2. Global setting and outlook

Global financial markets have recently experienced sharp sell-offs amid fears that sharper economic slowdown in Mainland China, continued weakness in global commodity prices and the resultant stress on emerging market economies could result in a deeper and more protracted global economic slowdown. The recent turbulence in global financial markets and its potential impact on global growth and inflation have increased the uncertainty of the timing of interest rate hikes by the US Federal Reserve, and reinforced market expectation that the European Central Bank and the Bank of Japan would maintain, if not further expand, their asset purchase programmes.

In East Asia, growth momentum was weaker than expected in the first half of 2015. Concerns over the dimmer growth prospect and the depreciation of the renminbi have heightened selling pressure and volatility in regional currencies and financial markets. The continued rise in household indebtedness also raises concerns over growing vulnerabilities in some regional economies. Striking a balance between supporting growth and preventing capital outflows would become an increasing challenge to policymakers in the region.

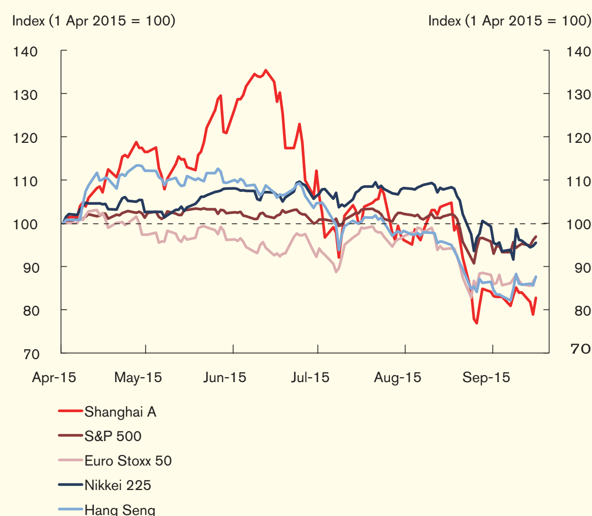
In Mainland China, economic activities stabilised in the second quarter from weak levels, and the growth momentum appeared to remain soft entering into the third quarter. Despite the interest rate and reserve requirement ratio cuts by People's Bank of China, monetary conditions have not eased significantly with elevated real interest rate and relatively strong effective exchange rate of renminbi. As rebalancing and deleveraging are still underway, economic growth is likely to moderate over the near term. On a positive note, the successful launch of the debt swap program has reduced the risk of local government debt, while progress in financial liberalisation will improve efficiency of resource allocation.

2.1 External environment

Global financial market volatility started to increase in July after the Greek people voted against further austerity in the proposed bailout in a national referendum. As Greece was teetering on the brink of crashing out of the euro area, major European stock markets came under significant selling pressure before eventually stabilising after Greece and its international creditors agreed an €86 billion three-year bailout deal. At the same time, global markets were also plagued by the equity market turmoil in Mainland China. Market sentiments stabilised for a while after the Mainland authorities rolled out supportive measures, but global market volatility has spiked markedly again since mid-August.

Concerns about depreciation of the renminbi exchange rate after the People's Bank of China (PBoC) refined its onshore renminbi fixing mechanism, together with the August release of the weakest Chinese Purchasing Manager's Index (PMI) reading in more than 6 years, triggered concerns over Mainland's economic slowdown and a re-pricing of global growth prospects. As a result, the Shanghai Stock Exchange A-Share Index along with major stock market indices around the world fell sharply before selling pressure abated in late-August after the PBoC lowered interest rates and the reserve requirement ratio (RRR) (Chart 2.1).

Chart 2.1
Major stock market indices

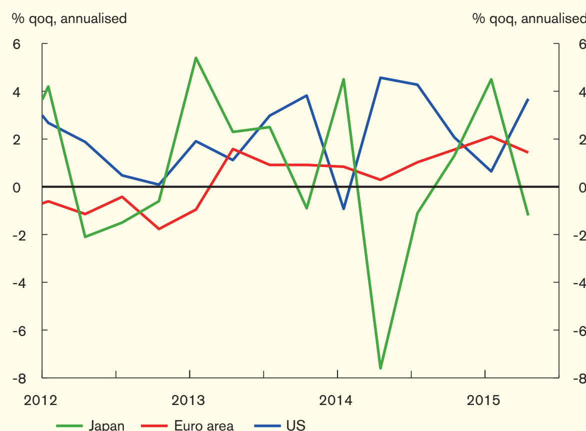


Source: Datastream.

Looking ahead, amid the recent financial market turbulence, the global economic and financial market outlook has become more uncertain. While risks on the Greek exit appear to have diminished, at least temporarily, concerns about Mainland's economic slowdown, together with uncertainties surrounding the US Federal Reserve's (Fed) monetary normalisation process, downward pressure on commodity prices and growing risks in the emerging markets, would continue to cloud the global economic outlook and heighten volatility in the global financial markets.

In advanced economies, despite unconventional monetary easing over the past few years, growth has remained steady but far from spectacular. The recent financial market sell-offs and the likelihood of slower global economic growth may pose further headwinds of tightening financial conditions and weakening exports. The adverse impacts are likely to be smaller for the US where the recovery has been more resilient and domestically driven, whereas the euro area and Japanese economies would be under greater pressure given their fragile recoveries. Indeed, in the US, despite the weather-related slowdown in the first quarter, economic activities rebounded strongly in the second quarter, partly driven by robust domestic demand, with growth in final sales to domestic purchasers (which excludes inventories and net exports and better reflects underlying domestic demand) rising to 3.2% from 1.7% in the first quarter, resulting in a solid average of 2.4% (0.6% quarter on quarter) over the first half of 2015. In contrast, in the euro area, despite the launch of an asset purchase programme, real GDP growth moderated to 0.4% in the second quarter, down from 0.5% in the first quarter, as the boosting effect from the earlier plunge in oil prices and weakening of the euro began to dissipate. Similarly in Japan, despite the continued quantitative and qualitative easing, real GDP slumped to a 0.3% contraction in the second quarter, down sharply from 1.1% growth in the first quarter, due to lagging exports and sluggish consumer spending (Chart 2.2).

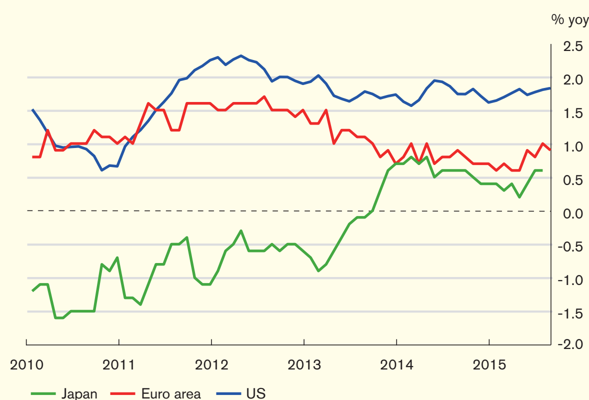
Chart 2.2
Real GDP growth of major advanced economies



Source: Bloomberg.

As a result of moderate recovery and falling global commodity prices, inflation has remained subdued across advanced economies. In particular, the recent renewed plunge in global oil prices has started to exert downward pressure on headline inflation with consumer prices rising slowly by 0.2% in the US in August, 0.1% in the euro area in August and 0.2% in Japan in July. While there are now risks that the tightening in financial conditions linked to the recent financial market turmoil and weakening in external demand and global commodity prices may pose further downward pressure on inflation, such disinflationary pressure is again likely to have a smaller impact on the US given its stronger domestic demand driven recovery than on the euro area and Japan. Indeed, while core consumer prices (i.e. excluding both food and energy) have been rising slowly by 0.9% in the euro area in August and by 0.6% in Japan in July, US core inflation has been significantly higher and holding steadily at 1.8% in August (Chart 2.3).

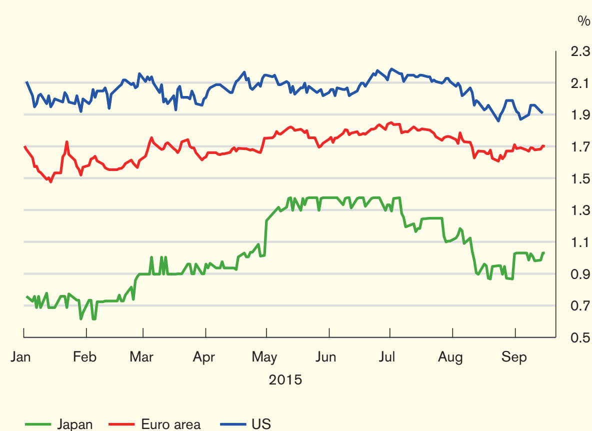
Chart 2.3
Core CPI inflation in major advanced economies



Sources: CEIC and Datastream.

Although the ongoing economic and labour market recovery in the US remains in line with the Fed rhetoric of an interest rate lift-off this year, the recent global financial market turbulence and weakness in commodity prices have increased the uncertainty of the timing of US interest rate lift-off. The Fed held monetary policy unchanged at the September Federal Open Market Committee (FOMC) meeting, citing concerns that recent global economic and financial developments may restrain economic activity and put further downward pressure on inflation in the US in the near term. Nevertheless, as the underlying strength of domestic demand in the US economy remains solid and as a result, the disinflationary impact on US inflation may not be long-lasting compared to other major advanced economies, recent global developments would only delay but unlikely derail the monetary policy normalisation process in the US. Indeed, as recently admitted by the Fed Vice Chairman Stanley Fischer that because monetary policy influences real activity with a substantial lag, the Fed should not wait until inflation is back to 2% to begin tightening. Meanwhile, the weakness in commodity prices and financial market volatilities could complicate monetary policies in Europe and Japan further by intensifying deflationary pressure and slowing growth. Growth and inflation are already and would likely continue to remain subdued in the euro area amid ongoing deleveraging in both the public and private sectors, and market-based long-term inflation expectations have already eased quite notably since July on global financial market turbulence (Chart 2.4). Market participants therefore expect the European Central Bank (ECB) to fully implement its current asset purchase programme if not further expand it. Similarly in Japan, the still-stagnant wage growth and structural headwinds from a rapidly ageing population mean that downside risks for the Bank of Japan (BoJ) to achieve its 2% inflation target have increased. As such, markets generally expect the BoJ to maintain or even expand its quantitative and qualitative easing programme.

Chart 2.4
Inflation expectations in major advanced economies



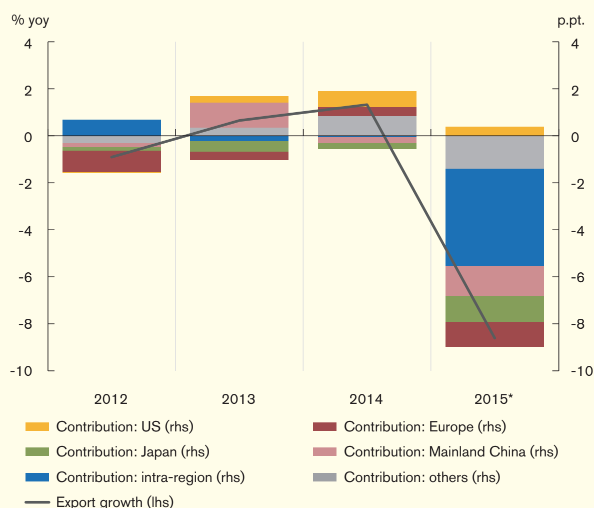
Note: Data used for the US is the 5-year/5-year forward inflation expectation rate. Data used for the euro area is the inflation-linked swap rate at 5-year forward 5-year ahead. Data used for Japan is the 5-year/5-year inflation swap rate.

Sources: Bloomberg, Datastream and St Louis Fed.

In emerging market economies, the economic slowdown in Mainland China, falling global commodity prices and strengthening of the US dollar have continued to pile further downward pressures on the already weakening economic growth and falling exchange value of their currencies. Countries such as Brazil and Russia have been particularly hard hit with deepening recession, much higher-than-desired inflation and sharp currency depreciation. In the face of lingering concerns over the growth prospect of the Mainland economy, the upcoming US interest rate up-cycle and with little prospect of an immediate turnaround in global commodity prices, emerging markets, particularly those with weaker fundamentals and greater domestic and external vulnerabilities, are set to face significant economic challenges and heightened risks of capital outflows.

In East Asia[1], economic growth was weaker than expected in the first half of 2015 amid disappointing export performance and modest domestic demand. Weak intraregional trade and moderated demand from Mainland China and some advanced economies such as Japan and Europe continued to haul the region's external sector performance, significantly outdoing the contribution by the demand from the US (Chart 2.5).

Chart 2.5
Asia: Export growth contributed by major destinations



Note: (*) January to May figures for 2015.
Sources: CEIC and HKMA staff calculations.

Selling pressure and volatility in the region's financial market have increased, driven by the worries over the dimmer growth prospect in the region and the depreciation of the renminbi in August. In fact, most regional currencies have stayed on a weakening trend against the US dollar since September 2014 amid expectation of an impending US interest rate hike (Chart 2.6). The trend was further exacerbated by the unexpected depreciation of the renminbi on 11 August. Meanwhile, equity prices in the region have also been under pressure. Caution towards risk has dominated the market. The swings in the Mainland market since July and the market correction in the US in August have turned investors' sentiment to the risk-off mode and weighed on the region's equity prices. The tightening in financial conditions has also become more evident in terms of borrowing cost in the region. In particular, the yield spreads between the sovereign bonds in many economies in the region and the US treasuries widened in recent months. Reduction of bond market liquidity is another issue that warrants greater attention, given the increasingly important role of these markets in the region's financial system. Box 1 takes a closer look at the bond market liquidity conditions in emerging Asia. In particular, it examines the recent trends and discusses the determining factors as well as the implications for financial stability.

[1] East Asian economies refer to Indonesia, Malaysia, the Philippines, Singapore, South Korea, Taiwan and Thailand.

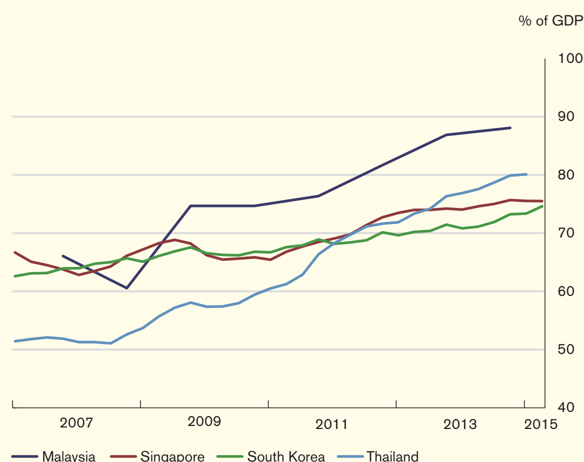
Chart 2.6
Bloomberg — JP Morgan Asia Currency Index

Source: Bloomberg.

Looking ahead, the economic prospect of the region hinges very much on how macroeconomic and financial market developments in Mainland China evolve and the pace of interest rate normalisation in the US. In the face of heightened uncertainty, any general risk aversion towards emerging market economies as a result of economic problems in the weaker counterparts could cause investor sentiment towards the region to turn rapidly.

Meanwhile, there are rising concerns over the growing private-sector indebtedness in the region. In particular, the brisk expansion in household credit in some regional economies has pushed their household credit-to-GDP ratio to multi-year high (Chart 2.7). An increase in interest rates alongside the normalisation of US monetary policy could challenge borrowers' debt repayment ability and weigh on asset prices, increasing the risk of an abrupt market correction.

Chart 2.7
Asia: Household credit-to-GDP ratio of selected Asian economies



Source: CEIC.

In the face of moderated growth momentum, weakened investor sentiment and increased domestic vulnerabilities, the region's policymakers will face an increasingly difficult dilemma in conducting monetary policy to balance between supporting growth and preventing capital outflows. In particular, monetary easing to support growth could exacerbate the macro-financial imbalances built up in the past few years. At the same time, further rate cuts would widen the interest rate differential between regional economies and the US, which would further reduce investors' appetite for holding assets in these economies and increase the risk of capital outflows.

Box 1
Bond market liquidity in emerging Asia

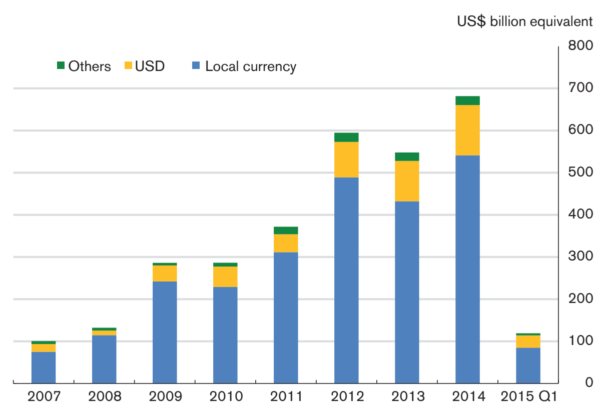
Introduction

In view of the fast expansion of global bond markets, reduced liquidity has increasingly come under the spotlight of macro-surveillance internationally. The emergence of the so-called "flash crashes" — steep price corrections in a short and non-eventful period of time — suggests that liquidity risk looms large even in some of the largest and most liquid bond markets of the world.[2] Against this backdrop, this box takes a closer look at the liquidity conditions of the bond markets in emerging Asia.[3] In particular, it examines the recent trends and discusses the determining factors as well as the implications for financial stability.

Expansion of bond markets

Since the global financial crisis, bond markets around the world have expanded rapidly, in particular, those in emerging market economies characterised by relatively higher yields. This is due partly to investors searching for yields in a low interest rate environment and partly to improved fundamentals of emerging market economies as well as a host of other factors.[4] Emerging Asia is no exception, with the total amount of new issuance of non-bank corporate debt securities skyrocketing to US$681.7 billion in 2014, nearly a seven-fold increase from the US$100.4 billion in 2007 (Chart B1.1). Much of the growth was accounted for by bonds issued in local currencies (79.4% of total in 2014), followed by those in US dollar (17.5%) and other currencies (3.1%).

Chart B1.1
New issuance of local non-bank corporate debt securities in emerging Asian economies



Notes:
1. Deal nationality is based on the nationality of the issuer parent if there is a credit support or guarantee for the issuing subsidiary. For deals without that support or guarantee, the nationality of the deal refers to that of the issuing subsidiary.
2. Debt securities here refer to bonds, medium term notes and preference shares with original tenor greater than or equal to 18 months.

Sources: Dealogic and HKMA staff estimates.

Trends and drivers of liquidity

With the bond market playing an increasingly important role in the financial system, reduced liquidity could pose major risks to financial stability. Generally speaking, liquidity refers to the condition of the market characterised by how easy it is for market participants to buy and sell an asset in a timely manner, at a low transaction cost and at a price close to the prevailing level.[5] Given this rather abstract and multi-dimensional concept, there is no single best measure. Two popular yardsticks, namely, bid-ask spread and turnover ratio, are thus employed to assess the recent trends in the bond markets in emerging Asia.

[2] On 15 October, 2014, for example, the 10-year US Treasury yield plunged and rebounded within minutes in the absence of any obvious triggers. While the market closed only 6 bps below from the previous close, the unusually large intraday swing of 37 bps was a clear sign of strained liquidity condition. More recently, flash crashes also occurred in the German bund market on 7 May and 4 June of this year.

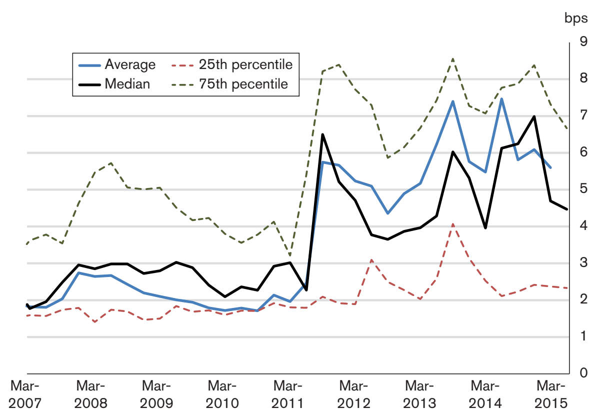
[3] Emerging Asia in this box refers to Mainland China, Hong Kong, Indonesia, Malaysia, the Philippines, Singapore, South Korea and Thailand, unless otherwise specified.

[4] See Box 3 of *Half-Yearly Monetary and Financial Stability Report* (September 2013) for more details about these factors.

[5] Transaction costs include both explicit costs (e.g. commission, bid/ask spread) and implicit cost, i.e. the loss from impacting on the market price by placing a large-size order.

As can be seen, the weighted average of the bid-ask spreads in the government bond markets in the region stayed at relatively low levels before it shot up in 2011 (Chart B1.2). It then narrowed in 2012 but has since widened again. It is now more than double of where it was before 2011. The average turnover ratio in government bond markets increased sharply in the second half of 2000s (Chart B1.3). This was followed by a sharp downward adjustment in the ratio in 2011 and a moderate decline between 2012 and now. The turnover ratio of corporate bonds in emerging Asia as a whole followed similar trends, although the steep fall occurred in 2013 instead of 2011. On balance, bid-ask spread and turnover ratio data suggest that liquidity has generally declined in the bond markets in emerging Asia.

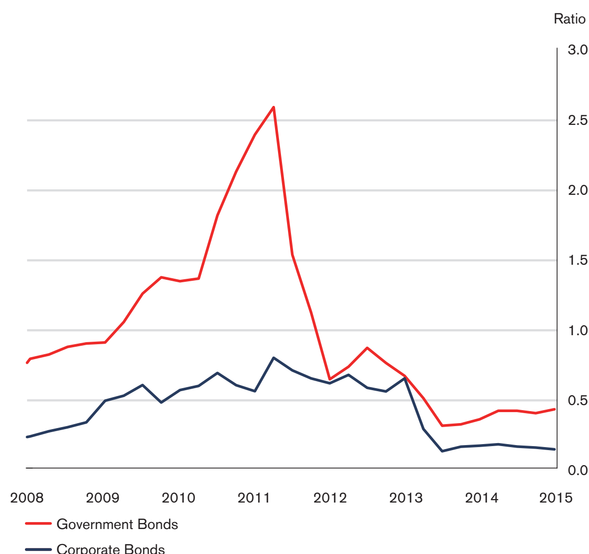
Chart B1.2
Bid-ask spreads of government bonds in emerging Asia



Note: The bid-ask spread for emerging Asia is a weighted average of those of individual economies, with the weights being their outstanding amount of government bonds. The Philippines is excluded in the calculation since its bid-ask spreads of government bonds are not frequently available.

Sources: AsiaBondsOnline, Bloomberg and HKMA staff estimates.

Chart B1.3
Turnover ratio of government and corporate bonds in emerging Asia



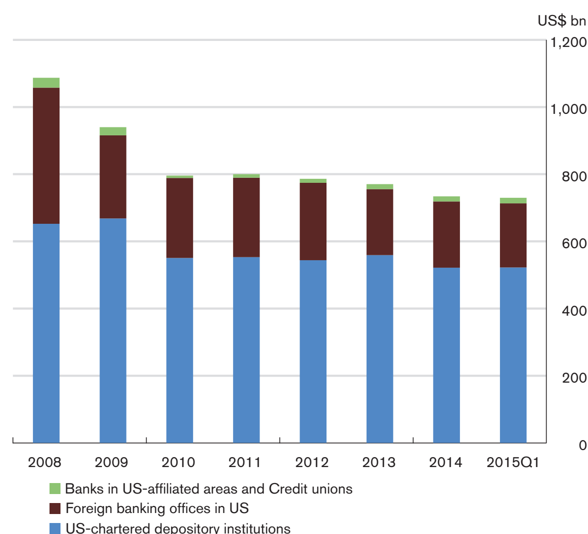
Notes:

1. Turnover ratio is defined as the ratio of the value of local-currency bonds traded and the average amount of bonds outstanding.
2. The turnover ratio for emerging Asia is a weighted average of those of individual economies, with the weights being the outstanding amount of respectively economies.
3. The Philippines and Singapore are excluded in the calculation of the turnover ratio of corporate bonds due to data unavailability.

Sources: AsianBondsOnline and HKMA staff estimates.

Broadly speaking, the reduction in bond market liquidity is attributable to three factors. The first is the reduction in risk appetite of bond dealers resulting from a reappraisal of risk tolerance following the global financial crisis. Since bonds are predominantly traded over the counter through these dealers, their market making capacity is vital in generating market liquidity. However, the risk management models commonly employed by these dealers have since the crisis become more sensitive to volatility, causing a reduction in their bond holdings. For instance, the corporate and foreign bonds held by US banks have fallen by 32% since the end of 2008 (Chart B1.4). While there is no similar data available for emerging Asia, the markets in the region are likely to suffer a similar constraint.

Chart B1.4
Holdings of corporate and foreign bonds by US banks



Notes:
1. Corporate and foreign bonds here refer to debt obligations of US financial and non-financial corporations and foreign entities respectively.
2. Debt obligations here include bonds, notes, debentures, mandatory convertible securities, long-term debt, private mortgage-backed securities, and unsecured debt.
3. Outstanding holdings are shown at book value.

Source: US Federal Reserve.

Moreover, some derivatives markets (e.g. credit default swaps) that had traditionally facilitated bond trading have become less effective after the crisis, thus reducing the capability of these dealers to hedge the risks of taking positions in the bond market.[6] The resulting decline in the ability of bond dealers to make market was reportedly a major hurdle for them to create liquidity in the market.

Second, bond ownership has become more concentrated, directly reducing the need to trade. For instance, the five largest mutual fund families now hold more than 50% of the bonds issued by a number of leading emerging market corporations.[7] As the number of players falls, liquidity naturally also reduces.

The third factor stems mainly from regulatory changes. Regulators have in recent years introduced new capital and liquidity rules to strengthen the resilience of the financial system to shocks, which should positively impact market liquidity in the long run by reducing the likelihood of future financial crisis. However, there are increasing concerns that these rules might discourage market making due to increased costs of holding bond inventories although the overall effects are hard to evaluate and remain controversial at this stage.[8]

Policy implications

In sum, market data show that liquidity has declined due to a combination of market and non-market factors in the bond markets in emerging Asia in recent years. The decline has raised some eyebrows in international policy fora, as it means that the ability of the bond market to absorb and weather shocks may have weakened. As the bond market becomes more volatile than otherwise in times of adversity, the impact could spill over to other financial markets and filter through to the real economy in the end. For instance, when liquidity dries up and large swings in bond prices occur, investors may have to resort to selling other financial instruments to raise funds or rebalance their portfolios. In an erratic market, corporations and even sovereigns would find it more costly to borrow and may even, in extreme situations, be shut off from capital markets.

[6] See CGFS Papers No. 52 "Market-making and proprietary trading: industry trends, drivers and policy implications", November 2014, published by the BIS.

[7] See *Global Financial Stability Report* (October 2014) published by the IMF.

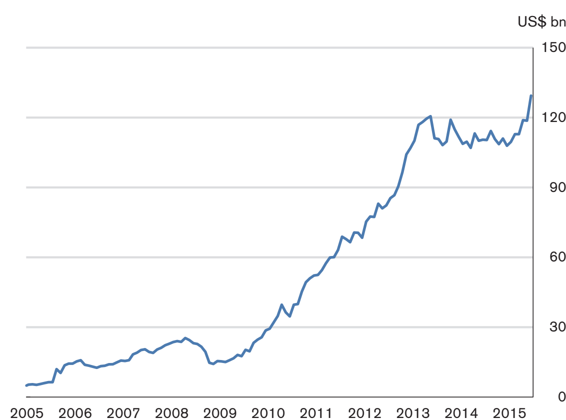
[8] See *Global Financial Stability Report* (April 2015) published by the IMF and CGFS Papers No 52 "Market-making and proprietary trading: industry trends, drivers and policy implications", November 2014, published by the BIS.

What is more worrying is that there has recently been a fundamental change in the investor base of bonds. In the past, institutional investors such as pension funds and insurance firms dominated the market. In recent years, there has been increasing participation of retail investors in the market in search for yields, as reflected by the strong growth in bond mutual funds and exchange traded funds (ETFs). In emerging Asia, the asset value of these funds increased at an annual rate of 38.4% between 2008 and 2014, outpacing those of government bonds (9.9%) and corporate bonds (31.1%) (Chart B1.5). As retail investors have a stronger tendency of running the market in times of stress, volatility is bound to be higher than before for any given shock.[9]

Increased concentration of bond ownership is also potentially another source of market volatility. Liquidity risk is larger since selling by one fund would *ceteris paribus* have a greater impact on the market than otherwise. Indeed, a recent IMF study finds that larger mutual fund holdings and greater ownership concentration could adversely affect bond spreads in times of stress (Chart B1.6). For instance, during the taper tantrum in 2013, emerging market bonds with over 10% held by the largest five mutual fund investors saw their spreads widen by as much as 63 basis points. In contrast, for those bonds with less than 2% held by these funds, spreads widened by a more moderate 8–11 basis points.[10]

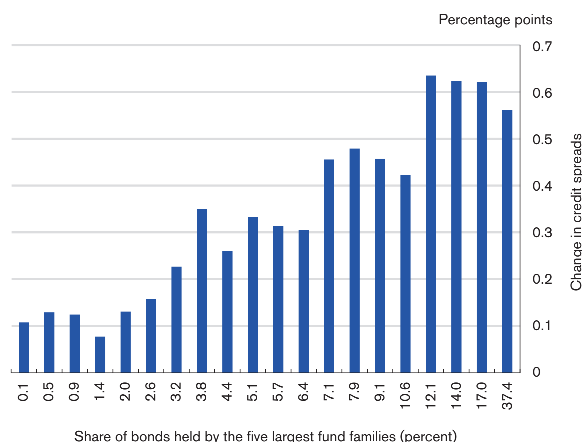
In view of the risk to financial stability posed by the reduction of bond market liquidity and the new developments that could aggravate the risk in the event of market stress, the liquidity condition of the bond markets in the region warrants greater attention by policymakers.

Chart B1.5
Outstanding bond mutual funds and ETFs investing in emerging Asian bonds



Source: EPFR Global.

Chart B1.6
Increase in credit spreads of bonds issued by emerging market and developing economies during stress periods in 2013



Notes:
1. Bonds are sorted in different buckets on the horizontal axis according to the share of holdings by the five largest fund families.
2. The vertical axis shows the average change in the yields of bonds in each bucket over their respective benchmark government bond yields with similar maturity between 2013 Q1 and 2013 Q2.

Source: IMF.

[9] Mutual bond funds and ETFs often offer on-demand liquidity, which enables their investors to redeem in short notice. In times of stress, there is a potential risk that the investors, may rush to redeem, forcing fund managers to unload their holdings.

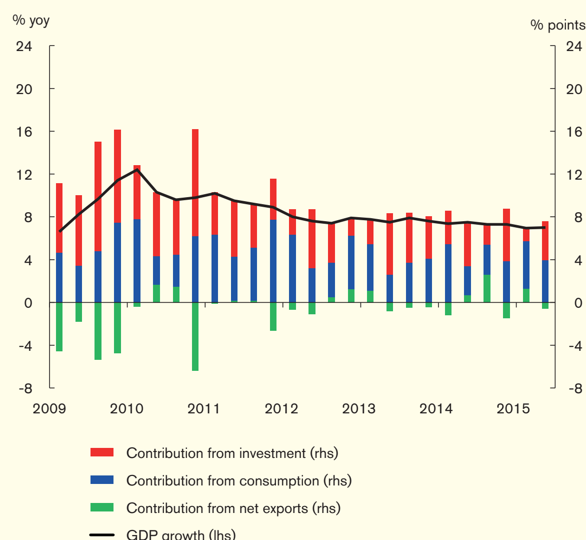
[10] See *Global Financial Stability Report* (April 2015) published by the IMF.

2.2 Mainland China

Real sector

The Mainland economy grew by 7.0% year on year in the second quarter, the same pace as the first quarter (Chart 2.8).[11] Consumption contributed to more than half of GDP growth in the second quarter, while growth in gross capital formation also picked up as public spending on infrastructure boosted capital investment. However, economic activities remained at low levels and there is little sign of a strong turnaround given the softening domestic demand and sluggish trade flows.

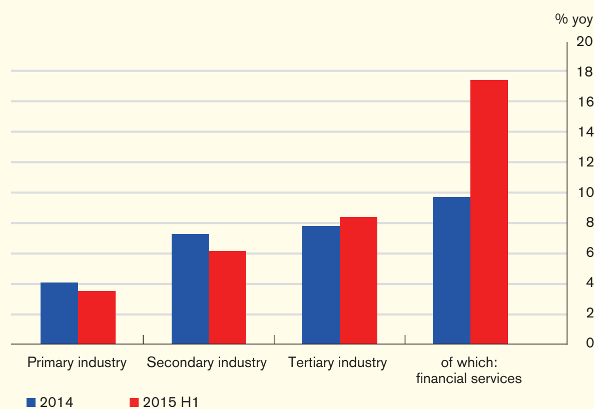
Chart 2.8
Mainland China: contribution to GDP growth by demand component



Sources: CEIC, NBS and HKMA staff estimates.

In value-added terms, growth in the services sector picked up in the first half thanks to vibrant expansion in financial services (Chart 2.9). The tertiary industry now accounts for almost half of GDP compared to 40% a decade ago. Facing overcapacity and falling producer prices, contribution from the industrial sector to GDP continued to shrink.

Chart 2.9
Mainland China: growth in value-added by economic sector



Sources: NBS and HKMA staff estimates.

Forward looking indicators point to softening manufacturing activities, while inventory overhang would continue to weigh on real estate investment. The marked decline in equity prices and increased uncertainties in the external environment will continue to weigh on business confidence. As such, infrastructure spending appears to be a bright spot that serves as a stabiliser to capital investment, as the authorities announced new projects to be conducted in the remainder of the year. Market consensus is that GDP growth would moderate to 6.8% for this year, implying that the pace of economic expansion may ease to 6.6% in the second half.

Softening domestic demand would keep consumer price inflation below the official target of 3% for this year. The recent pick-up in headline CPI inflation, from 1.2% year on year in the first quarter to 1.4% in the second quarter, largely reflected the spike in pork prices, which could be transitory due to supply bottleneck. Falling commodity prices and softening global demand continued to weigh on producer prices, with year-on-year PPI inflation staying negative for more than three years.

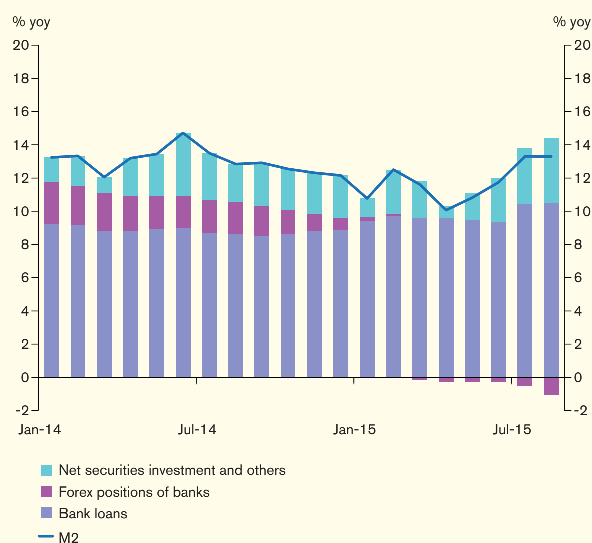
[11] Market consensus on China's GDP growth for the second quarter is 6.8%.

Fiscal and monetary policy

To achieve the growth target of around 7% in the face of increased downward pressure, policymakers rolled out targeted fiscal policy by increasing infrastructure spending on strategically important sectors such as railways, water conservation facilities and affordable housing. In August, the central government stepped up fiscal supportive measures by upgrading the national underground pipe system and allowing policy banks to issue new bonds to finance infrastructure projects.

On monetary policy, the PBoC cut benchmark lending and deposit rates by 25 basis points in August to lower borrowing cost, and lowered RRR by 50 basis points to stabilise liquidity conditions in the banking sector.[12] Despite the five interest rate cuts and three reductions in the RRR, overall monetary conditions have not eased significantly. This can be seen from still elevated real interest rate and relatively strong appreciation of real effective exchange rate of renminbi.[13] Meanwhile, the reduction in RRR should be viewed as a policy response to offset the impact of capital outflows on M2 growth, rather than boosting liquidity in the banking system (Chart 2.10).

Chart 2.10
Mainland China: contribution to M2 growth by asset component



Sources: CEIC and HKMA staff estimates.

While effective bank lending rate has come down following the rate cuts, small business owners still find it hard to obtain credit from banks. For example, company level data show that the borrowing cost of small listed companies is higher than their larger counterparts even after controlling for the risk profiles of borrowers within the same industry. To alleviate financing difficulty faced by small firms, policymakers offered additional cut in RRR to banks with significant lending to small and micro-sized enterprises, and allowed newly established internet-based banks to extend credit to small firms and new start-ups.

Exchange rate and money market

The PBoC refined the fixing of the central parity rate with reference to the closing onshore renminbi (CNY) exchange rate of previous day to make the exchange rate regime more market driven. Subsequently, the renminbi depreciated by 2.8% against US dollar during the week of 10 August before stabilising at around 6.38 by the month-end. While the depreciation of renminbi would reduce the price pressure faced by manufacturers, this helps little in turning around the weak export performance given subdued external demand and Mainland's relatively large share of processing trade that is less sensitive to exchange rate changes. Meanwhile, the weaker renminbi has increased outflow pressure with PBoC stepping up liquidity injection in the banking sector in the second half of August (Chart 2.11).

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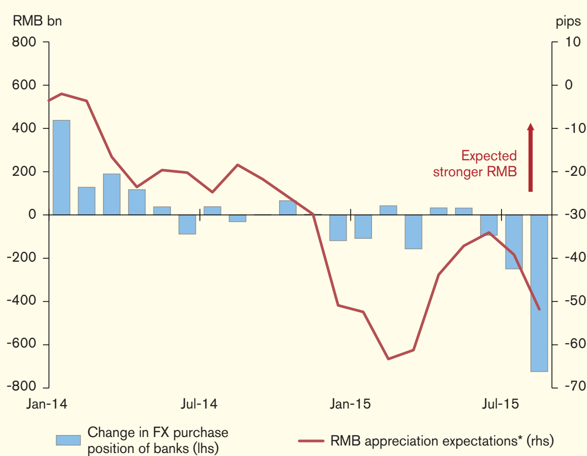
[12] The PBoC cut interest rates five times since November 2014, with 1-year lending and deposit rates lowering to 4.60% and 1.75% respectively in August. The RRR was also reduced to 17.5% effective in September.

[13] Real interest rate measured by effective bank lending rate minus CPI inflation, stayed elevated at 4.7% in the second quarter, higher than the historical average of about 3%. Over the past 12 months (July 2014–July 2015), RMB REER appreciated by 15% against currencies of major trading partners.

Chart 2.11
Mainland China: change in forex positions of banks and RMB appreciation expectations

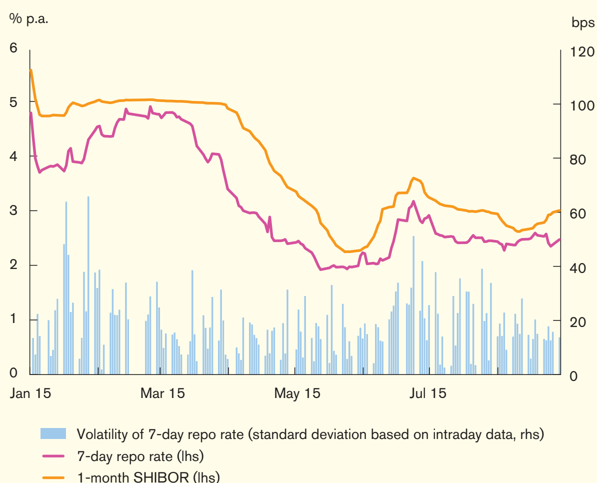


* 1-year NDF minus central parity rate expressed in USD per RMB.

Sources: PBoC, Bloomberg and HKMA staff estimates.

The depreciation of renminbi appeared to have little impact on money market interest rates, as the PBoC used reverse repo and other quantitative tools such as medium-term lending facility (MLF) to smooth out short-term fluctuation in interbank liquidity. The 7-day repo rate and 1-month Shanghai Interbank Offered Rate (SHIBOR) remained largely stable following the refinement to the fixing of the central parity rate, trading at 2.5% and 3.0% respectively at end-August, little changed from the levels seen before the policy change (Chart 2.12).

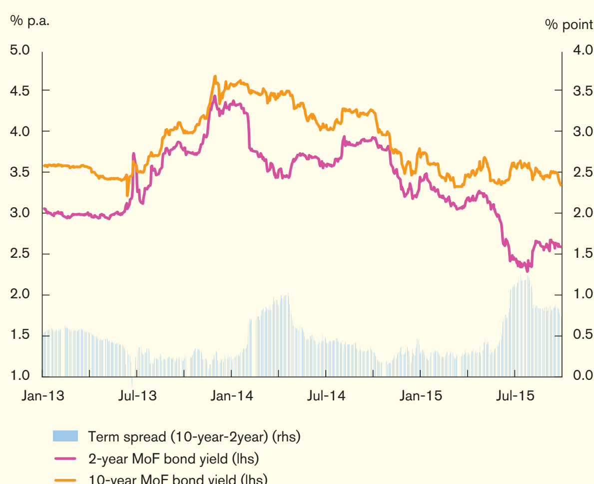
Chart 2.12
Mainland China: interbank interest rates



Sources: Bloomberg, CEIC and HKMA staff estimates.

While lower interbank interest rates help ease the funding cost for banks reliant on the wholesale market, long-term interest rates continued to stay high with 10-year Ministry of Finance (MoF) bond yield trading at around 3.5%, nearly 100 basis points higher than the 2-year bond yield (Chart 2.13). The steepening of the yield curve and elevated long-term interest rate may discourage investment in long-term projects such as real estate developments.

Chart 2.13
Mainland China: MoF bond term spread



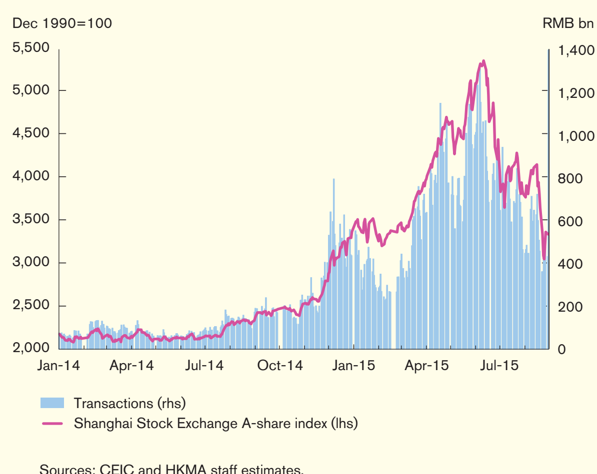
Sources: CEIC and HKMA staff estimates.

Asset markets

Equity markets underwent a turbulent period during the summer. The Shanghai A-share index suffered from a heavy sell-off in the second half of June, losing 32% from the peak in mid-June to close at 3,676 on 8 July. The market turbulence in part reflected a correction from relatively high valuation in A-shares, with investors rushing to unwind their leveraged investment positions which exacerbated sell-off in the stock market. To shore up investor confidence, the China Securities Regulatory Commission (CSRC) relaxed margin financing requirements, tightened the rules on short-selling through securities lending and temporarily suspended IPO activities. Meanwhile, a number of funds have been set up to stabilise the stock markets. While stock markets showed some stabilisation following the

introduction of these supportive measures, market sentiment weakened notably again in the second half of August in the face of weaker-than-expected economic reports and expectations of the exit of government intervention. As a result, the Shanghai A-share index fell markedly again by around 20% in the second half of August to 3,359 at end-August, with the daily turnover of the Shanghai A-share market dwindling to an average of RMB513 billion in August from the peak of RMB952 billion in June (Chart 2.14).

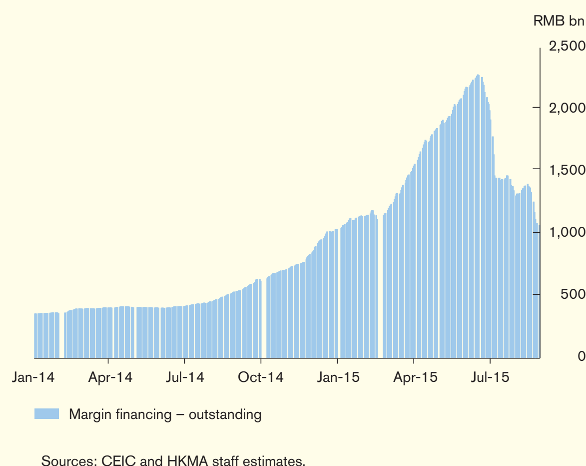
Chart 2.14
Mainland China: Shanghai A-share index and turnover



Sources: CEIC and HKMA staff estimates.

With investors becoming more risk averse, outstanding margin loans shrank from the peak of RMB2.3 trillion in mid-June to RMB1.1 trillion at end-August (Chart 2.15). While the stock market turbulence would inevitably pose some negative impacts on real activities, it has yet to develop into a scale that threatens systemic stability. Box 2 discusses the role of margin financing in the decline of stock market and its implications for macroeconomic and financial stability.

Chart 2.15
Mainland China: margin financing provided by securities companies

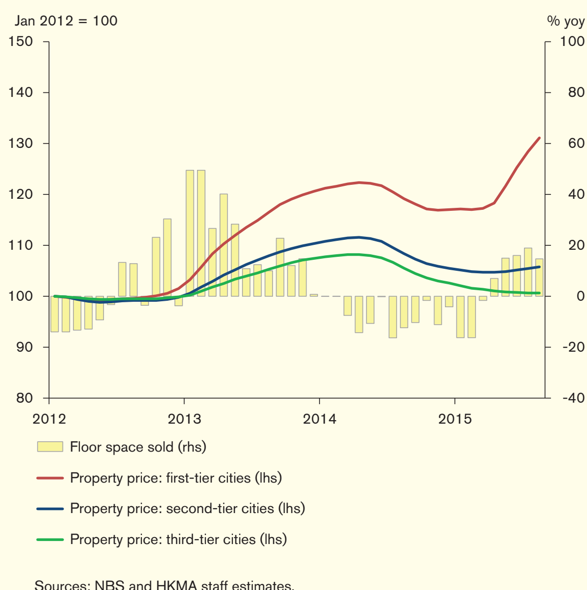


Sources: CEIC and HKMA staff estimates.

In the property market, activities picked up underpinned by the relaxation of restrictive measures and lower mortgage rates.[14] Reflecting robust underlying demand and relatively limited supply, house prices picked up in first-tier cities with notable increases in Shenzhen and Shanghai, and bottomed out in some second-tier cities (Chart 2.16). Encouraged by revival of turnover in the property market, new construction activities picked up somewhat in the second quarter.

[14] Except for using housing provident fund, the minimum down payment ratio for first-home buyers remained at 30%, while that for second-home buyers was reduced from 60%–70% to 40%. Minimum down payment ratio for purchases of a second home using housing provident fund was reduced to 20% from 30% in most cities, for home buyers who have fully repaid the mortgage loans of their first properties. The authorities also shortened the holding period of residential units that could be exempted from property transaction tax, from 5 years to 2 years.

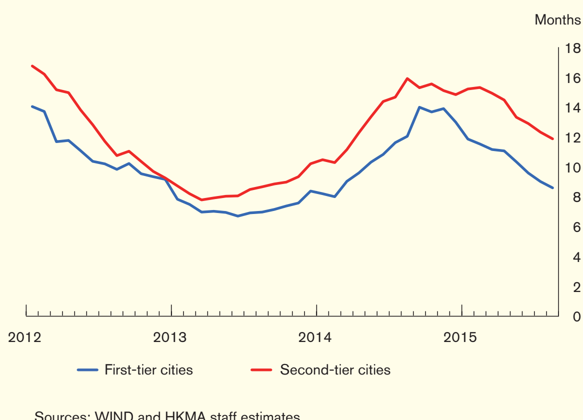
Chart 2.16
Mainland China: house prices and floor space sold



Sources: NBS and HKMA staff estimates.

Given different demand and supply conditions, the recovery in property market is likely to remain uneven between big and small cities. For lower-tier cities, oversupply and weak demand have kept housing inventory at relatively high level. In a number of third-tier cities, on average it would take about 30 months to digest housing inventory given the current pace of floor space sold (Chart 2.17).[15]

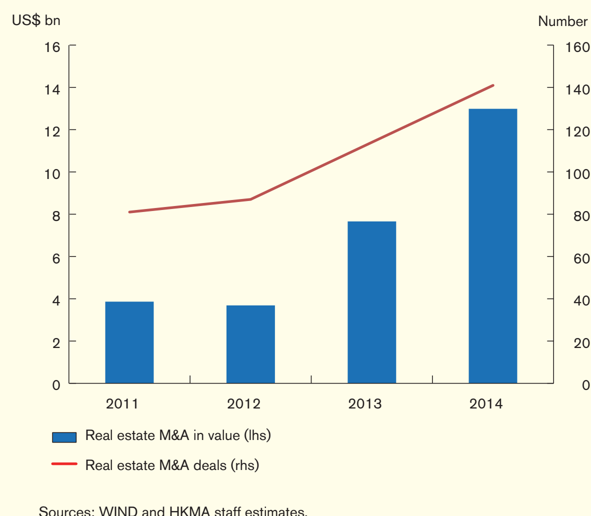
Chart 2.17
Mainland China: housing inventory to sales ratio



Sources: WIND and HKMA staff estimates.

Elevated housing inventory will exert liquidity pressures on developers with business concentrating in lower-tier cities. Those with weak financial positions will inevitably exit the market or be acquired by peers, which can be seen from the marked increase in the number and transaction value of mergers and acquisitions in the real estate sector (Chart 2.18). While ongoing consolidation will have negative impact on investment and employment, this helps promote a more healthy and sustainable development of the real estate sector.

Chart 2.18
Mainland China: mergers and acquisitions in the real estate sector



Sources: WIND and HKMA staff estimates.

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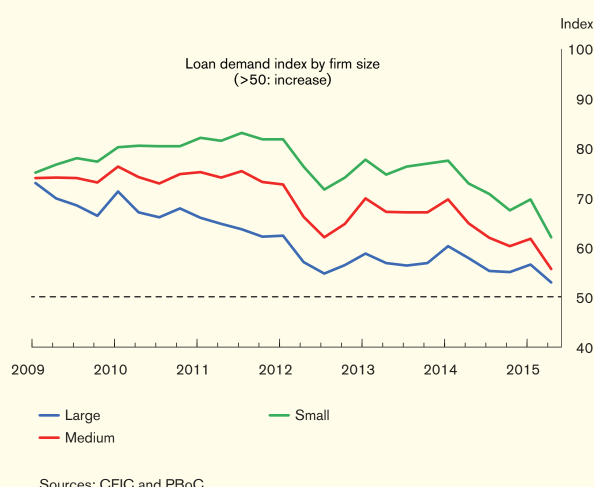
[15] For example, on average it would take more than 30 months to clear housing inventory in Jiangyin city in the Jiangsu province and Linyi city in the Shandong province.

Bank lending and asset quality

Elevated real interest rate and less favourable business environment continued to weigh on loan demand, with flows of aggregate financing and new yuan loans extended to households and corporates softening in July before stabilising in August. Survey conducted by the PBoC also shows weakening borrowing needs by large and small enterprises alike (Chart 2.19).

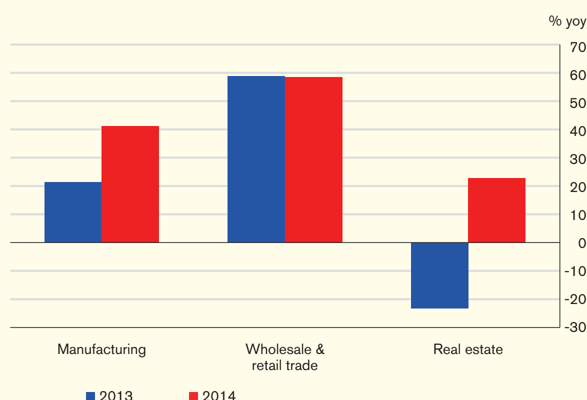
Chart 2.19
Mainland China: loan demand by firm size



Sources: CEIC and PBoC.

Against the backdrop of a slowdown in economic activities, bank asset quality remained under pressure. Non-performing loans (NPLs) increased by 11% quarter on quarter to reach RMB1.1 trillion in the second quarter, pushing up the NPL ratio to 1.50% from 1.39% in the first quarter. Breakdown by sector shows that NPLs picked up at a fast pace in manufacturing and wholesale/retail trade sectors, as subdued external demand and falling producer prices weighed on profitability in these two segments (Chart 2.20). Meanwhile, NPLs increased notably in the real estate sector following house price correction and shrinking sales last year. With increased write-off of bad debt, the provision coverage ratio came down to 198% in the second quarter from 212% in the first quarter.

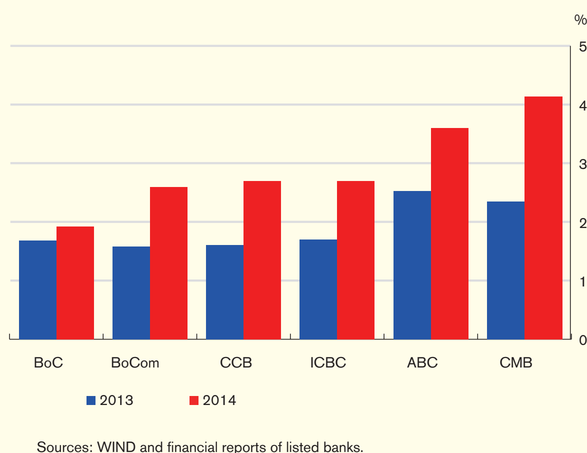
Chart 2.20
Mainland China: growth of NPLs by sector



Sources: CEIC and CBRC.

The operating environment remains challenging for Mainland banks. First, slowdown in profit growth and business activities continue to undermine repayment ability of corporate borrowers, suggesting that NPLs are likely to climb higher in the second half of this year. The board-based increase in the loan migration rates among major banks suggests that more write-offs are likely for this year (Chart 2.21).[16]

Chart 2.21
Mainland China: loan migration rates for major listed banks

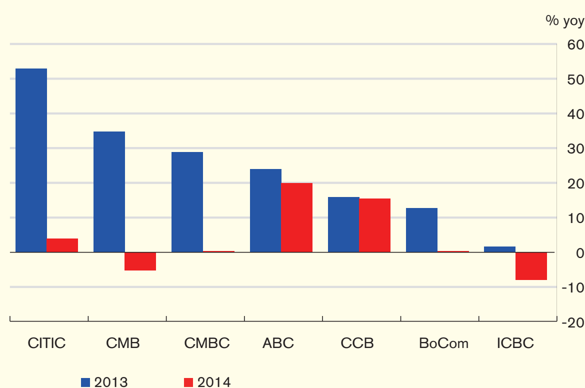


Sources: WIND and financial reports of listed banks.

16 Loan migration rate refers to the percentage of deterioration in loan classification over a certain period.

Second, keener competition and relaxation of deposit rates tend to squeeze the interest margins earned by banks. Smaller banks with thin capital buffer may need to shore up their CARs and restrain lending in the face of rising NPLs. This will tighten financing constraints faced by small firms as they obtain most of their credit from small banks. Bank level data show that lending to small firms slowed notably in 2014, which is contrary to the intention of policymakers to alleviate financing difficulty of small and micro-sized enterprises (Chart 2.22).

Chart 2.22
Mainland China: bank lending to small firms by major listed banks



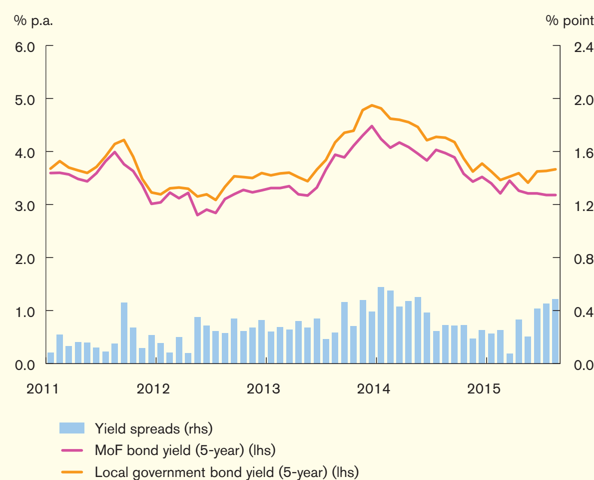
Note: Loans to small enterprises for CITIC and CMB. Loans to small- and micro-sized enterprises for ABC, CCB, CMBC and ICBC. Loans to medium-, small-and micro-sized enterprises for BoCom.

Sources: Financial reports of listed banks.

Local government finance

Concerns over the risk of local government debt have eased as the RMB3.2 trillion debt-for-bond swap program helps reduce interest burden and refinancing risk of local governments. On top of this, local governments may issue bonds to finance new infrastructure projects subject to a quota of RMB600 billion for this year. By the end of August, 34 local governments issued bonds amounting to RMB1.9 trillion.[17] Most local government bonds are priced at 5–60 basis points above the corresponding MoF bonds at the time of issuance, but their yield spreads over corresponding MoF bonds have widened as increased supply of local government bonds exerted downward pressure on their prices (Chart 2.23).

Chart 2.23
Mainland China: yield spread between local government and MoF bonds

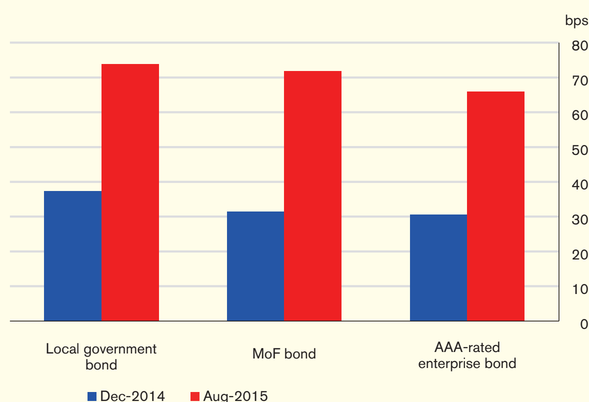


Sources: CEIC, WIND and HKMA staff estimates.

[17] Major issuers include the provincial governments of Hubei, Jiangsu, Shandong, Sichuan and Hebei.

The pilot debt swap program improves local government finances in two ways. First, it helps instil discipline on, and increases the transparency of, debt raised by local governments. Second, the longer tenor of the fund raised, mostly of 5 years or above, better matches the needs of provincial governments to finance infrastructure projects that span over a number of years. However, the side effect of the program is that the sizable issuance of local government bonds has kept long-term bond yields high even for private issuers with good credit quality, which can be seen from the broad-based widening of the term spreads for both public and private issuers (Chart 2.24).[18]

Chart 2.24
Mainland China: term spreads by type of bond issuer (10-year minus 2-year yields)



Sources: CEIC, WIND and HKMA staff estimates.

While the debt swap program reduces the refinancing risk of provincial governments, there is still strong funding need for starting new infrastructure projects. The bond quota of RMB600 billion for financing new projects appears to be small compared with the value of infrastructure projects planned for this year.[19] To fill the funding gap, the MoF advocates public-private partnership (PPP) in carrying out new projects that will reduce the financing burden of local governments and increase efficiency of investment.[20] To improve water conservation and essential public facilities, policy banks are allowed to issue new bonds to provide liquidity support to infrastructure projects.[21]

The One Belt One Road initiatives

The blueprint of One Belt One Road (OBOR) is a development strategy to enhance economic ties between Mainland China and its neighbouring economies. One key initiative is to boost bilateral trade and investment flows by improving the linkage of infrastructure among countries along the path of OBOR. To this end, Mainland's enterprises can utilise their expertise in building infrastructure such as railways, highways, power station and network, and provide financial support in the form of joint venture or public-private partnership.

[18] Local governments are allowed to issue bonds up to RMB3.8 trillion for this year, much higher than the issuance size of RMB400 billion last year.

[19] NDRC approved 38 infrastructure projects with total investment of RMB830 billion in January–July 2015.

[20] During the first half of this year, NDRC identified 1,043 projects that could be conducted in the form of PPP, with projected investment size of RMB2 trillion.

[21] A first batch of RMB300 billion infrastructure bond will be issued by China Development Bank and Agriculture Development Bank of China to support new infrastructure projects.

Successful implementation of OBOR initiatives will not only satisfy the development needs of neighbouring countries through better infrastructure, but will also encourage outward direct investment and participation in overseas projects by Mainland's enterprises. It is foreseeable that Chinese construction firms and companies facing overcapacity such as steel and cement makers would benefit from the commencement of new infrastructure projects under the plan of OBOR. Stronger economic and financial link between Mainland China and the economies along the path of OBOR would also increase the external use of renminbi in cross-border trade and investment.

Box 2
Leveraged trading and the stock market turmoil in Mainland China

The Mainland stock markets went into a turbulent period during the summer, with the Shanghai Stock Exchange A-share index dropping by 32% in four weeks from its peak of 5,411 in mid-June. The sharp fall in stock prices was in part driven by heightened concerns on the adverse feedback loop between stock price declines and possible forced selling of margin positions, as leveraged trading activities had increased at a rapid rate since late-2014. In response, the Mainland authorities rolled out a series of measures to alleviate the downward pressures on the markets around late-June and early-July. Sentiments stabilised for a while afterwards, but market volatility increased notably in the second half of August and Shanghai Stock Exchange A-share index fell by another 20% to 3,359 at end-August. This box discusses the major forms of leveraged trading activities in the Mainland equity markets and the impacts of the recent equity market turmoil on Mainland's macroeconomic and financial stability.

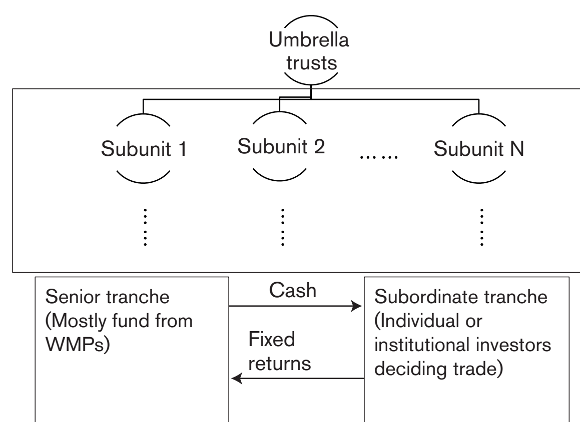
How large are the leveraged trading activities?

Leveraged trading activities have been widely cited as one of the major factors in amplifying the stock market swings over the past few months. Leveraged trading includes margin financing activities through both formal and informal channels, which have been mainly conducted in the following three forms:

- Margin financing provided by securities companies — It has been the *formal* form of leveraged trading activities in Mainland China, which is under the supervision of the CSRC. The leverage of margin financing activities is confined by the margin ratio (保證金比例), as well as the discount rates (折算率) of assets provided by the investors.[22] Currently, major securities companies set the margin ratios from 55–80%, while the discount rates were below 70%.

- Umbrella trusts (傘型信託) — It is a structured trust product consisting of a number of subunits (Chart B2.1). Each subunit contains investors of senior tranche and subordinate tranche. In essence, investors of subordinate tranche enjoy leverage by borrowing money from investors of senior tranche in return for a specific rate of interest expenses. It has been one of the major forms of *informal* margin financing activities.

Chart B2.1
Structure of umbrella trust products



Sources: Various news reports.

- OTC "fund matching"(場外配資) — It has been another major form of *informal margin* financing activities. It allows investors to conduct leveraged trading through the stock accounts that are set up and monitored by the fund-providers. One major platform for conducting the "fund matching" activities is the HOMS system.

[22] Margin ratio is the proportion of capital to stocks that can be purchased through margin financing. The value of capital is determined by the amount of cash and the adjusted values of securities held in the margin account based on the corresponding discount rates.

Along with the buoyant market conditions, margin financing through the formal channel increased sharply from the second half of 2014 to peak at RMB2.3 trillion in mid-June 2015. Leveraged trading via informal channels also expanded vibrantly during the period. While information on the informal leveraged trading was limited given the opaque nature of these financing activities, market estimates had pitched the size at around RMB1–2 trillion before the sharp plunge in stock prices in mid-June. These suggest that the overall size of leveraged trading activities could have reached around RMB3–4 trillion at peak in mid-June, equivalent to 4–5% of overall market capitalisation or 10–13% of free-float market capitalisation.

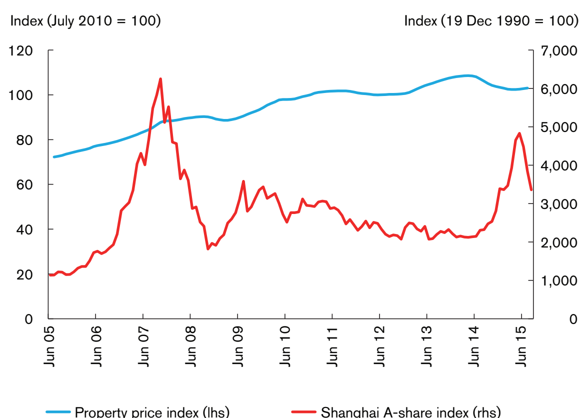
With the sizeable leveraged trading activities, market confidence had collapsed when decline in stock prices deepened, as concerns on possible forced liquidation of the margin positions escalated. In an effort to restore market confidence, the Mainland authorities undertook a multi-pronged approach to stabilise the markets around late-June and early-July. These measures included, among others, relaxing rules on margin financing activities, limiting short-selling activities and slowing down the approval of IPO activities. Meanwhile, the China Securities Finance Corporation Ltd. and the Central Huijin Investment Ltd. purchased stocks in the secondary markets, and a RMB120 billion market stabilisation fund was set up by 21 major securities companies to support the markets in early July. These measures provided some support initially and the market temporarily stabilised in late July and early August. However the market subsequently has experienced another big sell-off since mid-August in part due to weaker-than-expected economic data releases.

What are the implications of the turmoil in the stock markets for macroeconomic and financial stability?

The sharp volatility in the equity markets, together with the building up of leveraged trading in earlier periods, has raised market concerns on the impacts on real activities and financial stability. However, our analysis suggests that systemic risks posed by the turbulent market conditions should remain contained, particularly in view of the relatively small exposure of the real economy to the stock markets and limited direct impact on the banking sector. However, the equity market sell-off has increased credit risks in selected segments of the Mainland financial system, and its spill-over effect on global financial markets has also tightened global financial conditions, which in turn would have indirect impact on the real economy and financial system of Mainland China.

With the relatively small share of equities in household wealth, the impact of the stock market price drops on the net worth of Mainland's households is likely to be limited. For example, equity-related financial assets, including direct stock holdings, equity-related mutual funds and collaterals for margin financing, accounted for less than 4% of Mainland's household total assets in 2014, according to the estimates by the Chinese Academy of Social Sciences. As such, household consumption and investment decisions such as housing purchase hinge little on the boom and bust of stock markets. Indeed, historical experience suggests that the correlation between property markets and stock markets were low over the past decade (Chart B2.2).

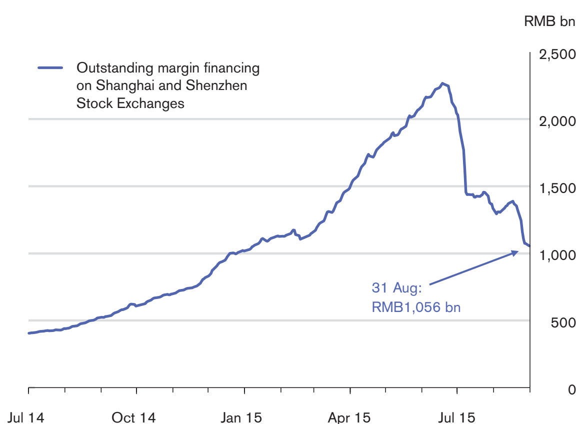
Chart B2.2
Property markets and stock markets in Mainland China



Sources: CEIC and HKMA staff estimates.

Meanwhile, as Mainland's investors are not allowed to borrow from banks to buy shares, there is little direct exposure of banks to the recent market turmoil. Following several rounds of deleveraging of investors, the indirect exposure of banks to margin financing also came down significantly. In particular, margin financing provided by securities companies contracted notably from RMB2.3 trillion in mid-June to RMB1.1 trillion at end-August, equivalent to 0.7% of overall commercial bank assets at end-June (Chart B2.3).

Chart B2.3
Outstanding margin loans provided by securities companies

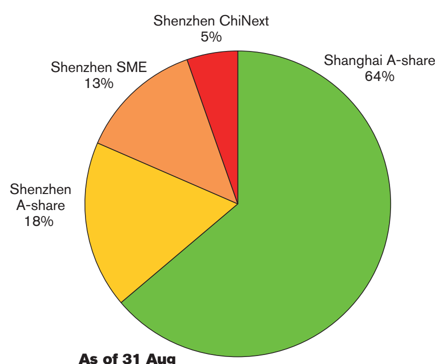


Sources: CEIC and HKMA staff estimates.

Although the equity market turmoil would pose limited systemic risk, it would still exert pressures on the financial system, particularly by (1) heightening credit risks of financial institutions with exposure to leveraged trading activities, as well as (2) those involved in equity-backed financing activities:

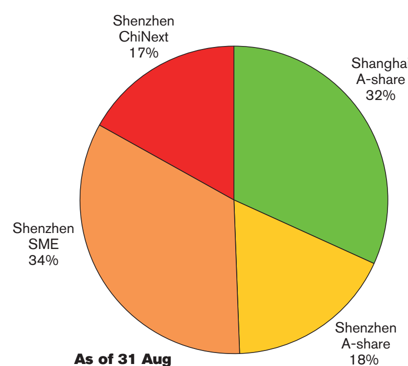
- Credit risks of financial institutions with exposure to leveraged trading activities — The sharp volatility in the stock markets would raise the risk of financial institutions providing margin financing, despite the fact that both formal and informal leveraged trading activities had already fallen sharply following the market plunge and government efforts to strengthen regulations on informal financing activities. For instance, as a significant share of the regulated margin loans had been channelled to valuation-rich sectors such as to the SME and ChiNext boards in Shenzhen, the credit risks of securities companies — the formal margin loan provider — should not be understated (Chart B2.4).

Chart B2.4
Outstanding margin loans provided by securities companies — by market



Sources: CEIC, Shenzhen Stock Exchange and HKMA staff estimates.

Chart B2.5
Collateralised shares — by market



Sources: WIND and HKMA staff estimates.

- Credit risks of financial institutions involved in equity-backed financing activities — The equity-backed lending, with the outstanding size of the pledged shares reaching RMB2.7 trillion at end-August, may be jeopardised amid market price decline. In particular, with much greater exposure to valuation-rich small cap stocks (Chart B2.5), banks or other creditors such as trust and securities companies may face losses if such loans turn sour and the collateral value drops significantly along with falling stock prices. That said, the risk associated remains limited, as the size of the equity offered as collateral (end-August) reached only around 1.8 % of commercial bank assets (end-June).

Although the A-share market turmoil would not pose significant systemic risk to the Mainland financial system because of the aforementioned reasons, the recent global financial market sell-off shows that volatility in the Mainland financial markets could have significant spill-over effect to the rest of the world. The high sensitivity of global financial markets to Mainland's economic and financial developments reflects the importance of Mainland China in supporting moribund global growth. So even a small degree of perceived deterioration in Mainland's economic prospects would prompt market participants to significantly re-appraise their assessment on global growth prospect and trigger abrupt re-pricing of global risk assets. The tightening in global financial conditions because of the market sell-offs would in turn affect global economic growth and inevitably have an indirect impact on the Mainland real economy and financial system.