2. Global setting and outlook

Global growth remained strong overall, although there is less synchronicity of economic momentum across countries, with the US continuing to post impressive economic data while other major advanced economies showing signs that their cyclical expansions might have peaked. As trade tensions escalated between the US and its trading partners, risks of spillovers from trade frictions weighed on the growth prospects of emerging market economies. In conjunction with the continued monetary policy normalisation by the Federal Reserve, emerging market economies experienced substantial capital outflows in the second quarter. Against this background, the global economic outlook is fraught with uncertainty. The recently announced or enacted tariffs by the US, as well as the likely retaliations by trading partners, particularly Mainland China, has increased the risk of full-scale trade wars. The outperformance of the US economy against other major advanced economies may prolong the divergence in global monetary policy, fuelling US dollar strength to the detriment of emerging market economies' financial stability. Over the medium term, the pace of growth seen in the US over the past year may not be sustained, as the effects of fiscal stimulus wane and as inflationary pressures build.

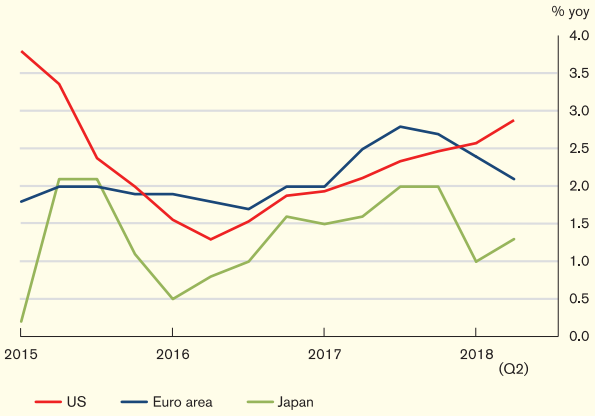
Despite the looming trade conflict between the US and Mainland China, growth momentum in East Asia remained stable in the first half of 2018. However, capital outflows and currency depreciation pressures have become visible in the region, especially for economies with a larger stake in Mainland's production chains. With a trade war becoming increasingly likely, East Asia faces multiple headwinds. While the direct impact of a trade war on the region's exports would likely be limited, its damage to investor confidence could be much more disruptive to the economy. Central banks may need to strike a delicate balance between supporting growth and curbing capital outflows. Against this background, economies with stronger fundamentals, healthier external positions and larger fiscal policy space are likely to fare better.

In Mainland China, growth momentum remained largely stable in the first half of 2018. While the fast expansion in higher value-added manufacturing and services industries would likely support the near-term growth outlook, rising uncertainty amid the escalating US-China trade conflict makes it more challenging for authorities to strike a balance between continued growth and structural reform. During the review period, home prices in first-tier cities remained largely stable with tightening measures in place. Banks continued to strengthen loan underwriting standards on riskier borrowers, such as firms in overcapacity sectors. To alleviate the financing difficulties facing small firms amid the recent declines in informal financing activities, the PBoC rolled out several rounds of targeted easing measures to encourage banks to better support small firm financing. Market sentiments deteriorated somewhat for both Mainland equities and the renminbi, although capital outflows were limited amid stable economic conditions.

2.1 External environment

Global growth remained solid in the first half of 2018, supported in part by the continuation of the global cyclical upturn that began in 2016, and the recently enacted fiscal stimulus in the US. However, while the US economy sustained a solid pace of expansion amid the tailwinds of fiscal loosening, growth in the euro area and Japan remained modest in the second quarter, which raised concerns that the cyclical expansions outside the US may have peaked (Chart 2.1). Adding to such concerns, sovereign yields of several peripheral euro area countries increased sharply in late May in anticipation of the formation of a populist government in Italy. Renewed risks of a "hard Brexit" also weighed on the British Pound since June, highlighting the fragility of the European economic recovery in the face of lingering political uncertainty.

Chart 2.1
Real Gross Domestic Product (GDP) growth in selected advanced economies (AEs)



Source: CEIC.

Against the backdrop of already less synchronised global growth, the marked escalation of trade tensions between the US and its major trading partners, including the European Union (EU), Canada, Mexico and Mainland China, may potentially derail the global recovery. Since early 2018, the US administration stepped up its protectionist trade measures by imposing, or threatening to impose, tariffs on a wide range of imports, including steel and aluminium, high technology products from Mainland China and automobiles from the EU (Table 2.A). In response, the targeted countries announced retaliatory tariffs on a range of US exports.[1] At the same time, uncertainties remain over the renegotiations of the North American Free Trade Agreement (NAFTA). In late August, the US and Mexican administrations announced a bilateral trade agreement to replace NAFTA, but the Trump administration threatened to impose tariffs on automobiles from Canada if the latter does not agree to the new framework. It remains to be seen whether Canada would eventually offer concessions to bring itself back into negotiation with the US.

Table 2.A
Selected US trade measures in 2018

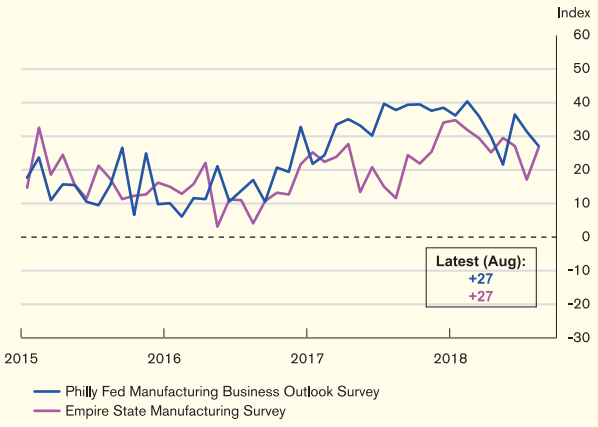
Date	Trade measures
22 Jan	Announcement to apply tariffs on imported washing machines and solar panels
22 Mar	Indication to prepare a list of tariffs on up to US$60 billion of Mainland's products following Section 301 investigations
23 Mar	Filed a request in the World Trade Organisation (WTO) for consultations with Mainland China concerning protection of intellectual property rights
	10% tariffs on imported aluminium and 25% tariffs on imported steel went into effect, with temporary exemption for selected countries (including Canada, Mexico and the EU)
3 Apr	A list of 1,333 Mainland's products under consideration for 25% tariffs was released following 22 March announcement
23 May	Section 232 investigation into imported automobiles and auto parts initiated, with the Trump administration planning to raise tariffs to 25% on these products
29 May	Announcement to impose a 25% tariff on about $50 billion worth of Mainland's goods deemed to have contained "industrially significant technology", following the release of the proposed list of 1,333 products on 3 April
1 Jun	Steel and aluminium tariff exemptions for the EU, Canada and Mexico ended
15 Jun	Released a revised list of approximately US$50 billion of Mainland's products to be targeted with 25% tariffs, with tariffs to be implemented in two phases starting 6 July
6 Jul	Imposed 25% tariffs on US$34 billion of Mainland's goods
11 Jul	Released a list of another US$200 billion of Mainland's products to be subjected to a 10% tariff
1 Aug	Signalled an intention to apply 25% tariffs (instead of the previously proposed 10%) on the list of US$200 billion of Mainland's imports announced on 11 July, open for public comment until 6 September
7 Aug	Pertinent to the announcement on 15 June, US$16 billion worth of imports from Mainland China would be subjected to 25% tariff, effective 23 August
27 Aug	Announced levy of antidumping duty and countervailing duty on imports of cast iron soil pipe and certain steel wheels from Mainland China respectively

Source: HKMA staff compilation.

[1] The US and the EU announced in late July that both sides would put new tariffs on hold while negotiating new arrangements to reduce trade barriers. But it remains to be seen whether the outcome of this negotiation will be followed by a de-escalation of US-EU trade conflicts.

The spectre of an all-out trade war between the US and Mainland China represents a key downside risk to the global economic outlook. Given the tightly integrated global supply chain, the imposition of import tariffs on a given country's exports will likely entail second-round impacts on other economies that are involved in the production chains of the targeted country.[2] In the longer run, higher import tariffs will likely translate into increased production costs or consumer prices, resulting in stagflationary pressures in a similar vein to a negative supply shock. Other economic spillover effects, such as job losses in export sectors and lower business investment due to increased uncertainty over trade policies, may result in distortions to resource allocation and lower productivity. In the US, for example, uncertainty over US trade policy has conceivably weighed on business confidence, with the minutes of the July Federal Open Market Committee (FOMC) meeting noting that manufacturers in a number of Federal Reserve (Fed)'s twelve districts have scaled back their capital expenditure (capex) plans or are planning to do so if global trade tensions do not get resolved (Chart 2.2).

Chart 2.2
Indices of 6-month-ahead business capex plans in selected US Fed districts

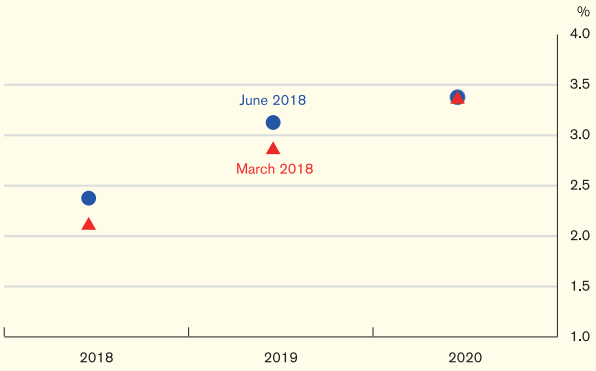


Source: CEIC.

At the same time, divergent underlying macroeconomic development across the globe has set the stage for sustained divergence in monetary policies across major AEs. In the US, strong job gains and higher disposable income due to the recent tax cuts supported a marked rebound in consumer spending after a temporary setback early this year. This, together with robust business investment, underpinned the US growth performance in the first half of 2018, with real GDP expanding robustly by +4.2% on a quarter-on-quarter annualised basis in the second quarter. The labour market tightened further, with the unemployment rate falling to 3.9% in July and the National Federation of Independent Business's index of actual employment compensation reaching an all-time high in May. Amid dwindling resource slack, core consumer price index (CPI) inflation picked up from +1.9% year-on-year (yoy) in the first quarter to +2.4% yoy in July, and import tariffs may add further to inflationary pressures. A labour market estimated to be operating above potential and firmer readings on inflation supported the case for continued balance sheet normalisation and further gradual interest rate hikes by the Fed, which judged that these developments roughly balanced downside risks, such as those emanating from trade tensions. In the first five meetings of 2018, the Fed increased rates twice by 25 basis points (the latest move in June raised the target range to 1.75 to 2%), and continued to implement balance sheet normalisation. Based on the latest Summary of Economic Projections (SEP), the FOMC expects two more increases in the second half of 2018 (Chart 2.3).

[2] In Mainland China, for instance, foreign content accounted for more than one-third of the total value-added in its gross exports in 2011, based on data from the Organisation for Economic Co-operation and Development (OECD)'s Trade in Value Added (TiVA) database.

Chart 2.3
Fed funds rate projections in SEP: June versus March 2018

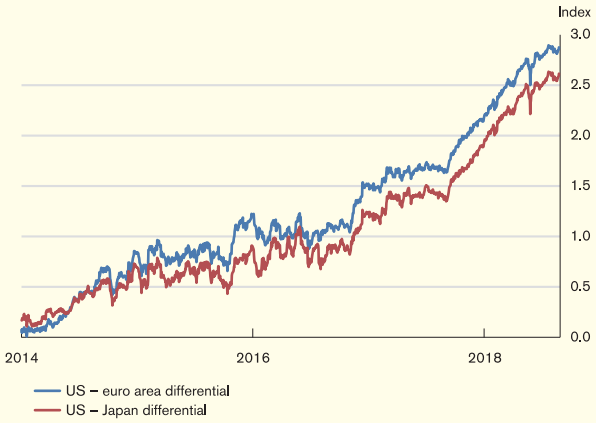


Source: The Fed.

On the other hand, economic growth in the euro area has shown signs of moderation since the first quarter of 2018, attributable to both temporary factors (e.g. adverse weather conditions) and increasingly binding supply-side constraints following several years of under-investment in the region. Nevertheless, despite progressively tightening labour market conditions and signs of rising wage costs, core inflation remained subdued, only hovering at about 1% in the second quarter. Against this background, the European Central Bank (ECB) announced in June its intention to end the asset purchase programme by year-end, while strengthening its forward guidance on policy interest rates to signal restraint from rate hikes at least until the summer of 2019. Similarly, in Japan, wage growth remained sluggish in spite of the very tight labour market conditions. This suggests the Bank of Japan (BoJ)'s Quantitative and Qualitative Easing programme is likely to remain in place in the near future, even though the BoJ recently adjusted its Yield Curve Control policies to allow the 10-year Japanese Government Bond (JGB) yield to move around 20 basis points from its policy target of zero percent, wider than the 10 basis point range allowed previously. At the same time, the BoJ has become more active in managing the bond market below the yield ceiling. So far, investors have remained cautious despite the BoJ's shift, with the 10-year JGB yield still far below the 0.2% limit.

As the ECB and the BoJ are likely to maintain an accommodative monetary policy stance, interest rate markets have priced in an increasingly wide policy rate divergence between the US and the euro area, as well as between the US and Japan, as reflected by the differences in their 1-year forward overnight index swap (OIS) rates (Chart 2.4). Amid persistent global monetary policy divergence, risks to the US dollar will likely tilt to the upside in the near term, potentially resulting in tighter global financial conditions to the detriment of emerging market economies (EMEs). However, over the medium term, the strong pace of real GDP growth seen in the US in the past year may not be sustained, as the effects of fiscal stimulus wane and as inflationary pressures build.[3] The combination of slower growth and higher inflation, in turn, may add to the uncertainties over the Fed's longer-term monetary policy outlook.

Chart 2.4
Differences in 1-year forward 1-month OIS rates between (1) the US and the euro area and (2) the US and Japan

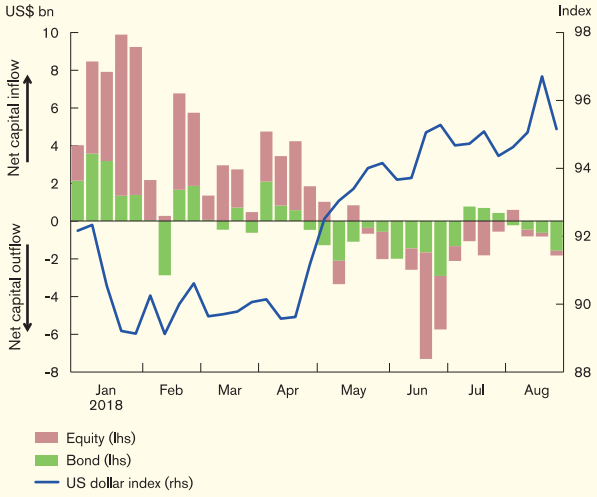


Source: Bloomberg.

[3] According to the June SEP, FOMC members expected US real GDP growth to slow from 2.8% in 2018 to 2.0% in 2020, while core private consumption expenditure inflation was projected to rise from 2.0% to 2.1% over the same period.

Downside risks to growth have also intensified outside the major AEs since the second quarter. As the Fed continued to normalise its balance sheet and policy rate, the US dollar strengthened as the long-term US Treasury yields increased. As at end-August, the US dollar index rebounded by 7% from this year's low in February alongside a 45 basis point year-to-date increase in the 10-year US Treasury yield. The resulting tightening of global financial conditions fuelled capital outflow pressures across EMEs in May and June (Chart 2.5), leading to double-digit currency depreciation against the US dollar in the second quarter in some EMEs with weaker fundamentals or domestic political issues (e.g. Argentina, Turkey and Brazil). In response to exchange rate pressures, central banks in several key EMEs, including Argentina, Mexico and Turkey, raised policy rates in recent months. As financial markets reappraised the potential impacts of trade conflicts on EMEs in June amid the Trump administration's increasingly bellicose rhetoric on trade, EME equity markets underperformed their AE counterparts (chart 2.6), while commodity prices (as measured by the benchmark CRB BLS index) also dropped by 9% from their peak in mid-June.

Chart 2.5
EME capital flows and US dollar index



Sources: Datastream and EPFR.

Chart 2.6
Morgan Stanley Capital International (MSCI) World and EM indices

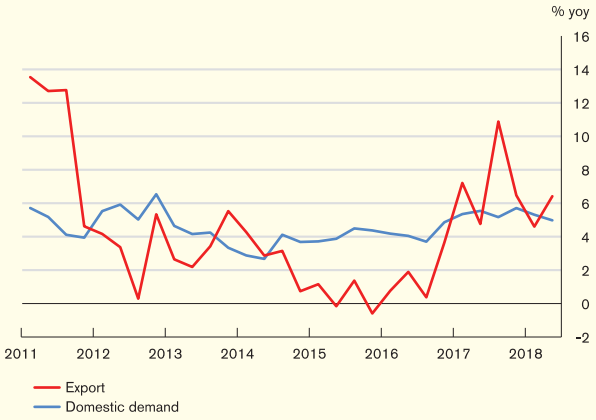
Note: The MSCI World Index and the MSCI EM index cover stock markets in developed economies and EMEs respectively. Both series were rebased to 100 on 1 January 2018.
Source: Datastream.

Market turbulence in Turkey in August amid rising tension with the US generated a wave of selling pressure on EME assets. The Turkish lira lost 26% of its value in August, as investors were unnerved by Turkey's uncontained inflation, hefty current account deficit and significant foreign currency exposure. Risk-off sentiments spilled over to a wide range of EME assets. The MSCI emerging market index fell to its lowest level in mid-August in more than a year, and the currencies of EMEs with weaker economic fundamentals — such as Argentina and South Africa — declined significantly. While large-scale financial contagion did not occur, further deterioration in the situation in Turkey could put significant strain on the EMEs' capital flows.

In East Asia[4], the effects of the looming trade war between the US and Mainland China have yet to be reflected in headline growth figures, and economies in the region grew at a stable pace in the first half of 2018. Although external demand has moderated from a strong 2017, it continued to drive economic growth. Meanwhile, the support from domestic demand remained resilient (Chart 2.7).

[4] In this Chapter, East Asia refers to a group of seven economies; they are Indonesia, Malaysia, the Philippines, Singapore, South Korea, Taiwan and Thailand.

Chart 2.7
East Asia: Domestic demand and exports



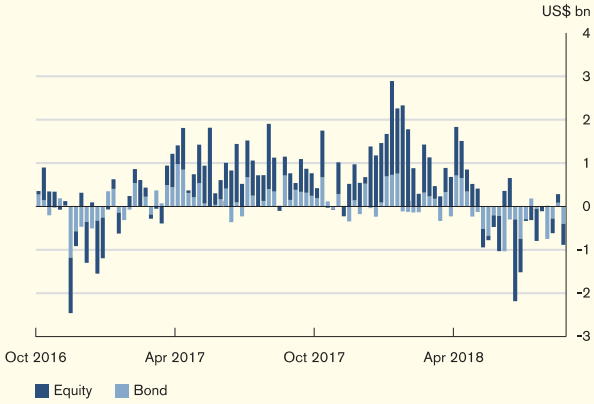
Note: The chart shows the weighted-average growth in domestic demand and exports in the national account of Indonesia, Malaysia, the Philippines, Singapore, South Korea and Thailand.

Sources: CEIC and International Monetary Fund (IMF).

Amid the solid growth momentum and higher oil prices, CPI inflation in many East Asian economies picked up modestly in recent months, although they stayed below the long-term average in most countries. Some inflation-targeters in the region (e.g. the Bank of Korea) have continued to struggle with below-target-median CPI inflation.

Despite stable real activities, the region's financial market volatility has increased since the second quarter, associated with rising trade tensions and the surge in US Treasury yields. Equity prices have decreased sharply since early June, while local currency sovereign bond yields have also increased. The downward pressure on asset prices was coupled with intensifying capital outflow pressures in recent months, with the region experiencing the largest broad-based portfolio outflows since late 2016 (Chart 2.8).

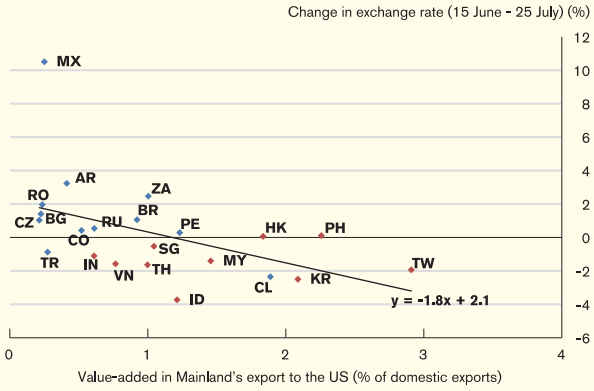
Chart 2.8
Portfolio flows into East Asia



Source: EPFR.

The threat of an escalating trade conflict between the US and Mainland China has weighed on East Asian and other EMEs currencies, with depreciation pressures being more significant in economies that are tied to Mainland's production chains. These economies, such as Taiwan and South Korea, which contribute a large share of value-added in Mainland's exports to the US, have seen larger depreciations after the Trump administration proposed, and then partly imposed, tariffs on about US$250 billion worth of imports from Mainland China since mid-June. EMEs with less presence in Mainland's production chains have fared better (Chart 2.9).

Chart 2.9
East Asia and other EMEs: Recent exchange rate change and level of participation in Mainland's production chains



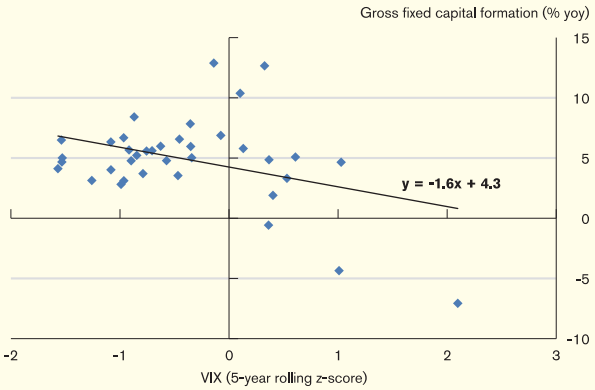
Note: Red dots are Asian economies.

Sources: Bloomberg and OECD-WTO TiVA.

Given the intensifying trade tensions between the US and Mainland China, the balance of risks has shifted to the downside. In this regard, there are multiple headwinds faced by East Asian economies in the near-term.

– First, while the direct impact of the trade war on growth in East Asia is expected to be limited, the damage it might cause to investor confidence might be much more disruptive to economies than the direct impact. The uncertainty that arises from a long-drawn out process of tit-for-tat trade negotiations could drag on investment in East Asia, as gross capital formation usually declines when indicators of uncertainty, such as the Chicago Board Options Exchange Market Volatility Index (VIX), increases (Chart 2.10). Since investment is a key component of domestic demand in East Asia, a slowdown in investment could put a brake on the region's economic growth. In a longer-term, a lower investment could also hurt productivity and potential growth.

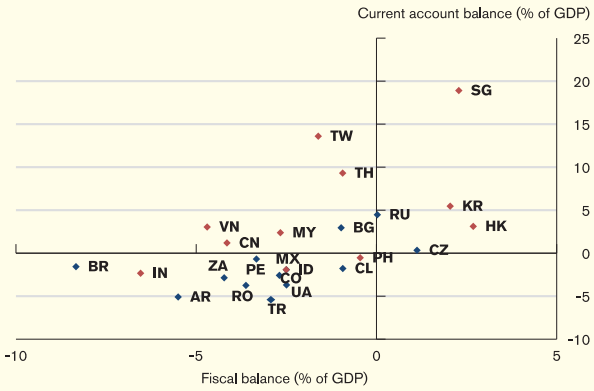
Chart 2.10
East Asia: Gross fixed capital formation and VIX index



Note: The chart shows data from 2009 Q1 to 2018 Q1.
Sources: Bloomberg and CEIC.

– Second, in the event that real activities in the region start to slow due to the impact of a trade war, many East Asian central banks will be faced with a policy dilemma: to alleviate the impact of the trade war on investment and to support growth, they would need to cut policy interest rates; however, potential capital outflows associated with a deterioration in sentiment and the strengthening of the US dollar may warrant policy rate hikes. This dilemma would be especially significant in economies with weaker external positions and limited fiscal headroom (Chart 2.11), whereas economies with stronger fundamentals are more likely to withstand such headwinds.

Chart 2.11
East Asia and other EMEs: Current account balance and fiscal balance (forecasts for 2018)



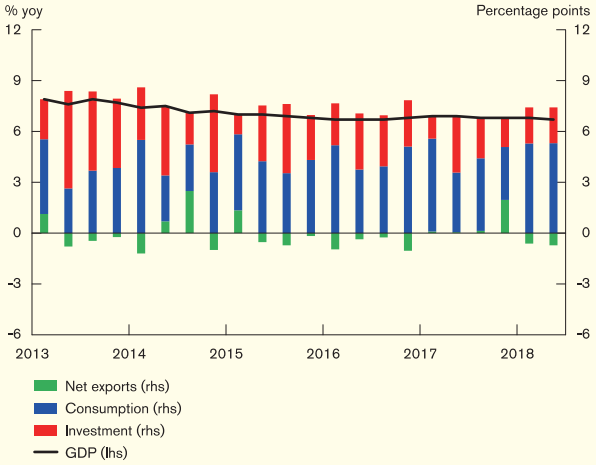
Note: Red dots are Asian economies.
Source: IMF World Economic Outlook (April 2018).

2.2 Mainland China

Real sector

Growth momentum remained largely stable in the first quarter of 2018 and showed some moderation in the second quarter. For the third consecutive quarter, real GDP expanded further by 6.8% year on year in the first quarter, but inched lower to 6.7% in the second quarter amid notably weaker infrastructure investment growth (Chart 2.12). Taking the first half of 2018 as a whole, the year-on-year real GDP growth stayed unchanged at 6.8% from the previous six months.

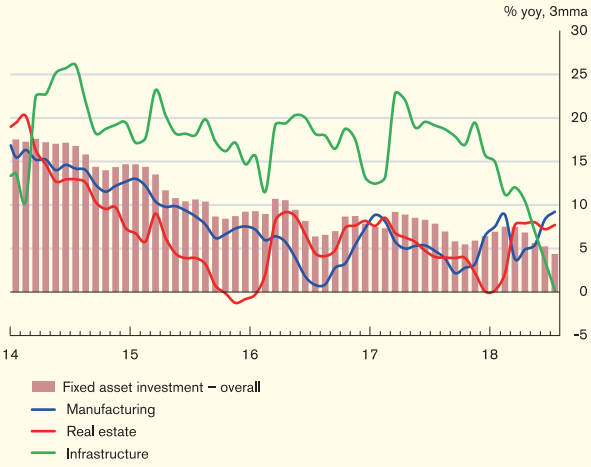
Chart 2.12
Mainland China: Contribution to GDP growth by demand component



Sources: CEIC, NBS and HKMA staff estimates.

On the expenditure front, consumption growth remained vibrant in the first half of 2018 on the back of solid labour market conditions and buoyant consumer sentiment. As for gross capital formation, while real estate and manufacturing investment growth rebounded in the first half of the year, infrastructure investment growth declined notably amid tightening measures on local government financing activities (Chart 2.13). Externally, despite increased uncertainty over the trade conflict with the US, export growth remained robust in the first half of 2018. However, as imports grew at a faster pace than exports, the contribution of net exports to overall growth turned negative during the period.

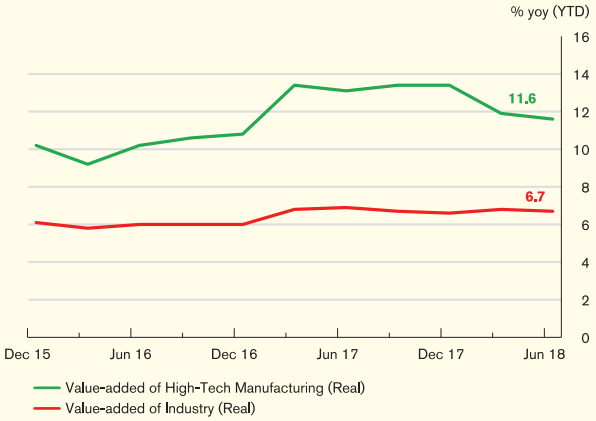
Chart 2.13
Mainland China: Fixed asset investment by industry



Sources: CEIC and HKMA staff estimates.

In value added terms, growth in the tertiary sector remained robust in the first half of 2018. In particular, the burgeoning IT and software industry continued to be the fastest growing subsectors, followed by leasing and commercial services, transport storage and postal services and others. Secondary industry growth edged higher, underpinned mainly by a rebound in construction amid improved real estate investment. In comparison, manufacturing activities registered slightly slower growth, but the high-tech subsectors powered ahead with stronger double-digit growth (Chart 2.14). As growth in the tertiary sector continued to outpace other sectors, its value-added share in the overall economy rose further to 54.3% in the first half of 2018 from 54% a year ago.

Chart 2.14
Mainland China: growth of industrial value added

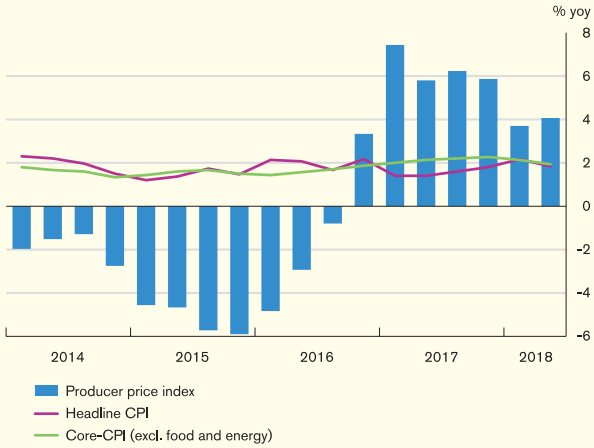


Sources: CEIC, Wind and government websites.

Looking ahead, while the near-term growth outlook should continue to be supported by higher value-added manufacturing and services industries, rising uncertainty amid the escalating trade conflict between the US and Mainland China makes it more challenging for Mainland authorities to strike a delicate balance between pushing ahead with structural reforms, maintaining financial stability and supporting economic growth. In this regard, monetary policy is being finely-tuned as more targeted easing measures are introduced to support private business expansion. Fiscal policy is set to be more proactive, with further tax and fee cuts to support small enterprises and corporate research and development (R&D), and more infrastructure spending to improve weak links in the economy. The latest consensus forecasts expect the Mainland economy to grow by 6.6% this year, down from 6.9% in 2017.

In the first half of 2018, consumer price inflation increased slightly amid robust consumption. Headline consumer price inflation crept up from an average of 1.7% year on year in the second half of 2017 to 2.0% in the first half this year, as food prices reversed from a decline of -0.8% year on year to an increase of 1.2% during the same period (Chart 2.15). After excluding food and energy prices, core inflation, however, subsided from 2.2% year on year in the second half of 2017 to 2.0% in the first half of 2018, in part, driven by a slower price increase in housing rentals. At the wholesale level, producer price inflation tapered off from 6.1% year on year in the second half of 2017 to 3.9% in the first half of 2018 as commodity prices stabilised.

Chart 2.15
Mainland China: Consumer price and producer price inflation

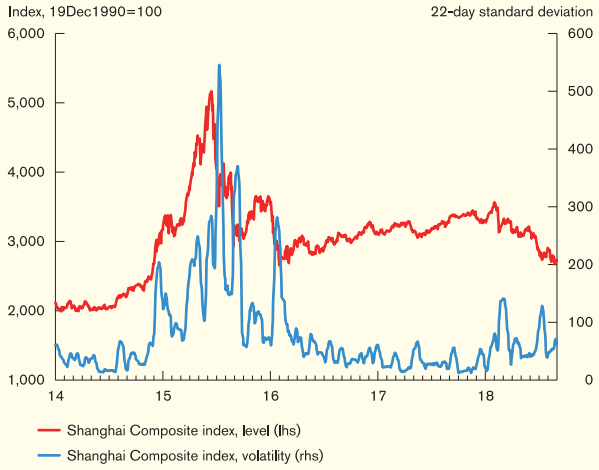


Sources: CEIC, NBS and HKMA staff estimates.

Asset Markets

Although Mainland's economic conditions remained stable, investor sentiment in the stock market appeared to have deteriorated amid concerns over the escalating trade conflict with the US. Since the US announcement early this year of tariffs on Mainland's imports, the Mainland equity market has slumped, with the Shanghai Composite Index declining by around 24% in 6 months. Market volatility also rose, with the 22-day price swing rising to its highest level in almost two years in February 2018 (Chart 2.16).

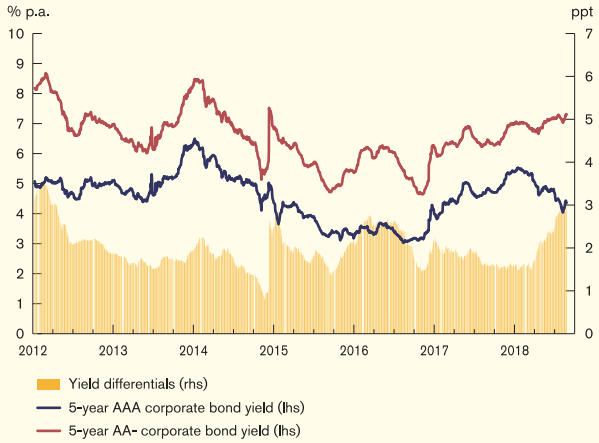
Chart 2.16
Mainland China: The Shanghai Composite Index and its volatility



Sources: CEIC and HKMA staff estimates.

In the bond market, funding costs reduced visibly for corporate issuers with the better rating after several rounds of required reserve ratio (RRR) cuts in the first half of 2018 (Chart 2.17). By contrast, yields of lower-rated corporate bonds edged up further, likely reflecting the reduced risk appetite of investors in the face of rising uncertainty in Mainland's economic outlook, as well as a deteriorated debt servicing ability of firms with weaker financial positions amid continued financial deleveraging.

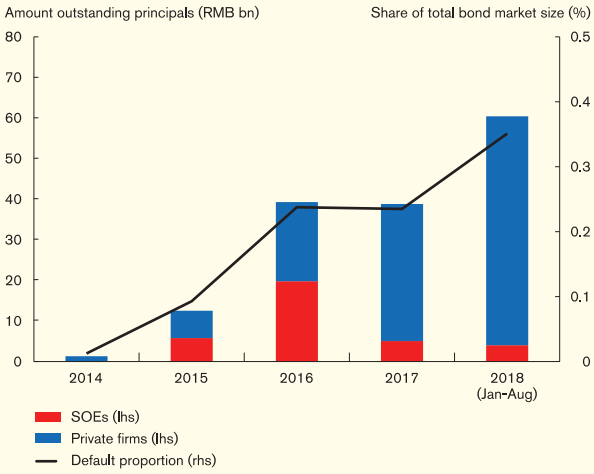
Chart 2.17
Mainland China: 5-year corporate bond yields



Sources: Wind and HKMA staff estimates.

Indeed, the first eight months of 2018 witnessed bond defaults by 24 corporate issuers, compared with 21 for the whole of 2017[5]. The total size of default bonds during the period therefore increased to RMB60 billion, which is equivalent to 0.35% of the total outstanding size of non-financial debt securities at the end of August 2018 (Chart 2.18). Further analyses suggest that the recent defaults were concentrated mainly in lower-rated private issuers, which probably had a greater reliance on informal channels for financing. As a result, they might have faced greater funding pressures as the ongoing financial tightening is aimed at reining in shadow banking activities.

Chart 2.18
Mainland China: Bond default size and proportion

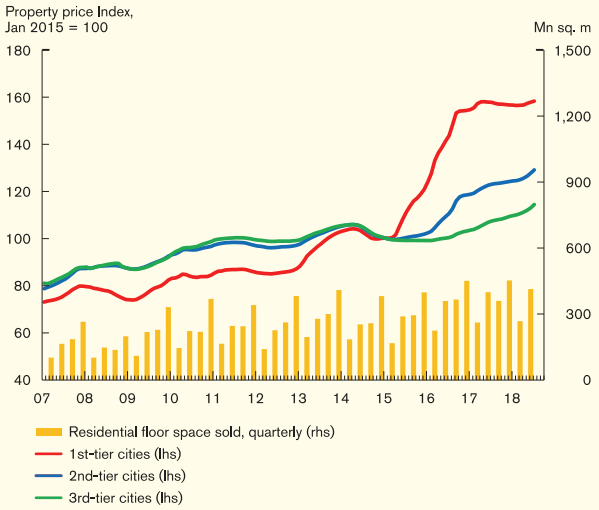


Sources: Wind and HKMA staff estimates.

During the review period, house prices in the Mainland property market, remained largely stable in first-tier cities with tightening measures in place, including increased down-payment requirements and home purchase and sale restrictions (Chart 2.19). In lower-tier cities, property prices edged up further, albeit at a much slower pace compared with 2016 when Mainland China was facing a home-buying frenzy.

[5] Data collected from Wind, including enterprise and corporate bonds, medium-term notes, short-term commercial papers and private placement notes.

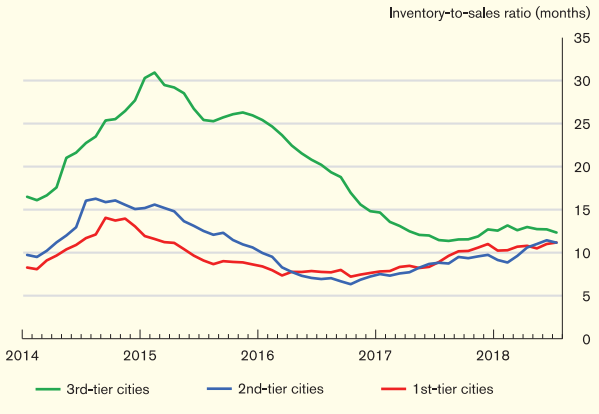
Chart 2.19
Mainland China: Residential prices by tier of cities and floor space sold



Sources: CEIC and HKMA staff estimates.

Housing oversupply issues, which plagued third-tier cities in previous years, remained largely in check, partly due to robust sales amid bullish market sentiment. By the end of July 2018, the inventory-to-sales ratio in third-tier cities was stable at around 12 months, much lower than the peak of 31 months in early 2015 (Chart 2.20). However, real estate investment especially in third-tier cities rebounded notably in the first half of 2018 in tandem with steady increases in property prices. Whether the fast expansion in real estate investments will continue and potentially lead to a resurgence in housing oversupply requires close monitoring.

Chart 2.20
Mainland China: Inventory-to-sales ratios by city tier



Sources: Wind and HKMA staff estimates.

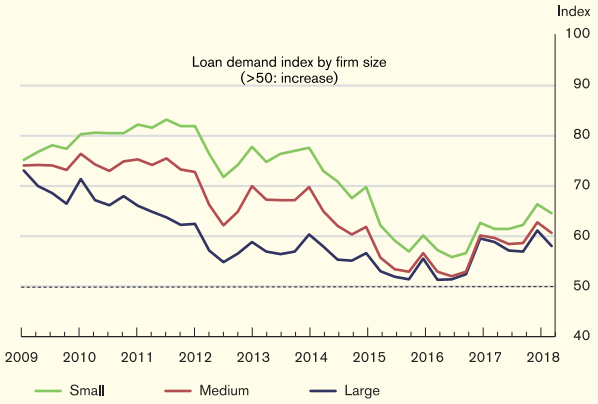
Although the overheated Mainland property market appeared to have stabilised amid tightening measures introduced by the authorities, it is not clear whether housing prices can be sustained at their current level, given stretched affordability. This remains a key risk for Mainland financial stability. To understand the potential impact of real estate cycles on financial stability in Mainland China, Box 1 examines to what extent property market ups and downs can affect corporate default likelihood. For a large panel of listed non-financial firms, this analysis finds that while property price increases in Mainland China do little to decrease the default likelihood as perceived by stock market investors, property price declines significantly increase the default likelihood. In addition, such an impact seems to be non-linear, as the corporate default likelihood tends to be much larger if property price declines are abrupt.

To contain the potential risk and promote a stable and healthy development of the property market, the authorities accelerated the construction of indemnificatory housing, while speeding up the development of the rental market along with a more flexible system to increase land supply, as proposed at the Central Economic Work Conference in December 2017.

Credit and asset quality

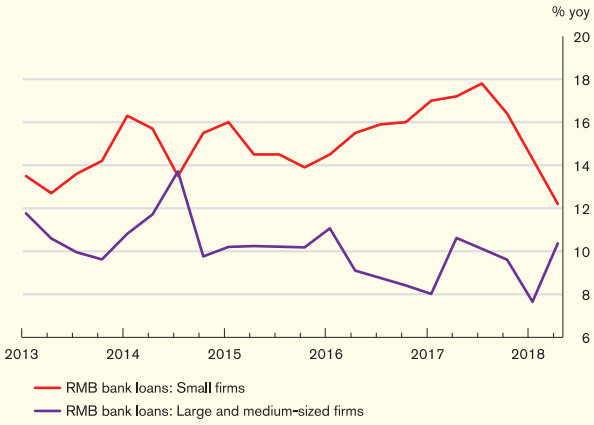
During the first half of 2018, loan demand from Mainland companies remained strong. According to a quarterly survey by the People's Bank of China (PBoC), recent increases in loan demand appeared to be broad-based. Smaller corporate borrowers continue to have the strongest demand (Chart 2.21).

Chart 2.21
Mainland China: Loan demand index by industry



Source: PBoC.

Chart 2.22
Mainland China: Growth of bank lending to corporate borrowers



Sources: PBoC and HKMA staff estimates.

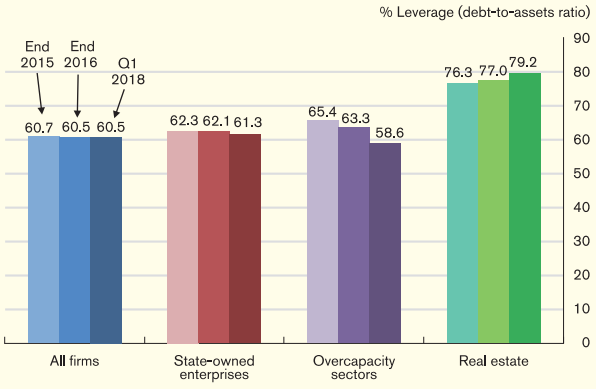
The strong and growing demand by smaller firms for loans in recent quarters might have been partly due to the fact that the ongoing financial deleveraging had led to a notable deceleration in shadow banking activities, which had provided important funding support to small and private firms, especially those with limited access to formal finance. In response to this development, the PBoC introduced several rounds of easing measures including targeted RRR cuts and conditional Medium-term Lending Facility (MLF) lending to better support bank lending to small firms (please refer to the fiscal and monetary section for details). As a result, bank lending to small firms continued to expand faster than bank loans extended to medium- and large-sized firms in recent quarters, though at a slower pace[6] (Chart 2.22).

During the review period, the year-on-year growth in bank credit to Mainland firms slowed slightly to 12.3% at the end of June 2018 from 12.7% at the end of 2017, amid continued corporate deleveraging. In particular, banks continued to strengthen their loan underwriting standards on vulnerable borrowers, which helped keep in check banks' exposure to firms in overcapacity sectors. As a result, the leverage ratio of firms in overcapacity sectors further declined in the first quarter of 2018 with robust growth in corporate earnings (Chart 2.23). Meanwhile, the leverage ratio of state-owned enterprises (SOEs) inched lower, likely reflecting the fact that the borrowing constraint of less efficient and more vulnerable SOEs was tightened during the recent SOE reforms.[7]

[6] According to the quarterly press release of the China Banking and Insurance Regulatory Commission (CBIRC), growth in bank loans to the firms with credit limit less than RMB5 million picked up from 9.8% year on year at the end of 2017 to 15.6% at the end of June 2018.

[7] Alex Cheng, John Fu and Steven Chan (2018), "Are SOE reforms in China going anywhere? Evidence from corporate borrowing constraints." *HKMA Research Memorandum 03/2018*.

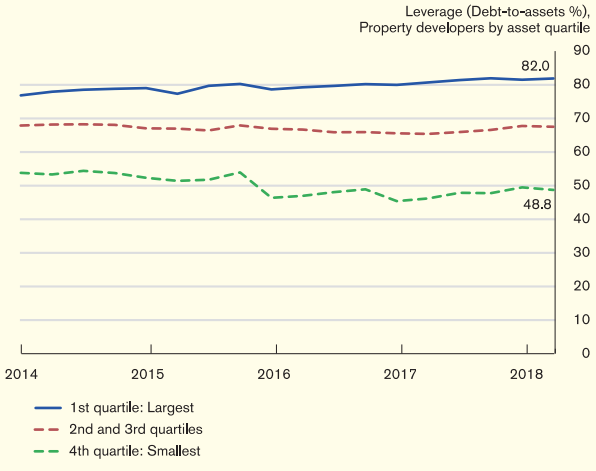
Chart 2.23
Mainland China: Corporate leverage of SOEs, firms in overcapacity sectors and real estate companies



Sources: Bloomberg and HKMA staff estimates.

In comparison, the leverage ratio of property developers further increased in the first quarter of 2018 amid a rebound in real estate investment, in part supported by an acceleration in bank lending. Further analyses suggested leveraging was mainly concentrated in larger developers, whose financial positions are ususally better (Chart 2.24).

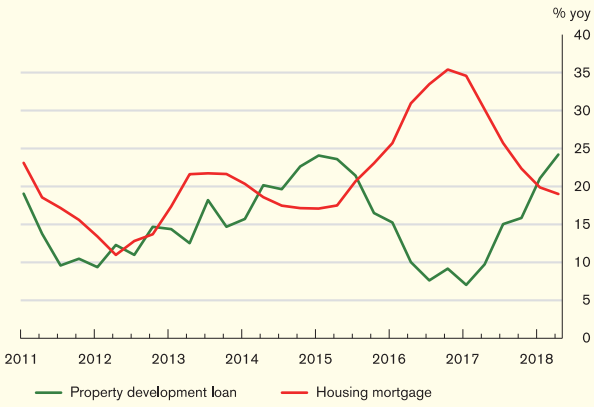
Chart 2.24
Mainland China: Corporate leverage of real estate developers by company size



Sources: Bloomberg and HKMA staff estimates.

While year-on-year growth in property development loans further picked up to 24.2% at the end of June 2018 from 15.9% at the end of 2017, year-on-year growth in mortgages further slipped to 19% from 22.4% over the same period amid tightening measures on home purchases (Chart 2.25). As a result, the share of property development loans and mortgages together in total bank loans, measuring banks' direct exposure to the property market, increased slightly to 26.5% by the end of June 2018 from 25.7% at the end of 2017.

Chart 2.25
Mainland China: Growth in mortgage and property development loans



Sources: CEIC and HKMA staff estimates.

During the review period, the asset quality of banks remained sound as loan underwriting standards strengthened and the profitability of Mainland corporates improved[8]. In the first half of 2018, the share of special mention loans in total bank loans continued to decline[9]. The bad debt coverage ratio of banks remained largely stable at 179% in the second quarter of 2018 compared to 181% at the end of 2017.

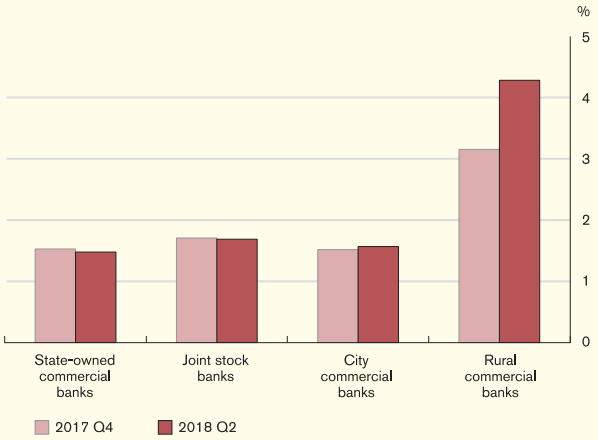
Nevertheless, the ratio of NPL increased in the first half of 2018. In particular, while the NPL ratio of state-owned banks remained largely stable, the NPL ratio of smaller commercial

[8] Listed non-financial company data suggests that profitability as measured by the four-quarter rolling return on equity (ROE) of the corporate sector increased to 8.2% in the first quarter of 2018 from 8.0% in the last quarter of 2017. In particular, ROE of over-capacity sectors increased to 10% from 9.4% during the same period.

[9] A loan will be classified as special menton loans if the borrower has the ability to repay the loan currently, but may be affected by some unfavourable factors, according to the CBIRC. Non-performing loans (NPL) include loans that are classified as substandard, doubtful or loss, which are loans that are unlikely to be fully repaid and banks would thus suffer losses of different degrees.

banks, especially rural commercial banks, increased visibly in the second quarter of 2018 (Chart 2.26).

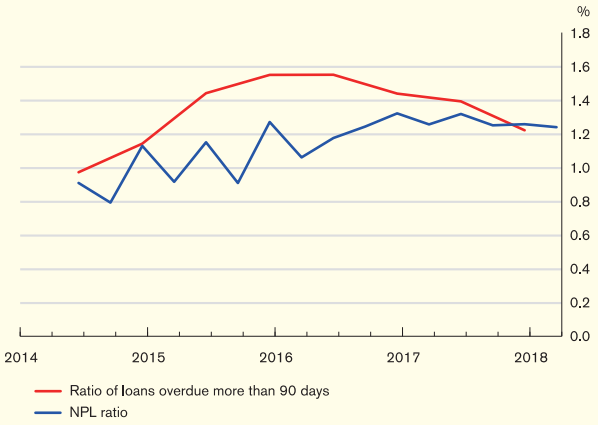
Chart 2.26
Mainland China: NPL ratio by bank types



Source: CEIC.

The increase in the NPL ratio of these smaller banks was likely a result of a more stringent enforcement in the NPL reporting standard to include all loans more than 90 days overdue. For instance, data from the listed city and rural commercial banks suggest that while the share of loans more than 90 days overdue in total loans continued to decline in recent quarters, the gap between this and the NPL ratio significantly narrowed (Chart 2.27).

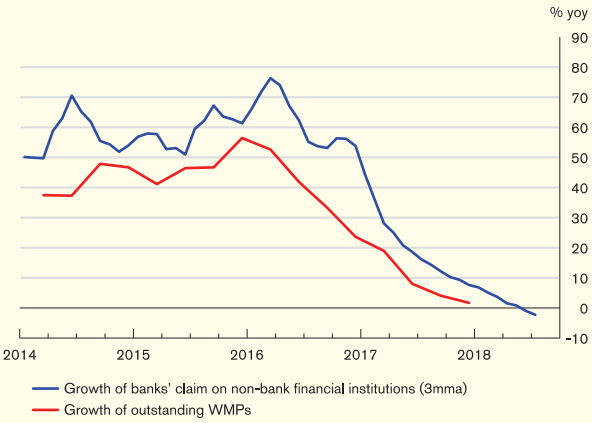
Chart 2.27
Mainland China: Listed city and rural commercial banks' NPL ratios and ratio of loans overdue more than 90 days



Sources: Wind and HKMA staff estimates.

During the review period, authorities continued to push ahead with financial deleveraging to limit the involvement of banks in shadow banking activities. As a result, banks' claims on non-bank financial institutions have started to decline since June 2018 (Chart 2.28), with the share of such claims in the total bank assets stabilising at 10.4% at the end of July 2018.

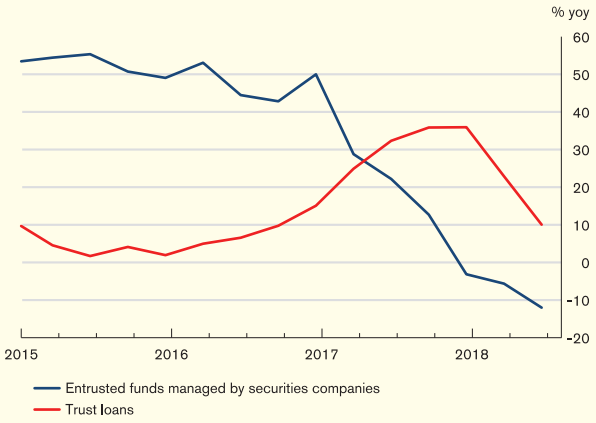
Chart 2.28
Mainland China: Growth of bank's claim on non-bank financial institutions and outstanding wealth management products (WMPs)



Sources: CEIC, WIND and HKMA staff estimates.

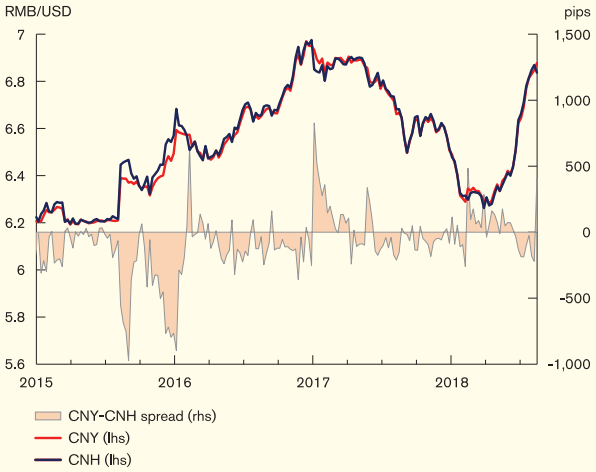
In addition, the authorities further tightened regulations on the WMPs issued or distributed by banks, as WMPs are also a major funding source for shadow banking activities. Following the decline in the involvement of banks in shadow banking activities, as suggested by the stabilisation in banks' exposure to non-bank financial institutions as well as tightened regulations on WMP issuance, shadow banking activities, such as trust lending and entrusted funds managed by securities companies, declined notably in the first half of 2018 (Chart 2.29).

Chart 2.29
Mainland China: Growth of trust loans and entrusted funds managed by securities companies



Sources: CEIC and Securities Association of China.

Chart 2.30
Mainland China: The CNY and CNH exchange rates against the US dollar



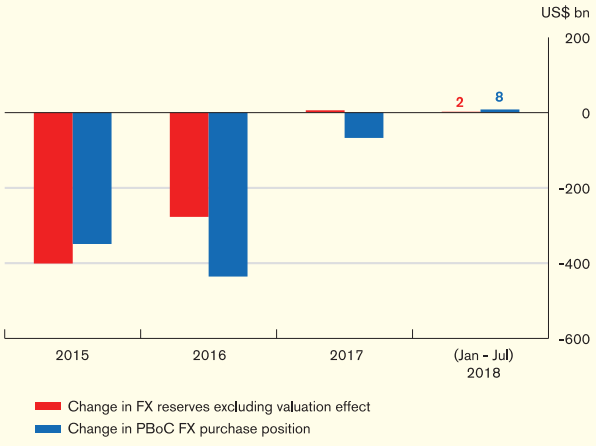
Sources: CEIC and HKMA staff estimates.

Exchange rate and cross-border capital flows

The onshore renminbi (CNY) exchange rate strengthened by 2.8% in the first four months of 2018, but depreciated by 7.3% against the US dollar in the following four months amid rising uncertainty surrounding the US-China trade conflict (Chart 2.30). In camparison, the offshore renminbi (CNH) exchange rate was traded weaker against the US dollar most of time in recent months, with the CNY-CNH spread widening notably to over 400 pips on 11 July before narrowing towards the end of August. In response, the PBoC on 24 August announced to reintroduce the counter-cyclical factor to the CNY fixing formation mechanism, in order to mitigate the impact of pro-cyclical market behaviour and help stabilise market expectations.

Despite the depreciation of the renminbi exchange rate, the two most commonly-used measures for cross-border capital flows – the changes in foreign reserves excluding valuation effects, as well as in the PBoC foreign exchange (FX) purchase position – both remained muted in the first seven moths of 2018 (Chart 2.31). As a result, the Mainland headline foreign reserves remained largely stable at US$3,118 billion in July 2018 compared to seven months ago.

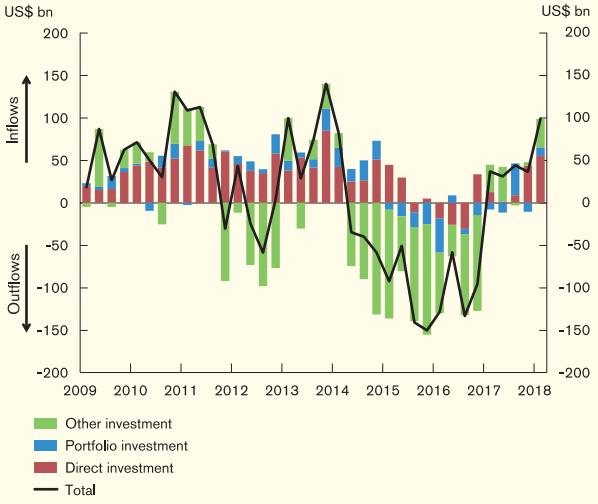
Chart 2.31
Mainland China: Changes in PBoC FX purchase position and foreign reserves



Sources: CEIC, SAFE and HKMA staff estimates.

The latest statistics on the balance of payments also pointed to limited capital outflows, with net cross-border capital inflows staying positive recently (Chart 2.32). In particular, while net capital inflows through direct investment remained robust in the first quarter of 2018, underpinned by strong inward investment, net capital inflows through other investment increased notably amid stronger cross-border borrowing than lending by Mainland residents. Meanwhile, net outflows through portfolio investment in the fourth quarter of 2017 turned into net capital inflows in the first quarter of 2018, mainly reflecting an increased holding of Mainland bonds by international investors.

Chart 2.32
Mainland China: Net cross-border capital flows by type of flows



Sources: CEIC, SAFE and HKMA staff estimates.

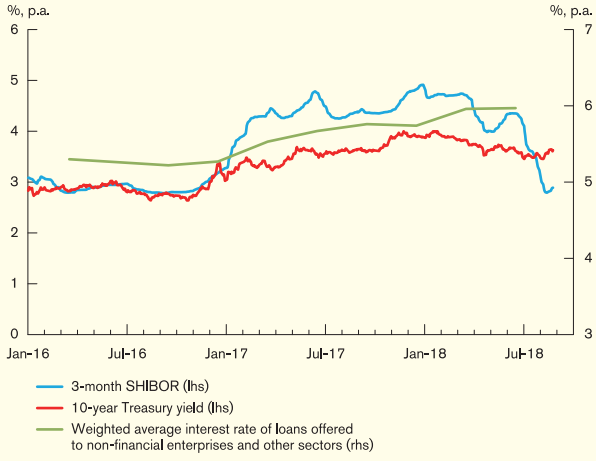
Looking ahead, stable economic conditions should continue to help contain capital outflow pressures over the short term, although rising uncertainty amid the escalating US-China trade conflict, as well as expectations for future movements in renminbi exchange rates, could also affect the outlook for cross-border capital flows in Mainland China.

Fiscal and monetary policy

On the monetary policy front, while the PBoC continued to maintain a prudent and neutral policy stance during the review period, it relied more on targeted easing measures to support business expansion in the real sector. In particular, to alleviate the financing difficulties facing small firms amid the recent declines in informal financing activities, the PBoC cut RRR three times, in January, April and July, to encourage banks to better support small firm financing. In addition to the RRR cuts, the central bank increased the funding support to banks by allowing banks to use high-quality small firm loans and bonds as collateral to borrow through the MLF. To further shore up bank lending to small firms, the PBoC also announced in June an increase in the weight of lending to small firms in its macro-prudential assessment for banks.

Following these monetary easing measures, liquidity conditions in the interbank market improved, with the 3-month Shanghai Interbank Offered Rate (SHIBOR) subsiding to around 2.9% in August from around 4.9% at the end of 2017 (Chart 2.33). Alongside the lower interbank market rates, the 10-year treasury yield fell from the peak of 4.0% in January to around 3.6% in August. Improved liquidity conditions should lower the funding costs of banks, and in turn may help lower the borrowing costs for the corporate sector in the period ahead.

Chart 2.33
Mainland China: Major market interest rates

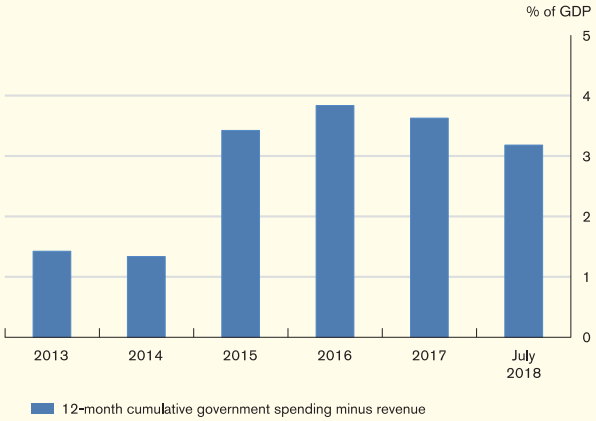


Source: CEIC.

On fiscal policy, the authorities adopted a more proactive stance to boost domestic demand. In an effort to foster business spending, the government lowered the value added tax rate in May. And, to specifically alleviate the tax burden on smaller business owners, the authorities raised the annual sales thresholds for firms in industrial, wholesale and retail trade industries that would be qualified as small-scale value-added tax payer, from around RMB0.5–0.8 million to RMB5 million in May, and also announced in April an increase in the annual taxable income threshold of small firms that can enjoy a tax advantage from RMB0.5 million to RMB1 million. In addition, to encourage firms to move up the value chain, the authorities expanded the coverage of the R&D tax allowance from small firms to all firms. On the household front, the government announced a new tax plan to raise the personal income tax threshold to ease the tax burden on consumers.

Despite these tax cutting initiatives, public revenue increased by 10.0% year on year in the first seven months of 2018, likely due to an expansion in the tax base amid improved business conditions. As government expenditure increased at a relatively slower rate during the period, the gap between government spending and revenue over the past 12 months narrowed to 3.2% of GDP at the end of July, from 3.6% at the end of December last year (Chart 2.34).[10]

Chart 2.34
Mainland China: Difference between government spending and revenue



Sources: Wind and HKMA staff estimates.

Reflecting this proactive fiscal policy, the liability of the Mainland government increased further. In the first seven months of 2018, Mainland local government debt expanded by 3.9% to RMB17.2 trillion, compared with an increase of 7.5% in 2017. Due to stronger nominal GDP growth, the debt to GDP ratio for local governments actually declined slightly from 20% in 2017 to 19.8% at the end of July 2018.

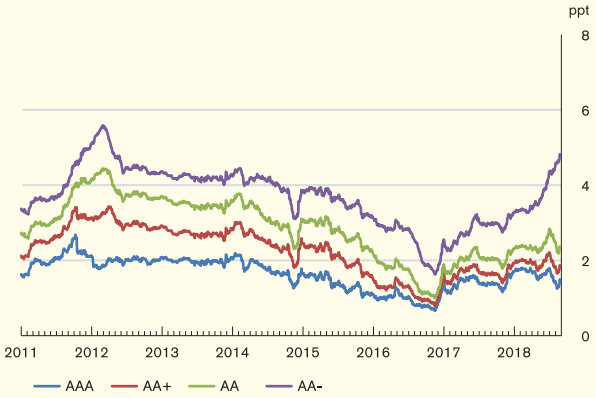
Despite the decline in debt to GDP ratio, the risk associated with local government debt should not be ignored especially debt financed by irregular financing channels. In an effort to crack down on irregular financing activities of local governments, the authorities, as of 23 April 2018, had removed some existing public-private partnership (PPP) projects totalling RMB 1.8 trillion, or equivalent to around 10% of the total registered PPP projects at end-2017, while another RMB3.1 trillion worth of projects were subject to rectification.

Amid the tightened restrictions on local government financing activities, the credit risks of local government financing platforms (LGFPs) seem to have increased, particularly those with lower credit ratings. For instance, while the yield spreads between LGFP bonds and treasury bonds generally increased in the past few months, the yield spreads of lower-rated LGFP bonds

[10] Government spending and revenue include the expenditure and revenue in the government's general public budget and government-managed funds.

increased more notably (Chart 2.35). To alleviate the financing difficulties of LGFPs, the state council noted in July that the policy should encourage financial institutions to meet the appropriate financing needs of the LGFPs.

Chart 2.35
Mainland China: Yield spread between LGFP bonds and treasury bonds of 10-year tenor by credit rating



Sources: Wind and HKMA staff estimates.

Box 1
Property prices and corporate default likelihood in Mainland China*

Introduction

Real estate cycles can have significant impact on financial stability. Over the past few decades, the experience of developed countries clearly shows that the bursting of property bubbles has major repercussions for financial stability.

In recent years, property prices in Mainland China, the largest emerging economy in the world, have picked up notably. In first-tier cities, including Beijing, Shanghai, Guangzhou and Shenzhen, property prices have, on average, increased by 60% since 2015. With buoyant market conditions, property prices in second-tier cities have also recorded substantial rises in the same period. As a result, housing affordability on the Mainland has worsened notably, and some first-tier cities such as Beijing and Shanghai have been named among the least affordable housing markets in the world[11].

Policymakers as well as some market analysts have voiced concerns about this development, given the potential impact of property price declines on the real economy and financial stability as suggested by the experience of developed economies.

Understanding whether Mainland financial stability is susceptible to real estate cycles is crucial to policy making. This study adds to the debate by exploring the extent to which changes in Mainland property prices may affect the credit risk of corporate borrowers. We view the health of the corporate sector as a key barometer of Mainland financial stability as around 80% of bank loans have been granted to the corporate sector, a significant part of which are secured by real estate[12]. That is not to mention the credit risk of highly leveraged property developers and the strong linkages between the real estate sector and other economic segments as well.

One difficulty facing researchers studying the credit risk of Mainland corporate borrowers is the paucity of information publicly available on corporate defaults. Therefore, this study uses a forward-looking measure of market-perceived default probability, which is estimated based on the stock prices and balance-sheet data of around 2,000 listed non-financial firms in Mainland China during the period from the first quarter of 2007 to the third quarter of 2016.

Empirical framework

To test to what extent real estate cycles may affect the credit risk of corporate borrowers in Mainland China, we regress a default risk index of Mainland firms, following Altman, Fargher, and Kalotay (2011), on the Mainland quarterly property price changes and a set of macro and firm-level variables, as follows:

$$\boldsymbol{Risk\ Index = f(Property\ price\ changes,\ Firm\ characteristics,\ Macro\ variables,\ Other\ controlling\ variables)} \quad (1).$$

The dependent variable *Risk Index* is a quarterly default risk index of an individual firm and defined as $ln(\frac{1-DL}{DL})$, where *DL* is the stock-price-implied, one-year-ahead default likelihood for the firm. In essence, *DL* captures the market-perceived probability that the asset value of the firm will fall below its liabilities at the end of the following year. Therefore, higher *DL* means greater market-perceived default risk. We extend *DL* calculated by Han and Zheng (2016), which runs from the first quarter of 2007 to the second

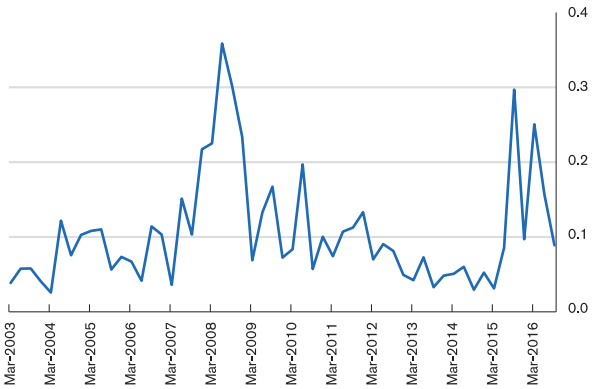
* This box is based on Cheng, Ng, Chan, and Han (2018), "Property prices and corporate default likelihood in Mainland China", *HKMA Research Memorandum 06/2018*.

[11] The Bloomberg global city housing affordability index, 2017.

[12] IMF (2011), "People's Republic of China: Financial System Stability Assessment", *IMF Country Report No. 11/321*, Washington DC.

quarter of 2013, to the third quarter of 2016 using the same methodology. Our sample consists of around 2,000 Mainland listed non-financial firms.

Chart B1.1
Estimated market-perceived default likelihood of Mainland listed non-financial firms



Note: This index is a simple average of the estimated market-perceived default likelihood of all listed Mainland firms in our sample.
Sources: Han and Zheng (2016) and HKMA staff estimates.

Chart B1.1 shows that the market-perceived default likelihood used in our study peaked during the Global Financial Crisis in 2008 and 2009, increased during the European Debt Crisis in 2011 and 2012, and picked up notably in 2015 and 2016 amid strong renminbi depreciation and rising concerns about a hard landing for the Mainland economy. This suggests that *DL* as an ex ante measure of default risk tracks well the events that might have triggered a greater credit risk of Mainland firms in our sample period.

In Equation (1), *Property price changes* is the quarter-on-quarter percentage change of a moving average of property prices. In particular, property prices are derived from the national sales value and area of residential commodity building. Financial information of firms extracted from quarterly financial reports, *Firm characteristics* such as profitability, liquidity position and size of a firm, are also included into the specification to control for their potential impacts on the perceived default likelihood of the firm. In addition, to control for the potential impact of macroeconomic and monetary conditions on firms' default risk, we include a set of variables (*Macro variables*), which consist of real GDP growth and an estimate of the monetary condition index (MCI), in the regression.[13]

By construction, the estimated market-perceived default likelihood of firms (DL) hinges on stock market volatility, which can be affected not only by the fundamentals of listed firms but also by broad-based factors. To control for this, we include in the specification *Other controlling variables*, such as the Mainland stock market valuation, proxied by the lagged price-to-book value of the CSI 300 Index[14]. In addition, since stock market volatility on the Mainland increased significantly following the authorities' crackdown on margin-based trading in 2015 and 2016, a dummy variable that is equal to 1 from the first quarter of 2015 to the second quarter of 2016 is added to control for the potential distortions to *DL*.

Data and empirical results

To estimate Equation (1), we employ a panel dataset consisting of the financial data of around 2,000 listed non-financial firms in Mainland China during the sample period from the first quarter of 2007 to the third quarter of 2016.

The estimation results of Equation (1) suggest most of the estimated coefficients of the control variables carry the expected signs. For example, faster GDP growth helps lower the perceived default likelihood of firms. In addition, firms with larger size, better liquidity positions, and greater profitability have a lower perceived default likelihood.

[13] The MCI is estimated using the same methodology as in "Box 1. How tight are monetary conditions in Mainland China?", *Half-yearly Monetary and Financial Stability Report*, September, 2011.

[14] The CSI 300 Index consists of the 300 largest and most liquid A-share stocks listed in Mainland China.

In terms of the effects of property prices, Column (a) in the upper panel of Table B1.1 shows that when the market stress dummy is not included in the specification, changes in property prices are found to have a statistically significantly negative impact on firms' default likelihood as perceived by the market. However, such impact becomes significantly positive when the market stress dummy is added to the specification. Because this period coincides with increases in property prices, the sign flip suggests that some asymmetry may be at play. That is, the sensitivity of default likelihood on property prices may depend on whether property prices are going up or going down. To test this, we re-estimate Equation (1) by adding into the specification the interaction term between *Property price changes* and a dummy variable, *Up*, that is equal to 1 if *Property price changes* are larger than zero.

Table B1.1
Estimated impact of property price changes on market-perceived default likelihood of Mainland firms

	Without stock market stress dummy	With stock market stress dummy
	(a)	(b)
Linear effect		
Property price changes	-0.057***	0.039***
Asymmetric linear effect		
Property price changes	-0.534***	-0.284***
Property price changes Up*	0.691***	0.443***
Non-linear effect		
Property price changes	-0.152***	-0.100***
Property price changes^2	0.021***	0.031***

Note: ***, ** and * denote the estimated coefficient is statistically significant at 1%, 5% and 10% respectively. To facilitate a more convenient interpretation of the result, the coefficients of the explanatory variables reported in the table are multiplied by -1, as *Risk Index* is a monotonically decreasing function of *DL*.

Source: HKMA staff estimates.

The estimation results reported in the middle panel of Table B1.1 confirm the existence of asymmetric impacts between property price increase and decrease, as the coefficient of the interaction term is statistically different from zero. More specifically, property price declines tend to increase the perceived default likelihood of firms, as suggested by the statistically significantly negative coefficient of *Property price changes*. By contrast, however, property price increases are likely to lead to a greater rather than lower default likelihood, as the coefficients of *Property price changes* and the interaction term are jointly significantly positive, especially when the market stress dummy is included.

In the next step, we relax the linear restriction on the impact of property price changes and examine whether our findings still hold. In this regard, we re-estimate Equation (1) by adding squared property price changes into the specification. The estimation results are reported in the lower panel in Table B1.1. The coefficients of the squared property price changes are found to be statistically significantly positive across all specifications, pointing to a non-linear impact of property price changes on firms' default likelihood as perceived by the market. In addition, the sensitivity of default likelihood to property prices is qualitatively the same whether or not the market stress period is included.

The non-linear effect of changes in property prices derived from the estimated coefficient in Column (b) in the lower panel of Table B1.1 is plotted in Chart B1.2. This chart confirms our previous findings that the impact of declines and increases in property prices is asymmetric. In particular, Chart B1.2 shows that while property price declines seem to significantly increase the perceived default likelihood of Mainland firms, property price increases appear to do little to decrease the perceived default likelihood of Mainland firms. Instead, property price increases faster than 3% per quarter will make the perceived default likelihood start to rise. This is probably due to the fact that a property price rally on the Mainland usually leads to a faster increase in corporate leverage (Cheung et al, 2017), which in turn worsens the debt-servicing ability of firms.

Chart B1.2
Non-linear effect of changes in property prices on firms' default likelihood

Note: The non-linear effect is derived from the estimation results of Column (b) in the lower panel of Table B1.1, assuming the perceived default likelihood of firms is at the sample average.
Source: HKMA staff estimates.

Chart B1.2 also highlights that abrupt declines in property prices may lead to much larger increases in the perceived default likelihood of Mainland firms. In particular, while on average a decline of two percentage points in property prices in one quarter will lead to an increase of four percentage points in the perceived corporate default likelihood, a decline of four percentage points will lead to an increase of 12 percentage points in perceived corporate default likelihood. Our finding of the non-linear effect of changes in property prices is in line with the general perception that abrupt corrections in property markets can jeopardise financial stability by inducing a vicious cycle between falling property prices and borrower defaults.

Our findings that property price changes can affect corporate default likelihood are unlikely to be driven by reverse causality for several reasons. First, the impacts of property prices on the default probability of firms are found to be asymmetric as both property price declines and increases may lead to a greater default probability. Indeed, if reverse causality plays a role here, we should, instead, probably detect a symmetric effect, as property price decreases are more associated with a greater default probability of firms and property price increases with a lower default likelihood. Secondly, in our study we use national property prices to explain the default probability of individual firms. In this sense, changes in the default likelihood of an individual firm are unlikely to affect national property prices.

Conclusion

By exploring the extent to which changes in Mainland property prices may affect the credit risk of corporate borrowers, this study adds to our understanding of the issue and finds that real estate cycles do have a bearing on financial stability in Mainland China.

Using financial data from some 2,000 listed non-financial firms in Mainland China between the first quarter of 2007 and the third quarter of 2016, this study finds that changes in property prices have an asymmetric and non-linear impact on corporate default likelihood as perceived by the Mainland stock market investors. Specifically, after controlling various firm-level factors, we find that while property price increases do little to decrease the perceived default likelihood, property price declines significantly increase it, highlighting the asymmetry. Also, the impact on the perceived corporate default likelihood tends to be much larger if property price declines are abrupt.

Our findings highlight the risks associated particularly with sharp corrections in property prices. Therefore, policymakers may want to strike a balance between cooling down an overheated real estate market and maintaining financial stability.

One caveat to our study is that the corporate default likelihood we employ is the expected default risk derived from stock prices and financial data of listed firms rather than estimated from actual default cases. Therefore caution is required when interpreting the empirical results.

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