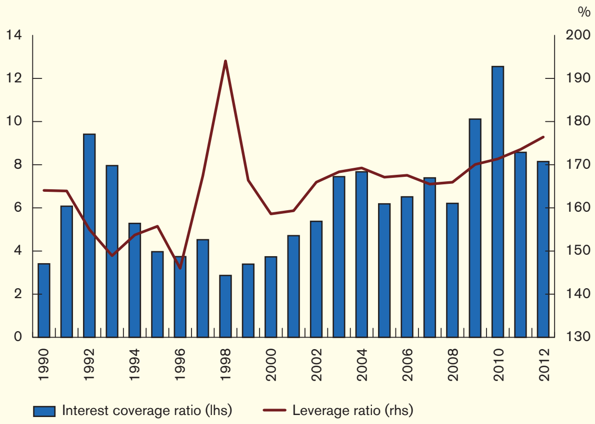
Source: HKMA staff estimates based on data from Bloomberg.

[39] Excluding interbank exposure.

[40] Loans to corporations comprise domestic lending except lending to professional and private individuals.

[41] 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.

Chart 5.17
Leverage ratio and interest coverage ratio of listed non-financial companies in Hong Kong



Notes:
1. The leverage ratio is defined as the ratio of total assets to shareholders' funds. A higher value indicates higher leverage.
2. Interest coverage ratio is defined as the ratio of earnings before interest and taxes to interest expense.

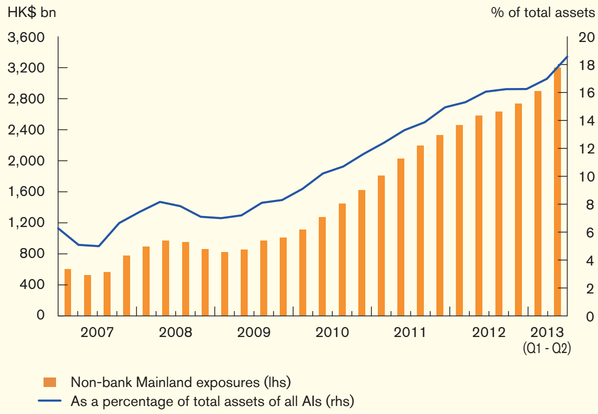
Source: HKMA staff estimates based on data from Bloomberg.

To the extent that a large outflow of funds from Hong Kong may take place as a result of Fed tapering, as some market participants anticipate, the situation would be aggravated. Box 4 examines the factors behind the rising loan spreads of syndicated loans after the global financial crisis. The findings suggest that even if the near-zero interest rate environment remains unchanged in the near term, a significant tightening of domestic liquidity conditions due to external factors could drive up the loan pricing in Hong Kong noticeably.

Mainland exposure

The credit exposure of the domestic banking sector to Mainland-related business continued to expand further. The total non-bank Mainland exposure of all AIs increased to HK$3,198 billion (18.6% of total assets) at the end of June 2013, from HK$2,739 billion (16.2% of total assets) six months earlier. Of this, retail banks' total non-bank Mainland exposure [42] rose to HK$2,003 billion (18.2% of total assets) from HK$1,779 billion (16.5% of total assets).

Chart 5.18
Non-bank Mainland exposures of all AIs



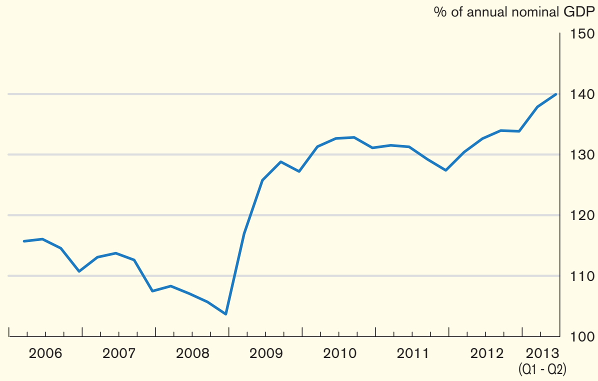
Note: Figures include exposures booked in AIs' banking subsidiaries in Mainland China.

Source: HKMA.

The rising share of banks' Mainland exposure continues to be a significant risk factor amid growing market concerns about Mainland China's growth outlook, corporate leverage and funding conditions.

While banks' lending to Mainland-related customers is largely backed by guarantees or collateralised, in view of the Mainland's high level of credit-to-GDP ratio (Chart 5.19), the recent deterioration of the aggregate distance-to-

Chart 5.19
Credit-to-GDP ratio in Mainland China



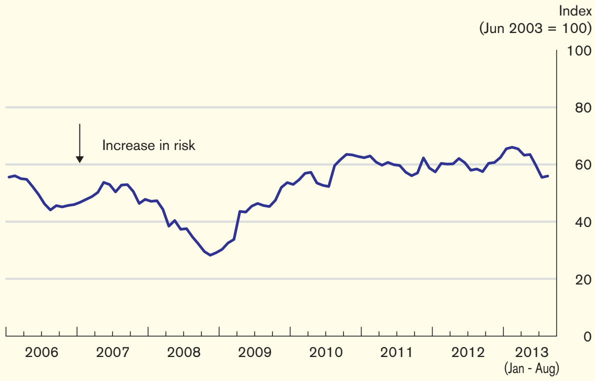
Note: Credit-to-GDP ratio is defined as the ratio of claims on private sector to the sum of quarterly nominal GDP for the latest four quarters.

Sources: IMF International Financial Statistics and CEIC.

[42] Including exposure booked in retail banks' banking subsidiaries in Mainland China.

default index[43] of Mainland's corporate sector (Chart 5.20) and the rise in the amount of non-performing loans in its banking system (Chart 5.21), the need for Hong Kong banks to maintain their stringent prudential management of their Mainland exposure cannot be over-emphasised.

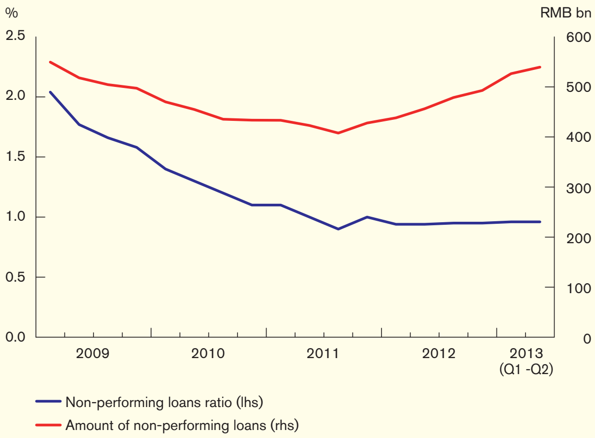
Chart 5.20
Distance-to-default index for the Mainland corporate sector



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.

Chart 5.21
Non-performing loans in Mainland China

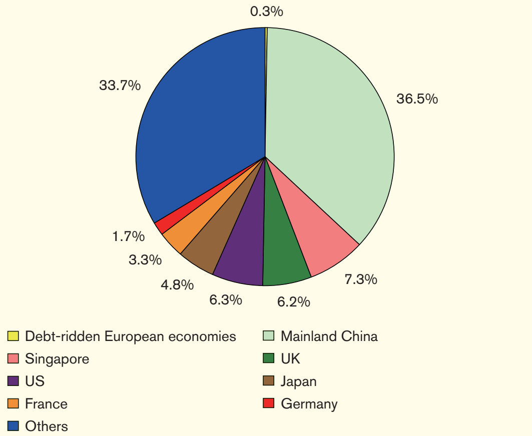


Source: China Banking Regulatory Commission.

Impact of the European sovereign debt crisis

While recent policies have reduced the tail risk of the European sovereign debt crisis, downside risks to economic growth remain. Thus, the performance of local banks will continue to be affected by the evolution of the European sovereign debt crisis and fiscal issues. Given that the exposure of the Hong Kong banking sector to banks in the UK, France and Germany is not immaterial (Chart 5.22), and these banks in turn have significant exposures to the more debt-ridden European economies, the possible contagion risk and its implications for banks in Hong Kong merit close attention.

Chart 5.22
External claims of the Hong Kong banking sector on major economies (all sectors) at the end of June 2013



Notes:
1. Figures may not add up to 100% due to rounding.
2. Debt-ridden European economies refer to Greece, Ireland, Italy, Portugal and Spain.

Source: HKMA.

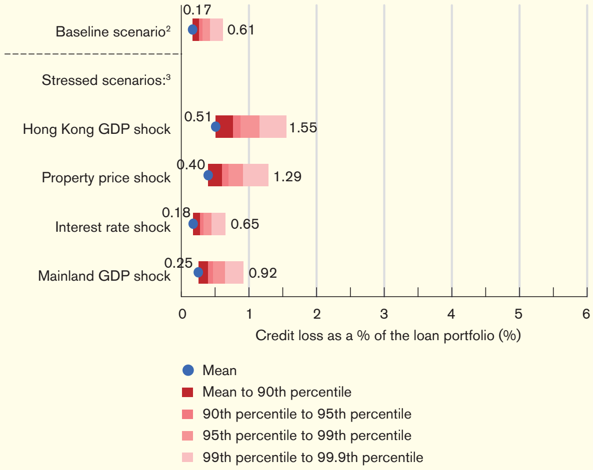
[43] The distance-to-default is a market-based default risk indicator based on the framework by R. Merton (1974), "On the pricing of corporate debt: the risk structure of interest rates", *Journal of Finance*, Vol. 29, pages 449 - 470, in which equity prices, equity volatility, and companies' financial 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.

Macro stress testing of credit risk [44 & 45]

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 experienced during the Asian financial crisis.

Chart 5.23 presents the simulated future credit loss rate of retail banks in the second quarter of 2015 under four specific macroeconomic shocks [46] using information up to the second quarter of 2013. 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 0.18% (interest rate shock) to 0.51% (Hong Kong GDP shock).

Chart 5.23
The mean and value-at-risk statistics of simulated credit loss distributions[1]



Notes:
1. The assessments assume the economic conditions in 2013 Q2 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 2013 Q3 to 2014 Q2.
   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 2013 Q3 to 2014 Q2.
   Interest rate shock: A rise in real interest rates (HIBORs) by 300 basis points in the first quarter (i.e. 2013 Q3), followed by no change in the second and third quarters and another rise of 300 basis points in the fourth quarter (i.e. 2014 Q2).
   Mainland GDP shock: Slowdown in the year-on-year annual real GDP growth rate to 4% in one year.

Source: HKMA staff estimates.

Taking account of tail risk, banks' maximum credit losses (at the confidence level of 99.9%) under the stress scenarios range from 0.65% (interest rate shock) to 1.55% (Hong Kong GDP shock), which are significant, but smaller than the loan loss of 4.39% following the Asian financial crisis.

44 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.

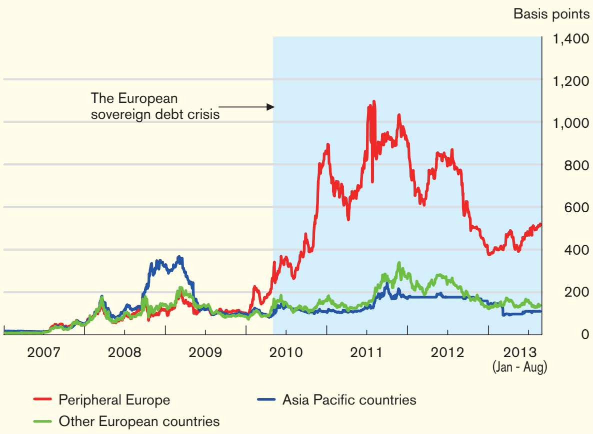
45 All estimates of credit loss for the overall loan portfolio of Hong Kong banks presented in this report are based on a revised stress testing framework. They are not strictly comparable to those estimates from the past framework that appeared in previous reports due mainly to different definitions 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.

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

5.5 Systemic risk to the banking system

While the credit default swap spreads for European banks remained well above the levels prevailing prior to the onset of the European sovereign debt crisis, the corresponding spreads for Asian banks continued to stay low (Chart 5.24), suggesting the systemic risk of banking sector in Asia has not been severely affected by the sovereign debt crisis in Europe.

Chart 5.24
Credit default swap spreads of banks in Europe and Asia



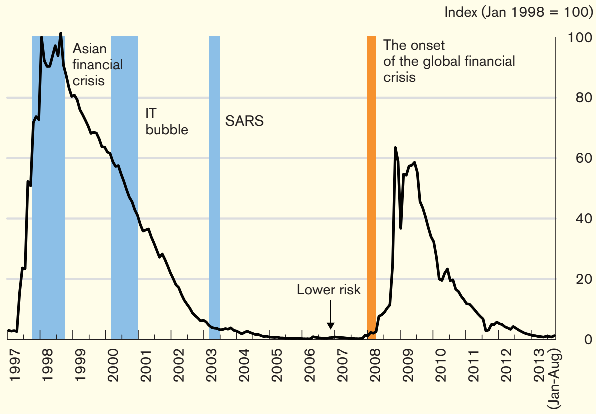
Notes:
1. Median of five-year credit default swap spreads of the respective groups.
2. Peripheral Europe includes Greece, Ireland, Italy, Portugal and Spain.

Source: Bloomberg.

In Hong Kong, the banking distress index, a market-based systemic risk indicator for the local banking sector, increased slightly to 1.2 in August from 1 in February 2013 (Chart 5.25).

However, the risk of contagion in the banking system remained insignificant 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[47], which estimated that the banking distress probability remained within the range of the low fragility category, suggesting that the banking sector continued to be stable and resilient.[48]

Chart 5.25
The banking distress index



Source: HKMA staff estimates based on data from Bloomberg.

The proposed reform of the OTC derivatives market being put forward by the Financial Stability Board (FSB) is expected to play a significant role in reducing the probability of a reoccurrence of financial crises. The Macroeconomic Assessment Group on Derivatives (MAGD) of the FSB conducted an assessment of the costs and benefits of the OTC derivatives reform. Box 5 presents the key findings. The reform could reduce counterparty risks through central clearing and more comprehensive collateralisation. Such benefits are balanced against the costs of holding more capital and collateral by derivatives users. MAGD quantitatively estimates that the reform can generate median net benefits equivalent to 0.12% of GDP across 16 jurisdictions. For Hong Kong, it is estimated that the net benefits are around 0.13% of GDP.

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

[47] The composite early warning system is designed to estimate 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.

[48] 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] (%)

	Jun 2012	Mar 2013	Jun 2013
Interest rate			
1-month HIBOR fixing[2] (quarterly average)	0.30	0.23	0.21
3-month HIBOR fixing (quarterly average)	0.40	0.39	0.38
BLR[3] and 1-month HIBOR fixing spread (quarterly average)	4.70	4.77	4.79
BLR and 3-month HIBOR fixing spread (quarterly average)	4.60	4.61	4.62
Composite interest rate[4]	0.42	0.25	0.32
		Retail banks	
Balance sheet developments[5]			
Total deposits	1.3	-0.3	1.4
Hong Kong dollar	0.2	-1.6	0.5
Foreign currency	2.7	1.5	2.5
Total loans	3.4	2.2	5.6
Domestic Lending[6]	2.9	2.5	5.3
Loans for use outside Hong Kong[7]	6.1	0.9	7.1
Negotiable instruments			
Negotiable certificates of deposit (NCD) issued	6.4	2.8	15.1
Negotiable debt instruments held (excluding NCD)	-2.8	4.5	-0.3
Asset quality[8]			
As a percentage of total loans			
Pass loans	98.19	98.32	98.44
Special mention loans	1.28	1.22	1.11
Classified loans[9] (gross)	0.52	0.46	0.45
Classified loans (net)[10]	0.30	0.32	0.31
Overdue > 3 months and rescheduled loans	0.45	0.35	0.34
Profitability			
Bad debt charge as percentage of average total assets[11]	0.01	0.02	0.03
Net interest margin[11]	1.35	1.39	1.41
Cost-to-income ratio[12]	44.5[r]	41.7	40.9
Liquidity ratio (quarterly average)	39.7	40.2	38.9
		Surveyed institutions	
Asset quality			
Delinquency ratio of residential mortgage loans	0.01	0.01	0.02
Credit card lending			
Delinquency ratio	0.21	0.23	0.25
Charge-off ratio — quarterly annualised	1.95[r]	1.81	2.06
— year-to-date annualised	1.74[r]	1.81	1.88
		All locally incorporated AIs	
Capital adequacy ratio (consolidated)[13]	15.9	16.6	15.9

Notes:

1. Figures are related to Hong Kong office(s) only except where otherwise stated.
2. The Hong Kong dollar Interest Settlement Rates are 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. Including “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.
13. For the implementation of the Basel III framework, all locally incorporated AIs are required to report their capital adequacy positions under the Banking (Capital) Rules starting from 1 January 2013.

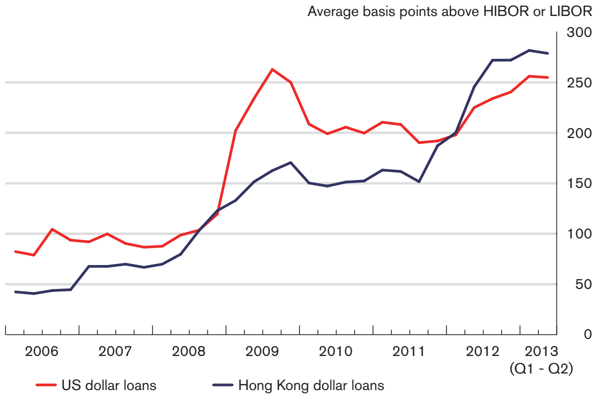
[r] Revised figure.

Box 4
Explaining rising loan spreads on syndicated loans in Hong Kong after the global financial crisis

Introduction

Spreads on syndicated loans in Hong Kong rose significantly after the global financial crisis from an average of below 100 basis points over HIBOR or LIBOR to around 250 basis points (Chart B4.1)[49]. This box empirically identifies factors contributing to the rising loan spread and assesses the implications.

Chart B4.1
Average spreads on syndicated loans in Hong Kong



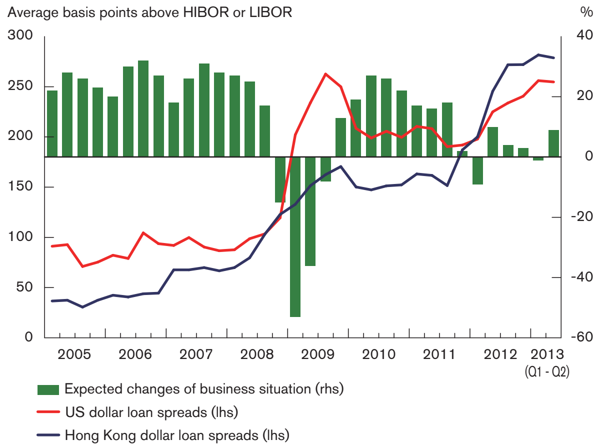
Note: Loan spreads are expressed as the four-quarter moving average.
Sources: Bloomberg and HKMA staff estimates.

Possible explanations for the rising spread

There are some factors that could account for the rising loan spread on syndicated loans in Hong Kong after the global financial crisis. First, the higher loan spread may reflect a riskier composition of borrowers tapping syndicated loans in Hong Kong. This may be associated with the rapid growth of syndicated loans to Mainland-related firms. Besides, borrowers with unrated or speculative-grade ratings are observed to be more prevalent.

Second, the rising loan spread may be partly a result of higher default risk premiums demanded by banks to compensate for the potential adverse impact of weak business conditions after the global financial crisis on firms' financial health. In fact, the spike in the loan spread that occurred from the fourth quarter of 2008 to the third quarter of 2009 is associated with a pessimistic business outlook (Chart B4.2).

Chart B4.2
Expected changes of Hong Kong business situation[1] and spreads on syndicated loans



Notes:
1. An increase in the expected change of business situation indicates that business situation is likely to improve, while a decrease may signal deterioration in business situation in the near term.
2. Loan spreads are expressed as the four-quarter moving average.

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

The third factor is that banks may charge higher liquidity premiums for syndicated loans after the global financial crisis. This hypothesis is supported by the fact that the foreign-currency loan-to-deposit (LTD) ratio of the Hong Kong banking sector has shown a clear upward trend since 2009 (see Chart 5.8 in Chapter 5), which may signal significant pressure on banks' funding, particularly for their US dollar lending.

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[49] See He, D. and R. N. McCauley (2013), "Transmitting Global Liquidity to East Asia: Policy rates, Bond Yields, Currencies and Dollar Credit", paper prepared for presentation at the Hong Kong Monetary Authority 20th Anniversary Research Workshop, 7 June 2013, Hong Kong.

Finally, short-term interest rates may be one factor affecting loan spreads, although the direction of the impact may be inconclusive. On one hand, a negative relationship is consistent with Merton's (1974) theory of corporate default.[50] On the other hand, it may be argued that firms may take advantage of lower short-term interest rates to refinance debt, thus reducing their debt-servicing burdens and default risk. This counter argument implies a positive relationship between short-term interest rates and loan spreads.

An empirical model of loan spreads

To what extent these four factors account for the rising loan spread can be studied empirically. Here, a two-stage approach is adopted to decompose the relative contribution of each factor. In the first-stage analysis, we investigate how risk characteristics of individual borrowers help explain the loan spread. Specifically, using a database of 737 loan observations from the first quarter of 2005 to the second quarter of 2013, we regress the loan spread by a set of conventional loan-level default risk indicators.

The estimation result (Table B4.A) suggests that syndicated loans with smaller loan sizes, longer maturities and speculative grade ratings tend to be associated with higher loan spreads.[51] Mainland-related loans are estimated with a higher loan spread, probably reflecting the strong demand for foreign-currency loans by Mainland firms such that they are more willing to pay a premium for syndicated loans in Hong Kong. In addition, banks are estimated to charge a lower loan spread for Hong Kong dollar loans than US dollar loans. Largely in line with findings in the literature[52], loans backed by collateral are found to be associated with higher loan spreads, which could be explained partly by the banks being more likely to demand collateral for loans that are perceived to entail high default risk. As revealed from the R^2, a conventional goodness-of-fit statistic, risk characteristics of individual borrowers only account for around 17% of the variation of loan spreads, suggesting that macro factors (i.e. the remaining three factors) may play more significant roles in determining loan spreads on syndicated loans in Hong Kong.

Table B4.A
Estimation result for the first-stage regression

Explanatory variables	Dependent variable: Spreads on syndicated loans (Sample period: 2005Q1 - 2013Q2)
Log(Size of loan facility)	-5.22 *
Time to maturity[1]	1.35 ***
A dummy variable for loans with speculative grade ratings[2]	84.79 ***
A dummy variable for Mainland-related loans	36.27 ***
A dummy variable for Hong Kong dollar loans	-37.22 ***
A dummy variable for loans with collateral	32.96 ***
Constant	232.78 ***
R^2	0.171
Number of observations	737

Notes:

1. In number of months, for loans with maturity shorter than 60 months.
2. Loans with ratings below BBB.
3. *** and * denote significance at 1% and 10% levels respectively.
4. The estimation sample includes Hong Kong dollar loans and US dollar loans.

50 See Merton, R. (1974), "On the Pricing of Corporate Debt: The Risk Structure of Interest Rates", *Journal of Finance*, 29, pages 449 – 470. Specifically, an important part of the theory is that a firm's expected growth rate of asset is determined by risk-free interest rates. Assuming a constant amount of debt, a decline in interest rates leads to a reduction in the firm's net worth, implying higher default risk and thus a higher loan spread. While empirical evidence remains mixed, Lo and Hui (2013) recently find a significant negative relationship between credit spreads and risk-free interest rates in the US during January 2008 to June 2013. For details, see Lo and Hui (2013), "Pricing Corporate Bonds in an Ultra-low Interest Rate Environment", available at the Social Science Research Network (http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2185861).

51 A preliminary analysis finds that a dummy variable for guarantee and that for loans with investment grade ratings are statistically insignificant. These two variables are therefore dropped from the regression equation.

52 See Jiménez, G., and J. Saurina (2004), "Collateral, Type of Lender and Relationship Banking as Determinants of Credit Risk", *Journal of Banking and Finance*, 28(9), pages 2191 – 2212.

The second-stage analysis focuses on the three macro factors. Specifically, we first compute the residuals from the first-stage regression equation (denoted by *e*), which by construction contain information other than risk characteristics of individual borrowers. We then regress *e* by an indicator of expected changes in business situation (*EXP*)[53], LTD ratios, an interacting term between a dummy variable[54] and LTD ratios (*LTD09*), and short-term interest rates (*SR*). *LTD09* is included to capture a possible increase in the sensitivity of the loan spread to LTD ratios when LTD ratios are on their rising trends. Since these macro factors may have different impacts on Hong Kong dollar loans and US dollar loans, we estimate the equation separately for these two groups of samples.

In line with our discussion in the previous section, we hypothesise that the loan spread is correlated negatively with *EXP* and positively with the *LTD* ratio. For *LTD09*, we expect a positive estimated coefficient for two reasons. First, there is a clear rising trend of the foreign-currency LTD ratio since 2009, which may signal significant funding pressure on banks. Second, since late 2009, the stance of macroprudential policy in Hong Kong has been tightened generally, partly reflecting regulatory concerns about the sustainability of credit growth and rising LTD ratios.[55] Banks may since then become more prudent in pricing their lending, including syndicated loans, by factoring in the potential liquidity risk amid the unprecedented low interest rate environment.

The estimation result (Table B4.B) is generally in line with our expectation, except for short-term interest rates, which is found to be statistically insignificant.[56] Nevertheless, the macro factors together account for around 32% and 18% of the variation of loan spreads for Hong Kong dollar loans and US dollar loans respectively[57], suggesting that macroeconomic environments significantly affect the pricing for syndicated loans in Hong Kong.

Table B4.B
Estimation result for the second-stage regression

Explanatory variables	Dependent variable: *e* (Sample period: 2005Q1 - 2013Q2) HKD loans	USD loans
SR	-4.02	-4.94
EXP	-1.90 ***	-1.32 ***
LTD ratio	1.79 **	0.34
LTD09	1.13 ***	1.17 **
Constant	-148.23 **	-20.83
R^2	0.385	0.218
Number of observations	353	384

Note: *** and ** denote significance at 1% and 5% levels respectively.

53 An increase in *EXP* indicates that business situation is likely to improve while a decrease may signal deterioration in business situation in the near term.

54 The dummy variable is defined as one after November 2009 for Hong Kong dollar loans and after July 2009 for US dollar loans.

55 Apart from a series of macroprudential measures since late 2009 to help banks to manage specifically their risks in mortgage lending, the HKMA issued circular "Credit growth" on 11 April 2011 to all AIs, requiring them to reassess their loan business and funding plans.

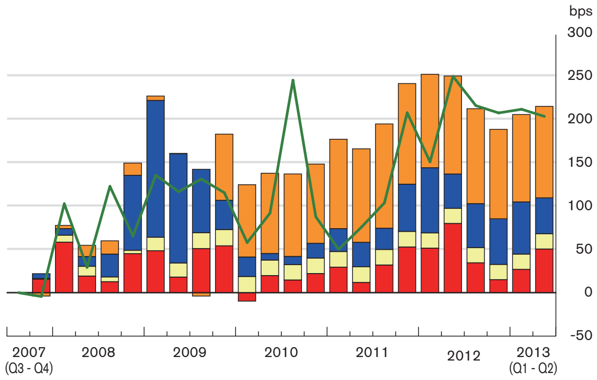
56 Short-term interest rates are found to have a significant negative relationship with the loan spread in univariate regression analysis. However, the significance does not carry over after controlling for the effect of LTD ratios.

57 This is calculated as $(1-R^2_{(1)})R^2_{(2)}$ where $R^2_{(1)}$ and $R^2_{(2)}$ are the *R*-squared statistics from the first- and second-stage estimations respectively.

Decomposition analysis of loan spreads

Based on the estimation result, we decompose the relative contribution of each factor to changes in the loan spreads. Charts B4.3 and B4.4 show the cumulative change in the loan spreads since the third quarter of 2007 for Hong Kong dollar loans and US dollar loans respectively together with the estimated contribution by each factor. There are some interesting patterns from the charts. First, risk characteristics of individual borrowers are found to contribute mainly to the volatility of the loan spread rather than the upward trend (see the red bars). Second, among the macro factors, liquidity, which is proxied by LTD ratios, contributes the most significant part of the rising loan spread (i.e. the orange bars), followed by changes in expectation of business situation (i.e. the blue bars). Changes in short-term interest rates, even assuming it as one significant contributor, are found to have a limited contribution to the rising loan spread.

Chart B4.3
Factors contributing to the rising loan spread on Hong Kong dollar syndicated loans since 2007Q3

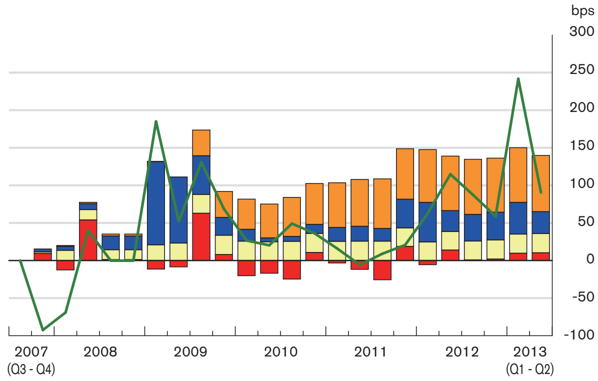


- LTD ratio
- Expected changes of business situation in Hong Kong
- Short-term interest rate
- Risk characteristics of individual borrowers
- Changes in loan spreads since 2007Q3

Note: Changes in loan spreads and factor contributions in each period are the weighted averages by loan size.

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

Chart B4.4
Factors contributing to the rising loan spread on US dollar syndicated loans in Hong Kong since 2007Q3



- LTD ratio
- Expected changes of business situation in Hong Kong
- Short-term interest rate
- Risk characteristics of individual borrowers
- Changes in loan spreads since 2007Q3

Note: Changes in loan spreads and factor contributions in each period are the weighted averages by loan size.

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

Conclusion

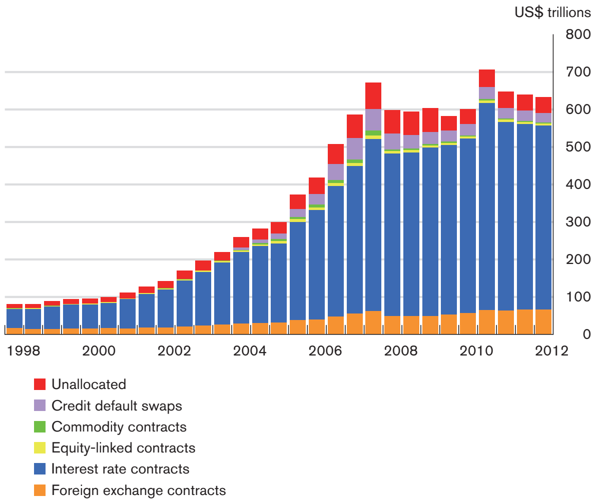
This analysis empirically reveals that less abundant domestic liquidity conditions, as reflected by rising LTD ratios since 2009, are one major contributor to the rising loan spread of syndicated loans in Hong Kong. One implication is that even if the near-zero interest rate environment remains unchanged in the near term, a significant change in domestic liquidity conditions due to external factors could drive the loan pricing in Hong Kong noticeably. There is market speculation that the US tapering could result in significant outflows of funds from Asia, including Hong Kong. If such a scenario occurs, domestic liquidity conditions could be tightened due to withdrawals of deposits, and loan prices could rise significantly ahead of any interest rate hike. The potential impact of a sudden change in local liquidity conditions on loan prices and its possible consequences merit close attention.

Box 5
Macroeconomic impact assessment of the OTC derivatives reform

Background

The over-the-counter (OTC) derivatives market expanded rapidly in the past decade, with the outstanding amount of derivative contracts rising from US$80 trillion at the end of 1998, to US$633 trillion at the end of 2012 (Chart B5.1). It is generally believed that the opaqueness, highly unregulated and insufficiently collateralised nature of OTC derivatives market, given its sheer size, helped propagate and amplify the global financial crisis. In response, the G20 leaders declared in the 2009 Pittsburgh Summit that more regulations on OTC derivatives were required. At the initiative of the Financial Stability Board (FSB), a working group was formed in April 2010 to make recommendations on the implementation of the G20 decisions.[58] Specifically, the proposed OTC derivatives reform consists of four elements: (1) all standardised OTC derivative contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through central counterparties (CCPs); (2) OTC derivative contracts should be reported to trade repositories; (3) non-centrally cleared contracts should be subject to higher capital requirements; and (4) non-centrally cleared contracts should be subject to more stringent margin requirements[59].

Chart B5.1
Outstanding amount of global OTC derivatives contracts



Note: Figures are based on Semi-annual Over-the-counter (OTC) Derivatives Markets Statistics published by the BIS.

Source: BIS.

As the reform is still under consultation, the Over-the-Counter Derivatives Coordination Group commissioned the Macroeconomic Assessment Group on Derivatives (MAGD) to conduct a quantitative benefits and costs assessment of the macroeconomic implications of the reform. At the invitation of the Bank for International Settlements (BIS), the HKMA has joined the MAGD.[60] This box presents key findings of the assessment.

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58 For a progress report of the reform across member institutions of the FSB, see Sixth Progress Report on Implementation of OTC Derivatives Market Reforms, published by the FSB in September 2013. In Hong Kong, to provide for the regulatory framework for the OTC derivatives market, the relevant Bill was gazetted in June 2013 and was tabled before the Legislative Council in July 2013. Detailed rules for implementing the new framework, in the form of subsidiary legislation, are being prepared and will be issued for public consultation in late 2013.

59 Initial margins and variation margins are deployed in OTC derivatives transactions to mitigate counterparty risks. Initial margins are posted by each counterparty at the beginning of the trade to cover potential losses in the event of default. Variation margins are adjusted between counterparties daily to reflect mark-to-market profit and loss in their derivative positions.

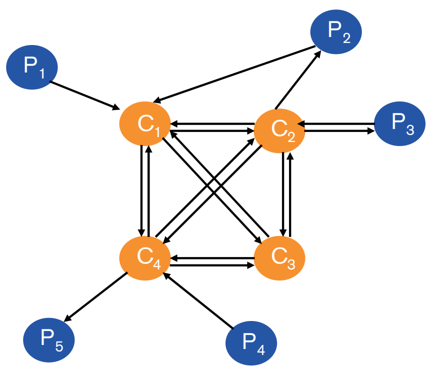
60 MAGD is composed of 29 member institutions of the FSB, with the help of the BIS and International Monetary Fund. The full MAGD report, "Macroeconomic impact assessment of OTC derivative regulatory reforms", published on 26 August 2013 is available in the BIS website.

Macroeconomic assessment

(A) Benefits of the reform

Benefits of the reform are gauged by network modelling. Based on data from the 16 largest derivatives dealers (G16 dealers) and 25 less active banks at the end of 2012, a network of bilateral exposures between them is estimated.[61] The estimated network attempts to mimic the structure of the OTC derivatives market, which is characterised by a highly interconnected core and less interconnected periphery (Chart B5.2).[62]

Chart B5.2
Stylised core-periphery network

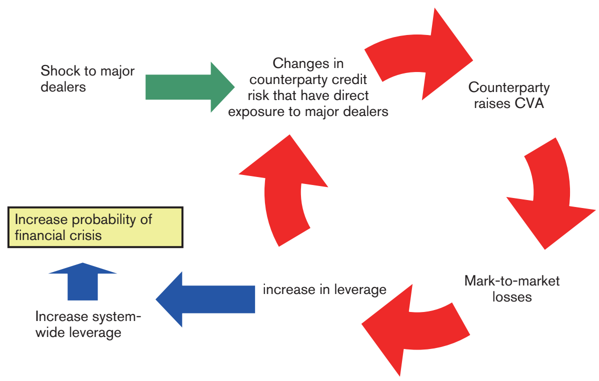


Notes:

1. Orange nodes with a letter "C" refer to 'core' set of players in the network, and blue nodes with a letter "P" refer to 'periphery' set of players. The arrows represent the direction of bilateral gross exposure. For example, the arrow originates from P_1 to C_1 denotes a claim of P_1 on C_1.
2. Banks from the periphery set do not have linkages among themselves. However, they are indirectly linked to each others through the core banks.

To understand the propagation mechanism of the estimated network, an exogenous shock is considered to the G16 dealers that increases their default probability (Chart B5.3). Counterparties which have direct exposures to G16 dealers will respond to the shock by increasing the credit valuation adjustments (CVA) for the uncollateralised derivatives exposures.[63] Although actual default is yet to occur, this results in mark-to-market losses equal to changes in CVAs and drives up counterparties' leverage. Due to a higher leverage, the riskiness of the network increases and the losses reverberate further to other banks that may not have direct exposures to the G16 dealers initially. Overall, the shock to the G16 dealers would lead to an increase in the system-wide leverage. If the increase in leverage is severe enough, the elevated systemic risk can result in the occurrence of a financial crisis.

Chart B5.3
Stylised model architecture



There are two major benefits of the reform that help banks to withstand shocks. First, as central clearing through CCPs enables multilateral netting, the cascade of losses will be transmitted in a less complex network, thus the systemic risk arising from inter-linkage between banks will be significantly reduced.[64] Secondly, better collateralisation against OTC derivatives exposures can lower the impact of the initial shocks when it reverberates through the network.[65] The MAGD estimates that the reform can lower the probability of occurrence of a financial crisis in any given year by 0.26 percentage points. Based on the finding that the

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[61] As data for banks' bilateral exposures are not available due to confidentiality issues, the network of bilateral exposures is estimated using an improved maximum entropy method. For details, see G. Halaj and C. Kok (2013), "Assessing Interbank Contagion Using Simulated Networks", ECB *Working Paper No. 1506*.

[62] To ensure the estimated network is a reasonable description of the reality, summary statistics generated from the estimated network have been validated against confidential data sources.

[63] CVA is an adjustment made by the institution to the valuation of a netting set with the counterparty to reflect the market value of the credit risk of that counterparty. CVA capital charge represents the amount of capital that a bank is required to hold for the CVA risk of the counterparty and is a new element under the Basel III regulatory framework.

[64] Netting is the process of offsetting different counterparties' transactions into one single net obligation.

[65] Under the Basel III capital requirement, a better collateralised exposure is subjected to a lower CVA charge.

median cost of a financial crisis is 60% of the pre-crisis GDP, it is estimated that expected annual GDP losses of about 0.16% could be avoided by the reform.[66] It is noteworthy that the estimated benefits are based on data from the derivatives exposure of banks which have significant operations in the global OTC derivatives market, thus the estimated benefits are equally applicable to every jurisdiction.

(B) Costs of the reform

There are three ways in which the reform may lead to higher cost to banks. First, the higher CVA capital charges require banks to hold more capital, which creates downward pressure on their profitability as cost of equity is typically greater than debt.[67] Second, the more stringent margins requirements for both centrally and non-centrally cleared OTC derivatives require banks to hold more collateral-eligible assets, which results in additional expenses.[68] Third, the fee required by CCPs and the default fund contributions are direct expenses incurred by banks when more trades are shifted to central clearing.[69]

To access the impact, based on the differences in the assumed effectiveness of the multilateral netting achieved by CCPs, three scenarios (high-netting, low-netting and central) are considered.[70] The MAGD estimates that the cost under the central scenario is €20 billion, while the costs under the high and low netting scenarios are €32 billion and €15 billion respectively. It is assumed that banks will transfer the costs to customers by widening the lending spreads. Using an estimate of €24 trillion that represents the size of the global banking loan book, the lending spreads are estimated to increase by 6, 8 and 13 basis points in the high netting, central and low netting scenarios respectively.

Using a suite of macroeconomic models provided by the MAGD members, it is estimated that the increase in lending spreads would reduce GDP by 0.03% (high-netting) to 0.07% (low-netting) under the three scenarios (Table B5.A). For Hong Kong, an error correction model is developed by linking Hong Kong's GDP with its interest rates and lending spreads.[71] Under the three scenarios, it is estimated that the reform would lead to a drop of GDP ranging from 0.02% (high-netting) to 0.05% (low-netting).

Table B5.A
Macroeconomic benefits and costs of OTC derivatives regulatory reforms

Impact on long-run GDP in per cent	High-netting scenario	Central scenario	Low-netting scenario
Global average			
Benefits[1]	0.16	0.16	0.16
Costs[2]	-0.03	-0.04	-0.07
Net benefits	0.13	0.12	0.09
Hong Kong			
Benefits[1]	0.16	0.16	0.16
Costs[3]	-0.02	-0.03	-0.05
Net benefits	0.14	0.13	0.11

Notes:

1. Calculated as the impact on GDP due to a financial crisis times the reduction of probability of a crisis. The assumed decline in output is 60% of pre-crisis GDP. As exposures were found to be sufficiently collateralised post reform, the reductions of probability of a crisis and hence the benefits are estimated to be the same under the three scenarios. The estimated benefits are equally applicable to every jurisdiction.
2. Impact on GDP due to higher lending spreads. The increases in lending spreads under the high-netting, central and low-netting scenarios are 6, 8 and 13 basis points respectively. The figures are based on the median of the results from 16 jurisdictions using different macroeconomic models.
3. Estimates are for Hong Kong only.

66 The benefits of the reform are computed as the reduction in the probability of the crisis times its output cost. The output cost is estimated from a previous macroeconomic assessment by the Macroeconomic Assessment Group. For details, see Basel Committee on Banking Supervision (2010), "An assessment of the long-term economic impact of stronger capital and liquidity requirements".

67 It is noteworthy that the increase in funding cost is an upper-bound estimate since it ignores the contribution of a lower risk arising from a better capitalised banking system.

68 The cost increase in OTC derivatives due to additional collateral requirements is also an upper-bound estimate since it ignores the possible situation of a more favourable pricing arising from lower counterparty risk when counterparties post more collateral.

69 Default funds are made up of contributions from both clearing participants and CCPs. It has a risk-sharing feature that non-defaulting clearing participants may be required to share any losses due to a default of another clearing participant.

70 It is assumed that multilateral netting associated with central clearing is about four times more effective than bilateral netting. In designing various netting scenarios, the percentage of OTC derivatives that will be centrally traded is assumed to change from the current 35% to 60% post reform in the central scenario. In the high-netting scenario, the ratio is increased further to 75% post reform. In the low-netting case, while 75% of trades are assumed to clear through CCPs, there are no netting benefits.

71 Hong Kong's interest rates and lending spreads are proxied by HIBOR and the net interest margins of the Hong Kong banking sector. For details, see Wong et al., "An Assessment of The Long-term Economic Impact of the New Regulatory reform on Hong Kong" *HKMA Research Note 05/2010*.

(C) Net Result

In sum, the MAGD concludes that the net benefits of the reform are positive in all scenarios, with a central estimate of 0.12% of GDP a year. For Hong Kong, the net benefits of the reform are about 0.13% of GDP a year.

Limitations of the quantitative assessment

Although the analytical approach suggests that the reform can generate net benefits, there are a number of factors that may affect the impact of the reform, but their effects have not been covered by the assessment. These include the following:

1. *Interconnection risks arising from multilateral netting across CCPs*
   Central clearing allows CCPs to perform multilateral netting of exposures, thereby facilitating the reduction of counterparty risk. Given the proliferation of CCPs, this benefit can only be realised if there are linkages among them. While such linkages among CCPs could increase the scope for multilateral netting and reduce collateral demand, it may also introduce interconnection risks and transmit participants' failure among themselves. The potential impact of the establishment of linkages among CCPs needs to be further assessed.

2. *Pressures on prices of collateralised assets*
   It is foreseeable that collateral demand will increase significantly post reform. Any shortage of collateral during times of stress may pose excessive pressures on prices of high quality assets, and hence increase the costs of using derivatives.

3. *Increased cost of indirect clearing*
   Indirect clearing through other CCPs clearing members offers a way through which smaller market participants could have access to CCPs. However, they may face higher margin requirements required by the direct clearing members than that imposed by CCPs on direct clearers themselves. The more stringent margin requirements, which aim at protecting direct clearing members from the increased risk associated with indirect clearing, will raise the cost of risk transfer. Should this deter risk hedging by smaller market participants, it may not be conducive to economic and financial stability.[72]

4. *Cross-border issues and its impact*
   As jurisdictions around the world gradually put their own regulatory regimes in place, there are indications of potential differences in the scope and application of the new regulations across jurisdictions.[73] Should any conflicts in the regulatory frameworks not be properly addressed, there is a risk that they could create potential for regulatory arbitrage. Given the significant presence of global dealers in the regional OTC derivatives markets, any withdrawal of them in taking advantage of the regulatory differences may result in market fragmentation, and may have a significant impact on the pricing and liquidity of the products traded in the region.

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72 For large institutions, it seems unlikely that they will be discouraged from using derivatives in hedging at all just because of the higher costs. Nonetheless, during a meeting organised by MAGD with OTC derivatives market participants, it was suggested that some smaller pension funds and non-financial companies may choose to hedge much less or not at all.

73 One example is the difference in the recognition of CCPs. For instance, European and US banks may be prevented from clearing their trades through CCPs that are not recognised by or registered in their home jurisdictions.

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.

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
BIS	Bank for International Settlements
bn	Billion
BLR	Best lending rate
BoJ	Bank of Japan
BoP	Balance of Payments
CCPs	Central counterparties
CCPI	Composite Consumer Price Index
CDs	Certificates of deposit
CEI	Composite index of coincident economic indicator
CIs	Certificates of Indebtedness
CICI	Credit intermediation chain index
CNH	Offshore renminbi exchange rate in Hong Kong
CNY	Onshore renminbi exchange rate
C&SD	Census and Statistics Department
CPI	Consumer Price Index
CU	Convertibility Undertaking
CVA	Credit valuation adjustments
DDM	Dividend Discount Model
ECB	European Central Bank
EFBN	Exchange Fund Bills and Notes
EMEs	Emerging Market Economies
EUR	Euro
Fed	Federal Reserve
FOMC	Federal Open Market Committee
FSB	Financial Stability Board
FX	Foreign exchange
GDP	Gross Domestic Product
HIBOR	Hong Kong Interbank Offered Rate
HKD	Hong Kong dollar
HKMA	Hong Kong Monetary Authority
HKSAR	Hong Kong Special Administrative Region

HKTDC	Hong Kong Trade Development Council
HK$M1	Hong Kong dollar narrow money supply
HK$M3	Hong Kong dollar broad money supply
HSCEI	Hang Seng China Enterprises Index
HSI	Hang Seng Index
IMF	International Monetary Fund
IPO	Initial Public Offering
LEI	Composite index of leading economic indicator
LIBOR	London Interbank Offered Rate
lhs	Left-hand scale
LTD	Loan-to-deposit
MAGD	Macroeconomic Assessment Group on Derivatives
MDBs	Multilateral development banks
mn	Million
MTN	Medium-term Note
NCD	Negotiable certificates of deposit
NEER	Nominal effective exchange rate
NIE	Newly industrialised economies
NPL	Non-performing loan
OTC	Over-the-counter
p.a.	Per annum
PBoC	People's Bank of China
PMI	Purchasing Managers' Index
QBTS	Quarterly Business Tendency Survey
qoq	Quarter-on-quarter
QQE	Quantitative and Qualitative Monetary Easing
R&VD	Rating and Valuation Department
REER	Real effective exchange rate
rhs	Right-hand scale
RMB	Renminbi
ROA	Return on assets
SGD	Singapore dollar
S&P 500	Standard & Poor's 500 Index
UK	United Kingdom
US	United States
USD	US dollar
WMPs	Wealth management products
yoy	Year-on-year

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

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