2. Global setting and outlook

Global growth momentum moderated further in the first half of 2019, reflecting weaker business investment in major advanced economies and the disruptive impact of US import tariffs on global trade and supply chains. Periodic escalation of trade tensions between Mainland China and the US since May, and their continual technology rivalry, have triggered episodic financial market sell-offs. Yet, global equity markets have generally been supported by expectations of a more accommodative global monetary policy, although slower economic growth and a downbeat earnings outlook call into question the levels of valuation. Looking ahead, the global economic outlook will hinge crucially on the development of the US-China trade tensions, as well as the monetary policy direction of major central banks.

In East Asia[2], heightened trade uncertainties and slower growth momentum globally have weighed on real activities, especially on exports and investment. Financial markets in the region have experienced bouts of volatility in recent months, although there were no signs of large scale capital outflows. Still, further deceleration of economic growth and elevated market uncertainty could leave many regional economies vulnerable and challenge their debt service capabilities in the coming years.

In Mainland China, growth momentum has eased so far this year as the trade conflict continued to weigh on both export performance as well as domestic demand. To strike a balance between cushioning the economic slowdown and containing potential future systemic risks, the authorities introduced more targeted measures to support the economy, particularly those designed to help the business expansion of small and private firms.

2.1 External environment

The cyclical moderation in global growth momentum that began in the second half of 2018 continued in the first half of 2019. While there were some positive surprises in certain advanced economies (AEs) — notably the better-than-expected real gross domestic product (GDP) growth in the US and Japan in the first quarter — the headline figures were boosted by inventory accumulation and subdued imports. Indeed, while consumer spending in the US remained solid in the first half and that in Japan strengthened in the second quarter, business investment in the US and exports in Japan have been soft during the review period. In the euro area, some of the idiosyncratic factors that weighed on activity in late 2018 appeared to have faded in early 2019, but industrial production and exports remained lacklustre in the second quarter.

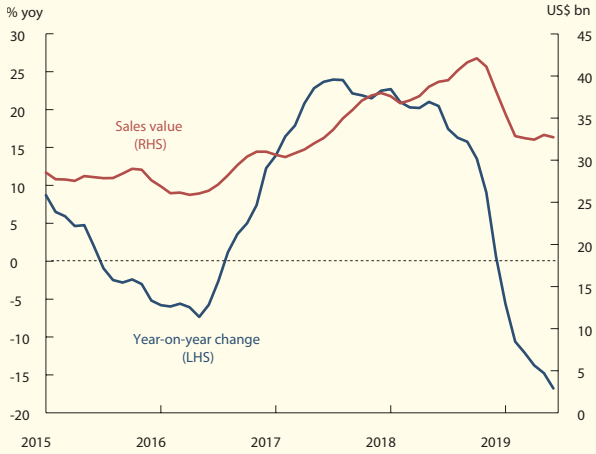
[2] East Asia refers to the following seven economies: Indonesia, Malaysia, the Philippines, Singapore, South Korea, Taiwan and Thailand.

As for emerging market economies (EMEs), exports and production activities were subdued in the first half of 2019, partly attributable to the combined effects of weaker private investment in major AEs and disruptions to global supply chains by the US administration's tariff actions (Chart 2.1). As a case in point, sales of semiconductors, a barometer of the global tech cycle and a key driver of exports for emerging Asian economies, slowed sharply since late 2018. This occurred after the US administration imposed a 10% tariff on US$200 billion worth of Mainland's imports last September, as a variety of technology products that require the use of semiconductors was among those imports affected (Chart 2.2).[3] In addition, a number of idiosyncratic developments weighed on growth across Latin America and the Middle East since the start of the year.[4] Citing sluggish global activity in the first half of 2019, the International Monetary Fund (IMF) revised downward its 2019 and 2020 global growth forecasts in July from its April forecast each by 0.1 percentage point, to 3.2% and 3.5% respectively.

Chart 2.1
EME exports and industrial production (in volume terms)

Note: Data shown are three-month moving averages.
Source: CPB Netherlands Bureau for Policy Analysis.

Chart 2.2
Global sales by semiconductor manufacturers



Note: Figures shown are 3-month moving averages.
Source: Semiconductor Industry Association.

Adding to the headwinds faced by the global economy, trade and technology tensions between the US and Mainland China escalated again in May.[5] While the US and Mainland China subsequently agreed to a trade truce after the G20 meeting in June, such a truce proved to be short-lived as the Trump administration later announced new tariffs on about US$300 billion of imported Mainland's goods that were not subject to previous rounds of tariffs, drawing tit-for-tat tariff hikes by Mainland China.[6]

3 Examples include certain machinery and mechanical appliances with Harmonised Tariff Schedule subheadings of 8470–8471.

4 Examples of such developments include uncertainties related to the approval of pension reform in Brazil, weakening confidence in Mexico amid heightened uncertainty over its future trade relations with the US, and tighter US sanctions faced by Iran.

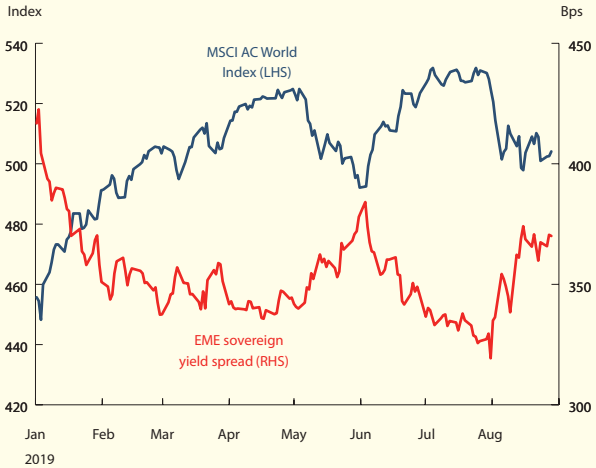
5 On 10 May, the US administration raised the tariffs imposed on US$200 billion worth of Mainland's imports from 10% to 25%, prompting retaliatory tariff hikes by Mainland China. On 16 May, the US Department of Commerce placed Huawei (a major Mainland telecommunications equipment company) on the "Entity List", subjecting US companies to a licence requirement when selling products to it.

6 On 13 August, the Office of the US Trade Representative announced that certain articles on the US$300 billion tariff list (mostly consumer goods) would face an additional 10% tariff beginning 15 December, while the rest would face tariffs beginning 1 September. On 23 August, Mainland China retaliated with higher tariffs on US$75 billion worth of US products, and the US administration responded by increasing the additional tariff rates by five more percentage points on approximately US$550 billion worth of Mainland's products.

Protracted trade policy uncertainty could dent business confidence, which weighs on capital spending and, in turn, aggravates the already-slowing global growth momentum.[7]

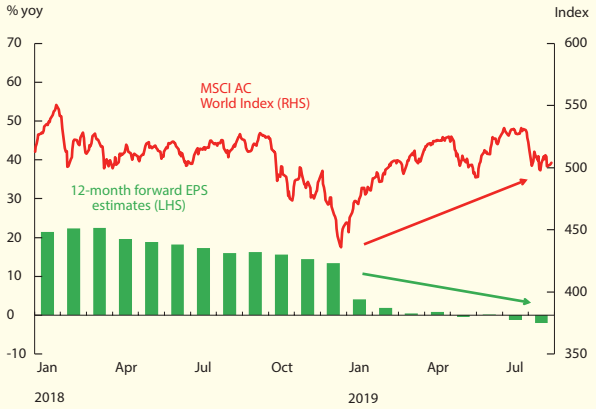
Against this background, global financial markets gyrated during the review period alongside the vicissitudes of US-China trade tensions and market sentiment (Chart 2.3). More specifically, after a sell-off in May, global equities and EME sovereign bonds rallied in June and July, underpinned by hopes of de-escalating US-China tensions and market expectations of aggressive monetary easing by the US Federal Reserve (Fed) and the European Central Bank (ECB). However, major stock markets pared back most of their earlier gains in August as such expectations were tempered by the Fed's non-committal stance over further easing after the rate cut in July and the intensification of US-China trade tensions shortly afterwards. Yet despite the corrections, the deteriorating earnings outlook still calls into question the levels of equity valuation, especially given that global equities are still trading close to the average levels seen in 2018, during which markets were pricing in double-digit year-on-year growth in forward earnings (Chart 2.4).

Chart 2.3
MSCI All-Country (AC) World Index and EME sovereign yield spread



Note: EME sovereign yield spread is derived from JP Morgan's EMBI Diversified Index.
Sources: Bloomberg and Datastream.

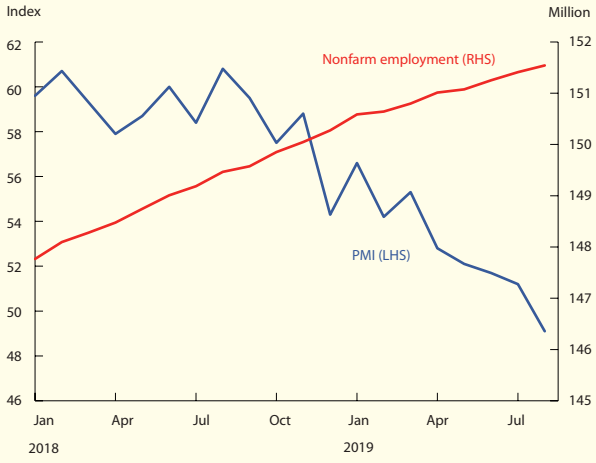
Chart 2.4
MSCI AC World Index and consensus estimates on 12-month forward earnings per share (EPS)



Sources: Bloomberg and HKMA staff calculations.

In the US, while the economy continued to perform in the first half of 2019, with the annual real growth rate reaching 2.5%, it represented a moderate slowdown relative to the strong 2018 outturns. Recent economic indicators are also sending mixed messages. On one hand, personal spending has held up and the labour market remained tight. On the other hand, as the US-China trade dispute intensified in May, the uncertainty around trade continued to weigh on business sentiment and the manufacturing sector, potentially dragging on business fixed investment (Chart 2.5). While the US Treasury yield has been inverted since late May, indicating

Chart 2.5
US nonfarm employment and ISM manufacturing Purchasing Managers' Index (PMI)

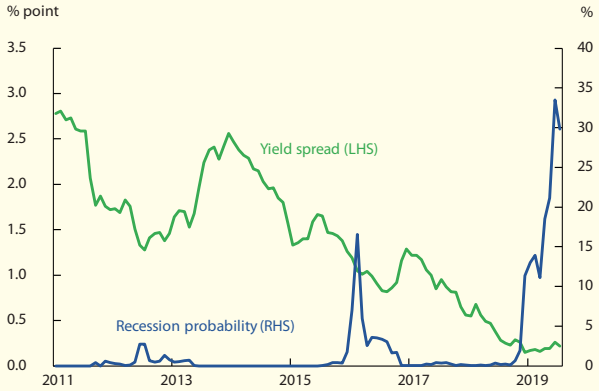


Source: CEIC.

[7] Research by HKMA finds that, in the US, a doubling of trade policy uncertainty in one quarter is associated with an average 3.4% decrease in next quarter's business-investment-to-capital-stock ratio. For details, please refer to "Trade Policy Uncertainty and Business Investment in the US", *HKMA Research Memorandum* 06/2019.

a non-trivial probability of the US economy entering a recession in the next year (Chart 2.6), neither high inflation nor financial imbalances — the key causes of almost all past recessions — are present. Looking ahead, however, there is still a risk that the US economy may lose momentum as a comprehensive trade deal appears to be a remote outcome and as other external headwinds, such as geopolitical tensions, weigh further on business and investor confidence.

Chart 2.6
Spread between 10-year and 2-year US Treasury yields and US recession probability

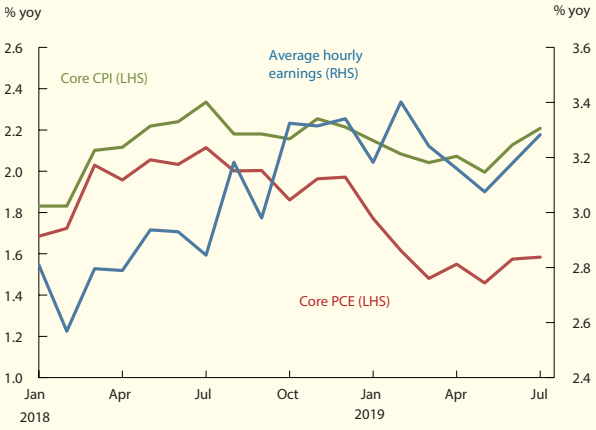


Note: For any given month, "recession probability" refers to the probability that the US economy would fall into a recession in the next 12 months, based on an econometric model that makes use of the slope of the US Treasury yield curve, excess bond premium (Gilchrist and Zakrajšek, 2012) and the Conference Board's Leading Economic Index. For details, please refer to "Revisiting US Recession Probability Models", *HKMA Research Memorandum* 03/2019.

Sources: St. Louis Fed and HKMA staff estimates.

In spite of a strong labour market, wage growth stayed modest and core inflation was soft in the first half of the year (Chart 2.7). The Fed deemed the soft readings of inflation as transitory, dragged by a number of idiosyncratic factors that will likely wane in the future. Indeed, there have been signs of a pick-up in inflation more recently, and the hike in US import tariffs on certain Mainland's products starting in May and in September is likely to push up inflation on imports in the near term. However, it remains to be seen whether inflation can reach the Fed's 2% target on a sustained basis, in view of the reduced responsiveness of inflation to labour and product market in recent years and other structural changes, such as population ageing, that have purportedly suppressed inflation.

Chart 2.7
Measures of core inflation and wage growth in the US

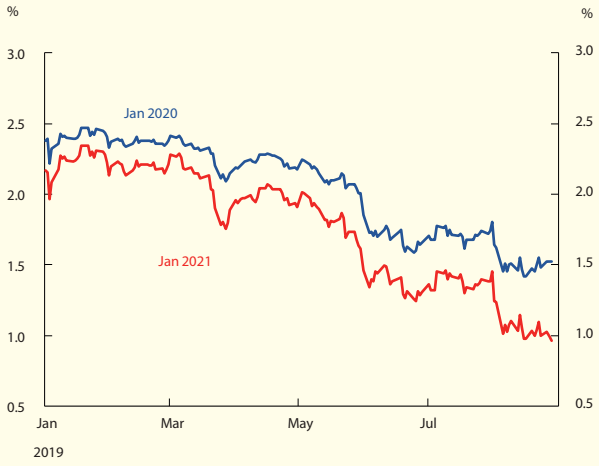


Source: CEIC.

In terms of US monetary policy, the Federal Open Market Committee (FOMC) communication turned progressively to the dovish side. In the March meeting, the Fed announced it would conclude balance sheet reductions in September. In the June meeting and later in his semi-annual testimony to the US Congress, Federal Reserve Board Chairman, Jerome Powell, left doors open to rate cuts by highlighting a number of risks, including softness in business fixed investment, persistently low inflation, negative spillovers from a global slowdown, uncertainty stemming from trade tensions, and a "no-deal" Brexit. In the Fed's view, as reflected by the downward revised economic output in the Summary of Economic Projections, the recent development has strengthened the case for a rate cut, which could provide a precautionary buffer for the US economy against the aforementioned risks. A 25 basis point rate cut was delivered at the July 30–31 FOMC meeting, along with an announcement that a balance sheet reduction would end two months earlier than was announced in March. Despite this cut, it is uncertain how many rate cuts the Fed will embark on in the near term, as Powell gave few hints in his August speech delivered at the Jackson Hole Symposium and as US economic data — despite being subject to numerous downside risks — continues to be reasonably

solid. By end-August, financial market was expecting two more cuts in 2019 and an additional 0.6 percentage-point reduction in Fed fund target rate in 2020 (Chart 2.8). Further cuts may cause concerns about financial stability as the prolonged bullish equity market has already been at record highs. However, this may not be supported by future profits against the backdrop of a deteriorating global economic outlook.

Chart 2.8
Futures-implied market expectations of Fed funds target rate

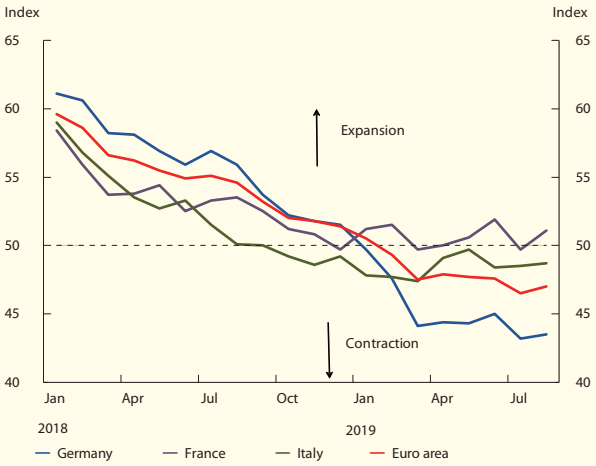


Source: Datastream.

The anaemic economic growth continued in the euro area, amid the ongoing weakness in global trade, persistent trade headwinds and political uncertainty.[8] While labour market conditions and consumer spending have remained resilient to date, there were more signs that adverse external developments had left their mark on sentiment. Indeed, according to the PMI survey, the region's manufacturing sector has been contracting since February 2019 (Chart 2.9).

Quarterly GDP growth softened to +0.2% in the second quarter, after rebounding unexpectedly to +0.4% in the preceding quarter which, in part, was due to the dissolution of transitory headwinds.[9] In addition, underlying price pressure remains muted. Beginning this year, there has been a notable decline in market inflation expectation. The 5-year/5-year inflation swap rate reached a record low of 1.2% in August 2019.

Chart 2.9
Euro area and major members manufacturing PMI



Source: CEIC.

Against the background of subdued growth and inflation outlook, the ECB has responded with further monetary easing. In September, the ECB unleashed a package of stimulus measures. The deposit facility rate was lowered to -0.5%, down by 10 basis points. The ECB adjusted its forward guidance such that it now expects the key policy rates to remain at their present or lower levels until there is evidence that underlying inflation dynamics is consistent with robust convergence

[8] The May 2019 European parliamentary election resulted in a more fragmented Parliament with growing influence of Eurosceptic parties. In Italy, political instability remains elevated amid the collapse of the Five Star – League coalition government, and a potential re-run of standoff with the European Union (EU) in the run up to the submission of its 2020 budget plan. In the UK, the risk of a "no-deal" Brexit has intensified given the hard stance on the withdrawal agreement by its new Prime Minister, Boris Johnson.

[9] Several country- and sector-specific headwinds prevailing over the second half of 2018 became less of a drag on growth. They include temporary disruption to car production caused by the introduction of new vehicle emission standards in Germany, social tension in France and heightened sovereign risk in Italy arising from its budget standoff with the EU.

of the inflation outlook towards target. Moreover, asset purchases would be relaunched from 1 November, at a monthly pace of €20 billion. Lending conditions under the third round of Targeted Longer-term Refinancing Operations (TLTRO III), first announced in March, were loosened with more favourable interest rate and maturity treatments. In addition, to mitigate the potential side effects on banking sector profitability that could arise from a "negative for long" interest rate policy, the ECB also introduced a two-tier system for reserve remuneration to exempt part of banks' excess reserves from negative interest rate. Looking ahead, with the appointment of former IMF Managing Director Christine Lagarde as the next ECB President, who is perceived to be supportive of accommodative monetary policy, market participants appear convinced that the ECB would maintain an easing bias going forward.

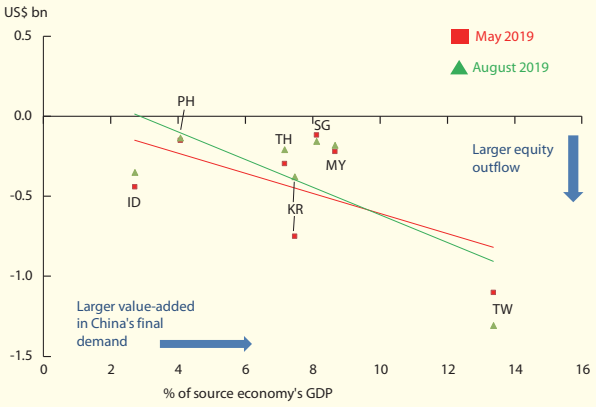
In Japan, where real GDP growth defied widespread expectation of a sharp slowdown in the first and second quarters of this year, the softening in manufacturing activity and exports in recent months suggest a slowing Japanese economy. While the manufacturing PMI has remained in contraction mode since April this year, the export value has contracted year-on-year for more than eight months since last November. Inflationary pressures remain subdued, with consumer price inflation still far below the central bank's 2% target. This presents more challenges for the Bank of Japan, whose exhausted policy toolkit and increasing concerns over banking sector stability offer little room for further easing.

Looking ahead, the global economic outlook will hinge on various factors, especially how the US-China trade tensions evolve, and whether the renewed monetary accommodation by major central banks will be effective in rejuvenating AEs' final demand. Importantly, inflation developments will continue to heavily influence the future direction of monetary policy at major central banks, driven by concerns about losing credibility on the inflation part of their mandates and being too close to or at the zero lower bound. A number of other geopolitical developments, including the risks of a "no-deal" Brexit, the possible impact on global oil prices stemming from the US-Iran tensions and the denuclearisation progress on the Korean Peninsula, will also warrant continued scrutiny.

In East Asia, financial markets experienced bouts of volatility in the second and third quarters this year amid the heightened uncertainties associated with the unresolved US-China trade conflict. In particular, the Trump administration's tariff threats in early May rekindled the trade-war worries, an episode that was repeated in August, as it unexpectedly introduced new tariffs on Mainland's imports. These two episodes straddled a short-lived trade truce and the associated market optimism following the G20 meeting in late June. Capital outflows and depreciation pressures in the region increased whenever the trade-tension escalated, and these pressures were especially significant in economies with stronger linkages with the Mainland economy. Economies with a larger valued-added contribution to Mainland's final demand in terms of their own GDP saw larger

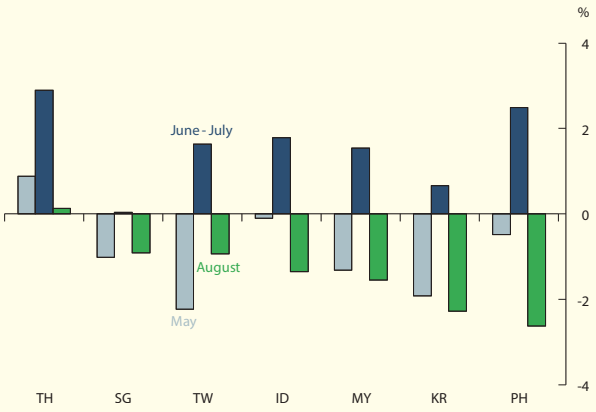
capital outflows in May and August (Chart 2.10). Depreciation pressures eased in June and July when markets regained some optimism for a positive outcome in the trade negotiations, but the pressures intensified abruptly again after Trump's new tariff threat on 2 August (Chart 2.11).

Chart 2.10
East Asia: Portfolio equity outflows and value-added contribution in Mainland's final demand



Sources: Bloomberg and EPFR.

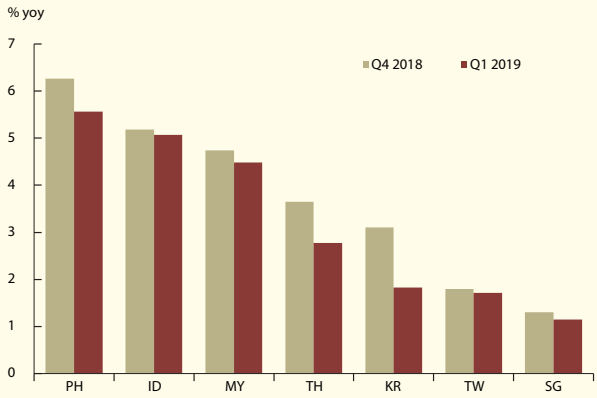
Chart 2.11
East Asia: Exchange rate against the US dollar



Source: Bloomberg.

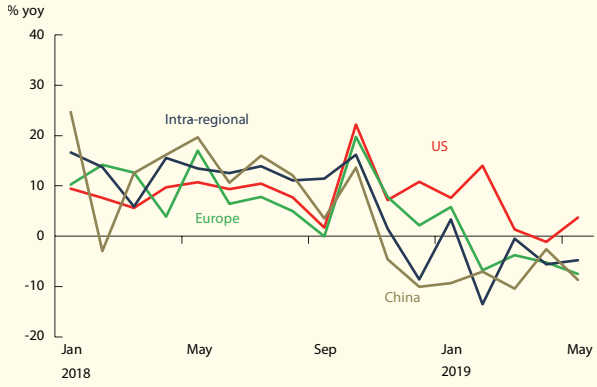
Alongside the elevated uncertainties and the associated bouts of market volatility, real economic activities have weakened across East Asia. Driven largely by a weak export performance and slackened investment growth, real GDP growth slipped in the first quarter of this year, marking the region's first synchronised downturn in a decade (Chart 2.12). The deceleration in the region's exports to non-US and non-Mainland destinations suggests that the trade dispute is not the only cause of the recent slowdown (Chart 2.13). Downswings in the global electronics cycle have also contributed to a larger drop in the export of technology products, such as smartphones and computers, overshadowing growth prospects for the region's major technology-product exporters, such as South Korea and Taiwan.

Chart 2.12
East Asia: Real GDP growth



Source: CEIC.

Chart 2.13
East Asia: Merchandise exports to major destinations



Source: CEIC.

The uncertainties and weakening global growth momentum have also affected investors' sentiment. Gross fixed capital formation in most East Asian economies has weakened over the past few quarters, while latest capital expenditure intention surveys in many regional economies are also pointing to slowdowns in corporate investment this year (Table 2.1). In view of this, and conjoined with subdued inflation pressures, the Philippines, South Korea, Indonesia and Malaysia have reduced their policy interest rates by 25 basis points since May, and other central banks in the region have signalled a more accommodative stance to support growth in the near term.

Table 2.1
East Asia: Surveys on business outlooks

Country	Survey	Response
S. Korea	Business Sentiment Survey (June 2019)	Expectation on near-term investment decreased in general
Malaysia	Business Conditions Index (Q1 2019)	Expectation on short-run business environment fell to below demarcation level
Thailand	Business Sentiments Index (June 2019)	Expectation on near-term investment spending decreased compared to start of year prospects
Asia-Pacific (ex. Japan)	Global Corporate Expenditure Survey (June 2019)	Capex in the region is expected to see reductions amid sharp cuts in investment spending forecasts for many of the large tech companies

Sources: Korea Economic Research Institute, Malaysian Institute of Economic Research, Bank of Thailand and S&P Global Ratings.

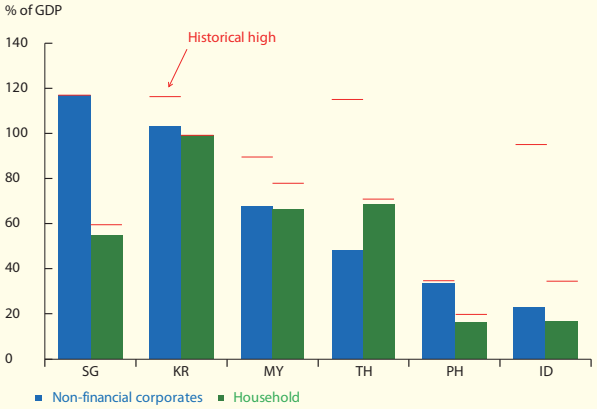
Looking ahead, there are multiple external and domestic headwinds facing the East Asian economies. On the external front, amid the far-from-settled divergences between Mainland China and the US (such as issues about the intellectual property regime), uncertainties related to the trade war will remain a major threat to the region's economic outlook. The escalation of trade disputes between South Korea and Japan in July and August also created more apprehension in the region.[10] Should these trade disputes drag on or intensify, business conditions and investor confidence will continue to deteriorate, further restraining the already subdued investment and deepen the economic slowdown in the region.

On the domestic front, the high level of indebtedness remains a key threat to the region's economic and financial stability. Corporate and household debts have reached record levels in many East Asian economies in terms of the dollar value; some have even reached record highs relative to their GDP (Chart 2.14). Corporate bond issuance in the region quickened in the first half of this year after a slowdown in 2018. However, with deteriorating business conditions and weakening corporate earnings, servicing the ever-mounting liabilities could be increasingly difficult in coming years. Indeed, the region is facing increased rollover and repayment challenges, as 5.2% and 5.6% of the outstanding non-financial corporate debts will come due through the end of 2020 and the end of 2021 respectively (Chart 2.15). While the overall growth in US dollar credit in emerging Asia has slowed in recent years, a substantial share of the expiring debt is denominated in foreign currencies (e.g. US dollar denominated).[11] Therefore, the increasingly volatile foreign exchange market will pose a difficult challenge to debtors' repayment and rollover capabilities. The dovish turn of major central banks and those in East Asia in recent months may have provided a breathing space for debtors, but monetary policy easing in the region and the associated weakening in local currencies could also weaken debtors' repayment capabilities to existing US dollar loans.

[10] The Japanese government removed South Korea from the export white list, which requires exporters to obtain authorisation when shipping a wide range of products to South Korea, effective from 28 August.

[11] The Bank for International Settlements global liquidity indicators at end-March 2019.

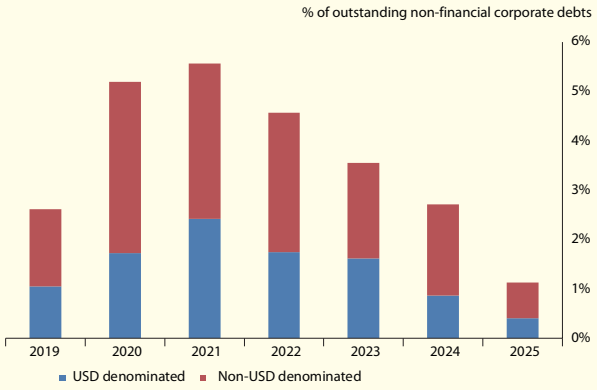
Chart 2.14
East Asia: Non-financial corporate and household debts (First quarter, 2019)



Note: Debt instrument includes both bonds and loans. Historical period starts from 2000 for the Philippines, 1995 for others.

Source: Institute of International Finance.

Chart 2.15
East Asia: Non-financial corporate debt maturity profile



Note: Economies include Indonesia, Malaysia, the Philippines, Singapore, South Korea and Thailand. Debt instrument includes both bonds and loans.

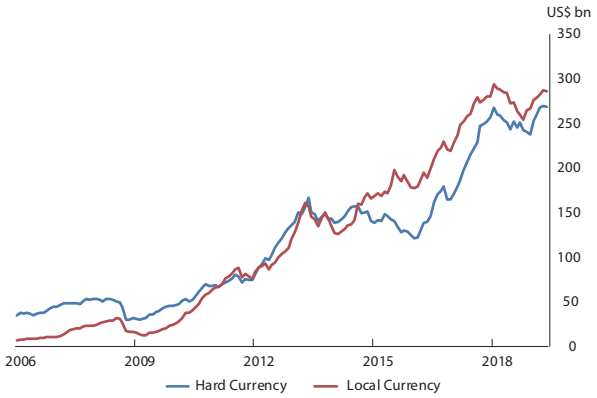
Source: Institute of International Finance.

Box 1
Does currency denomination matter to emerging market bond fund flows?

Introduction[12]

Local currency (LC) bond funds have gradually overtaken hard currency (HC) bond funds in investing in EMEs since the global financial crisis (GFC) (Chart B1.1).[13] While this may help EMEs remove their "original sin" stigma to some extent, is currency denomination no longer an important consideration for investors?[14] This box sheds light on this question by examining whether LC and HC EME bond fund flows react differently to exchange rate movement and volatility.

Chart B1.1
Total net assets of EME bond funds by currency denomination



Source: EPFR Global.

Methodology, data and findings

The estimation has two parts. First, we use the quantile regression model to estimate the impact of the exchange rate on LC and HC bond fund flows when the market suffers from considerable distress during the post-crisis period. Second, we employ the multivariate VAR GARCH-in-mean model to estimate the average impact for the period as a whole, which can be interpreted as the impact under normal market conditions.[15] These models capture three channels through which the EME exchange rate impacts EME bond fund flows:

- mean effect: the impact of a change in the exchange rate on the level of fund flows;
- volatility effect: the impact of a change in exchange rate volatility on the level of fund flows; and
- volatility spillover: the impact of a change in exchange rate volatility on fund flow volatility.

The models are estimated using weekly EME bond fund flow data and exchange rate data. EME bond funds are classified into LC bond funds (investing 75% or more in LC bonds) and HC bond funds (investing 75% or more in HC bonds).[16] Fund flow is defined as the change in the value of a fund's total net assets adjusted for its performance. The EME exchange rate is measured by the JP Morgan Emerging Market Currency Index.[17]

12 Detailed results of this study are reported in Leung, D. and Wan, W. (2019), "Impact of exchange rate risk on the volatility of emerging market bond fund flows: Does currency denomination matter?", *HKMA Research Memorandum* 09/2019.

13 Bond funds investing mainly in LC bonds of EMEs saw their total net assets skyrocket to US$267 billion at the end of 2018, surpassing funds mainly investing in HC EME bonds since early 2011.

14 The original sin is a term first employed by Eichengreen, B. and Hausmann, R. (1999) "Exchange rates and financial fragility", *NBER Working Paper* No. 7418, to describe the innate weakness of EMEs that they are unable to borrow in their own currencies on the international market.

15 Market distress is defined as 10th percentile in the level of fund flows or 90th percentile in fund flow volatility. Subject to data availability, the post-GFC period runs from 1 July 2009 to 31 July 2019.

16 EPFR Global does not have data for funds investing exclusively in LC or HC bonds.

17 This index tracks the average of ten major EME currencies vis-à-vis the US dollar.

Table B1.1 summarises the results. The mean effect is found to be significant under both normal and adverse market conditions, with the coefficients being all fairly similar in size. Indeed, our Z-test results, as presented in the last column, suggest that there are no significant differences between LC and HC bond fund flows in the impact of a change in the exchange rate.

The impact of exchange rate volatility appears to be detectable only when the market is in distress. The volatility spillover for LC bond fund flows, while statistically significant, is in fact quite small in magnitude. As to the impacts on LC and HC bond fund flows, no significant difference is observed in terms of the volatility effect. The difference lies only in volatility spillover which is greater in the case of LC bond fund flows.

Table B1.1
Estimated impact of EME exchange rates on EME bond fund flows

	LC bond fund flows (a)	HC bond fund flows (b)	(a) and (b) significantly different at 5% level?
Market distress			
Mean effect	0.10*	0.12^	No
Volatility effect	-2.31*	-3.01***	No
Volatility spillover	15.10***	6.47***	Yes
Whole sample period			
Mean effect	0.16***	0.12***	No
Volatility effect	0.03	0.05	No
Volatility spillover	0.07*	0.25	Yes

Note: ***, * and ^ denote the estimated coefficient being statistically significant at 0.1%, 5% and 10% respectively. Market distress is defined as 10th percentile in the level of fund flows or 90th percentile in fund flow volatility.

Source: HKMA staff estimates.

Conclusion

In sum, an exchange rate appreciation (depreciation) leads to a similar increase (reduction) in LC and HC bond fund flows, regardless of whether the market is in distress or not. The change in exchange rate volatility matters only when the market is in distress, and its impacts on LC and HC bond funds differ mainly in fund flow volatility, rather than fund flows themselves.

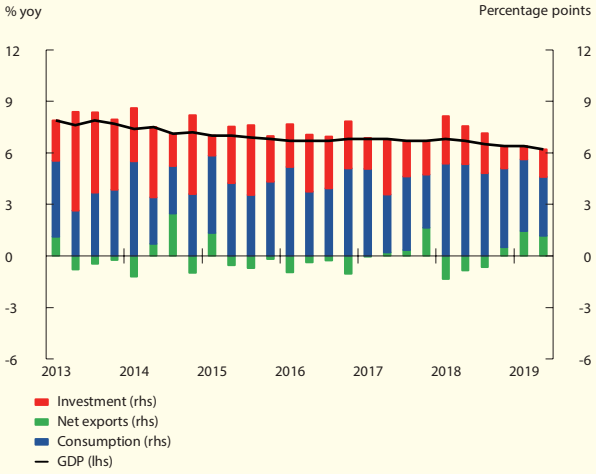
The finding that volatility spillover is greater for LC than HC bond funds has two important policy implications. First, it may reflect a general lack of hedging instruments, forcing foreign investors to move their funds in and out of EMEs in times of elevated exchange rate risk. Second, more rapid growth of LC bond funds among EMEs in recent years indicates that these economies are likely to experience more volatile capital flows than before amid large exchange rate fluctuations. These implications point to the pressing need for developing currency derivatives to provide effective means for foreign investors to manage their exchange rate risk. At the same time, the domestic investor base should also be deepened to contain the exchange rate impact on fund flow volatility.

2.2 Mainland China

Real sector

Growth in the first quarter of 2019 surprised to the upside (6.4% yoy, Chart 2.16), in part as the government's supportive measures for the economic activity took effect and as the US and Mainland China struck a temporary trade truce. However, in the second quarter, growth softened again, partly because of a weaker export performance against the backdrop of renewed trade tensions. That said, year-on-year growth came in as expected at 6.2%.

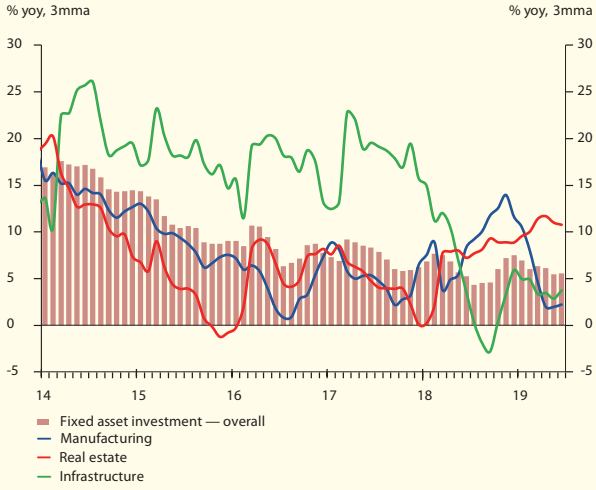
Chart 2.16
Mainland China: Contribution to GDP growth by demand component



Sources: CEIC, NBS and HKMA staff estimates.

Behind the headline growth number, consumption growth remained lacklustre in the first half of the year amid a weaker labour market and softer consumer sentiment. A breakdown of retail sales data of enterprises above designated size shows that some durable goods, such as automobiles, rebounded in the last two months of the first half, driven in part by some one-off factors, such as dealers offering steep discounts to clear old-model inventories prior to the enforcement of more restricted emission standards.[18] However, non-durable goods sales softened in the first half of 2019. Fixed asset investment growth continued to decelerate in the first half of the year (Chart 2.17). In particular, manufacturing investment growth weakened notably from the end of last year mainly reflecting a deceleration in business expansion in subsectors that were directly or indirectly hit by the trade war. Investment growth of some higher value-added subsectors, such as chemical and pharmaceutical held up well in the first half. In comparison, a rebound in infrastructure investment amid expansionary measures to support the economy, and accelerated real estate investment provided some support to overall investment. Externally, while export growth slowed in the first half of 2019 as the impact of the trade war gradually set in, the contribution of net exports to overall growth increased during the period as import growth weakened at a faster pace.

Chart 2.17
Mainland China: Fixed asset investment by industry

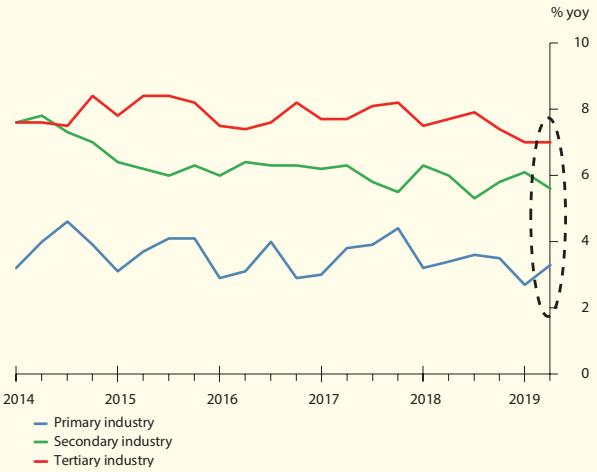


Sources: CEIC, NBS and HKMA staff estimates.

[18] Enterprises above the designated size include wholesale firms with business turnover equal to or higher than RMB20 million, retail firms with business turnover equal to or higher than RMB5 million and accommodation and catering businesses with turnover equal to or higher than RMB2 million.

In value-added terms, the tertiary industry sustained decent growth in the first half after moderating in the second half of 2018 (Chart 2.18). Within tertiary industry, the higher value-added subsectors such as IT and software, continued to grow at a high double-digit pace year on year in the first half, albeit slower than in the second half of 2018. As for the secondary industry, business expansion in manufacturing activities improved in the first half of 2019 from the second half of last year, but remained weak compared to previous years. Construction sector activities also accelerated in the first half of this year, underpinned by the faster growth of infrastructure and real estate investment. As tertiary industry growth continued to outpace other sectors, its share of value-added in the overall economy rose slightly to 54.9% in the first half of this year, from 54.4% a year ago.

Chart 2.18
Mainland China: Growth of value-added by industry

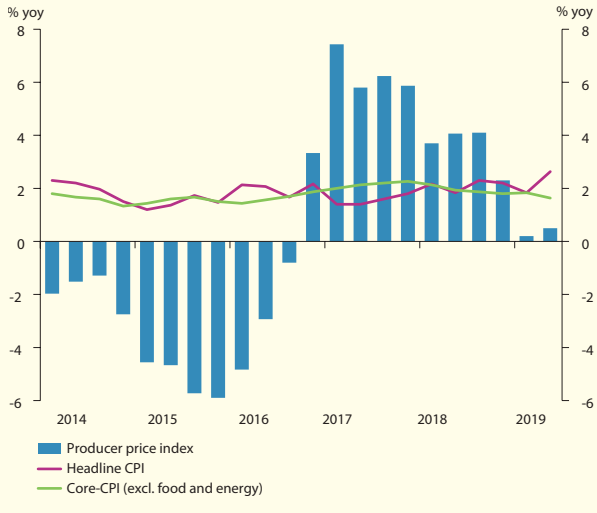


Sources: CEIC, NBS and HKMA staff estimates.

Looking ahead, the economic outlook continued to be overshadowed by the deepening trade conflict with the US. The trade war is affecting not only the export sectors, but also domestic investment and consumption increasingly through the "sentiment" channel. On the other hand, the near-term growth prospects hinge also on the extent to which the government will tolerate further economic slowdown in exchange for containing systemic risks and pushing ahead with structural reforms. Currently the government still relies mainly on targeted measures to cushion the economic slowdown. During the Politburo meeting at the end of July, policy-makers pledged to push ahead with tax and fee cuts and boost domestic demand, including rural consumption, while on the monetary policy front liquidity should be kept reasonably adequate. The latest consensus forecasts suggest that Mainland economic growth would ease to 6.2% for 2019 as a whole, down from 6.6% in the previous year.

Inflationary pressure remained moderate amid lukewarm economic conditions, albeit showing some increase in the second quarter. Headline consumer price inflation eased to 1.8% year on year in the first quarter of 2019 from 2.2% in the fourth quarter last year, but then increased to 2.6% in the second quarter (Chart 2.19). The pick-up was mainly driven by notable increases in food prices on the back of negative supply shocks, such as the African swine flu and adverse weather conditions. In comparison, core inflation, measured as consumer prices excluding food and energy items, declined from 1.8% year on year in the first quarter to 1.6% in the second quarter. On the production front, reflecting sluggish industrial activities, producer price inflation decelerated, registering only 0.4% year on year in the first half of 2019.

Chart 2.19
Mainland China: Consumer price and producer price inflation

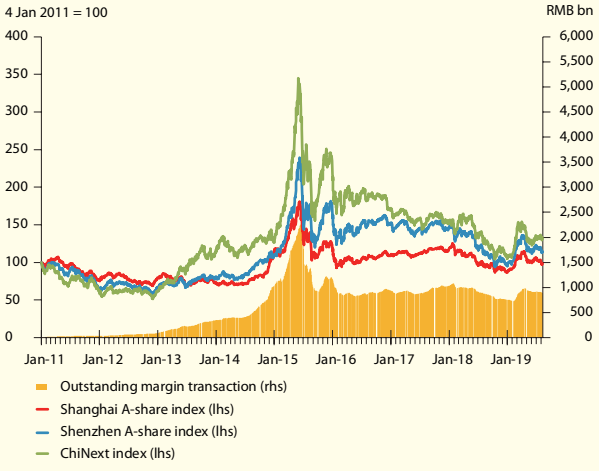


Sources: CEIC, NBS and HKMA staff estimates.

Asset Markets

The back-and-forth nature of the US-China trade negotiations greatly affected investor confidence this year and took the stock market on a roller roaster ride. The Mainland equity market picked up in the first quarter before the trade talks between the two nations fell apart and an additional round of tariffs was announced on Mainland's exports in early May. The Shanghai Stock Exchange Composite Index declined by roughly 13% about one month after reaching a one year-high in mid-April. In late June, the stock market started to rebound after the US and Mainland China announced a restart of the negotiations during the G20 meeting in Japan. However, the stock prices plunged again in early August after the US announced it would impose an additional tariff of 10% on US$300 billion worth of Mainland's imports and named China a currency manipulator (Chart 2.20).

Chart 2.20
Mainland China: The Mainland stock market indices and margin transactions

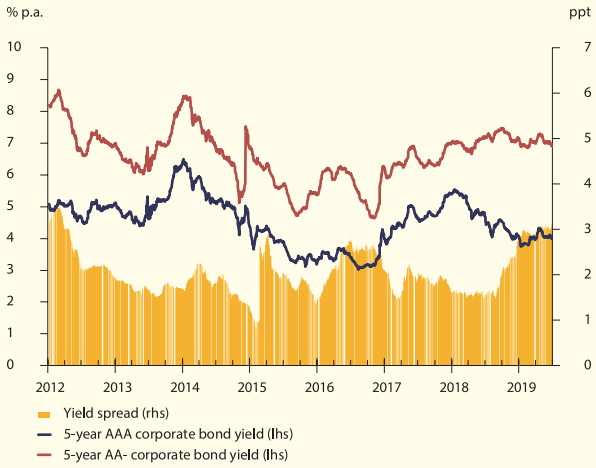


Sources: CEIC and HKMA staff estimates.

Margin transactions — an indication of leverage used by stock market investors — followed the stock market ups and downs. The outstanding size of margin loans picked up in the first four months of 2019 and reached its one-year high in April before declining when stock prices cooled.

In the bond market, the funding costs for corporate bond issuers remained largely stable, but the visible yield spread between issuers with different credit qualities remained. In particular, corporate issuers with better credit ratings continued to enjoy a relatively low funding cost after several rounds of targeted required reserve ratio (RRR) cuts in the first half of 2019 (Chart 2.21). By contrast, yields of lower-rated corporate bonds remained at higher levels, 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.

Chart 2.21
Mainland China: five-year corporate bond yields



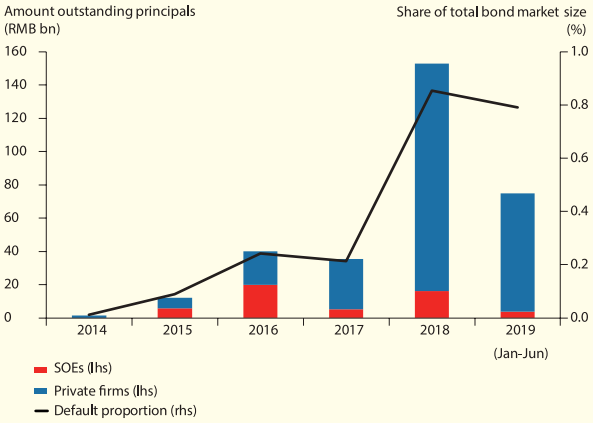
Sources: Wind and HKMA staff estimates.

Indeed, the first half of 2019 witnessed bond defaults by 44 corporate issuers, compared with 39 in the second half of 2018 and just 15 in the first half[19]. The relative size of defaulted bonds in the first half of 2019 was somewhat smaller than those in 2018, amounting to slightly lower than 0.8% (annualised) of the total outstanding size of non-financial debt securities (Chart 2.22).

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

Further analyses suggest the recent defaults were concentrated mainly in lower-rated private issuers, especially in the energy and chemical industries.

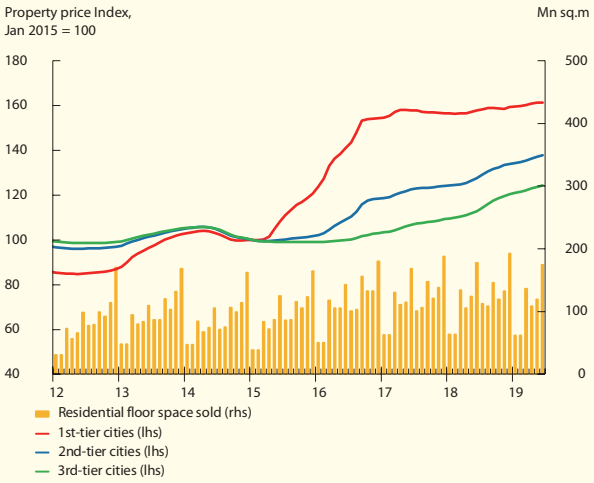
Chart 2.22
Mainland China: Bond default size and proportion



Note: Annualised default proportion is reported for Jan–Jun 2019.
Sources: Wind and HKMA staff estimates.

During the review period, housing prices in the Mainland property market remained largely stable in first-tier cities, likely restrained by tightening measures put in place in recent years, including increased down-payment requirements, and home purchase and sale restrictions (Chart 2.23). In lower-tier cities, property prices edged up further, although in second-tier cities prices increased at a much slower pace compared with 2016 when Mainland China was facing a home-buying frenzy.

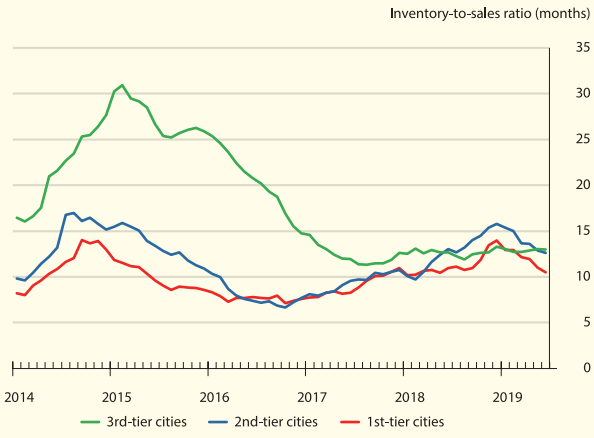
Chart 2.23
Mainland China: Residential prices by tier of cities and floor space sold



Sources: CEIC and HKMA staff estimates.

Housing oversupply, which plagued third-tier cities in previous years, remained largely in check, partly due to robust sales amid bullish market sentiment. By June 2019, the inventory-to-sales ratio in third-tier cities had declined to 13 months, much lower than the peak of 31 months in early 2015 (Chart 2.24).

Chart 2.24
Mainland China: Inventory-to-sales ratios by city tier



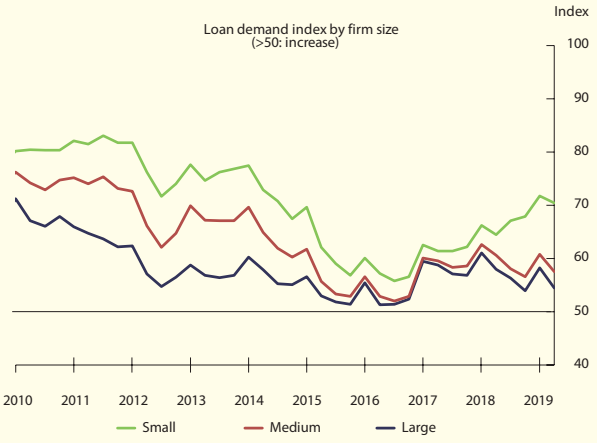
Sources: Wind and HKMA staff estimates.

According to the 2019 government work report, it will strive to address people's housing needs and sustain the steady and healthy development of the property market. To do so, the government pledged to push ahead with the construction of indemnificatory housing, as well as speed up the development of the rental market. On the demand side, tightening measures implemented earlier, such as increased down-payment requirements and imposing home purchase and sales restrictions, are likely to stay in place in the near term especially in major cities, as the Politburo meeting in July concluded that the property market would not be used as a tool to support the economy.

Credit and asset quality

In the first half of 2019, loan demand from Mainland firms exhibited less divergence across major firm sizes, based on the quarterly survey by the People's Bank of China (PBoC). Loan demand from medium and large-sized firms showed a softer rebound, particularly in the first quarter following almost a year-long decline, while small firms' demand for loans continued to be strong (Chart 2.25).

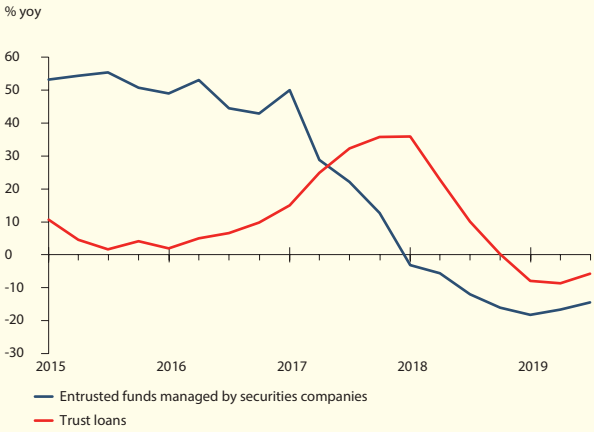
Chart 2.25
Mainland China: Loan demand index by firm size



Source: PBoC.

The strong and growing demand for bank loans by small firms suggests that the credit supply still fell short of demand for small firms in recent quarters. In particular, following the decline of banks' involvement in shadow banking activities and wealth management product (WMP) issuance amid continued financial deleveraging, shadow banking activities, such as trust lending and entrusted funds managed by securities companies contracted further in the first half of 2019 (Chart 2.26). This in turn worsened credit availability from informal channels for small firms.

Chart 2.26
Mainland China: Growth of trust loans and entrusted funds managed by securities companies

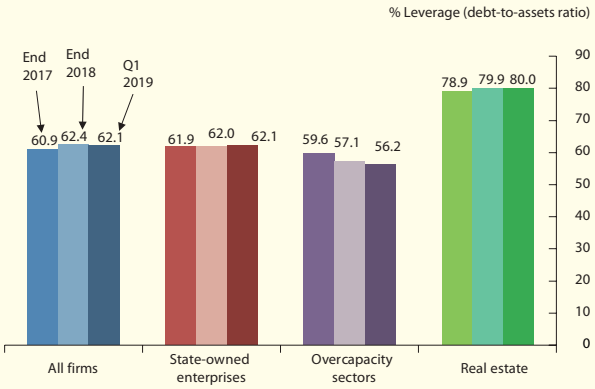


Sources: CEIC, Securities Association of China and HKMA staff estimates.

To fill the gap left by informal credit contraction, the PBoC introduced four targeted cuts to the RRR to facilitate bank lending to small and micro-firms in 2018, and another cut in May 2019 for specific rural commercial banks (see the fiscal and monetary section for details). Based on anecdotal evidence, these measures may have taken effect. According to the China Banking and Insurance Regulatory Commission (CBIRC) press release, the pace of growth in bank loans to the "smallest" firms with credit limit less than RMB10 million accelerated further from 18% year on year at the end of 2018 to 21% at the end of May this year. In particular, the amount of loans made by big state-owned banks to small and micro-enterprises at the end of May was 23.7% higher than with the level at the end of 2018. The average effective bank lending rate to the "smallest" firms also declined to 6.89% at the end of May 2019 from 7.39% at the end of 2018.

While bank lending to the "smallest" firms accelerated further, the overall bank credit growth to Mainland firms remained largely stable at above 13% year on year by the end of June 2019. This suggests a deceleration in the growth of bank credit extended to Mainland firms other than the "smallest" ones. While there is no further public information on the distribution of loans among firms of different sizes, analyses of the listed firm data point to continued deleveraging in overcapacity sectors resulting from declining liabilities (Chart 2.27), likely reflecting tightened loan underwriting standards by banks on inferior corporate borrowers with weaker repayment abilities.

Chart 2.27
Mainland China: Corporate leverage of state-owned enterprises (SOEs), firms in overcapacity sectors and real estate companies

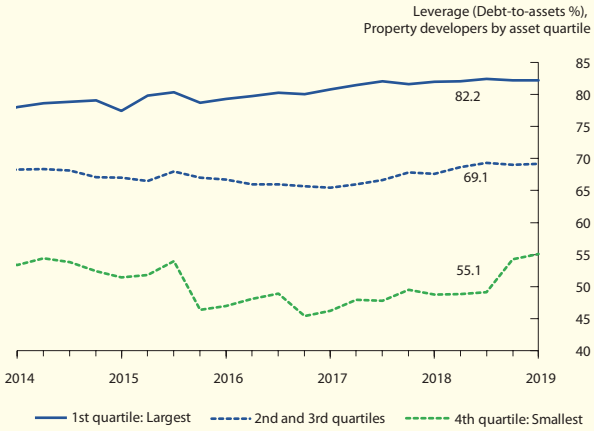


Sources: Bloomberg and HKMA staff estimates.

While overcapacity sectors continued to deleverage, the overall leverage of listed firms remained largely stable. This seems to reflect the ongoing structural deleveraging moves, which are targeted at maintaining the overall leverage of the economy while deleveraging the less efficient borrowers such as zombie firms and reallocating financial resources to more efficient market entities.

In the first half of 2019, the leverage ratio of property developers remained stable (Chart 2.27). Further analyses suggest that leveraging was mainly concentrated in large and medium-sized developers whose financial positions are usually better. For small developers, although the level of their leverage remained relatively low, it continued to pick up in the first quarter of 2019 amid buoyant property market conditions in lower-tiers cities, where these small developers are usually concentrated. Given the relatively weaker financial positions of small developers, the rapid increase in leverage warrants close monitoring (Chart 2.28).

Chart 2.28
Mainland China: Corporate leverage of real estate developers by company size

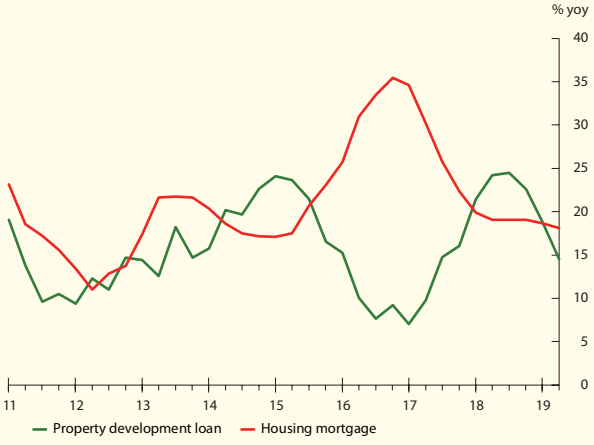


Sources: Bloomberg and HKMA staff estimates.

Despite the increased leverage of small developers, year-on-year growth in overall property development loans further decelerated to 14.5% in June 2019 after reaching an historical high of 24.5% in September 2018, mainly reflecting a high base effect. Meanwhile, year-on-year growth in mortgages remained largely stable at around 18% in June 2019 (Chart

2.29). The share of property development loans and mortgages together in total bank loans, which measures banks' direct exposure to the property market, remained largely stable around 28% in the second quarter of 2019.

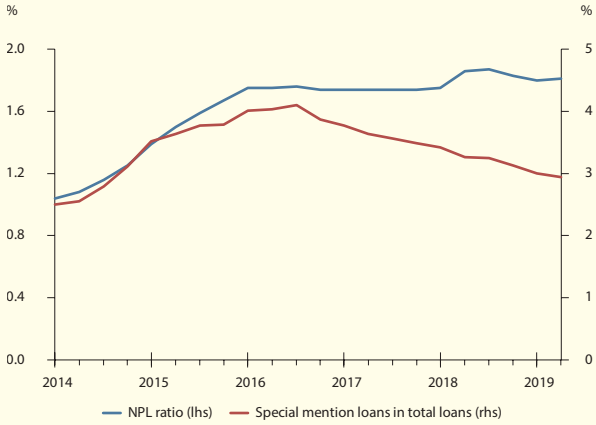
Chart 2.29
Mainland China: Growth in mortgage and property development loans



Sources: CEIC and HKMA staff estimates.

The asset quality of banks seemed to have improved slightly in the first half of 2019. The share of special mention loans in total bank loans continued to decline[20], and the non-performing loan (NPL) ratio of Mainland banks dropped slightly from 1.83% at the end of 2018 to 1.81% by the end of the second quarter in 2019 (Chart 2.30).

Chart 2.30
Mainland China: NPL ratio and special mention loan ratio



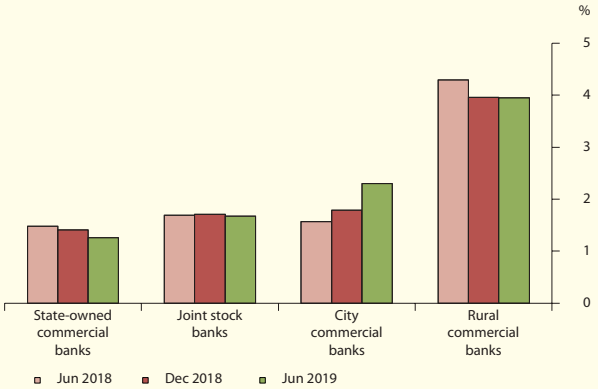
Source: CEIC.

A further examination suggests that the recent drop in the NPL ratio was mainly from state-owned banks (Chart 2.31). While this was partly due to the acceleration in loan write-offs, tight loan underwriting standards might have also played a role. In contrast, NPL ratios increased for smaller banks, more specifically city commercial banks, likely in part reflecting increased exposure of smaller banks to small corporate borrowers amid recent rounds of targeted easing. As small corporate borrowers are usually riskier, the authorities also showed greater tolerance of higher NPL ratios for those small and micro loans[21], as part of a broader effort to support financial inclusion.

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

[21] In a notice issued in March, Mainland banking regulator CBIRC loosened up the non-performing threshold for small and micro loans to 3% above the NPL for all loans, under the precondition that small and micro-loan risk is kept under overall control.

Chart 2.31
Mainland China: NPL ratio by bank types



Source: CEIC.

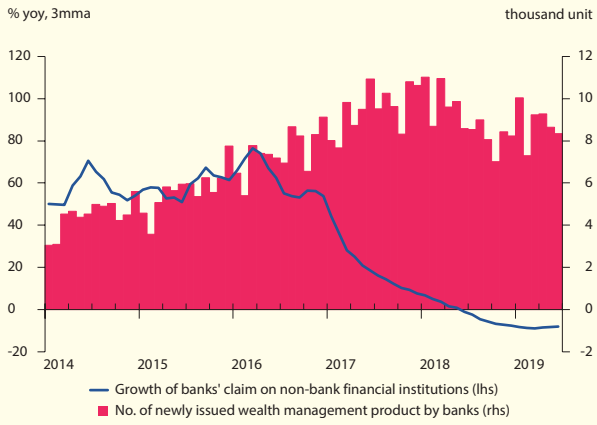
A tightened definition of NPLs by some local authorities may have also contributed to the increase in the NPL ratios of smaller banks. In particular, it is reported that some local banking regulators required smaller banks to include loans overdue by over 60 days into NPLs, which is stricter than the existing requirement for smaller banks to recognise all lending more than 90 days overdue as NPLs by the end of 2019.

During the review period, a city commercial bank, Baoshang Bank was taken over in May by the authorities after it failed to honour its obligations. Interbank funding conditions tightened following the incident with the Negotiable Certificate of Deposit rates picking up notably before the PBoC restored market confidence by injecting liquidity into the banking system. At the end of July, another troubled city commercial bank, Bank of Jinzhou, announced the introduction of three strategic investors, all of which are state-owned financial institutions, in a restructuring attempt. These two cases have raised regulators' and investors' awareness of the troubles faced by smaller banks, particularly ones without adequate financial disclosure.

In spite of these cases, overall risk in the Mainland banking sector appears moderate. For now, the NPL ratio of Mainland banks especially the systemically important ones remains low and continues to decrease. In addition, relatively high loan loss provisions can also help protect banks against future losses. At the end of the second quarter of 2019, the provision coverage ratio of banks increased to 191% from 186% at the end of 2018.

During the review period, Mainland banking regulator continued to limit banks' involvement in shadow banking activities to contain systemic risks. As an outcome, shadow banking continued to contract in the first half of 2019. In particular, banks' claims on non-bank financial institutions declined for the 13th consecutive month, with the share of claims in the total bank assets retreating to 9.1% in June 2019 (Chart 2.32). With the tightening measures on shadow banking activities in place[22], WMPs issued by banks, which are a major funding source for shadow banking activities, also declined in the first half of 2019.

Chart 2.32
Mainland China: Growth of bank's claim on non-bank financial institutions and outstanding WMPs



Sources: CEIC, Wind and HKMA staff estimates.

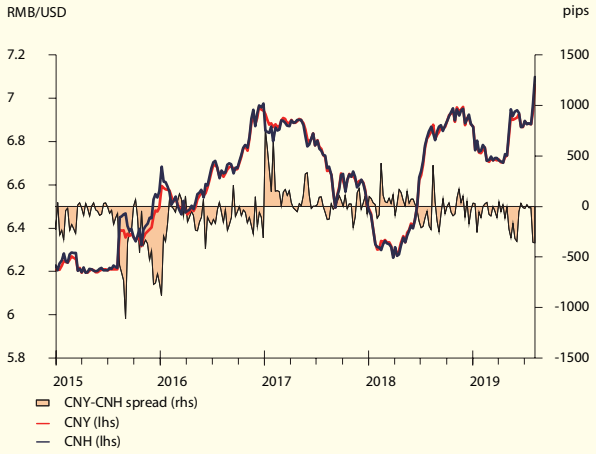
Exchange rate and cross-border capital flows

After strengthening in January and February 2019, the onshore renminbi (CNY) exchange rate weakened by 2.3% against the US dollar in the following four months amid the back-and-forth

[22] For instance, in several newly introduced measures in the second half of 2018, principal-guaranteed WMPs need to be brought back on balance sheet by banks, and the investment of WMPs in structured asset management plans is prohibited.

in trade negotiations between Mainland China and the US. The depreciation was particularly notable in May 2019 as trade tensions intensified, but renewed hopes for the trade talks supported the renminbi towards the end of June after the two nations announced a return to the negotiating table (Chart 2.33).

Chart 2.33
Mainland China: Onshore and offshore renminbi exchange rates against the US dollar



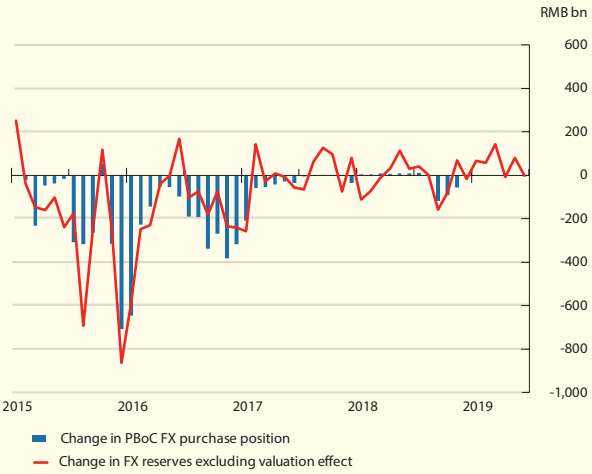
Sources: Bloomberg and HKMA staff estimates.

On 5 August, the renminbi exchange rate depreciated by 1.59% to close at 7.04 amid new tariff threats from the US against US$300 billion worth of Mainland's goods. The US also labelled China a currency manipulator. The PBoC denied the accusation and said the recent renminbi depreciation was driven by market forces. According to an official press release, Mainland China will not engage in a competitive devaluation of its currency and the PBoC has kept, and will keep, the renminbi exchange rate basically stable at a reasonable and balanced level.

During the review period, the offshore renminbi (CNH) was traded weaker than its counterpart in the onshore market for most of the time, with the CNY-CNH spread widening in the second quarter (for more details on the developments of the CNH, please refer to Chapter 4.2). The Bloomberg consensus forecast for the renminbi exchange rate against the US dollar at the end of 2019 was revised weaker to 7.08 on 2 September from 6.70 at the end of February.

While the renminbi depreciated for the most part of the review period, capital outflow pressures seemed to remain subdued. The Mainland headline foreign reserves remained largely stable and stood at US$3,104 billion at the end of July 2019. Excluding valuation effects, the foreign reserves increased by US$49 billion from end-January to end-July 2019. In comparison, the PBoC foreign exchange (FX) purchase position, another commonly used indictor for cross-border capital flows, remained stable during the same period (Chart 2.34).

Chart 2.34
Mainland China: Changes in PBoC FX purchase position and FX reserves

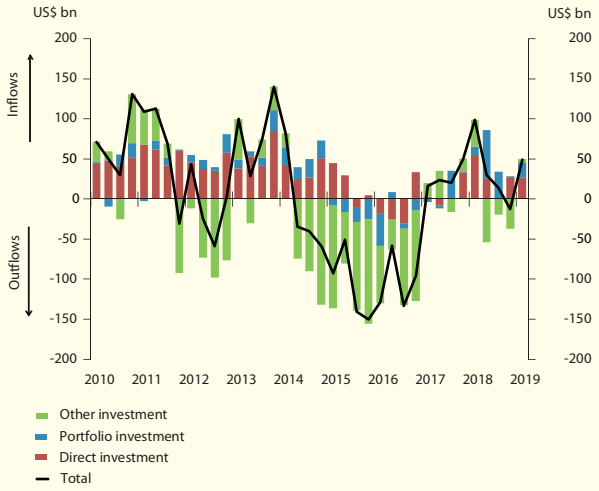


Sources: CEIC, SAFE and HKMA staff estimates.

The latest statistics on the balance of payments also pointed to reduced outflow pressures, with cross-border capital flows turning to a net inflow in the first quarter of 2019 after net outflows in the fourth quarter of 2018 (Chart 2.35). In particular, cross-border flows through other investments have significantly improved, likely driven by a seasonal net inflow of trade credit in the first quarter due to greater repayments of trade credit by non-residents. Direct investment recorded net inflows during the period due to robust inward direct investment by non-residents. Meanwhile, capital inflows through

portfolio investment remained strong, mainly reflecting a reduced size of overseas equity securities held by residents and an increased holding of Mainland equity securities by international investors.

Chart 2.35
Mainland China: Net cross-border capital flows by type of flows



Sources: CEIC, SAFE and HKMA staff estimates.

Over the short-term, the outlook for cross-border capital flows depends on a conjuncture of factors, such as market sentiment, as well as the economic performance of advanced economies and emerging market economies (EMEs). On one hand, investor sentiment will continue to be affected by uncertainty over the outcome of US-China trade talks. On the other hand, a continuation of accommodative monetary policy from major central banks may result in another round of reach-for-yield by investors, who may rebalance their portfolios by allocating more of their resources to Mainland's and other EMEs' bond and equity markets. In the long run, more capital inflows can be expected with the further opening up of the Mainland financial market. For example, the MSCI announced that it would raise the weight of China A-shares in the MSCI indexes in late-February, which might attract around US$80 billion inflows in total from overseas investors, according to some market estimates.

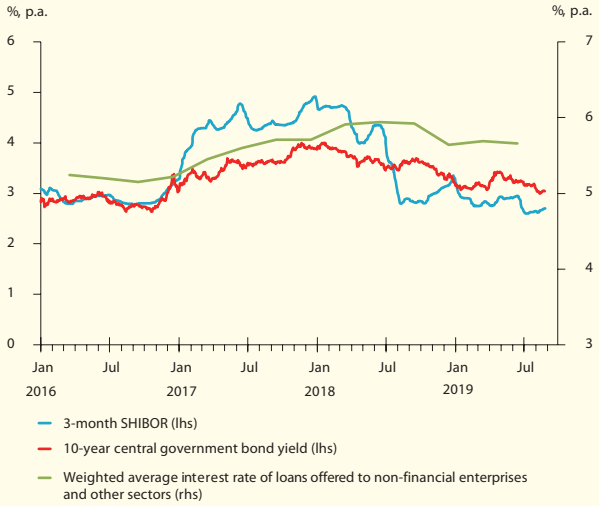
Fiscal and monetary policy

On the monetary policy front, while adopting a prudent monetary policy stance, the PBoC continued to rely more on targeted measures to support the economy. In particular, the PBoC implemented a series of measures to support the liquidity of smaller banks, aiming to encourage these banks to lend more to private and small firms. For example, in May the PBoC announced targeted RRR cuts to release liquidity of around RMB280 billion for specific rural commercial banks that focus on small business lending. The central bank also increased the rediscount quotas and the standing lending facility (SLF) in June by RMB200 billion and RMB100 billion respectively, to enhance liquidity support for small and medium-sized banks. In addition, the PBoC undertook a targeted medium-term lending facility (TMLF) amounting to RMB267 billion and RMB298 billion in April and July respectively, to encourage bank lending towards private and small firms.

On the back of the central bank easing measures, liquidity conditions in the banking system remained loose, despite the liquidity concerns over smaller banks following several incidents, such as the Baoshang Bank takeover. In particular, the 3-month Shanghai Interbank Offered Rate (SHIBOR) fell from around 2.9% in

late-April to around 2.60% in mid-July to mid-August, the lowest since late-September 2010, before rebounding to 2.70% at the end of August (Chart 2.36). In tandem with the lowered interbank funding costs, the 10-year central government bond yield decreased to around 3.0% at the end of August from around 3.4% in late-April.

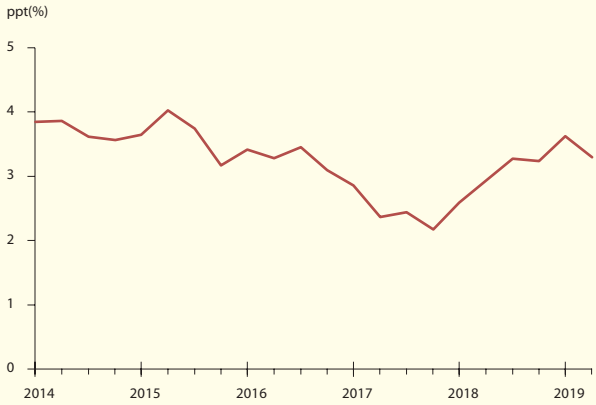
Chart 2.36
Mainland China: Major market interest rates



Sources: CEIC, PBoC and HKMA staff estimates.

That said, the weighted average bank lending rate to the non-financial sector edged slightly higher from 5.64% at the end of 2018 to 5.66% at the end of June. Increases in the average interest rate of bank loans in part reflected greater exposure of banks to smaller firms, which are, in general, riskier. On the other hand, risk premium on corporate loans also seemed to have increased somewhat in part due to potential deterioration in the repayment ability of corporate borrowers amid the recent economic slowdown and uncertainties in the US-China trade tensions (Chart 2.37).

Chart 2.37
Mainland China: Spread of the weighted average bank lending rate to the non-financial sector (general loans only) over 1-year central government yield



Note: General loans refer to bank loans excluding mortgages and bill financing, which are a proxy for corporate loans.

Sources: CEIC, PBoC and HKMA staff estimates.

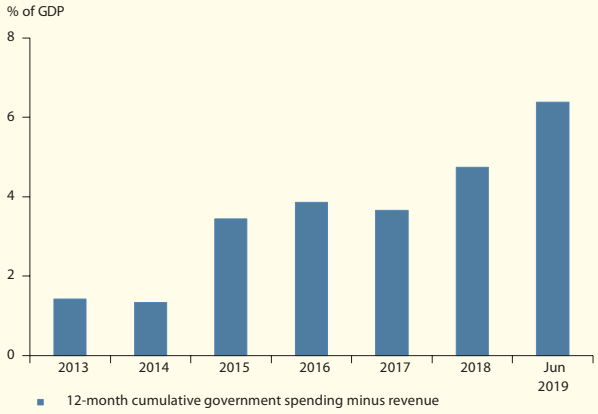
In an effort to push ahead with interest rate liberalisation and further easing the financing cost of the real sector, the central bank announced to refine the formation mechanism of the loan prime rate (LPR) on 17 August, which would link the LPR to the interest rate of medium-term lending facility (MLF) extended by the central bank, and require banks to adopt the LPR, rather than the benchmark lending rate, as the reference rate when making loans. The new LPR at 1-year tenor was fixed at 4.25% in August, which was six basis points lower than that before the refinement, and 10 basis points lower than the 1-year benchmark lending rate.

On fiscal policy, the government continued to adopt a proactive stance. Reflecting government efforts to reduce the business and household tax burden, the growth of the overall government tax revenue eased from 14.4% year on year in the first half of 2018 to 0.9% in the first half of this year. An analysis on the changes in the tax burden of Mainland listed non-financial firms suggests that recent tax cuts seem to have taken effect especially for smaller private firms (see more details in Box 2).

On the expenditure side, the government increased public spending, particularly on infrastructure projects. As a result, the growth in overall public expenditure accelerated to 10.7% year on year in the first half of this year from 7.8% in the same period last year.

Reflecting these expansionary measures, the 12-month cumulative gap between expenditure and revenue in the government's general public budget and government-managed funds widened further to 6.4% of GDP in June, after rising to 4.7% in 2018 (Chart 2.38).

Chart 2.38
Mainland China: Difference between public spending and public revenue



Sources: Wind, Ministry of Finance and HKMA staff estimates.

To finance the funding shortfall, local governments accelerated the issuance of special bonds. In particular, the newly issued special bonds reached RMB1.1 trillion in the first half of 2019 compared with RMB0.4 trillion in the same period last year. In addition, the policy-makers also announced in June that local governments were allowed to use proceeds from the special bonds as equity capital for major infrastructure projects.

Amid accelerated bond issuance, the outstanding local government debt increased by 22% year on year to RMB21 trillion at the end of June, compared with the growth rate of 12% in 2018. However, the overall risk of local government debt remains manageable as the local government debt-to-GDP ratio stays at a relatively low level, albeit edging higher to 22.0% in the first half of 2019 from 20.5% at the end of 2018.

However, some local governments may face financing pressures, given that land sales revenue, a major source of local government revenue, contracted in the first half of 2019 by 0.8% compared with an expansion of 25% in 2018. Indeed, our analysis suggests that some local governments, such as Jiangsu, Sichuan, Guangxi and Jiangxi, could be more sensitive to weaker land sales, as the local public revenue tends to rely more on land sales, as suggested by the data of 2018 (Chart 2.39).[23]

Chart 2.39
Mainland China: Land sales revenue of selected local governments in 2018

Note: Figures for Henan, Shandong and Hainan are based on 2017 data.
Sources: Wind and HKMA staff estimates.

[23] Total revenue includes revenue in the government's general public budget and government-managed funds.

Box 2
Are recent tax cuts effective? Evidence from Mainland listed firms

Introduction

In order to support business expansion amid the recent economic slowdown, Mainland has introduced several rounds of cuts in business taxes and fees since 2017. Many of these tax cuts are targeted specifically at lowering the tax burden on small private firms, the key drivers of economic growth.

Despite the expansionary policy put in place, there seems no consensus on the efficacy of the tax cuts. For example, despite the cuts, the government's tax revenue continued to increase at a fast pace, inviting the question of whether businesses had, indeed, paid lower taxes. Against this backdrop, the prevailing view is that private firms, especially small private firms, still face a greater tax burden compared with other firms.

To add to our understanding of the effectiveness of the recent tax cuts, this analysis studies the dynamics in the tax burden of Mainland firms with different ownership types in recent years. By computing the actual corporate tax rates faced by Mainland-listed firms, this study: 1) provides estimates of the tax burden of Mainland state-owned enterprises (SOEs) and privately-owned enterprises (POEs); and 2) assesses the impact of recent tax cuts on the tax burden of small private firms.

The overall tax burden of Mainland firms

In this section, we estimate the overall corporate tax rate facing Mainland firms. In particular, using Mainland listed non-financial firm data, we calculate the overall corporate tax rate facing a company as follows:

$$(Net\ tax\ payment - \Delta deferred\ tax\ asset + \Delta deferred\ tax\ liability)/Revenue \times 100,$$

where net tax payment comes from the Cash Flow Statement[24]. Taxes paid in the current period, but will benefit future periods are deducted, while tax liabilities incurred in the current period, but will be paid in the future are added. This adjustment provides a clear measurement of the tax incurred in the current period.

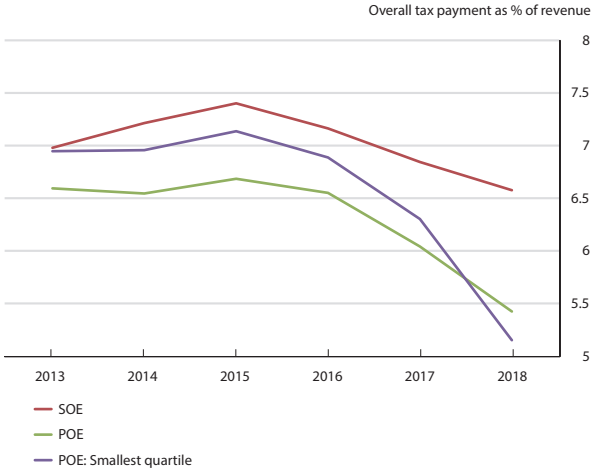
Note, this calculation does not include non-wage labour costs to firms, namely social security contributions such as contributions to employees' pension and insurance funds, and other fees that firms have to pay but are not classified as "taxes". These items are not separately reported in Cash Flow Statements, making it hard to quantify their impact. In addition, it is debatable whether such contributions should be considered part of the *de facto* corporate tax, or alternatively, part of labour costs. However, we acknowledge that for Mainland firms, social security contributions are a non-trivial burden which has been discussed in more detail in other studies (e.g. The World Bank and PricewaterhouseCoopers (2018)).

To avoid potential distortions to the tax rate estimates, we exclude loss-making firms in our sample as they do not have taxable income and, therefore, are only subject to turnover taxes on their business transactions. In this regard, including these firms in the sample may also result in a biased estimation of the actual tax burden of Mainland firms.

[24] The overall tax rate is calculated likewise as net tax payment over revenue in Fan and Deng (2017), and Cai and Li (2017). Using revenue as the denominator is common among Mainland's scholars and practitioners due to the importance of turnover tax in the Mainland, which is primarily related to sales and revenue. In contrast, tax burden is frequently evaluated using effective tax rates, defined as the ratio of income tax to pre-tax income, among international studies such as Stickney, Clyde, and McGee (1982), and Rego (2003). This is probably because income tax is the most important tax type for US firms which were the main target of such studies in the early days.

Chart B2.1 presents the estimated average overall tax rates faced by Mainland SOEs and POEs using profitable non-financial listed firm data. There are two key observations. First, SOEs have persistently faced higher overall tax rates than POEs in recent years. Similar findings are also documented by some market analysts[25], who attribute this pattern to the incentives for SOEs. In particular, they argue that SOEs, compared to POEs, are less concerned with tax efficiency and have weaker incentives to engage in tax-induced earnings management (e.g. Lin et al (2012)). This argument seems plausible as Mainland SOEs are not necessarily profit driven (Bai et al (2006)), but rather bear more social responsibilities (Fan and Hope (2013)). Within POEs, the overall tax burden of the smallest POEs in the sample seems to be higher compared with the group average before 2018.

Chart B2.1 Estimated overall tax rates of Mainland listed firms: profitable firms only



Note: The graph shows the average rate for each ownership type. Individual firms with rates greater than 100% or smaller than -100% are dropped from the sample. The smallest private firms whose total assets are in the 25th percentile of all private firms are depicted separately.

Sources: Wind and HKMA staff calculations.

The second key observation from Chart B2.1 is that the overall tax rates of all types of firms have decreased in recent years, especially for the smallest private firms in our sample. The estimated average overall tax rate facing SOEs declined to around 6.6% of revenue in 2018 from 7.4% in 2015. In comparison, the estimated overall tax rate facing POEs decreased to 5.4% of revenue from 6.7% during the same period, with the tax rate facing the smallest quartile declining the most to 5.1% from 7.1%. Although the smallest listed firms in our sample may not be representative of truly small firms in the economy, our findings still seem to suggest that the recent tax cuts designed to reduce the tax burden of small private enterprises have taken effect.

More evidence from a breakdown of corporate taxes

The estimated overall tax rate in Chart B2.1 provides a useful summary measure of the tax burden faced by Mainland firms, but has an important drawback: when calculating the overall tax rate, the taxes paid by firms are all assessed against one reference — revenue in our case — despite the fact that these taxes are different in the way they are levied. The value-added tax (VAT), for instance, is levied on company turnover, while the income tax is levied on gross profit. To estimate the corporate tax burden more precisely, we separately compute effective corporate tax rates facing Mainland firms in the two broad tax categories: turnover tax and income tax.

In particular, the turnover tax rate of an individual firm is calculated as:

$$(\textit{Net tax payment} - \Delta\textit{deferred tax asset} + \Delta\textit{deferred tax liability} - \textit{income tax})/\textit{revenue} \times 100,$$

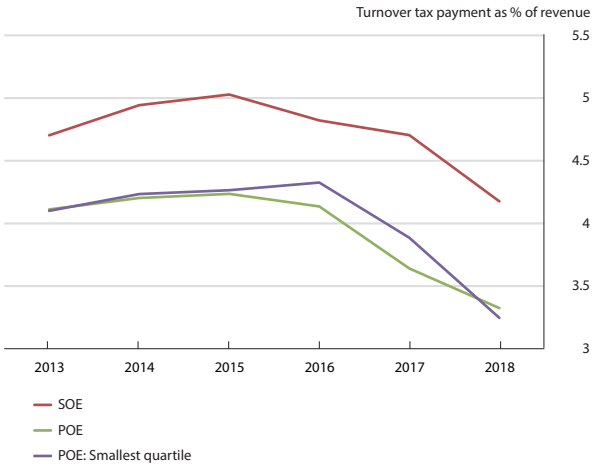
which mainly reflects the VAT, business tax, and consumption tax that a firm pays. With the VAT reform in the Mainland, most firms had shifted from business tax payers to VAT payers by 2016, so now the VAT accounts for most of the turnover tax. In our study, the turnover tax also includes some taxes that are designated for certain industries. For example, land appreciation tax for the real estate development industry, and resource tax for the oil industry.

[25] For instance, "Tax Burden of Mainland Listed Companies in 2018", Research Institute of Listed Companies, 20 May, 2019.

These taxes are considered part of the turnover tax because they are closely related to companies' business operations rather than profitability.

Chart B2.2 shows the estimated turnover tax rates facing Mainland listed firms. While on average SOEs have a higher turnover tax rate than POEs, all firm types have seen a decline in the turnover tax burden in recent years following the tax cuts. Among the POEs, firm size does not seem to matter as the turnover tax rate faced by the smallest ones closely track the average POE rate.

Chart B2.2 Estimated turnover tax rates of Mainland listed firms: profitable firms only



Note: The graph shows the average rate for each ownership type. Individual firms with rates greater than 100% or smaller than -100% are dropped from the sample. The smallest private firms whose total assets are in the 25th percentile of all private firms are depicted separately.

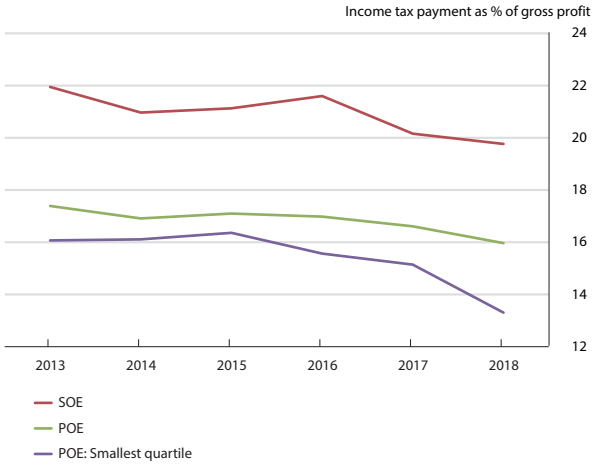
Sources: Wind and HKMA staff calculations.

Chart B2.3 presents the estimated income tax rates facing Mainland firms. In particular, the income tax rate of an individual firm is calculated as:

(*Income tax* /*Gross profit*) × 100,

where both income tax and gross profit come directly from the Income Statement. Chart B2.3 shows that on average POEs have borne a lower income tax rate than SOEs, and income tax rates facing both SOEs and POEs have declined gradually in past years. Within POEs, the smallest ones in our sample have faced a lower and declining income tax rate compared with the group average in 2017 and 2018 following the tax cuts.

Chart B2.3 Estimated income tax rates of Mainland listed firms: profitable firms only



Note: The graph shows the average rate for each ownership type. Individual firms with rates greater than 100% or smaller than -100% are dropped from the sample. The smallest private firms whose total assets are in the 25th percentile of all private firms are depicted separately.

Sources: Wind and HKMA staff calculations.

We test statistically the differences in tax burden faced by different firm types using a *t*-test in Table B2.1. Comparing SOEs with all POEs and with the smallest POEs, the test shows that the turnover tax rate and income tax rate of the average SOE is higher than that of the average POE at 5% significance level, both before and after 2017, when the tax cuts began. Comparing POEs with asset size above and below the 25th percentile of all POEs, the difference is insignificant for turnover tax, while the mean income tax rate of larger POEs' is significantly higher.

Table B2.1 A *t*-test for the significance of tax rate difference across different groups before and after the recent tax cuts starting from 2017

Comparison group	Difference in turnover tax rate		Difference in income tax rate	
	Before 2017	After 2017	Before 2017	After 2017
SOE over POE (full sample)	0.73***	0.95***	4.33***	3.63***
	(0.11)	(0.15)	(0.25)	(0.37)
SOE over POE (smallest quartile)	0.67***	0.96***	5.39***	5.68***
	(0.16)	(0.23)	(0.38)	(0.53)
POE (upper three quartiles) over POE (smallest quartile)	-0.07	0.01	1.41***	2.70***
	(0.13)	(0.18)	(0.28)	(0.44)

* p<0.1, ** p<0.05, *** p<0.01

Note: The table shows the mean difference between the two groups, i.e., mean(SOE)-mean(POE), and whether the difference is statistically significant. H0 of the t-test: The two groups have the same mean. The underlying assumptions are: (1) the tax rate is approximately normally distributed within each group; (2) the two groups are uncorrelated. Standard errors are shown in parentheses.

Comparing the difference in the tax rates of different groups of firms before and after 2017 sheds some light on the effectiveness of recent tax cuts. Table B2.1 shows that, for turnover tax rates, the gaps between SOEs and POEs as well as that between SOEs and the smallest POEs widened after 2017. This suggests that in terms of turnover tax, recent tax cuts seem to have benefited POEs more. Comparing the difference in income tax rates before and after 2017, we see a narrowing gap between SOEs and POEs, but an increase in the gap in the other two groups, suggesting that in terms of income tax, recent tax cuts appear to be effective particularly for the smallest POEs in our sample.

Conclusion

Using Mainland listed non-financial firm data, this analysis finds that SOEs have faced a greater tax burden than POEs, and recent tax cuts seem to have taken effect, especially for the smallest private firms in the sample. Also, detailed tax rate breakdowns (e.g., turnover tax rate and income tax rate) lend little support to the argument that smaller private firms in general have faced a greater tax burden than the average Mainland POEs.

There are some important caveats to note regarding this study. First, as mentioned in the second section, in the study we focus on listed firms only, thus the smallest firms in our sample may not be representative of truly small firms in the economy. Therefore, the impact of recent tightened tax enforcement on the tax burden of these small firms may not be the same as what we find with the listed firm sample. Second, unlike some other studies (The World Bank and PricewaterhouseCoopers (2018)), when calculating corporate taxes facing Mainland firms, we do not include social security contributions. While it is debatable whether such contributions should be considered part of the *de facto* corporate tax or labour cost, they are indeed a non-trivial burden for Mainland firms. In fact, Mainland authorities have already started to lower the required social security contributions levied on business owners this year.

References

Bai, Chong-En, Jiangyong Lu, Zhigang Tao, 2006, "The Multitask Theory of State Enterprise Reform: Empirical Evidence from China", *American Economic Review, papers and proceedings*, 96 (2): 353–357.

Cai, Chang, Beilei Li, 2017, "A comparison of Chinese companies' real tax burden by ownership type", *South China Journal of Economics* 36 (11): 57–68.

Fan, Gang, Nicholas C. Hope, 2013, "The Role of State-Owned Enterprises in the Chinese Economy", in "*US-China 2022: Economic Relations in the Next 10 Years*", The China-United States Exchange Foundation.

Fan, Qiong and Nimei Deng, 2017, "Tax burden analysis of Shenzhen Stock Exchange listed firms", *Securities Market Herald* 11: 33–41.

Lin, Bingxuan, Rui Lu, Ting Zhang, 2012, "Tax-Induced Earnings Management in Emerging Markets: Evidence from China", *The Journal of the American Taxation Association*: Fall 2012, Vol. 34, No. 2, pp. 19–44.

Rego, Sonja Olhoft, 2003, "Tax-avoidance activities of US multinational corporations", *Contemporary Accounting Research* 20(4): 805–833.

Stickney, Clyde P., and Victor E. McGee, 1982, "Effective corporate tax rates the effect of size, capital intensity, leverage, and other factors", *Journal of Accounting and Public Policy* 1(2): 125–152.

The World Bank and PricewaterhouseCoopers, 2018, "Paying Tax 2019".