HONG KONG MONETARY AUTHORITY
香 港 金 融 管 理 局

HALF-YEARLY MONETARY AND FINANCIAL STABILITY REPORT

September 2019

This Report reviews statistical information between the end of February 2019 and the end of August 2019.

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

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. The Hong Kong economy also recorded its slowest year-on-year growth in ten years over the same period.

Despite some fluctuations, particularly amid seasonal funding demand and sizable initial public offerings in May and June, the Hong Kong dollar market traded in a smooth and orderly manner. Both Hong Kong dollar and total broad money supply recorded steady growth, while bank credit resumed expansion in the first half of 2019 following a contraction in the second half of 2018. The residential property market has softened somewhat since June after a strong rebound in the first five months of the year.

Looking ahead, the Hong Kong banking sector will face multiple headwinds, including the worsening of the US-China trade tensions, increased downside risks to the global economy, rising uncertainty over the timing and magnitude of monetary accommodation by some major central banks, and increased geopolitical risks. In particular, in view of the rising corporate leverage and household debt burden, banks should stay alert to the credit risk of their corporate and household exposures to any further deterioration in the external environment.

The external environment

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. In July, in recognition of the weaker global growth momentum, the International Monetary Fund revised downward its growth projections for the global economy for 2019 and 2020.

Adding to the headwinds faced by the global economy, trade tensions and the continual technology rivalry between the US and Mainland China intensified since May, triggering episodic financial market sell-offs. Nonetheless, global equity markets generally remained supported by market expectations of a more accommodative global monetary policy, although slower economic growth and downbeat earnings outlook call into question the levels of valuation.

Looking ahead, the global economic outlook will hinge on various factors, especially how the US-China trade tensions evolve, as well as the future monetary policy direction of major central banks. In the US, while the economy continued to perform well in the first half of 2019, the US Federal Reserve (Fed) delivered a “risk management” rate cut in July in the face of growing external headwinds, although Chairman Powell’s speech at the Jackson Hole Symposium in August did not provide new hints on the future monetary policy direction. In the euro area, against the background of subdued growth and inflation outlook, the European Central Bank at its September monetary policy committee meeting responded with more monetary easing, as well as indicating its intention to keep policy rates at their current or lower levels until the inflation outlook converges robustly to target. It remains to be seen whether the increased monetary accommodation by major central banks will be effective in rekindling faltering global growth. Importantly, inflation developments will continue to heavily influence the direction of monetary policy at major central banks. At the same time, a number of geopolitical developments, including Brexit, the US-Iran tensions and uncertainties surrounding the denuclearisation progress on the Korean Peninsula, will also cloud the global economic outlook.

In East Asia[1], export performance softened against the backdrop of a synchronised slowdown in global growth and demand for consumer electronics. Uncertain prospects on trade and less confident business conditions have clouded the investment environment and hindered the region's gross domestic product (GDP) growth. As inflation has also remained subdued in many East Asian economies, central banks in the region have signalled a more accommodative stance to fuel growth momentum in the near term. Such monetary accommodation will also be needed to temper the effects of trade war-inflicted strains in manufacturing activities and, more broadly, the global value chain. If the economic slowdown deepens and uncertainty remains elevated, financial markets in the region may continue to face bouts of volatility. Indeed, Box 1 shows that investment flows to emerging market economy local currency bond funds are quite sensitive to changes in exchange rate volatility, particularly during market distress. In addition, indebted sectors in the region could face challenges to their debt servicing capabilities, especially given the substantial refinancing needs of the region's corporate sector in the next several years.

In Mainland China, growth momentum showed signs of stabilisation in the first quarter following government economic supportive measures and the temporary trade truce between the US and Mainland China, but then softened again in the second quarter as trade tensions resurfaced after May. As the trade situation deteriorates, the economic outlook for the Mainland remains highly uncertain as it has to grapple with pressures on both the external sector and on domestic demand. Growth prospects hinge also on how policy-makers would weigh the efforts to support the economy in the near-term against the containment of systemic risks that may be harmful over the longer term. The latest consensus forecasts for Mainland economic growth eased to 6.2% for 2019 as a whole, notably down from the 6.6% actual growth in 2018.

In order to support business expansion amid recent economic slowdown, the Mainland government has rolled out several rounds of cuts in business taxes and fees. Many of these tax cuts aim to lower the tax burden for small private firms, which are the key driver of growth and employment in the economy. By focusing on Mainland-listed non-financial firms, Box 2 finds that the recent tax cuts seem, indeed, to have reduced the tax burden of small private firms. In addition, detailed tax rate breakdowns (e.g., the turnover tax rate and income tax rate) lend little support to the argument that smaller private firms have faced a greater tax burden than the average Mainland privately-owned enterprises.

The domestic economy

The Hong Kong economy grew at a sluggish pace in the first half of 2019. The year-on-year growth rate of real GDP declined to 0.6% in the first quarter and hit a ten-year low of 0.5% in the second quarter. On a quarter-on-quarter basis, private domestic consumption growth weakened and aggregate investment spending contracted. Externally, Hong Kong's trade performance also

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

worsened significantly amid lingering US-China trade tensions and weaker global economic growth. As imports of goods declined at a faster rate than exports, net exports still contributed positively to GDP growth in the first quarter, but its contribution turned negative in the second quarter. Box 3 examines in more detail the recent performance of Hong Kong's merchandise exports and their relation to Mainland's export patterns so far this year.

The economic performance for the rest of 2019 is expected to remain subdued. Externally, the US-China trade tensions and slowing global economic growth will continue to weigh down Hong Kong's trade performance. Domestically, private consumption will likely be growth-supportive, but its growth rate is expected to be tepid, in part, due to more cautious consumer sentiment. As for fixed capital formation, heightened economic uncertainty and fragile business confidence could dampen capital expenditure, as well as building and construction activities. Taking into account the weaker-than-expected GDP outturn, the Government revised downwards its forecast of real GDP growth for 2019 from 2–3% earlier to 0–1%.

This tepid growth outlook is subject to a number of uncertainties and downside risks that have arisen in recent months. The slowing global economic growth, the ongoing US-China trade dispute, the future direction of monetary policy in the US, the economic performance of Mainland China, the impending Brexit, and the recent social incidents in Hong Kong constitute the core of a myriad of factors that may have an impact on the Hong Kong economy.

The labour market in Hong Kong has so far remained resilient, as the unemployment rate fluctuated little in the first seven months of the year. As at July 2019, the unemployment rate is at the low level of 2.9%. That said, the labour market outlook is overshadowed by weakened economic prospects.

Local inflation edged up to a still-moderate level in the first half of 2019. In particular, there was an uptick in inflation momentum, reflecting price increases in fresh pork amid a disrupted supply situation, while inflationary pressures on other non-food items remained moderate. Looking ahead, while local inflationary pressures are expected to remain moderate due to low global inflation, earlier moderation in fresh-letting residential rentals and sluggish domestic growth momentum, the inflation rate in the near term may depend on the extent of supply disruption and the resultant price of fresh pork. In August, the Government revised upward its projection of the underlying and headline inflation rates for 2019 to 2.7% and 2.6% respectively, from 2.5% earlier.

Monetary conditions and capital flows

In the early part of this year, carry trade activities pushed the Hong Kong dollar exchange rate towards the weak side of the Convertibility Zone and triggered the weak-side Convertibility Undertaking (CU) eight times between 8 and 29 March. Since late May, the Hong Kong dollar exchange rate rebounded significantly, supported in part by funding demand as market participants prepared for sizable initial public offerings (IPOs) and partly by seasonal factors, such as corporate demand for Hong Kong dollars to pay dividends near the half-year end. In July and August, the Hong Kong dollar weakened somewhat against the US dollar as liquidity conditions improved after the half-year end. As a result of the triggering of the weak-side CU in March, the Aggregate Balance declined from HK$76.3 billion at the end of February to HK$54.4 billion at the end of August. Despite this, the Hong Kong dollar continued to trade in a smooth and orderly manner. Meanwhile, Hong Kong dollar broad money (HK$M3) has expanded by a moderate 3.3% so far this year.

After softening in the first two months of 2019, the Hong Kong dollar interbank interest rates experienced renewed upward pressure between March and June, driven by seasonal funding needs and increases in liquidity demand ahead of large anticipated IPOs in the second half. The composite interest rate remained largely stable at around 0.82% in the first five months of 2019, but picked up to 0.95% at the end of June as banks raised their preferential deposit rates amid the rise in funding demand, before edging down to 0.94% at the end of July. The average lending rate for new mortgages remained steady at around 2.4% in most of the first half, but increased slightly heading into July, with major banks raising the level of the prime-based caps for some of their new mortgage lending. While reduction in the Aggregate Balance since April last year may have increased the sensitivity of the Hong Kong dollar interbank rates to changes in supply and demand for the Hong Kong dollar, the interbank market has operated in an orderly fashion so far this year.

Movements in the Hong Kong dollar interest rates will continue to be influenced by the US dollar counterparts. More fluctuations are expected around periods with strong funding demand. In case of short-term liquidity tightness due to large scale capital market activities, banks can make use of the HKMA liquidity facilities.

With the escalation of the US-China trade conflict, the offshore (CNH) and the onshore (CNY) renminbi faced depreciation pressure since early May and in early August, the CNY exchange rate fell past 7 against the US dollar. The spread between CNY and CNH widened occasionally over this period, but remained moderate by historical standards. The total outstanding amount of renminbi customer deposits and certificates of deposit declined slightly from RMB657.7 billion at the end of 2018 to RMB638.8 billion at the end of July. Despite the weakening pressure of the renminbi exchange rate, renminbi customer deposits went up slightly in the first seven months as a whole. The average daily turnover of the renminbi real time gross settlement system remained high at RMB1,121.3 billion in the first seven months. Although the development of the offshore renminbi market will continue to be affected by the external headwinds, particularly the lingering US-China trade conflict, the progress of the Mainland's capital account liberalisation, the increase of renminbi assets allocation by international investors, and enhanced regional economic and financial co-operation under the Belt and Road and Guangdong-Hong Kong-Macao Greater Bay Area initiatives are expected to offer continued support to the offshore renminbi business.

Asset markets

The local stock market has fluctuated widely so far this year, driven to a considerable extent by the ebb and flow in the US-China trade tensions. The global economy has weakened, but major stock markets, especially the US market, appear to have focused more on the increased prospects that leading central banks now stand ready to ease monetary policy. Local equities have benefited from this improved global sentiment. However, the outlook for the market remains highly uncertain. Although Mainland China and the US returned to the negotiation table following the Osaka Summit, the negotiations are likely to be a long drawn-out process, as it is increasingly clear that conflicts on a number of structural issues will take time to resolve. This has put increasing pressure on the renminbi. Box 4 studies whether such pressure has affected the equity flows through Stock Connect. In addition to trade, there are also numerous wild cards in the background, for example, Brexit, and the geopolitical tensions in the UK/US row with Iran.

The review period has also seen the Hong Kong dollar bond market continue to ride on the back of US Treasury securities, with both sovereign (EFBNs) and non-sovereign yields declining significantly. The strong performance is attributable mainly to the build-up of expectations that the Fed will ease monetary policy. There have been consecutive months of net bond fund inflows to Hong Kong from January, which is also consistent with the general picture of rising non-resident portfolio inflows to emerging markets globally. From the perspective of market development, total debt outstanding increased mildly in the first six months of this year. Offshore renminbi debt recently saw a rebound in primary market activities after several quarters of tepid performance, but it was mainly due to a sharp increase in issuance by both overseas issuers and Mainland authorities. The appetite of the private sector remained weak, as uncertainties grew over the outlook for the Mainland economy.

After a strong rebound in the first five months of the year, the residential property market has softened somewhat since June. Between January and May, housing transactions surged along with improved market sentiment, and flat prices fully recovered from the losses recorded in the second half of 2018. Since June, however, the transaction volume and housing prices have levelled off. Housing affordability remained stretched, with the price-to-income ratio and the income gearing ratio staying high by historical standards.

The outlook for the residential property market has become more uncertain. While the currently low unemployment rate could provide some support for property demand, the weakening economy could lead to deterioration in labour market conditions. Other risk factors including the US-China trade conflict and slowing global economic growth may weigh on housing market sentiment in the near term. In addition, while the Fed cut its policy rate in July, the trajectory for domestic mortgage interest rates is still uncertain and will depend on other factors such as local interbank liquidity conditions. Over the longer term, the outlook for the housing market will hinge on the housing supply-demand gap. The Government projects the private housing completion will remain high in the years ahead, which should help narrow the housing supply-demand gap over time.

Banking sector performance

Despite subdued economic growth, retail banks in Hong Kong still registered a steady level of profit in the first half of 2019, with pre-tax operating profits rising modestly by 0.6% compared with the same period in 2018. During the review period, profits were constrained by a reduction in non-interest income and increases in impairment charges and operating expenses, which almost offset the growth in net interest income. With retail banks' profit growing slower than assets, the return on assets reduced slightly to 1.27% in the first half of 2019 compared with 1.31% in the same period last year.

Banks' capital positions, as measured by Basel III standards, continued to stay strong in the review period. The consolidated capital ratio of locally incorporated authorized institutions (AIs) rose to 20.6% at the end of June 2019. The countercyclical capital buffer rate for Hong Kong has been set to 2.5% to enhance banks' resilience to systemic risk. The liquidity positions of AIs were generally sound, as the average Liquidity Coverage Ratio of category 1 institutions and the average Liquidity Maintenance Ratio of category 2 institutions stayed at high levels of 152.8% and 54.6% respectively in the second quarter of 2019. In addition, the average Net Stable Funding Ratio of category 1 institutions and the average Core Funding Ratio of category 2A institutions both stayed at levels well exceeding their statutory minimum requirements. The asset quality of banks' loan portfolios also remained healthy by historical standards during the review period.

Despite slower global economic growth, bank credit resumed expansion in the first half of 2019 following a contraction in the second half of 2018. Domestic loans and loans for use outside Hong Kong rose by 4.5% and 3.5% respectively, after growing only modestly by 0.1% for the former and contracting by 3.0% for the latter, in the preceding six months. As a result, total loans and advances of all AIs expanded by 4.2% in the first half of 2019.

With total loan growth outpacing deposit growth during the review period, the average all-currency loan-to-deposit (LTD) ratios of all AIs rose to 74.5% at the end of June 2019 from 72.6% six months earlier. The average Hong Kong dollar LTD ratio of all AIs also increased to 89.3% from 86.9%. Nevertheless, the liquidity conditions for the Hong Kong dollar remained ample, underpinned by the broadly stable level of deposits, and with no noticeable outflow of funds from the Hong Kong dollar or from the banking system in the second quarter.

Given that Basel III regulatory reforms and the Hong Kong Mortgage Corporation's SME Financing Guarantee Scheme may affect credit conditions for small and medium-sized enterprises (SMEs) in Hong Kong, Box 5 empirically assesses their effects on the supply of bank loans to SMEs in Hong Kong. The assessment finds that despite more stringent regulatory requirements under Basel III, there has not been a persistent negative effect on the supply of SME loans by banks in Hong Kong, probably due to their strong capital and liquidity positions. The assessment also finds that public sector loan guarantee schemes can effectively reduce funding difficulties facing SMEs.

Looking ahead, the Hong Kong banking sector will face multiple headwinds, including the worsening of the US-China trade dispute, increased downside risks to the global economy, the recent social incidents in Hong Kong, rising uncertainty over the timing and magnitude of monetary accommodation by some major central banks, and increased geopolitical risks. In particular, in view of the rising corporate leverage and household debt burden, banks should stay alert to the credit risk of their corporate and household exposures to any further deterioration in the external environment.

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

2. Global setting and outlook

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.

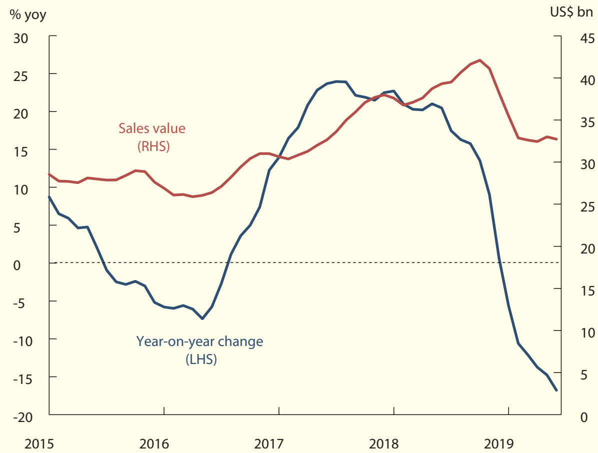
[2] East Asia refers to the following seven economies: Indonesia, Malaysia, the Philippines, Singapore, South Korea, Taiwan and Thailand.

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.

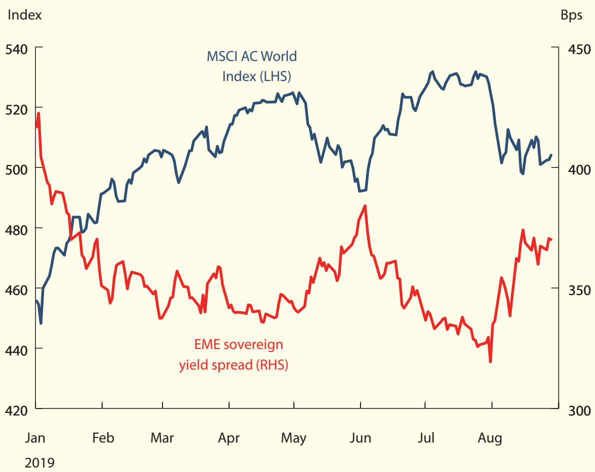
[5] On 10 May, the US administration raised the tariffs imposed on US$200 billion worth of Mainland's imports from 10% to 25%, prompting retaliatory tariff hikes by Mainland China. On 16 May, the US Department of Commerce placed Huawei (a major Mainland telecommunications equipment company) on the "Entity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

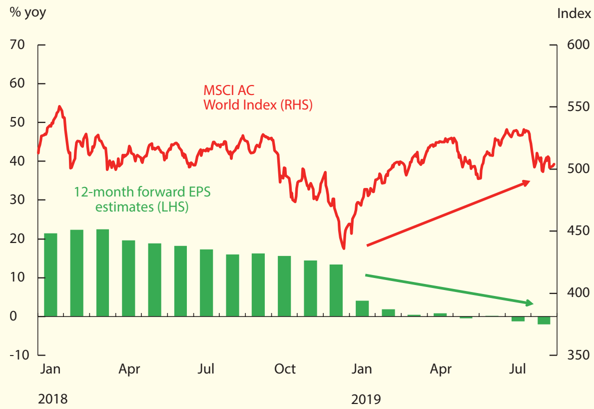
Chart 2.3
MSCI All-Country (AC) World Index and EME sovereign yield spread



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

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.

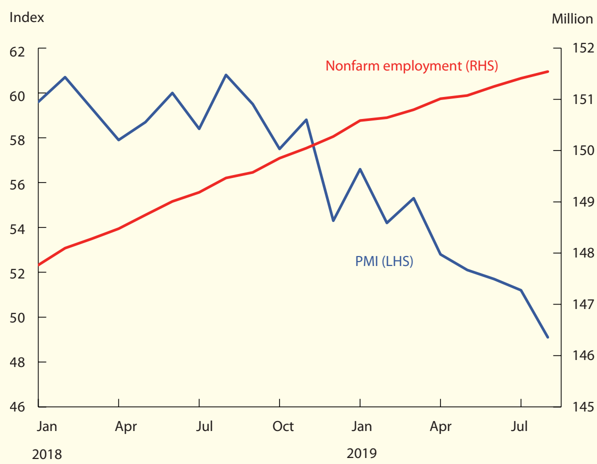
Chart 2.4
MSCI AC World Index and consensus estimates on 12-month forward earnings per share (EPS)



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

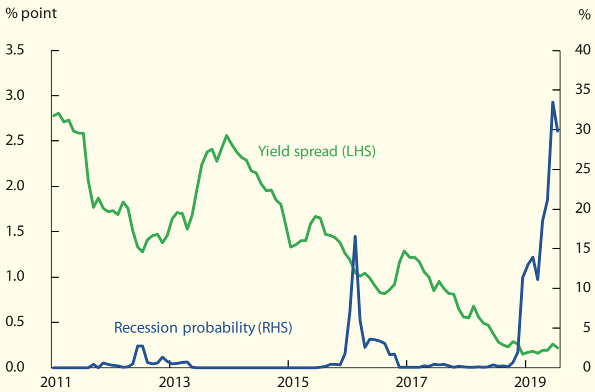
Chart 2.5
US nonfarm employment and ISM manufacturing Purchasing Managers' Index (PMI)



Source: CEIC.

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

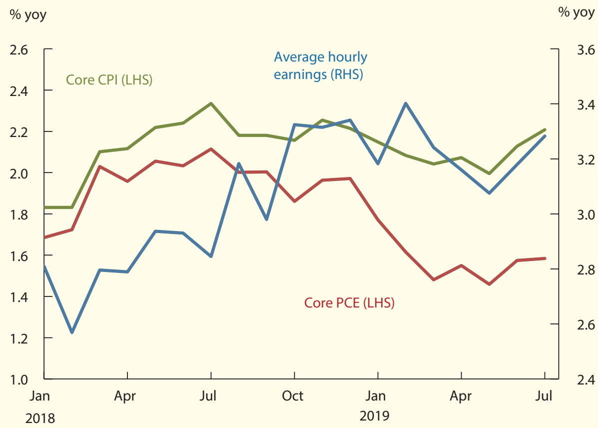


Note: For any given month, "recession probability" refers to the probability that the US economy would fall into a recession in the next 12 months, based on an econometric model that makes use of the slope of the US Treasury yield curve, excess bond premium (Gilchrist and Zakrajšek, 2012) and the Conference 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.

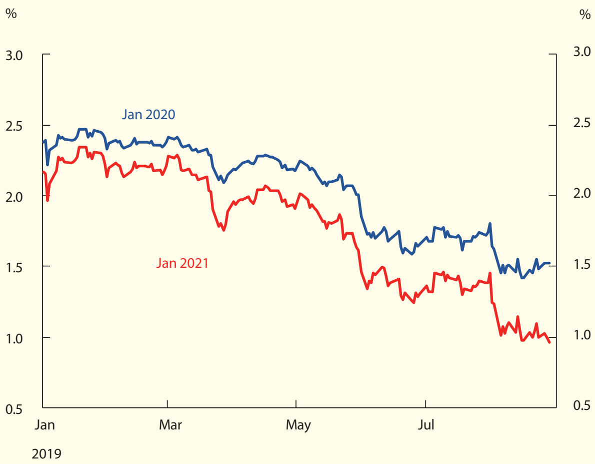
Chart 2.7
Measures of core inflation and wage growth in the US



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

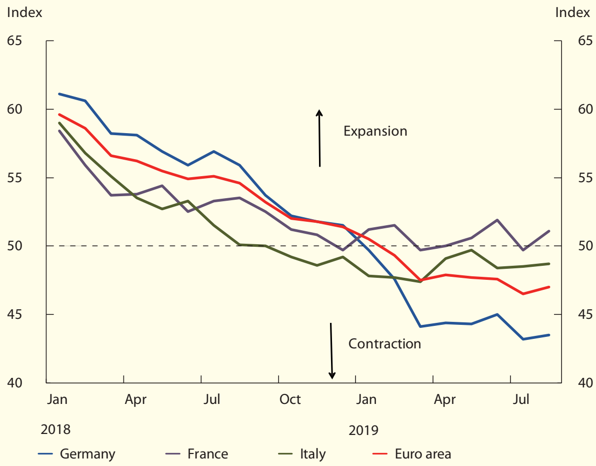


Source: Datastream.

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.

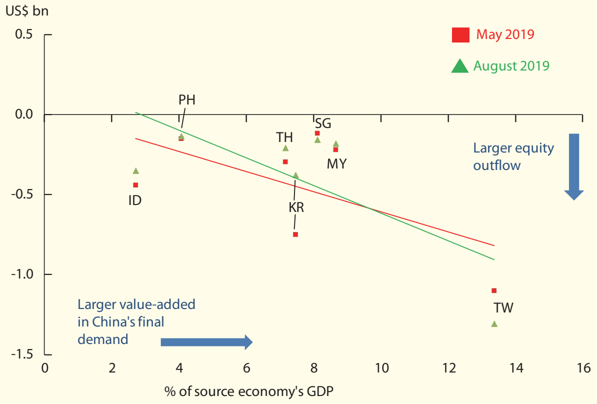
of the inflation outlook towards target. Moreover, asset purchases would be relaunched from 1 November, at a monthly pace of €20 billion. Lending conditions under the third round of Targeted Longer-term Refinancing Operations (TLTRO III), first announced in March, were loosened with more favourable interest 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.

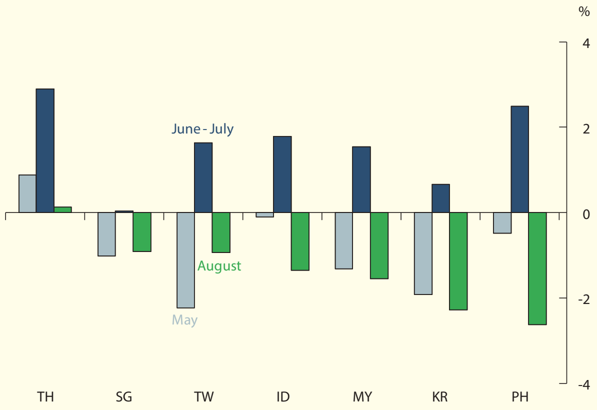
In East Asia, financial markets experienced bouts of volatility in the second and third quarters this year amid the heightened uncertainties associated with the unresolved US-China trade conflict. In particular, the Trump administration's tariff threats in early May rekindled the trade-war worries, an 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.

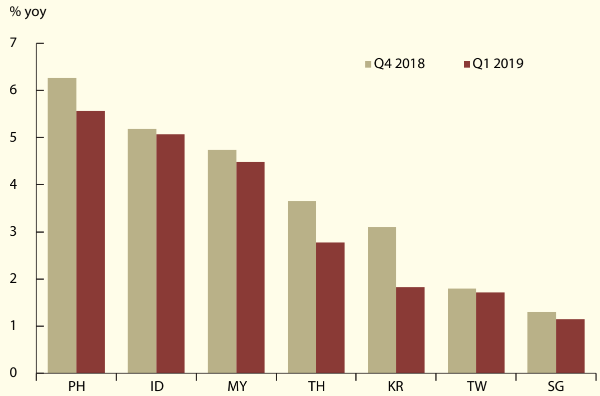
Chart 2.11
East Asia: Exchange rate against the US dollar



Source: Bloomberg.

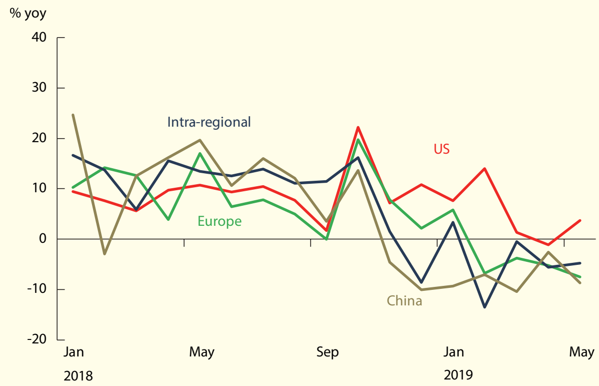
Alongside the elevated uncertainties and the associated bouts of market volatility, real economic activities have weakened across East Asia. Driven largely by a weak export performance and slackened investment growth, real GDP growth slipped in the first quarter of this year, marking the region's first 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.

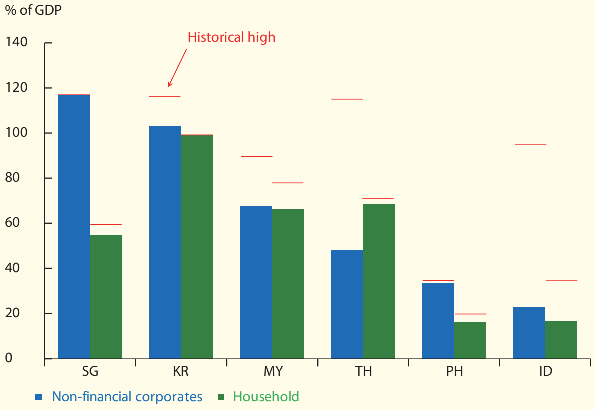
Looking ahead, there are multiple external and domestic headwinds facing the East Asian economies. On the external front, amid the far-from-settled divergences between Mainland China and the US (such as issues about the intellectual property regime), uncertainties related to the trade war will remain 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.

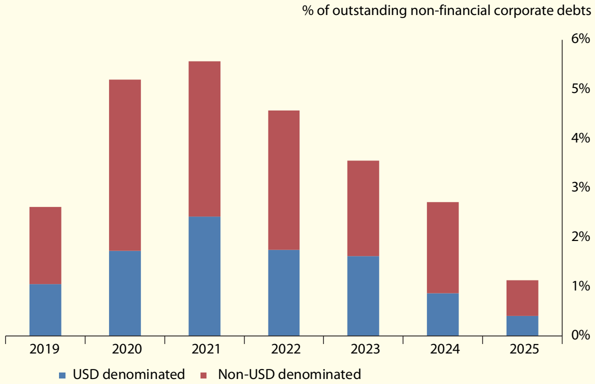
11 The Bank for International Settlements global liquidity indicators at end-March 2019.

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



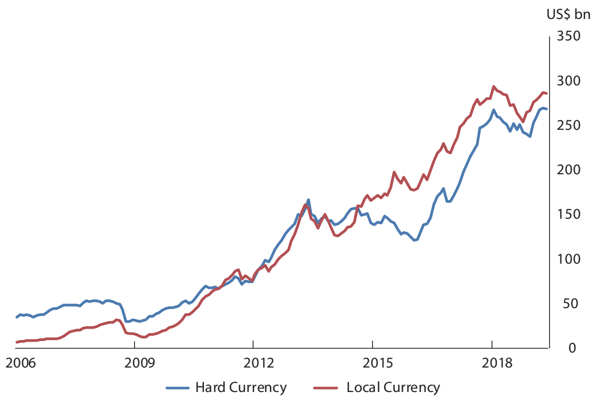
Note: Economies include Indonesia, Malaysia, the Philippines, Singapore, South Korea and Thailand. Debt instrument includes both bonds and loans.
Source: Institute of International Finance.

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.

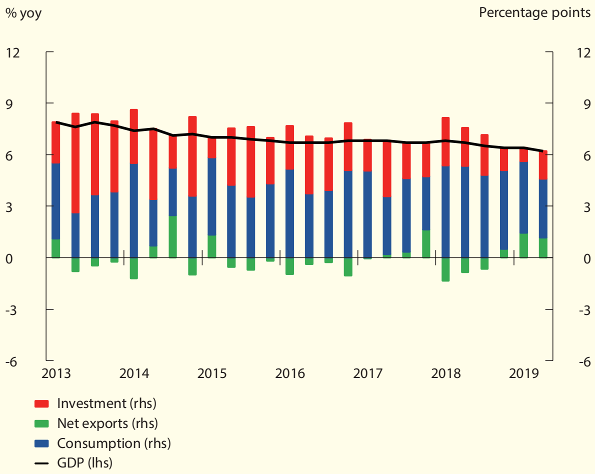
The finding that volatility spillover is greater for LC than HC bond funds has two important policy implications. First, it may reflect a general lack of hedging instruments, forcing foreign investors to move their funds in and out of EMEs in times of elevated exchange rate risk. Second, more rapid growth 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%.

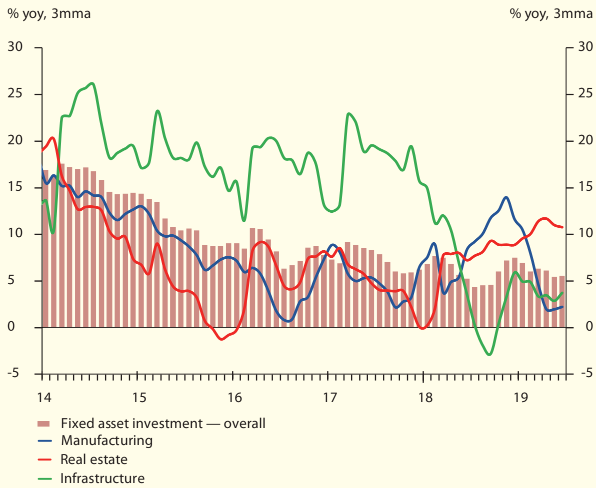
Chart 2.16
Mainland China: Contribution to GDP growth by demand component



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

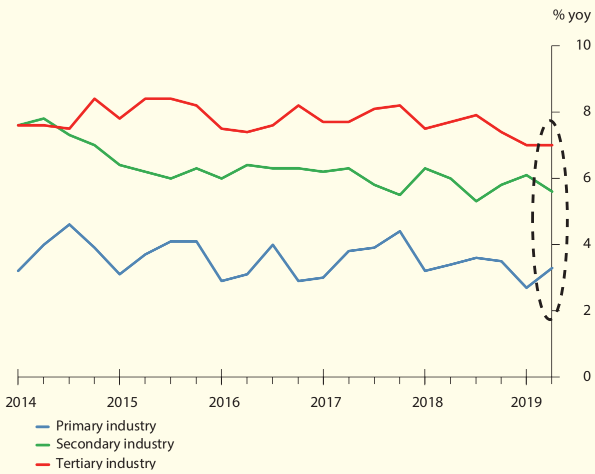


Sources: CEIC, NBS and HKMA staff estimates.

[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

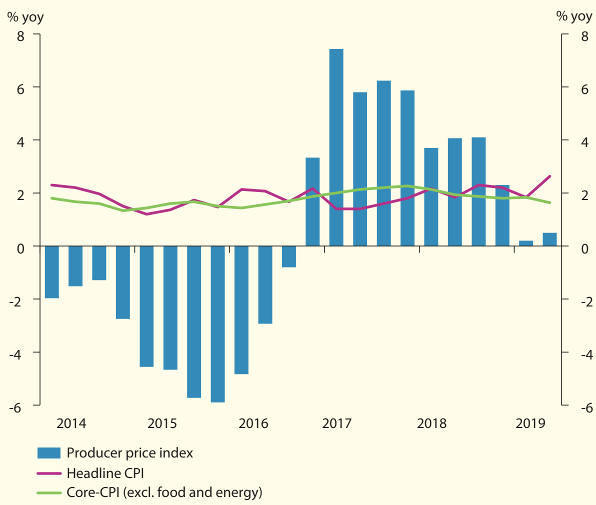


Sources: CEIC, NBS and HKMA staff estimates.

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

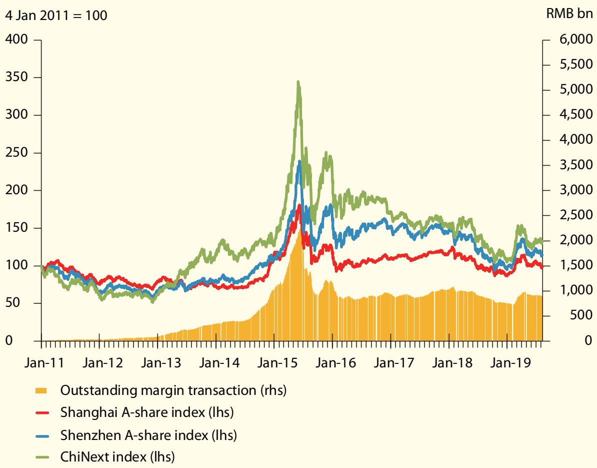


Sources: CEIC, NBS and HKMA staff estimates.

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

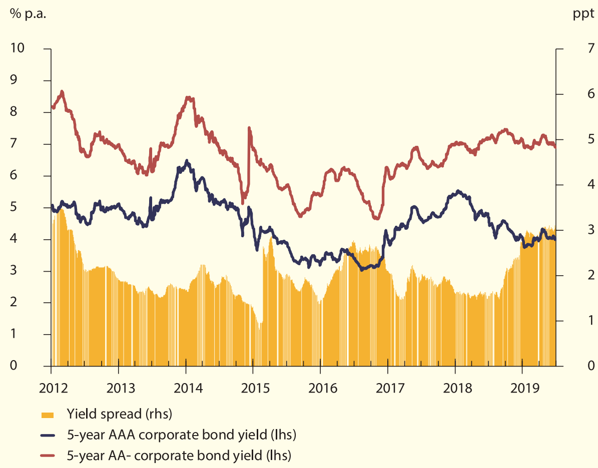


Sources: CEIC and HKMA staff estimates.

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



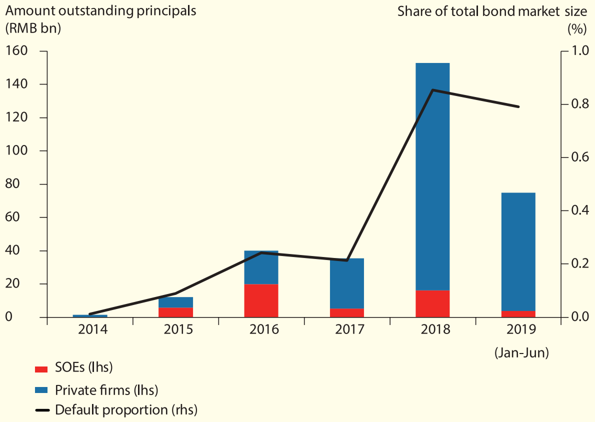
Sources: Wind and HKMA staff estimates.

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.

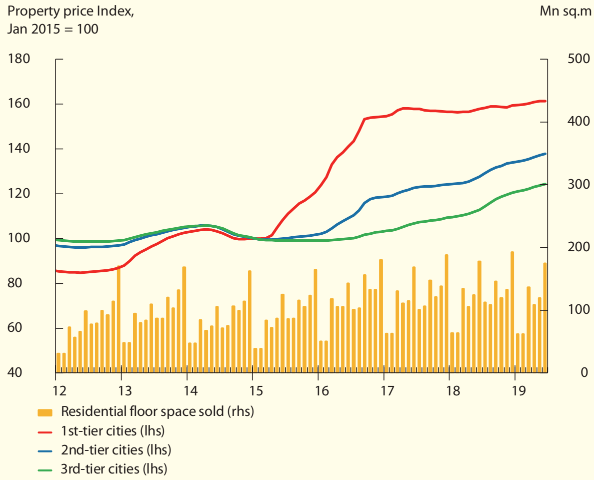
Chart 2.22
Mainland China: Bond default size and proportion



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.

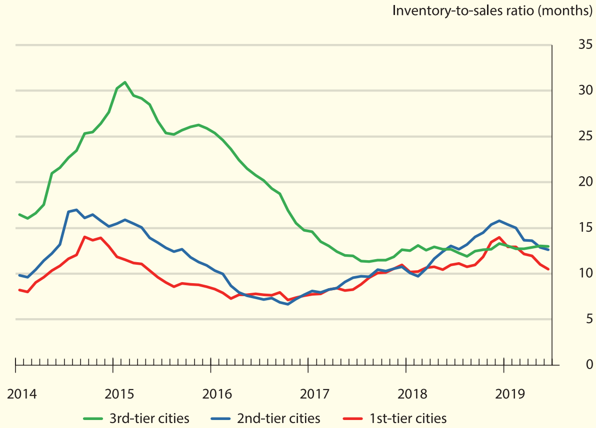
Chart 2.23
Mainland China: Residential prices by tier of cities and floor space sold



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



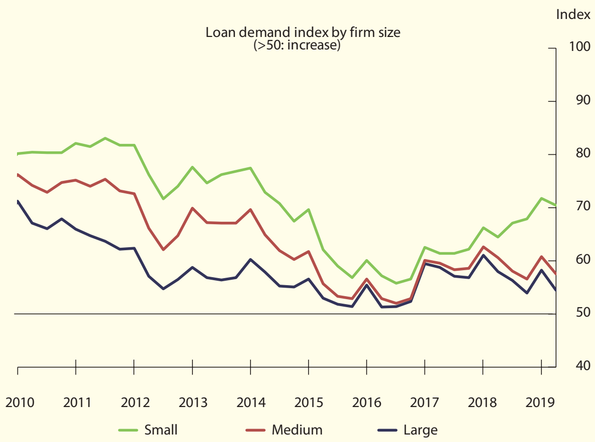
Sources: Wind and HKMA staff estimates.

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).

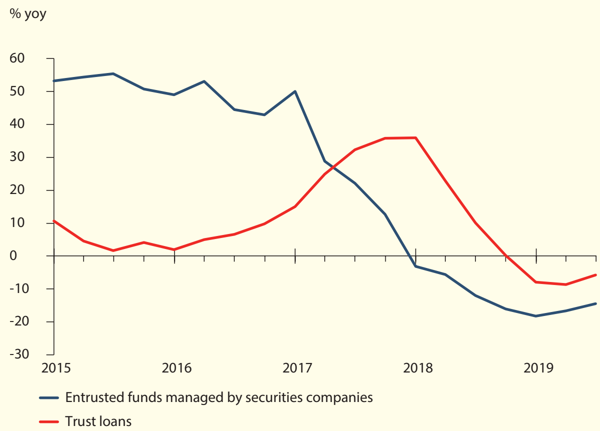
Chart 2.25
Mainland China: Loan demand index by firm size



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

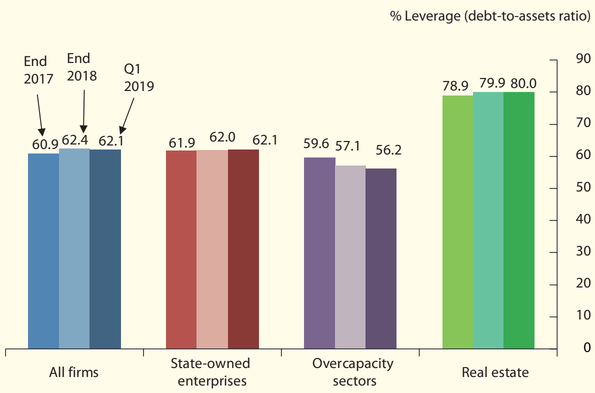


Sources: CEIC, Securities Association of China and HKMA staff estimates.

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

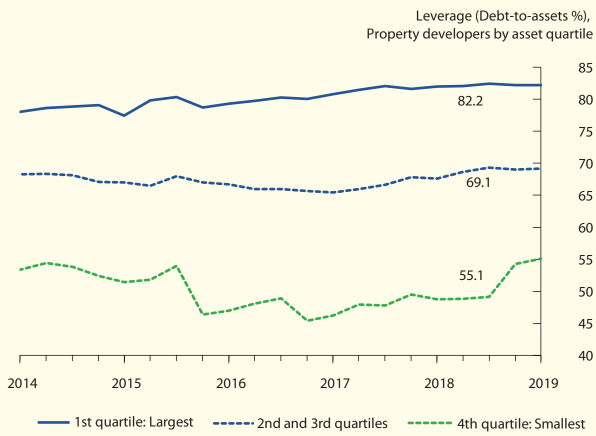


Sources: Bloomberg and HKMA staff estimates.

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

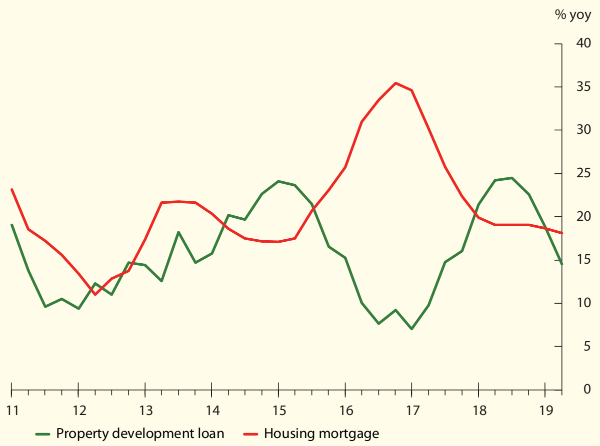


Sources: Bloomberg and HKMA staff estimates.

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.

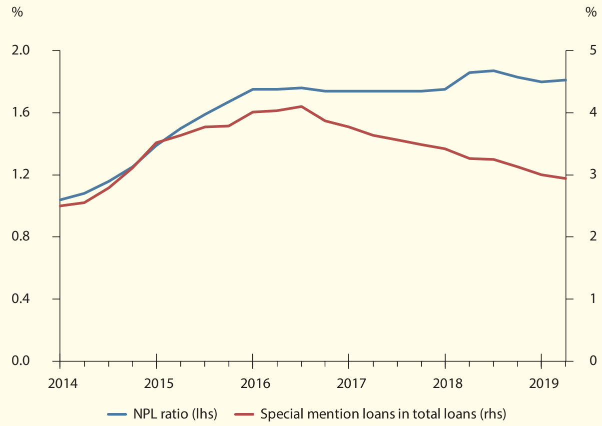
Chart 2.29
Mainland China: Growth in mortgage and property development loans



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



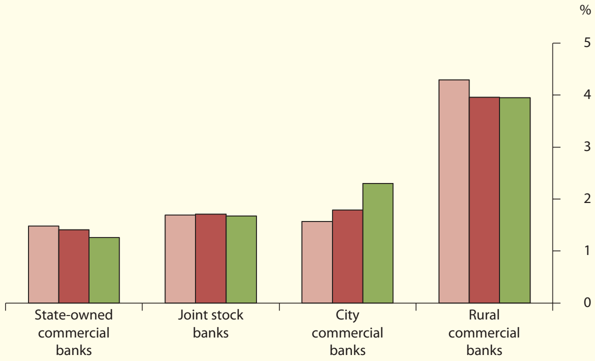
Source: CEIC.

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.

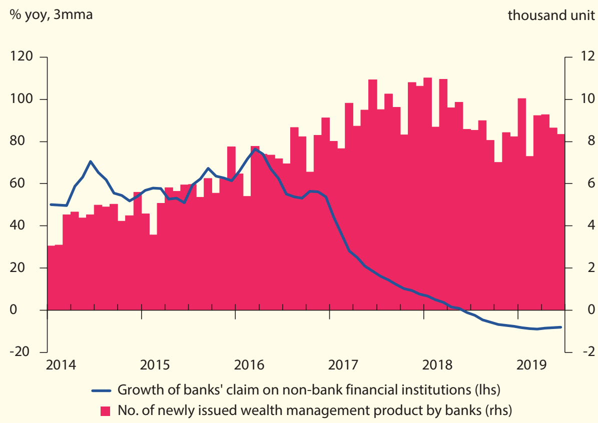
A tightened definition of NPLs by some local authorities may have also contributed to the increase in the NPL ratios of smaller banks. In particular, it is reported that some local banking regulators required smaller banks to include loans overdue by over 60 days into NPLs, which is stricter than the 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.

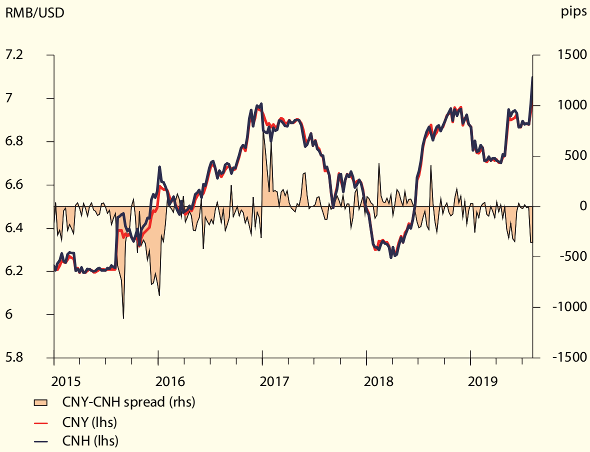
Exchange rate and cross-border capital flows

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



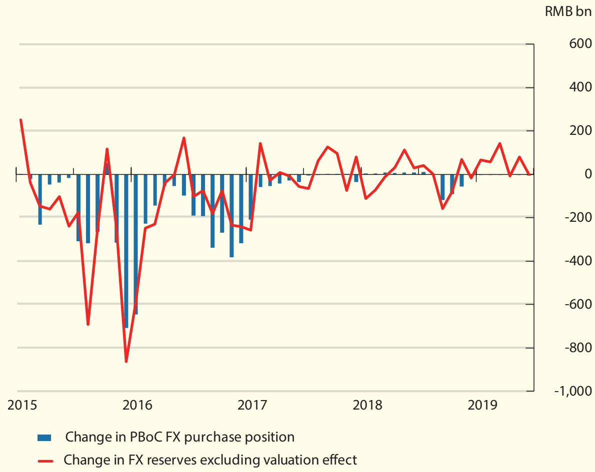
Sources: Bloomberg and HKMA staff estimates.

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).

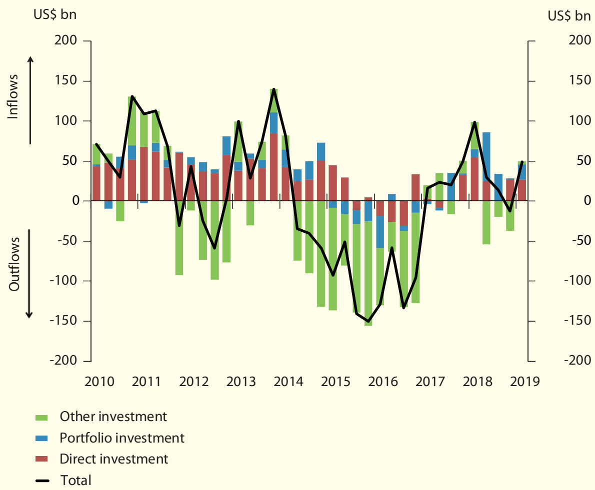
Chart 2.34
Mainland China: Changes in PBoC FX purchase position and FX reserves



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.

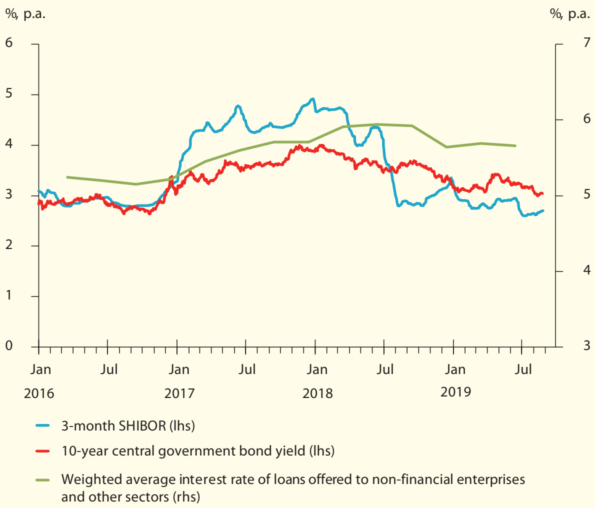
Over the short-term, the outlook for cross-border capital flows depends on a conjuncture of factors, such as market sentiment, as well as the economic performance of advanced economies and emerging market economies (EMEs). On one hand, investor sentiment will continue to be affected by uncertainty over 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.

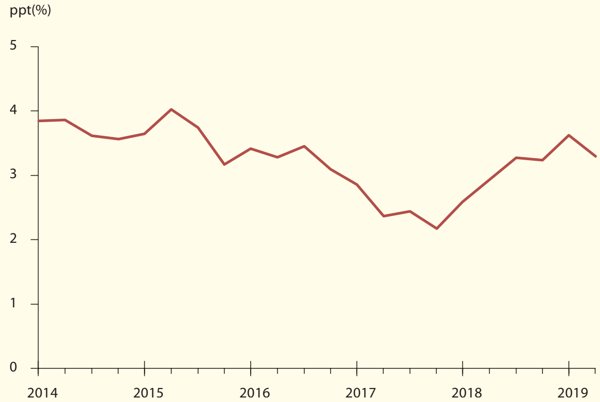
Chart 2.36
Mainland China: Major market interest rates



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.

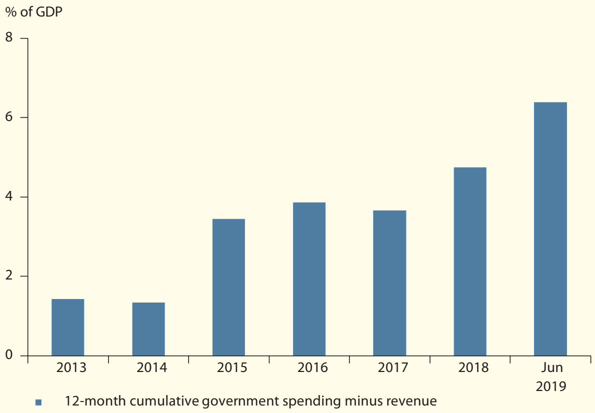
In an effort to push ahead with interest rate liberalisation and further easing the financing cost of the real sector, the central bank announced to refine the formation mechanism of the loan prime rate (LPR) on 17 August, which would link the LPR to the interest rate of medium-term lending facility (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



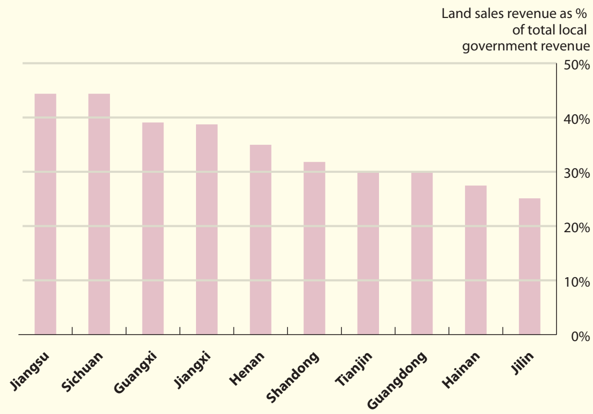
Sources: Wind, Ministry of Finance and HKMA staff estimates.

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:

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

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.

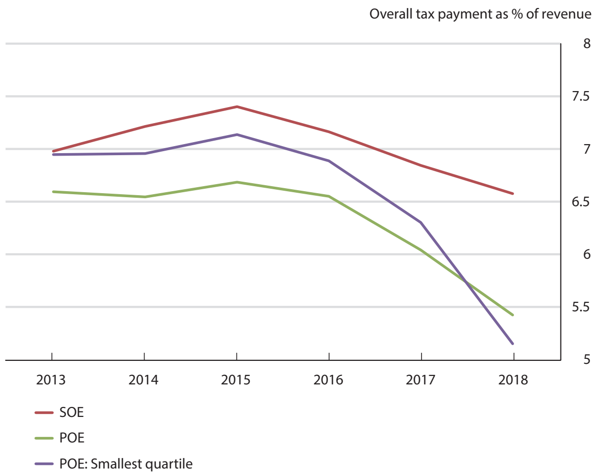
Note, this calculation does not include non-wage labour costs to firms, namely social security contributions such as contributions to employees' pension and insurance funds, and other fees that firms have to pay but are not classified as "taxes". These items are not separately reported in Cash Flow Statements, 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:

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

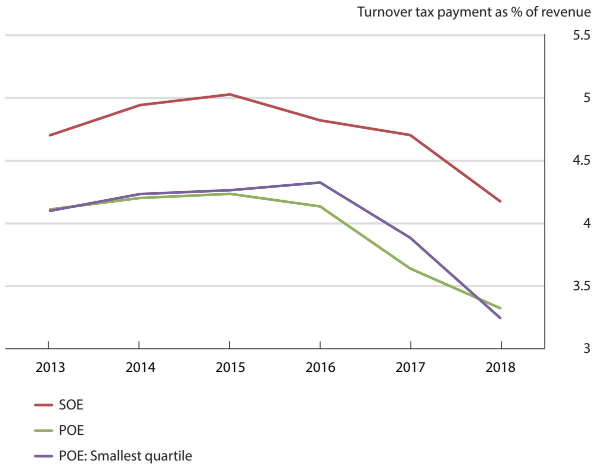
which mainly reflects the VAT, business tax, and consumption tax that a firm pays. With the VAT reform in the Mainland, most firms had shifted from business tax payers to VAT payers by 2016, so now the VAT accounts for most of the turnover tax. In our study, the turnover tax also includes some taxes 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.

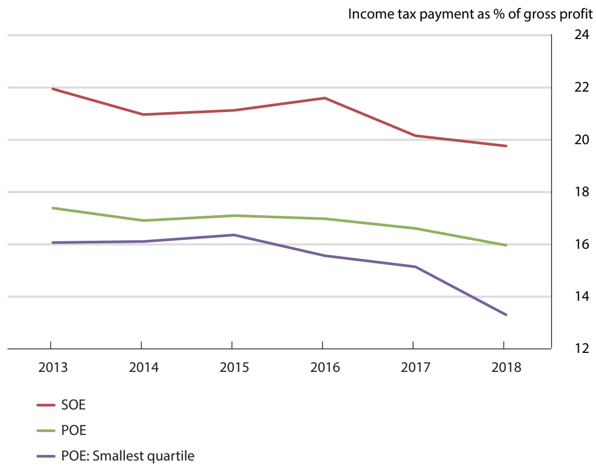
Sources: Wind and HKMA staff calculations.

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:

$$(Income\ tax\ /Gross\ profit) \times 100,$$

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*** (0.11)	0.95*** (0.15)	4.33*** (0.25)	3.63*** (0.37)
SOE over POE (smallest quartile)	0.67*** (0.16)	0.96*** (0.23)	5.39*** (0.38)	5.68*** (0.53)
POE (upper three quartiles) over POE (smallest quartile)	-0.07 (0.13)	0.01 (0.18)	1.41*** (0.28)	2.70*** (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.

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3. Domestic economy

The Hong Kong economy grew at a sluggish pace in the first half of 2019, reflecting weaker private consumption growth, contraction in investment spending and poor export performance. The economic performance for the second half is expected to remain subdued and the outlook is subject to heightened uncertainties and risks, including those stemming from the global economic slowdown, the renewed US-China trade tensions and the recent social incidents in Hong Kong. The labour market has been resilient so far, but its outlook is overshadowed by weakened economic prospects. Local inflationary pressures edged up to a still-moderate level though there are potential risks on either side.

3.1 Real activities

Economic growth was sluggish in Hong Kong during the first half of 2019. The year-on-year growth rate of real gross domestic product (GDP) declined to 0.6% in the first quarter and hit a ten-year low of 0.5% in the second quarter (Table 3.A). The growth rate of real GDP was also below-par at 0.8% over the preceding half year.[27]

Table 3.A
Real GDP growth

		Year-on-year growth rate (%)
2018	Q1	4.6
	Q2	3.6
	Q3	2.8
	Q4	1.2
2019	Q1	0.6
	Q2	0.5
10-year average	(2009 Q1 – 2018 Q4)	2.8

Source: C&SD.

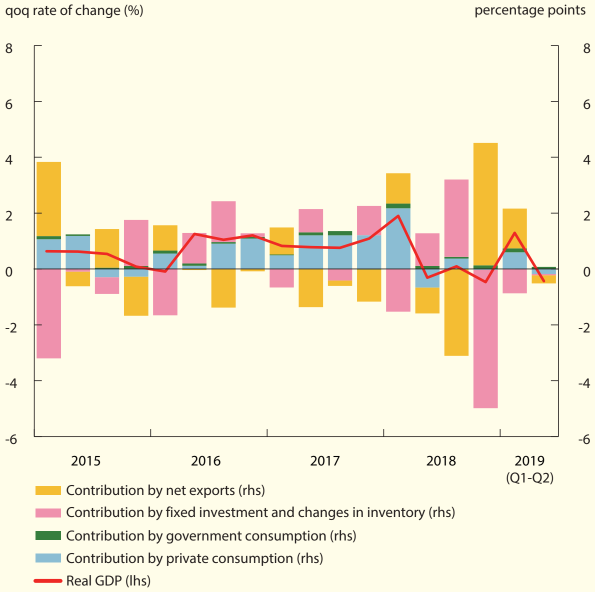
On a quarter-on-quarter basis, economic activities slowed visibly in the first half of the year (Chart 3.1). Specifically, real GDP declined by 0.4% in the second quarter, following a 1.3% increase in the first quarter. Domestically, private consumption growth weakened and aggregate investment spending continued to drag down GDP. This in part reflected low consumption and investment confidence.[28] Externally, Hong Kong's trade performance also worsened significantly amid lingering US-China trade and technology tensions, weaker global economic growth and sluggish tourist spending[29] (Chart 3.2). Partly because imports of goods declined more than exports, net trade contributed positively to GDP growth in the first quarter, but its contribution turned negative in the second quarter. Box 3 examines the recent performance of Hong Kong's merchandise exports and their relation to Mainland's exports.

27 Based on seasonally adjusted volume index of expenditure-based GDP.

28 The Consumer Confidence Index compiled by the City University of Hong Kong declined to a five-year low of 77.7 in the second quarter. The Purchasing Managers' Index has remained in the contractionary zone since April last year. Additionally, a slowdown in construction activities caused by completion of some major infrastructure projects also weighed on overall investment spending.

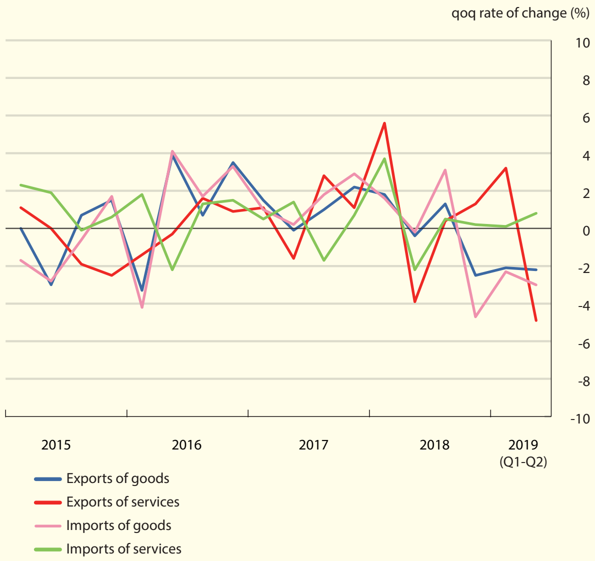
29 Tourist arrivals slowed in the first half of the year and tourist spending also showed signs of moderation as indicated by decreases in retail sales volume of some tourist-related items.

Chart 3.1
Real GDP growth and contribution by major expenditure components



Note: Growth rates are seasonally adjusted.
Sources: C&SD and HKMA staff estimates.

Chart 3.2
Exports and imports in real terms



Note: Growth rates are seasonally adjusted.
Source: C&SD.

The economic performance for the rest of 2019 is expected to remain subdued. On the external front, the US-China trade disputes and slowing global economic growth will continue to weigh down Hong Kong's external trade performance. Domestically, private consumption may contribute positively to growth, although its expansion will likely be tepid, in part, due to cautious consumer sentiment. As for fixed capital formation, heightened economic uncertainty and fragile business confidence could dampen capital expenditure, as well as building and construction activities. Taking into account the weaker-than-expected GDP outturn, the Government revised its forecast of real GDP growth for 2019 downward from 2–3% earlier to 0–1%.[30] The growth forecasts by international organisations and private sector analysts were also adjusted downward to a range between -0.5% and 1% (mean at 0.3%).

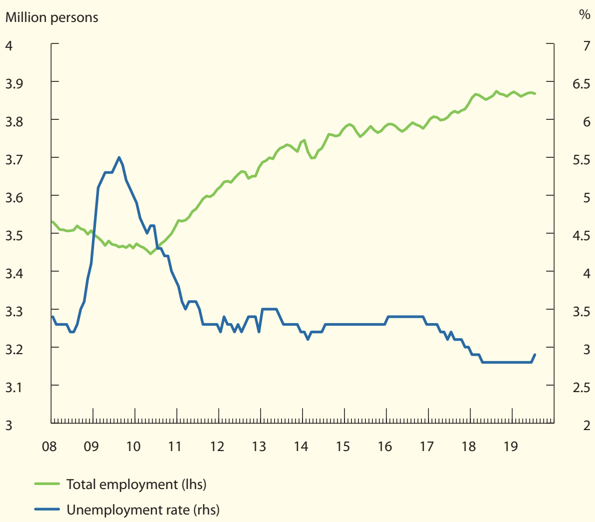
This growth outlook is subject to heightened uncertainties and risks, including those arising from the global economic slowdown, the ongoing US-China trade dispute, the future direction of monetary policy in the US and other economies, the economic performance of Mainland China, the impending Brexit and the recent social incidents in Hong Kong. In particular, downside risks have risen, due in large part to the renewed US-China trade tensions.

[30] In his recent blogs, the Financial Secretary said the Government would consider measures to "support enterprises, safeguard jobs" and would not contain public expenditure. The Secretary for Development also said the annual expenditure for the Government's capital projects was estimated to exceed HK$100 billion in the next few years, thereby supporting economic growth. On 15 August, the Financial Secretary announced a series of measures to support the economy, including reducing salaries tax and waiving fees and charges for enterprises. On 4 September, two additional measures were announced to strengthen liquidity support to local small and medium-sized enterprises.

3.2 Labour market conditions

The labour market has so far remained resilient, as the seasonally adjusted unemployment rate stayed low at 2.8-2.9% in the first seven months of 2019 (Chart 3.3). With the economy losing steam, total employment declined slightly by 0.05% in the first half of 2019 to end at 3,870,700 persons in June. The decline in employment mostly came from the construction, trade and wholesale sectors. As output grew but employment edged down, labour productivity showed signs of cyclical improvement. Looking ahead, the labour market could continue to face more challenges given the economic outlook discussed above.

Chart 3.3
Labour market conditions

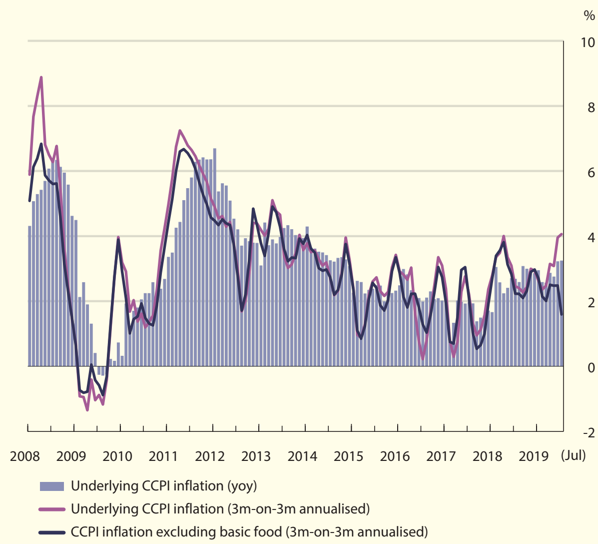


Source: C&SD.

3.3 Inflation

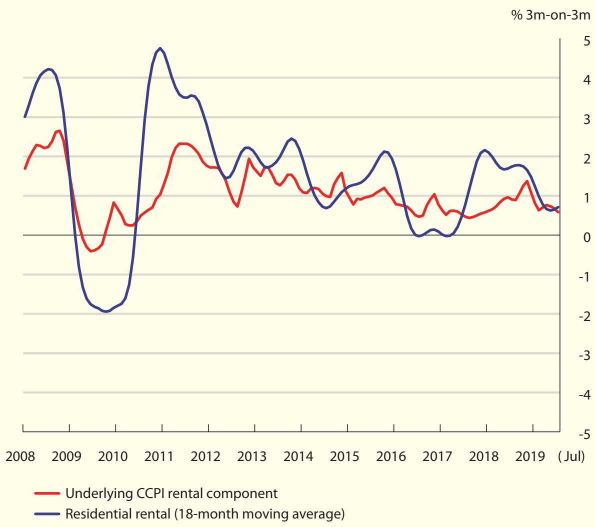
Local inflationary pressures edged up in the first half of 2019 but remained at moderate levels. On a year-on-year comparison, the underlying Composite Consumer Price Index (CCPI) rose by 2.7% in the first quarter and 2.9% in the second quarter, slightly higher than the annual rate of 2.6% in 2018. Inflation momentum, as measured by the annualised three-month-on-three-month underlying inflation rate, also picked up from 2.6% in January to 4.1% in July (Chart 3.4), mainly due to price increases of fresh pork as a result of disrupted supply. Inflation momentum, excluding basic food prices, remained at below 3% throughout the first half of the year. In particular, external price pressures (excluding basic food prices) remained moderate, due in part to weaker global economic momentum and soft international energy prices. Locally, following the earlier consolidation of fresh-letting residential rentals, the rental component of inflation eased slightly (Chart 3.5). As productivity grew in line with payroll, the real unit labour cost was also roughly stable in recent quarters, suggesting that labour cost pressures were largely in check (Chart 3.6).

Chart 3.4
Different measures of consumer price inflation



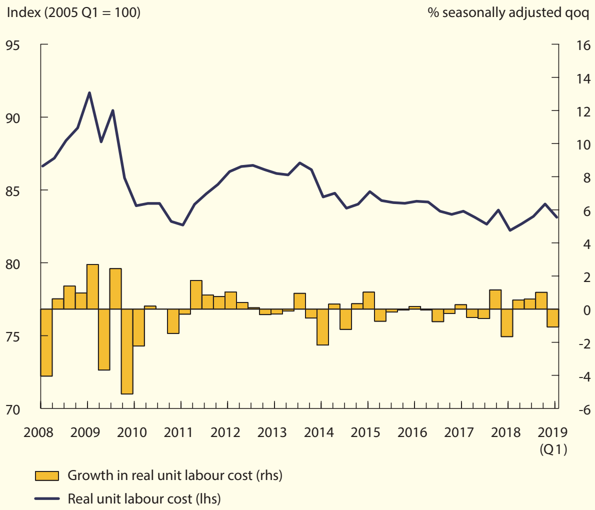
Sources: C&SD and HKMA staff estimates.

Chart 3.5
CCPI rental component and market rental



Sources: C&SD and Rating and Valuation Department.

Chart 3.6
Unit labour cost



Sources: C&SD and HKMA staff estimates.

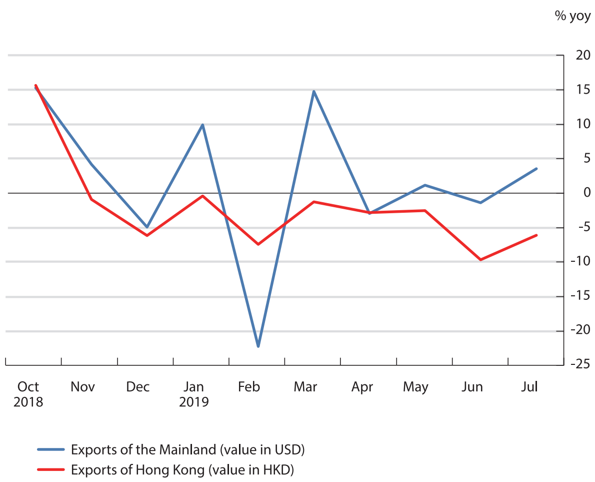
Looking ahead, local inflationary pressures are expected to remain moderate, due to low global inflation, the earlier moderation in fresh-letting residential rentals, and the sluggish domestic growth momentum. However, the supply disruption and the resultant price increases in fresh pork may bolster the inflation momentum in the near term. In August, the Government revised upward its projection of the underlying and headline inflation rates for 2019 to 2.7% and 2.6% respectively, from 2.5% earlier. This inflation outlook is subject to risks on both sides. On the upside, if the disrupted supply of fresh pork lasts longer than expected, then inflation may edge up further. On the downside, if a sharper-than-expected economic slowdown or other market surprises occur, this could dampen inflation, given that the estimated current output gap is slightly below zero.

Box 3
The recent discrepancy in export performance of Hong Kong and the Mainland under the US-China trade conflict

Introduction

Hong Kong's goods export sector has performed poorly in recent months (Chart B3.1), likely in part due to the US-China trade conflict. However, while Mainland's export performance has "gyrated" since late last year, it has not been quite as bad. So, what explains this discrepancy in the export performance of Hong Kong and the Mainland?

Chart B3.1
Growth in total merchandise exports



Sources: China Customs and C&SD.

Using disseminated trade statistics from Hong Kong and the Mainland, we find that Hong Kong's export sector has been hit by a "double-whammy": (i) it faces similar headwinds as the Mainland in exporting to foreign economies; in addition, (ii) Hong Kong confronts a slowdown in goods re-exported to the Mainland, specifically intermediate goods that appear to be inputs in Mainland's production. The contraction in Mainland's imports of these goods has a disproportionately large impact on Hong Kong, considering they account for about half the value of Hong Kong's overall exports.

Export performance by destination and product

Table B3.A shows the share of total exports of the Mainland and Hong Kong by destination in 2017, prior to the US-China trade dispute. First, it is clear that the Mainland and Hong Kong are each other's major export destination. In particular, the Mainland accounted for 54% of Hong Kong's exports. Second, after excluding bilateral exports, the export destinations of the Mainland and Hong Kong are quite similar (the highlighted columns), partly reflecting the fact that merchandise exports of the two economies are generally driven by similar import demand from foreign economies. Thus, we look to Hong Kong's exports to the Mainland and other economies, separately, to understand the recent discrepancy in export performance between the two economies.

Table B3.A
Export share by destinations in 2017

	Total exports of the Mainland		Total exports of Hong Kong	
Export destinations	% share	% share (excluding Hong Kong)	% share	% share (excluding the Mainland)
Mainland China	-	-	54.3	-
Hong Kong	12.3	-	-	-
US	19.0	21.7	8.5	18.7
EU	16.4	18.8	9.0	19.6
- Germany	3.1	3.6	1.9	4.2
Japan	6.0	6.9	3.3	7.3
ASEAN	12.3	14.1	7.3	16.0
- Singapore	2.0	2.3	1.6	3.4
- Vietnam	3.1	3.6	2.1	4.5
S. Korea	4.5	5.2	1.5	3.2
Taiwan	1.9	2.2	2.3	5.0
India	3.0	3.4	4.1	9.0

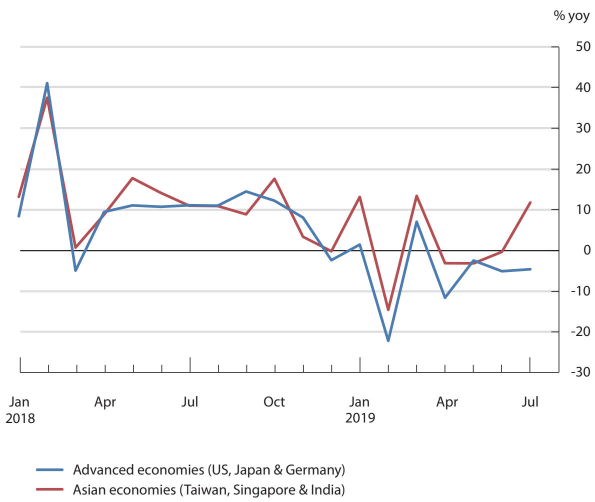
Sources: China Customs, C&SD and HKMA staff calculation.

(i) Headwinds exporting to foreign economies

In following, we examine selected export destinations among the advanced economies and among Asian economies. These export destinations are chosen because they are major trading partners of both the Mainland and Hong Kong.

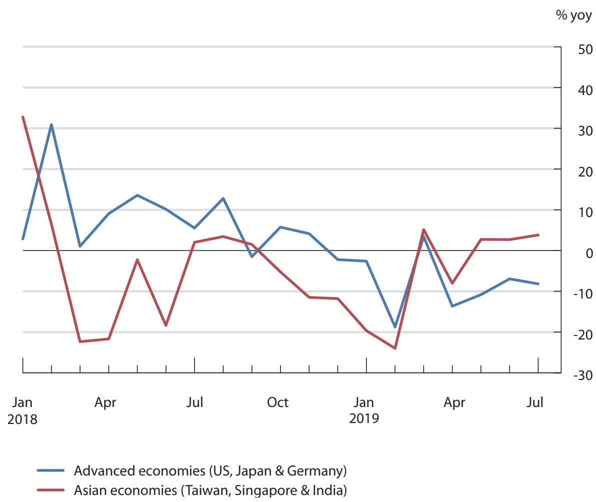
As shown in Charts B3.2 and B3.3, export patterns to advanced (blue lines) and Asian (red lines) economies are similar for the Mainland and Hong Kong.[31] The growth rates of exports to these destinations have generally fallen since the second half of 2018, likely because of the US-China trade tensions.

Chart B3.2
Mainland exports to major destinations



Note: For the Mainland, the six export destinations account for around 35% of all exports in 2018.
Sources: China Customs and HKMA staff estimates.

Chart B3.3
Hong Kong re-exports to major destinations



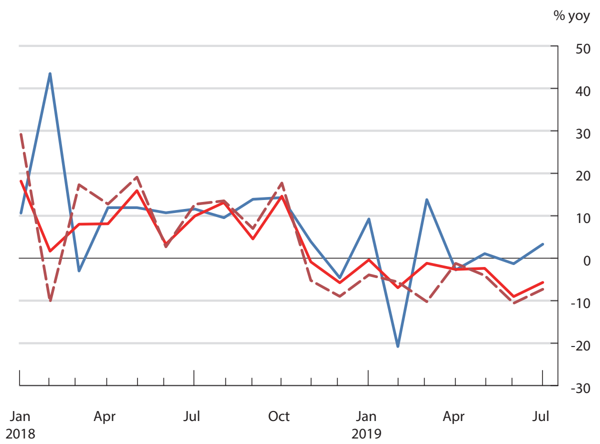
Note: For Hong Kong, the same six destinations account for around 20% of total re-exports in 2018.
Sources: C&SD and HKMA staff estimates.

(ii) Headwinds exporting to the Mainland

In light of the US-China trade conflict, Mainland consumers and businesses may have reduced their demand for imports from Hong Kong. Indeed, Chart B3.4 shows that re-exports via Hong Kong to the Mainland (around 55% of total Hong Kong re-exports in 2018) saw a continual decline since the fourth quarter of 2018. This appears to be the key driver of the discrepancy in export growth rates between the two economies in recent months, when comparing the blue and red lines.

[31] For Hong Kong, merchandise exports comprise domestic exports and re-exports, but the latter makes up about 99% of Hong Kong's export. As a result, export patterns are mainly driven by re-exports.

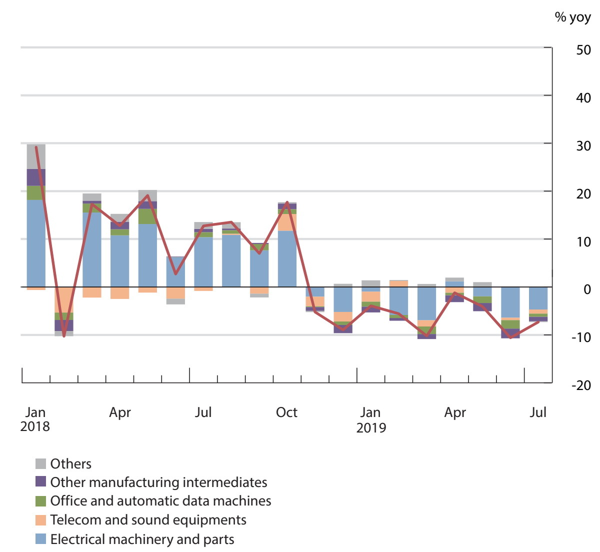
Chart B3.4
Re-exports via Hong Kong to the Mainland



Sources: China Customs, C&SD and HKMA staff estimates.

Taking a closer look at product categories, Chart B3.5 shows most of the declines in re-exports via Hong Kong to the Mainland are in electrical machinery and parts, and manufacturing intermediates (categories that collectively account for 64% of total re-exports to the Mainland by value in 2018). This could be evidence of the purported slowdown in supply chain activities in the Mainland since the trade conflict started in mid-2018.

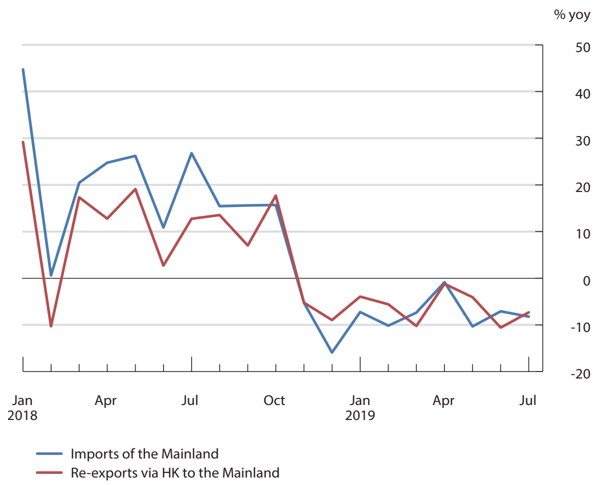
Chart B3.5
Re-exports via Hong Kong to the Mainland by product category



Sources: C&SD and HKMA staff estimates.

To further validate the supply chain slowdown story, we match, by product categories[32], re-exports via Hong Kong to the Mainland with the corresponding imports of the Mainland. The results can be seen in Chart B3.6. It is clear that Hong Kong is re-exporting precisely the goods that the Mainland is buying less from around the world.

Chart B3.6
Re-exports via Hong Kong to the Mainland and Mainland's imports (same product categories)



Notes: China Customs does not provide the trade statistics by import origin and product category. Besides, most of the re-exports via Hong Kong to Mainland are not classified as imports from Hong Kong by China Customs.
Sources: China Customs, C&SD and HKMA staff estimates.

Concluding remarks

This Box examines the recent discrepancy in the export performance of Hong Kong and the Mainland. After taking out exports from Hong Kong to the Mainland, which accounts for roughly half of all Hong Kong exports, Mainland's and Hong Kong's export growth have been similar, suggesting that they are facing similar headwinds when exporting to foreign economies. In addition, it appears that Hong Kong is also confronted with reduced import demand from the Mainland, as Hong Kong's exports to the Mainland have registered negative growth so far this year. In particular, declining exports to the Mainland since late last year may reflect a slowdown in its production activities amid weaker growth.

32 That is, the same product categories of electrical machinery and parts, telecom and sound equipment, office and automatic data machines and manufacturing intermediates as shown in Chart B3.5

4. Monetary and financial conditions

After the triggering of the weak-side Convertibility Undertaking in March, the Hong Kong dollar witnessed some fluctuations, particularly amid seasonal funding demand and sizable initial public offerings in May and June. Despite the fluctuations, the Hong Kong dollar traded in a smooth and orderly manner. While the reduction in the Aggregate Balance since April 2018 has reduced interbank liquidity and may have made Hong Kong dollar interbank rates more sensitive to changes in supply and demand of Hong Kong dollar funding, the Hong Kong dollar money market operated in an orderly fashion. For the first seven months as a whole, both Hong Kong dollar and total broad money supply recorded steady growth. Looking ahead, the direction of fund flows will mainly depend on a number of factors, including developments in the lingering US-China trade tensions and the US monetary policy stance.

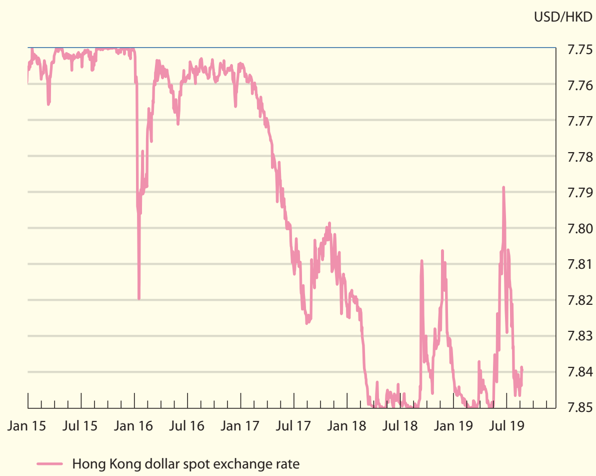
4.1 Exchange rate and capital flows

Driven by the reduced funding demand from banks and substantial and negative Hong Kong dollar-US dollar interest rate spreads in early 2019, carry trade activities pushed the Hong Kong dollar exchange rate towards the weak side of the Convertibility Zone and triggered the weak-side Convertibility Undertaking (CU) eight times between 8 and 29 March (Chart 4.1). The triggering of the weak-side CU reduced the Aggregate Balance (AB) and tightened interbank liquidity, which allowed the Hong Kong dollar to regain some strength in April. However, the weak sentiment in the local stock market in May caused the Hong Kong dollar to weaken gradually. Since late May, the Hong Kong dollar exchange rate rebounded significantly, partly underpinned by the funding demand in preparation for sizable initial public offering (IPO) activities, as well as some seasonal Hong Kong dollar demand arising from dividend payouts by listed companies in Hong Kong and funding demands for half-year closing.

Moving into July and August, the Hong Kong dollar drifted lower against the US dollar as liquidity conditions improved after the half-year end. The Hong Kong dollar closed at 7.843 on 30 August. During the review period, the Hong Kong dollar continued to trade in a smooth and orderly manner.

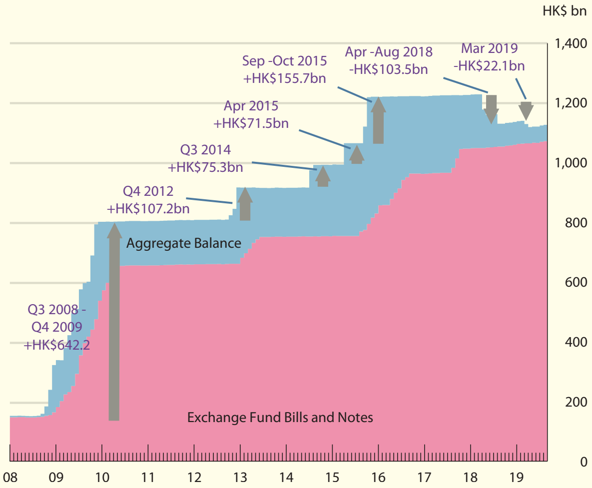
As a result of the triggering of the weak-side CU in March, the AB declined from HK$76.3 billion at the end of February to HK$54.4 billion at the end of August (Chart 4.2).

Chart 4.1
Hong Kong dollar exchange rate



Source: HKMA.

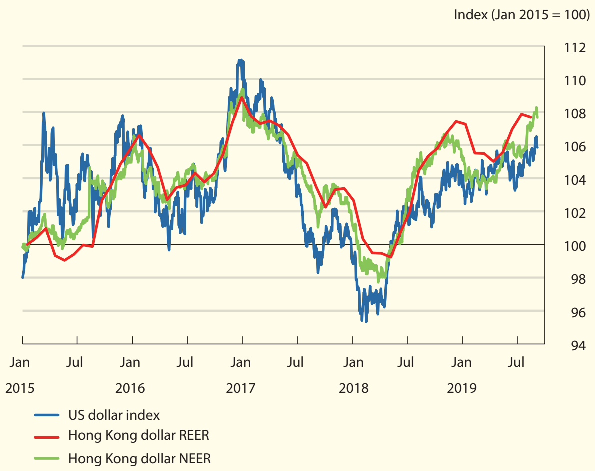
Chart 4.2
Aggregate Balance and Exchange Fund Bills and Notes (EFBNs)



Source: HKMA.

Broadly consistent with the movements of the US dollar, the Hong Kong dollar nominal effective exchange rate index (NEER) moved up during the review period (Chart 4.3). The Hong Kong dollar real effective exchange rate index (REER) showed a similar trend as the NEER, as the small inflation differential between Hong Kong and its trading partners only had a limited impact on the REER.

Chart 4.3
NEER and REER



Note: REER is seasonally adjusted and only available on a monthly basis.
Sources: C&SD and HKMA staff estimates.

In terms of cross-border fund flows that were recorded in the latest Balance of Payments (BoP) statistics, portfolio investment saw net inflows by non-residents, but net outflows by residents in the first quarter of 2019 (Table 4.A).[32] Net outflows by residents in both equity and debt securities accelerated in the first quarter of 2019 as they picked up investment activities on assets abroad, which more than offset the inflows by non-residents.

Table 4.A
Cross-border portfolio investment flows

	2017	2018				2019
(HK$ bn)		Q1	Q2	Q3	Q4	Q1
By Hong Kong residents						
Equity and investment fund shares	-109.8	-101.2	-64.6	-134.5	-27.6	-53.0
Debt securities	54.5	-108.0	-140.7	6.1	-87.2	-221.0
By non-residents						
Equity and investment fund shares	80.4	-77.3	-1.3	31.7	7.6	35.2
Debt securities	239.1	40.9	48.5	19.5	0.5	15.9

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

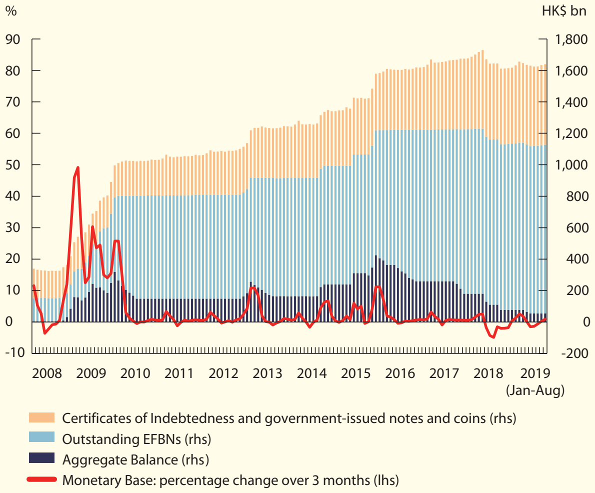
Looking ahead, the directions of Hong Kong dollar fund flows remain highly uncertain in view of the increased uncertainties in the monetary policy direction of the US Federal Reserve (Fed) and other major central banks, developments in the US-China trade tensions, and global economic growth. Meanwhile, possible fund raising activities (e.g. IPOs) in the second half of 2019 may increase fund flow volatility. On one hand, these activities may attract funds to flow into the Hong Kong dollar, but on the other hand the funds raised may be switched back to other currencies afterwards. As an international financial centre, fund flows into and out of Hong Kong can at times be quite large. Nonetheless, Hong Kong has maintained a sound fiscal position, substantial foreign reserves and a robust banking sector, which makes it resilient to abrupt reversals of fund flows.

[32] At the time of writing, the second-quarter BoP statistics were not yet available.

4.2 Monetary environment and interest rates

Despite macroeconomic uncertainties and the triggering of the weak-side CU, the monetary environment in Hong Kong continued to stay relatively loose thus far in 2019. The Hong Kong dollar Monetary Base remained sizeable and broadly stable, standing at HK$1,639.2 billion at the end of August and edging up by 0.4% in the first eight months (Chart 4.4). Non-AB components of the Monetary Base, including Certificates of Indebtedness, government-issued notes and coins, and outstanding EFBNs, increased steadily during the same period.

Chart 4.4
Monetary Base components

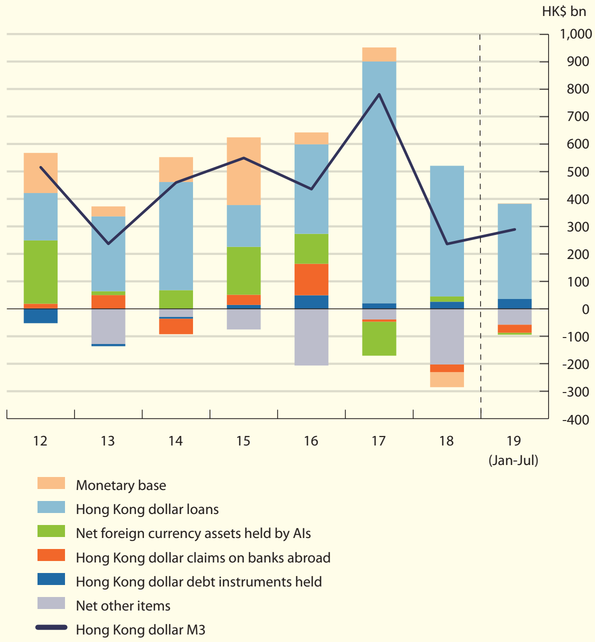


Source: HKMA.

During the first seven months of 2019, the Hong Kong dollar Monetary Aggregates witnessed moderate expansion after some consolidation in the second half of 2018. For the first seven months as a whole, the Hong Kong dollar broad money (HK$M3) rose by 3.3%. Analysed by the asset-side counterparts, the expansion of HK$M3 in that period was mainly led by money creation through Hong Kong dollar loans[33] (Chart 4.5).

Correspondingly, Hong Kong dollar deposits, a major component of HK$M3, picked up by 3.6% (Chart 4.6). Within Hong Kong dollar deposits, time deposits recorded a relatively strong increase, partly reflecting higher Hong Kong dollar deposit rates.

Chart 4.5
Changes in the HK$M3 and the asset-side counterparts



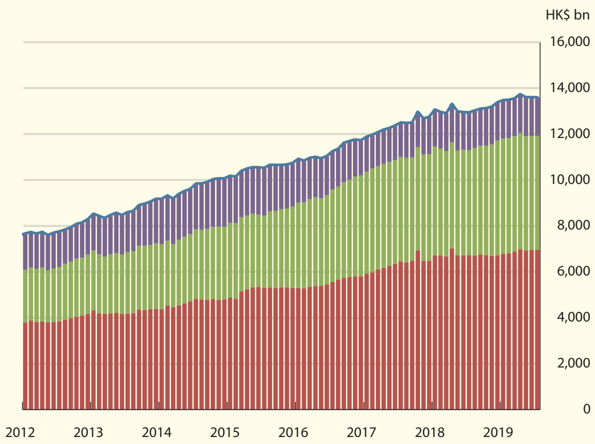
Note: The HK$M3 in the monetary survey has been adjusted to include foreign currency swap deposits and to exclude government deposits and Exchange Fund deposits with licensed banks.

Source: HKMA staff estimates.

Foreign currency deposits declined by 0.3% in the first seven months of 2019 (Chart 4.6). In particular, US dollar deposits declined by 0.8%, in part reflecting lower US dollar interest rates. On the other hand, other foreign currency deposits grew mildly by 1.1% during the same period, with renminbi deposits continuing to increase at a modest pace. Overall, total deposits with AIs increased by 1.6% during the first seven months.

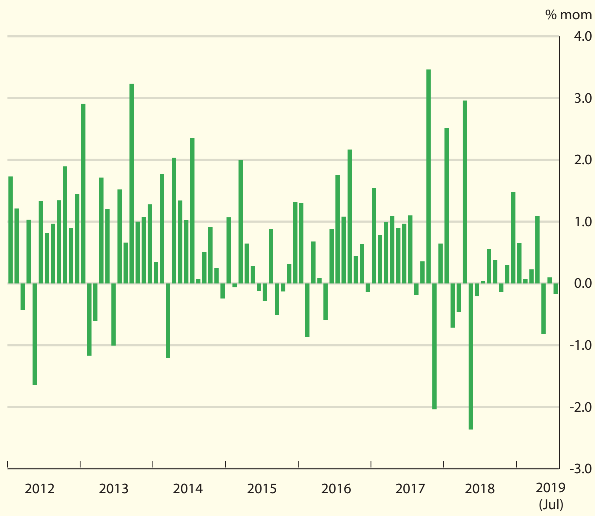
[33] As a reference, Hong Kong dollar loans grew by 6.0% during the first seven months.

Chart 4.6
Deposits with AIs by currencies



Source: HKMA.

Chart 4.7
Total broad money supply (M2)



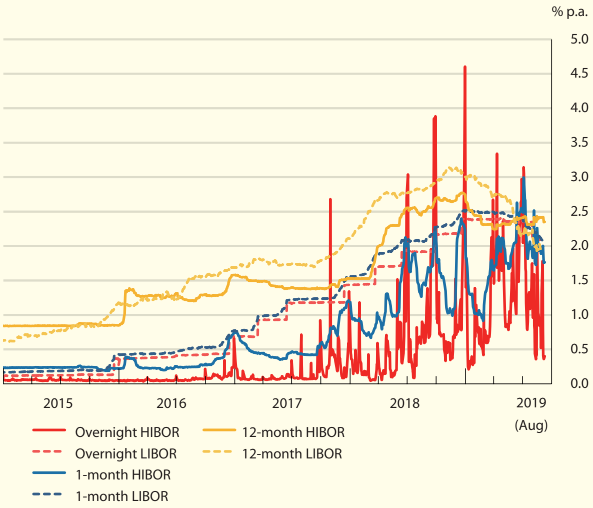
Source: HKMA.

Total broad money supply in Hong Kong grew at a relatively steady pace thus far in 2019 (Chart 4.7). With the pick-up in Hong Kong dollar deposits exceeding the decline in foreign currency deposits, both total M2 and M3 increased by a modest 1.1% for the first seven months as a whole. It should be noted that monthly changes in deposits and broad money are subject to volatility due to a wide range of transient factors, such as seasonal and IPO-related funding demand, as well as business and investment-related activities.

After softening in the first two months of 2019, the Hong Kong dollar interbank interest rates faced renewed upward pressure between March and June. The short-term Hong Kong Interbank Offered Rates (HIBORs) picked up considerably since March with reduced liquidity amid the triggering of the weak-side CU (Chart 4.8). In particular, seasonal funding needs, together with anticipated liquidity demand for large IPOs in the second half, pushed up the short-term HIBORs further since late May. Stepping into the second half of 2019, HIBORs declined gradually as the seasonal and IPO-related funding demand receded. The 1-month HIBORs declined to an average of 1.94% in August.

The reduction in the AB since April last year may have led to a higher sensitivity of the Hong Kong dollar interbank rates to changes in supply and demand of Hong Kong dollar funding in the local market. Banks have reportedly been more active in managing their day-to-day funding position in order to ensure effective deployment of liquidity for themselves and efficient circulation of liquidity in the banking system. It has also been observed that banks have started earlier to prepare for periods of strong funding needs (e.g. quarter-ends or IPO subscription periods).

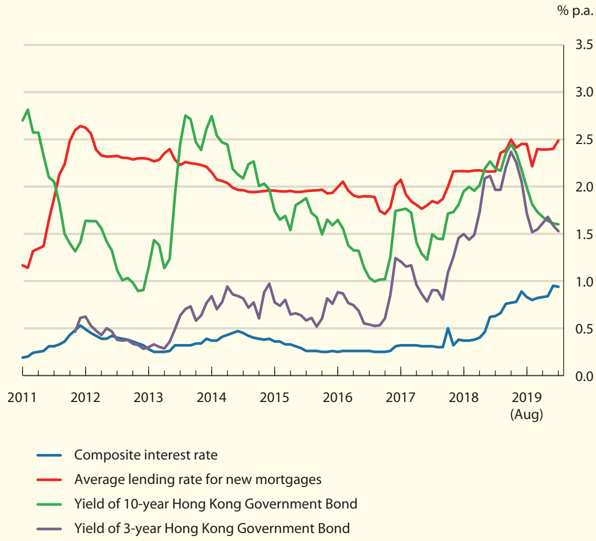
Chart 4.8
Hong Kong dollar and US dollar interbank interest rates



Sources: CEIC and HKMA.

Over the review period, the Hong Kong dollar yield curve broadly tracked the movements of the US dollar yield curve, shifting downward and flattening at the longer-end. Compared with the end of 2018, the yields of the three-year and ten-year Hong Kong Government Bonds declined, respectively, by 33 basis points and 97 basis points to 1.52% and 1.08% at the end of August (Chart 4.9).

Chart 4.9
Yields of Government Bonds, the composite interest rate, and the average lending rate for new mortgages



Sources: HKMA and staff estimates.

The composite interest rate, a measure of the average Hong Kong dollar funding costs of retail banks, remained largely stable at around 0.82% in the first five months of 2019 (Chart 4.9). As banks raised their preferential deposit rates amid the rise in funding demand, the composite interest rate picked up to 0.95% at the end of June, before easing marginally to 0.94% at the end of July.

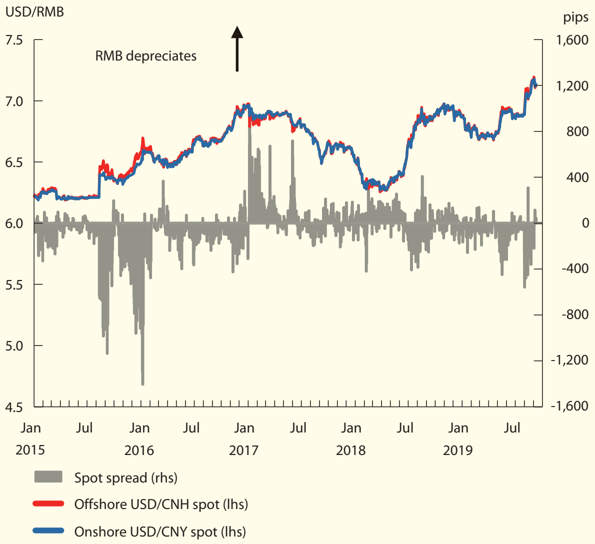
Mainly reflecting the relatively stable prime-based cap for the HIBOR-based mortgages, the average lending rate for new mortgages remained steady at around 2.4% in most of the first half. The average mortgage rate, however, increased slightly moving into August to 2.49%, with major banks raising the level of the prime-based caps for some of their new mortgage lending.

Looking ahead, movements in Hong Kong dollar interest rates will continue to be influenced by their US dollar counterparts under the design of the Linked Exchange Rate System. Fluctuations are expected to be seen around periods with strong funding demand (e.g. quarter-ends or IPO subscription periods). In case of short-term liquidity tightness due to large scale capital market activities, banks can make use of the HKMA liquidity facilities.

Offshore renminbi banking business

Against the backdrop of the US-China trade conflict, the offshore (CNH) and the onshore (CNY) renminbi have faced depreciation pressures since early May after strengthening gradually in the several months before that. In early August, the CNY exchange rate fell past 7 against the US dollar for the first time since 2008 after the US planned to impose an additional 10% tariff on US$300 billion worth of Mainland's imports from September (Chart 4.10). The spread between CNY and CNH once widened to about 450 pips in mid-May and further widened to about 560 pips in early August, although it remained moderate by historical standards.

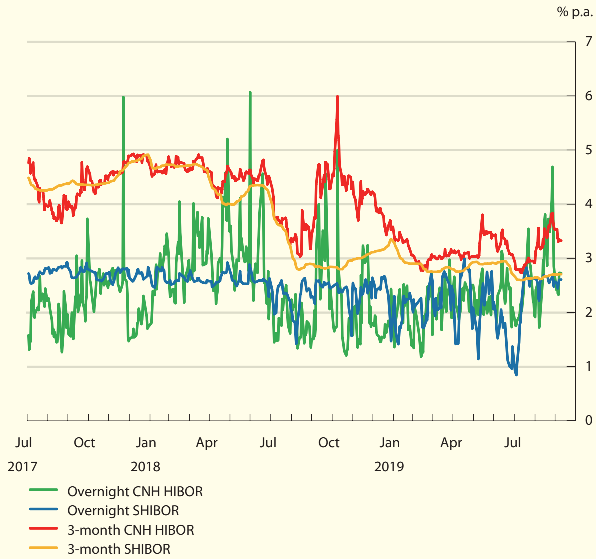
Chart 4.10
CNY and CNH exchange rates



Source: Bloomberg.

Despite pressure on the renminbi exchange rate to weaken, liquidity conditions in the offshore CNH interbank market remained broadly stable in the review period. The 3-month CNH HIBOR mostly traded in the range between 3 to 4% (Chart 4.11). Moderate fluctuations were seen over the period, in part reflecting funding demand for MSCI's A-share rebalancing and tightened liquidity amid the trade conflict.

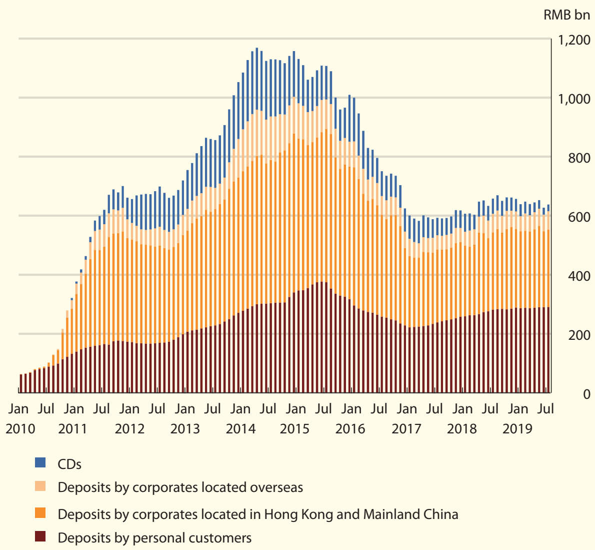
Chart 4.11
The overnight and the three-month CNH HIBOR fixings



Source: CEIC.

As for Hong Kong's CNH liquidity pool, the total outstanding amount of renminbi customer deposits and certificates of deposit (CDs) decreased by 2.9% from RMB657.7 billion at the end of 2018 to RMB638.8 billion at the end of July 2019 (Chart 4.12 and Table 4.B). Despite the renminbi depreciation pressure, particularly since the second quarter, renminbi customer deposits increased slightly by 0.2% for the first seven months as a whole. On the other hand, outstanding CDs dropped further by 46.7% in the first seven months, partly due to a fall in CD issuances.

Chart 4.12
Renminbi deposits and CDs in Hong Kong



Source: HKMA.

Table 4.B
Offshore renminbi banking statistics

Renminbi trade settlement and banking business

	Dec 2018	Jul 2019
Renminbi deposits & CDs (RMB bn)	657.7	638.8
Of which:		
Renminbi deposits (RMB bn)	615.0	616.0
Share of renminbi deposits in total deposits (%)	5.2	5.1
Renminbi CDs (RMB bn)	42.7	22.7
Renminbi outstanding loans (RMB bn)	105.6	120.8
Number of participating banks in Hong Kong's renminbi clearing platform	200	200
Amount due to overseas banks (RMB bn)	80.4	61.4
Amount due from overseas banks (RMB bn)	132.8	121.2

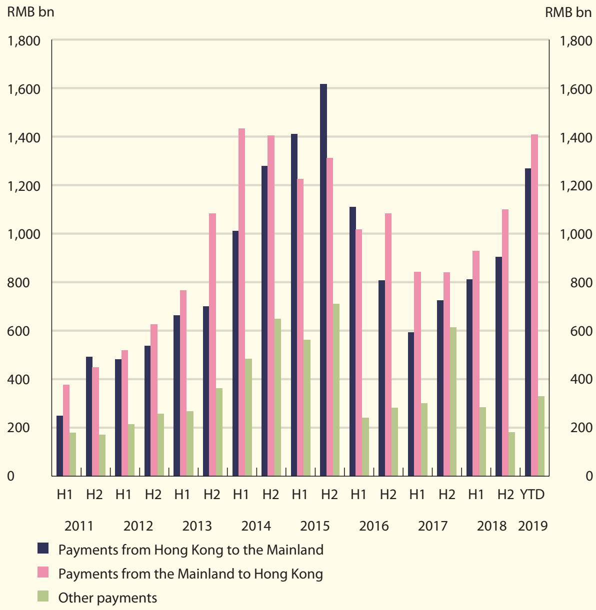
	Jan — Jul 2019
Renminbi trade settlement in Hong Kong (RMB bn)	3,005.8
Of which:	
Inward remittances to Hong Kong (RMB bn)	1,407.0
Outward remittances to Mainland China (RMB bn)	1,268.4
Turnover in Hong Kong's RMB real time gross settlement (RTGS) system (Daily average during the period; RMB bn)	1,121.3

Source: HKMA.

Hong Kong's renminbi bank lending showed signs of stabilisation after seeing a declining trend for two years, with the outstanding amount of renminbi bank loans increasing by 14.4% to RMB120.8 billion at the end of July 2019. Meanwhile, Hong Kong's renminbi trade settlement continued to expand. Transactions handled by banks in Hong Kong amounted to RMB3,005.8 billion during the first seven months (Chart 4.13), compared with RMB2,383.2 billion during the same period last year. The increase was driven by both inward remittances to Hong Kong and outward remittances to Mainland China.

The renminbi liquidity pool in Hong Kong continued to support a large amount of renminbi payments and financing transactions. During the first seven months, the average daily turnover of the renminbi RTGS system stayed high at RMB1,121.3 billion, compared with RMB953.1 billion in the same period in 2018.

Chart 4.13
Flows of renminbi trade settlement payments



Note: Year-to-date (YTD) indicates January to July 2019.
Source: HKMA.

The development of the offshore renminbi market will continue to be affected by external headwinds, particularly the lingering US-China trade conflict. Nevertheless, the progress of Mainland's capital account liberalisation, the increase of renminbi assets allocation by international investors, and enhanced regional economic and financial co-operation under the Belt and Road and Guangdong-Hong Kong-Macao Greater Bay Area initiatives are expected to offer continued support to the offshore renminbi business.

Asset markets

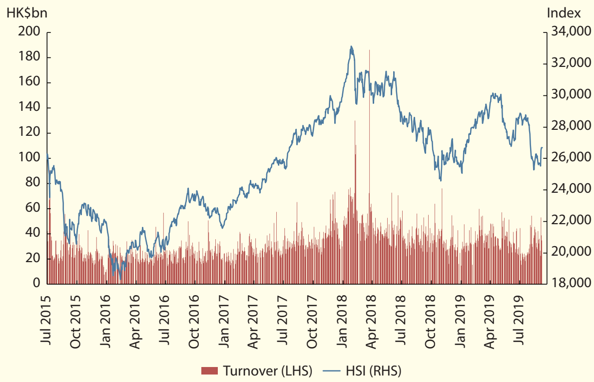
The Hong Kong equity market was largely driven by the ebb and flow of the US-China trade tensions during the review period, while cushioned by strong signals from leading central banks to ease monetary policy. The Hong Kong dollar debt market expanded mildly and the offshore renminbi debt market showed a rebound in issuance amid elevated volatility in global bond markets. After a strong rebound in the first five months, the residential property market has softened somewhat since June amid renewed trade tensions and a weakening economy.

4.3 Equity market

The local equity market took a roller coaster ride in the review period. The Hang Seng Index (HSI) continued to rally on apparent progress in trade negotiations between Mainland China and the US initially, but it was quickly reversed by a re-emergence of conflicts, with both sides doubling down on their threats with new tariffs and non-tariff protective measures in the run-up to the G20 Summit in Osaka (Chart 4.14). At the same time, global economic conditions have weakened, prompting leading central banks to indicate a readiness to introduce fresh stimulus, which once helped revive sentiment in the local market. This also appeared to echo Trump's repeated call for the Fed to take bolder steps to ease monetary policy amid increasing uncertainties about the US economic outlook and escalating trade tensions with Mainland China. However, despite the subsequent return of both sides to the negotiation table following the Osaka summit, trading has since, by and large, reflected investors coming to terms with the reality that their differences on structural issues will take time to be resolved and hence the formidable trade negotiations will be a long-drawn-out process.

Overall, the HSI and Hang Seng China Enterprises Index, also known as the H-share index, managed to decline by 10.72% and 12.37%, respectively from March 2019 to September 2019. Option-implied volatilities initially surged to a peak in early May, but have since subsided as calm returned to the market (Chart 4.16). The SKEW index rebounded towards the end of the review period, reflecting that investors were again concerned with heightened tail risk, hence seeking downside protection.[34]

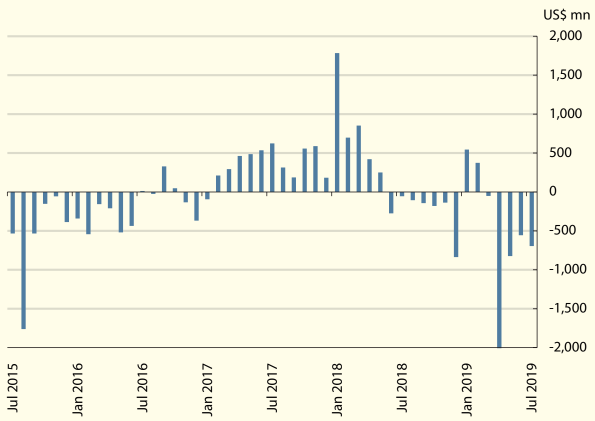
Chart 4.14
Equity prices in Hong Kong



Source: Bloomberg.

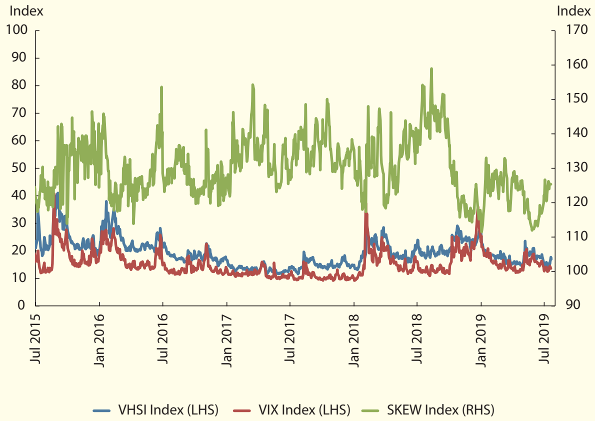
34 The SKEW Index is calculated by the Chicago Board Options Exchange from the prices of the S&P 500 out-of-the-money options. A SKEW value of 100 means that the probability of outlier negative returns at a 30-day horizon is negligible. As SKEW rises above 100, the left tail of the S&P500 returns distribution acquires more weight, suggesting that the probability of outlier negative returns become more significant. For details, see https://www.cboe.com/products/vix-index-volatility/volatility-indicators/skew.

Chart 4.15
Equity market fund flows into Hong Kong



Source: EPFR Global.

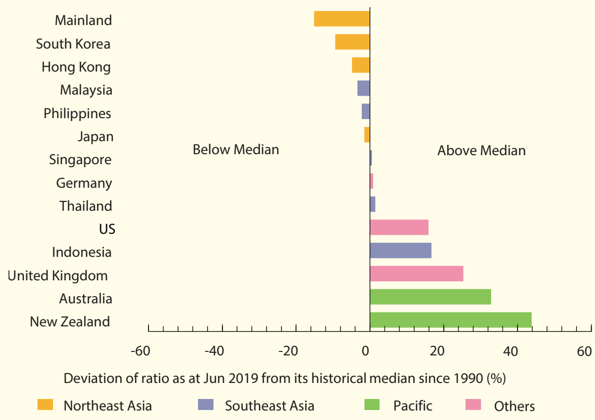
Chart 4.16
Option-implied volatilities of the HSI and S&P 500, and the SKEW Index



Sources: Bloomberg and HKMA staff estimates.

The outlook for local equities in the period ahead is going to be highly uncertain, as trade tensions between the two super-economic powers will inevitably ebb and flow in the foreseeable future. This has already kept investors increasingly sidelined as reflected in the net fund outflows and reduced turnover (Charts 4.15 and 4.14). Their concerns stem mainly from the potential impact on the real economy, rather than the resulting currency fluctuations (Box 4). The trade war aside, investors are weary of the wild cards of a possible hard Brexit and the geopolitical tensions between the US/UK and Iran. On the policy front, whether the coming round of monetary easing will be timely and sufficient enough to cushion the slowing global economy remains to be seen. Hence, despite its attractive valuations, the local equity market is likely to head for another bumpy ride (Chart 4.17).

Chart 4.17
Cyclically-adjusted price-earnings ratios of Asia Pacific and other major markets



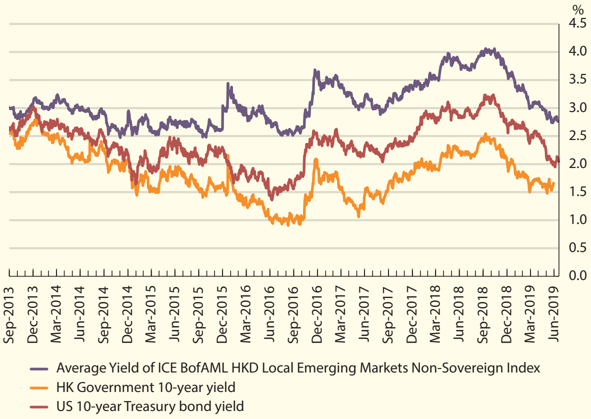
Sources: Bloomberg, CEIC and HKMA staff estimates.

4.4 *Debt market*

The Hong Kong dollar debt market expanded mildly in the first half of 2019, despite elevated volatility in global bond markets. Total issuance rose steadily on the back of increased demand for funds by domestic and international borrowers. With the bias of monetary policy of the G3 central banks tilted towards a more dovish stance, the yields of both sovereign and non-sovereign bonds eased further globally, with the US Treasury bonds and Hong Kong Exchange Fund papers being no exceptions (Chart 4.18).[35]

[35] G3 refers to the United States, European Union, and Japan.

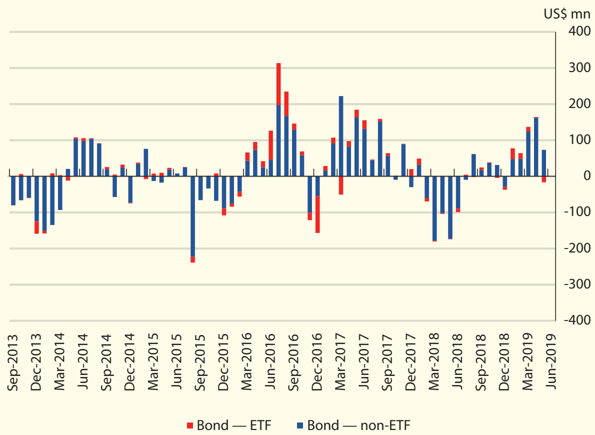
Chart 4.18
Hong Kong dollar sovereign and non-sovereign bond yields and US ten-year Treasury yield



Sources: ICE Data Indices and HKMA.

Despite growing uncertainties over the global economic outlook and lingering geopolitical tensions, international investors continued to return from the sideline as evidenced by strong non-resident portfolio inflows to emerging markets in recent months.[36] Against this backdrop, Hong Kong has experienced a stream of net bond fund inflows since January this year, marking the longest positive streak since September 2017 (Chart 4.19).

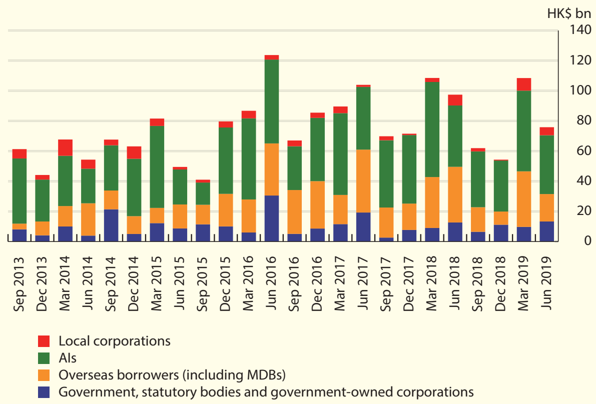
Chart 4.19
Exchange traded fund (ETF) and non-ETF bond fund flows into Hong Kong



Source: EPFR Global.

The total issuance of Hong Kong dollar debt increased by 1.1% year on year to HK$1,822.3 billion in the first six months of 2019, mainly driven by a 2.5% increase in the Exchange Fund's issuance, which more than offset the decline in debts issued by the private sector (Chart 4.20).

Chart 4.20
New issuance of non-EFBNs Hong Kong dollar debt

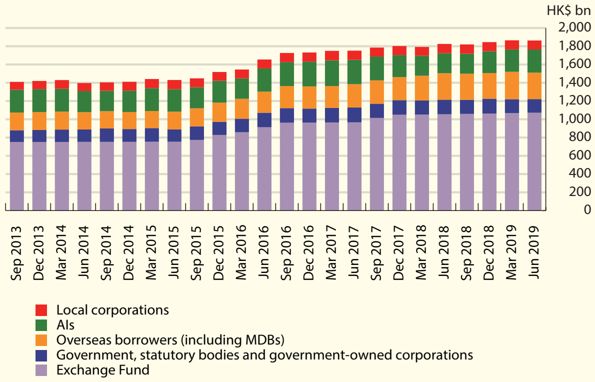


Source: HKMA.

The outstanding amount of Hong Kong dollar debt went up by 2.1% year on year to HK$1,862.8 billion at the end of June (Chart 4.21). The amount was equivalent to 24.7% of HK$M3 or 19.9% of Hong Kong dollar-denominated assets of the banking sector. Within the total, overseas borrowers including multilateral development banks (MDBs) saw their debt outstanding grow slightly by 0.3% from a year ago to HK$289.6 billion. Meanwhile, the outstanding debt of the local private sector also rose by 10.0% year on year to HK$353.2 billion, attributable to an increase in the outstanding debt of AIs.

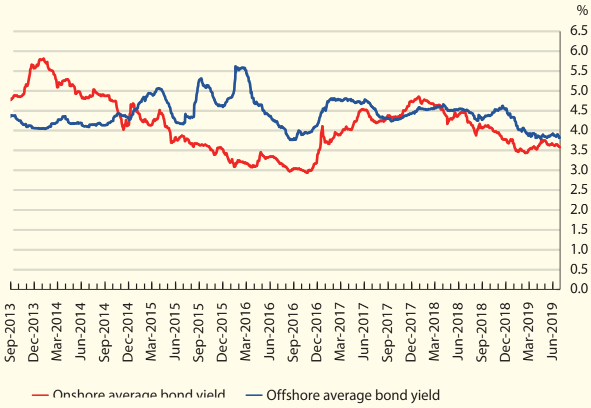
36 According to the Institute of International Finance, the non-resident portfolio inflows to emerging markets were US$40.8 billion in June 2019, the highest level in five months.

Chart 4.21
Outstanding Hong Kong dollar debt



Source: HKMA.

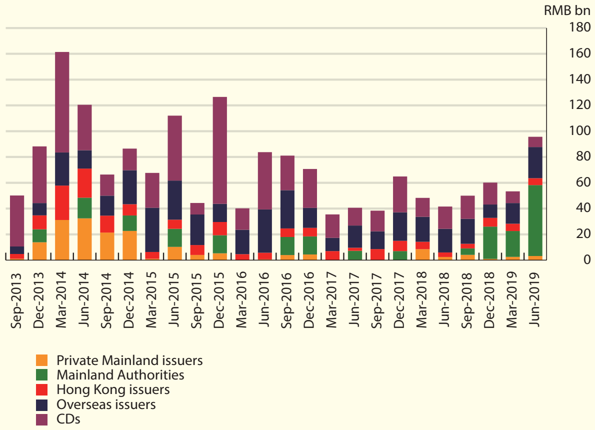
Chart 4.23
Average yields of onshore vs. offshore renminbi bond indices



Sources: Bloomberg, Hang Seng Indexes Company Ltd, and China Central Depository & Clearing Co., Ltd.

The primary offshore renminbi debt market in Hong Kong showed a rebound in activity in the review period, after several quarters of tepid performance. Total issuance jumped 65.8% year on year to RMB149.0 billion in the first half of 2019, driven by increase in issuance by both overseas issuers and Mainland authorities (Chart 4.22). The appetite of the private sector remained weak, as uncertainties increased over the outlook for the Mainland economy. The average onshore yield was persistently lower than the offshore counterpart, which added to the considerations underlying the reluctance of private Mainland issuers to roll over their debt offshore (Chart 4.23).

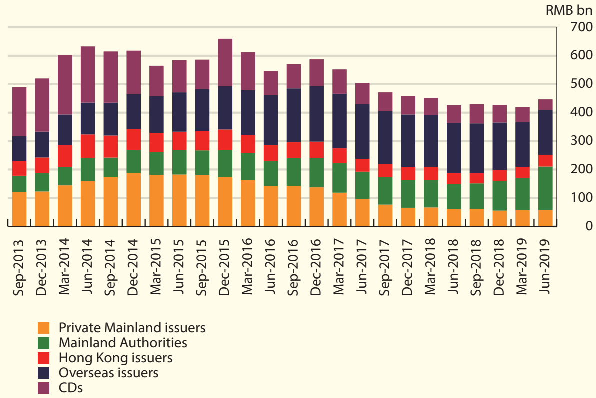
Chart 4.22
New issuance of offshore renminbi debt securities



Sources: Newswires and HKMA staff estimates.

Against this backdrop, the total outstanding amount of offshore renminbi debt securities in Hong Kong registered a year-on-year growth of 4.8% to RMB446.8 billion at the end of June 2019 (Chart 4.24), after suffering 12 consecutive quarters of decline.

Chart 4.24
Outstanding amount of offshore renminbi debt securities and renminbi deposits in Hong Kong



Sources: Newswires and HKMA staff estimates.

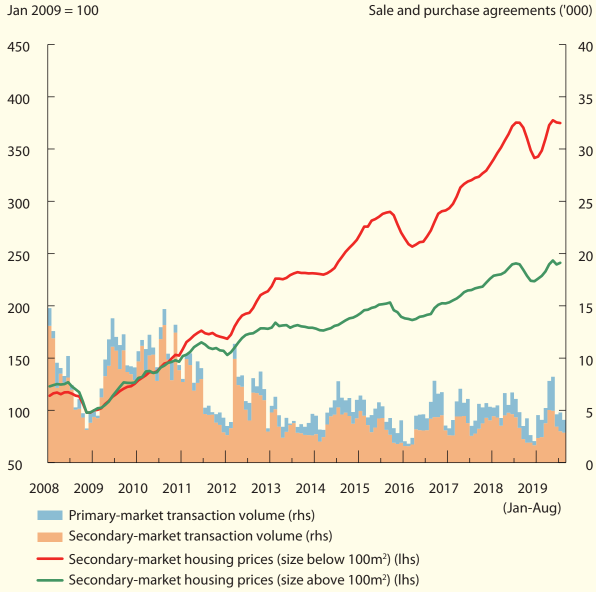
The near-term development of the local debt market, including the offshore renminbi debt market, will be subject to considerable headwinds. The slowing global economy, in particular the slowing Mainland economy, means that borrowers are likely to be less willing to engage in long-term projects, hence dampening their demand for long-term funds, while investors face an increasing amount of credit risk. Although the increased prospect of monetary easing will to some extent offset this negative outlook, the credit spread is expected to widen in the period ahead. This is particularly true when the US-China trade tensions continue to persist in the foreseeable future. Nonetheless, rising to the challenges, the Government remains firmly committed to promoting the local debt market and continuing with a number of policy initiatives, especially encouraging first-time issuers and green bond issuers to tap the market in Hong Kong.

4.5 Property markets

Residential property market

After a strong rebound in the first five months of 2019, the residential property market has softened somewhat since June. The strong rebound from January to May reflected improved market sentiment[37], with housing transactions surging to a six-year high of 8,208 units in May and flat prices recouping the losses recorded in the second half of 2018 (Chart 4.25). Thereafter, market sentiment has been tempered by the US-China trade conflict and a weakening domestic economy. Average monthly transactions fell to 4,505 units in June–August and secondary-market housing prices also declined by around 1% in June–July after rising by 10.5% in the first five months. In particular, prices for large flats (with saleable area of at least 100m²) decreased slightly faster than the prices for small and medium-sized flats (with saleable area of less than 100m²). Meanwhile, a few property developers cut micro-flat prices to lure buyers. More recent market data indicated that secondary-market housing prices remained subdued in August and early September.

Chart 4.25
Residential property prices and transaction volume



Sources: Rating and Valuation Department (R&VD) and Land Registry.

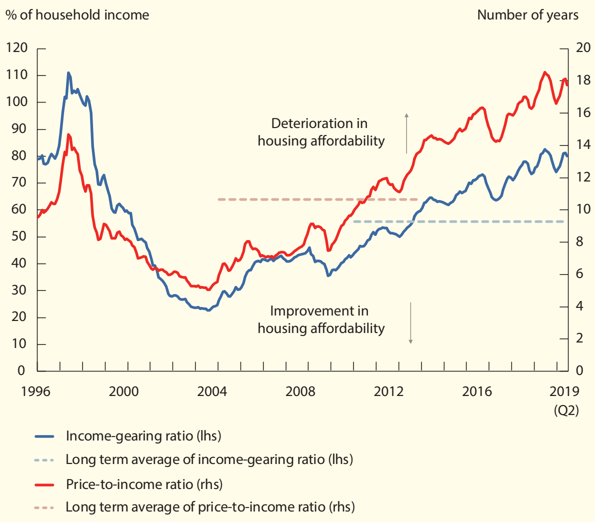
Housing affordability remained stretched, with the housing price-to-income ratio climbing to 18.0 in the second quarter, compared with the 1997 peak of 14.7. In addition, the income-gearing ratio was 80.7% in the second quarter, well above the long-term average (Chart 4.26).[38] As the cumulative increase in housing rentals was smaller than that of housing prices, the buy-rent gap remained high in the first half of the year (Chart 4.27).[39] On the flip side, residential rental yields stayed low at 2.1–2.6%.

37 Market sentiment improved at that time partly because concerns over US-China trade tensions temporarily eased, equity markets across the globe recovered and expectations of further US rate hikes diminished.

38 The price-to-income ratio measures the average price of a typical 50m² flat relative to the median income of households living in private housing. Alternately, the income-gearing ratio compares the amount of mortgage payment for a typical 50m² flat (under a 20-year mortgage scheme with a 70% loan-to-value (LTV) ratio) to the median income of households living in private housing. The income-gearing ratio is not the same as a borrower's actual debt-servicing ratio, which is subject to a maximum cap by the HKMA prudential measures.

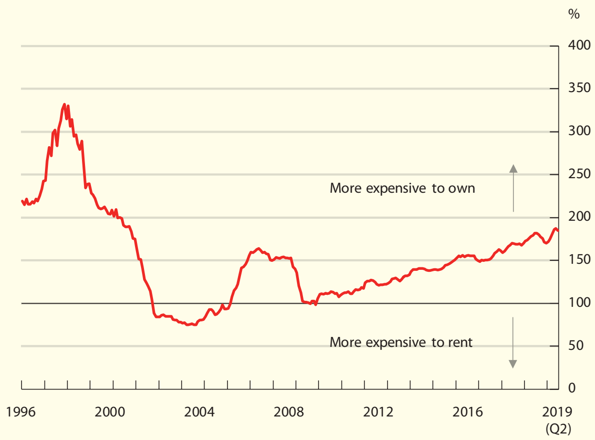
39 The buy-rent gap estimates the cost of owner-occupied housing (under a 20-year mortgage scheme with a 70% LTV ratio) relative to rentals.

Chart 4.26
Indicators of housing affordability



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

Chart 4.27
Buy-rent gap



Note: This indicator is calculated as the ratio of the cost of purchasing and maintaining a 50m² flat with that of renting it.
Sources: R&VD, C&SD and HKMA staff estimates.

The average interest rates for new mortgages continued to be low at about 2.5% despite the recent rises in HIBORs (see also Section 4.2). However, since August some banks have increased their mortgage interest rates and reduced the cash rebates for new mortgages. This partly reflected a pick-up in the average cost of funds of banks.

In general, banks in Hong Kong have sufficient buffers to withstand risks stemming from the property market. Reflecting the effectiveness of the macro-prudential measures implemented by the HKMA since 2009, the average LTV ratio for new mortgages declined to 46.2% in July from 64% before the measures were first introduced, and the debt-servicing ratio also fell to 35%.

The residential property market outlook has become more uncertain. While the currently low unemployment rate could provide some support for property demand, the weakening economy could lead to deterioration in labour market conditions. Other risk factors including the US-China trade conflict and slowing global economic growth may weigh on housing market sentiment in the near term. In addition, while the Fed cut its policy rate in July, the trajectory for domestic mortgage interest rates is still uncertain and will depend on other factors such as local interbank liquidity conditions. Over the longer term, the outlook for the housing market will hinge on the housing supply-demand gap. The Government projects the private housing completion will remain high in the years ahead, which should help narrow the housing supply-demand gap over time.

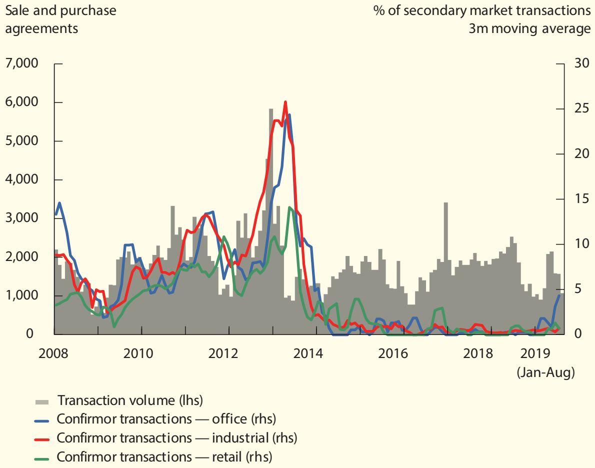
Non-residential property market

The non-residential property market picked up in the second quarter after a lacklustre start in the first quarter. The average monthly transactions rebounded by 85% to 1,939 units in the second quarter from 1,051 units in the first quarter, while speculative activities remained inactive as indicated by the low level of confirmor transactions (Chart 4.28).[40] The prices of retail premises, office space and flatted factories also picked up from their respective troughs in the first quarter (Chart 4.29). The leasing market exhibited diverse movements in the first half of the year, but rentals were generally higher compared with figures at the end of 2018. The overall rental yields across segments were maintained at a low range of 2.6–2.9% in July.

[40] The transactions however retreated in July–August amid a weakening domestic economy.

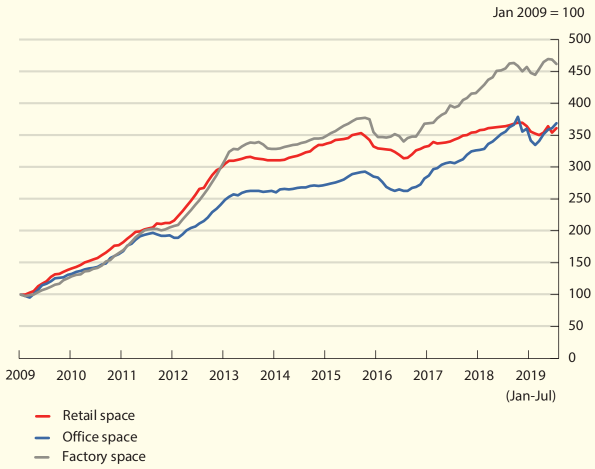
The non-residential property market is likely to face headwinds in the near term. For example, the prospects for the retail segment will be overshadowed by the weakening retail sales and tourist arrivals.

Chart 4.28
Transactions in non-residential properties



Sources: Land Registry and Centaline Property Agency Limited.

Chart 4.29
Non-residential property price indices



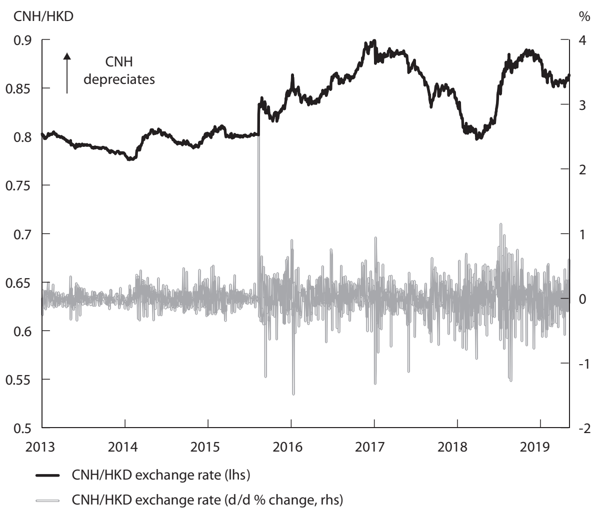
Source: R&VD.

Box 4
Does the renminbi exchange rate affect equity flows? – Evidence from the Stock Connect programmes

Introduction[41]

Since 2014, the Stock Connect programmes have offered international and Mainland investors a new channel for diversifying their equity investment portfolios into the Mainland and Hong Kong markets. However, fluctuation in the renminbi has become more pronounced since the exchange rate reform in August 2015 (Chart B4.1), raising concerns that the fluctuation may have an impact on the currency-adjusted returns in investors' portfolios. As such, does the renminbi fluctuation influence investors' decisions on their participation in the programmes?[42]

Chart B4.1: Movement of the offshore renminbi (CNH)



Against this background, this box (i) assesses the effects of the CNH exchange rate movement on the cross-border equity flows to firms under the programmes; and (ii) identifies characteristics of firms that could experience more outflows when the CNH depreciates. Given the granular data publicly available, we opt for the machine learning (ML) technique since it is effective in handling data that are multi-dimensional and multi-variant.

Data and methodology

The equity flow to each firm is measured by the net change in the percentage of a firm's shareholdings via the Stock Connect programmes. A positive (negative) equity flow indicates a net inflow (outflow) to the firm. The CNH movement is measured by the daily percentage change in the CNH against the Hong Kong dollar. In addition, global stock volatility, firm's stock performance and funding cost of investors are also included in the ML model as the control factors.[43]

Covering the sample period from 20 March 2017 to 30 April 2019, our data sample consists of 1,522 actively traded firms, among which 1,110 firms are listed in Mainland China (denoted as "northbound firms") and the remaining 412 firms are listed in Hong Kong (denoted as "southbound firms"). These firms account for 90% and 94% of the market capitalisation of all eligible northbound and southbound firms respectively.[44]

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41 Details are in Fong et al. (2019) "Does the renminbi exchange rate affect equity flows? - Evidence from the Stock Connect programmes", *HKMA Research Memorandum*, forthcoming.

42 Imperfect foreign exchange risk hedging is the major reason behind why international equity flows should react to movement in exchange rates, as it would affect the returns of cross-border equity investments.

43 Global stock volatility is measured by the daily changes of the Chicago Board Options Exchange Market Volatility (VIX) index. Next, for an investor investing in a firm via the Stock Connect programmes, firm's stock performance is measured by its daily excess return over the investor's domestic stock market return (i.e., the Hang Seng Composite Index return for international investors; and the CSI 300 Index return for Mainland investors). Finally, funding cost is measured by the daily changes of the 3-month CNH interbank interest rates and the 3-month Shanghai interbank offered rate for northbound and southbound investors respectively.

44 Actively traded firms refer to those with non-zero equity flows in over 70% of the trading days of the sample period under the programmes. Individual firms' shareholdings under the programmes have been publicly available since 17 March 2017 at the earliest.

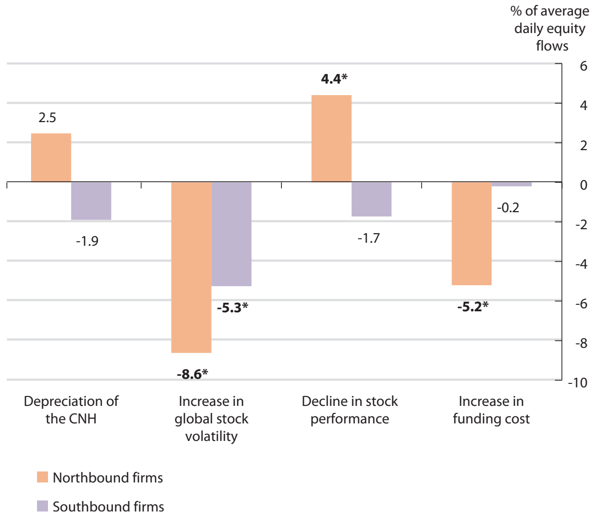
We uncover the relationships between the equity flows and the selected factors including the CNH movement in three steps. First, we estimate a total of 632 ML models for each firm by considering a number of model variants from three popular ML techniques, which include random forest, support vector machine and artificial neural network. Second, we select the best 20 models based on their out-of-sample prediction accuracy and use each of the best 20 models to predict the potential changes in equity flows on certain shocks to the CNH or other factors. Finally, we measure the potential changes in equity flows to each firm by taking the average predicted changes from these best 20 models.[45]

To identify the characteristics of firms which are more affected by the renminbi exchange rate movement, we use the k-means clustering to group firms into different clusters, such that firms in the same cluster share more similarities with each other, in terms of one or multiple characteristics, than with those in other clusters. In addition to the effects of the CNH movement on equity flows, we consider several additional aspects of a firm in the cluster analysis, which include the firm's stock performance, financial fundamentals, shareholding under the Stock Connect programmes and share of overseas revenue.[46,47]

Empirical evidence

Chart B4.2 depicts the estimated impact on the aggregate equity flows to northbound and southbound firms. Specifically, when the CNH depreciates by one standard deviation (SD), equity flows to northbound (southbound) firms are estimated to increase (decrease) by 2.5% (1.9%) of average daily equity flows of all northbound (southbound) firms. Nevertheless, both effects are statistically insignificant. By comparison, shocks in global stock volatility are found to have the greatest impact on equity flows, where the equity flows to northbound (southbound) firms are estimated to decline significantly by 8.6% (5.3%) of average daily equity flows of all northbound (southbound) firms, when the VIX index increases by one SD.

Chart B4.2: Estimated effect on equity flows on one-SD shock to selected factors



Notes:
(1) Figures refer to the sum of effects on equity flows to individual northbound/southbound firms, and are expressed as the percentage of the average aggregate daily equity flows to all northbound/southbound firms in the study.
(2) * denotes statistical significance at 10%.

Chart B4.3 are radar charts that compare two clusters of firms identified by the k-means clustering. The first cluster groups firms with a decrease in equity flows (i.e. the red boundary) while the second one groups firms with an increase in equity flows (i.e. the blue boundary), given the CNH depreciation. In comparing the characteristics of northbound (upper panel) and southbound (lower panel)firms, we consistently

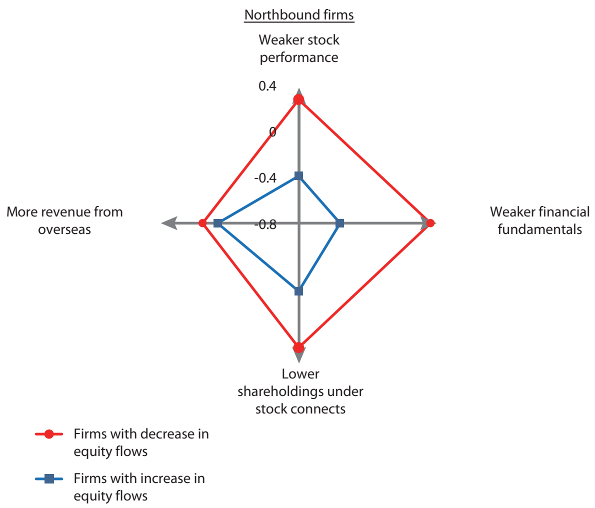
45 We select the best 20 models (instead of the best one only) to alleviate the over-fitting problem, the key area that requires attention when applying the ML techniques.

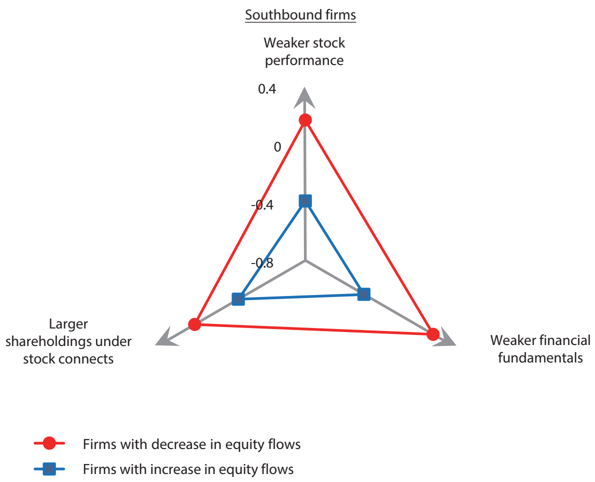
46 Stock performance is measured by equity return and stock price volatility. Financial fundamentals are measured by overall profitability, size and leverage.

47 The aspect on share of overseas revenue is not covered in southbound firms' analysis as it would have a less direct linkage with the CNH movement than that of the northbound firms.

find that firms with a decrease in equity flows tend to have weaker fundamentals (such as smaller size and less profitable) and weaker stock performance (such as lower stock return and higher price volatility), than firms with an increase in equity flows.

Chart B4.3: Clusters of northbound and southbound firms identified by the k-means clustering





Notes:

(1) Firms with an increase (a decrease) in equity flows refer to firms whose equity flows have a more positive (negative) response to one-SD CNH depreciation as compared to their industry average effect.

(2) Figures under each aspect refer to firms' average of average standard score (number of SD away from their industry average) of the firm-specific characteristics in that aspect.

(3) An outer position at each axis indicates the cluster's specific aspect tilting towards what is indicated.

Empirical implications

Our empirical findings suggest that movements in the offshore renminbi exchange rate would have an insignificant impact on the equity flows to both Mainland China and Hong Kong-listed firms under the Stock Connect programmes. At the extreme point, investors would tend to sell stocks of firms with weaker fundamentals and stock market performance during periods when the renminbi was depreciating, but the selling pressure would not have a significant impact on the overall equity flows as they are also smaller in size. This insignificance may be due to the fact that the currency risk could be effectively hedged by a diversified suite of renminbi exchange rate instruments available in the markets.[48]

By comparison, global stock volatility has the strongest impact on equity flows. This indicates that with continued growth in these trades through the Stock Connect programmes, the potential global market spillovers would become more noteworthy. As such, investors should be mindful of sudden cross-border equity flows triggered by heightened global market uncertainty.

[48] For instance, the Hong Kong Exchanges and Clearing Limited offers offshore renminbi products such as USD/CNH futures and options contracts to provide greater capital efficiency and flexibility for managing renminbi exposures.

5. Banking sector performance

Despite subdued economic growth, retail banks in Hong Kong registered a steady level of profit in the first half of 2019, compared with the same period in 2018. Capital and liquidity positions of the Hong Kong banking sector remained strong and robust by international standards. Banks' loan portfolios resumed expansion in the first half of the year while asset quality remained healthy by historical standards. Reflecting upward pressure on Hong Kong dollar interbank interest rates and keener competition in the retail deposit market, the average Hong Kong dollar funding costs for retail banks increased significantly in June, albeit remaining relatively low. Nevertheless, Hong Kong dollar liquidity remained ample underpinned by the stable level of deposits, with no noticeable outflow of funds from the Hong Kong dollar or from the banking system in the second quarter.

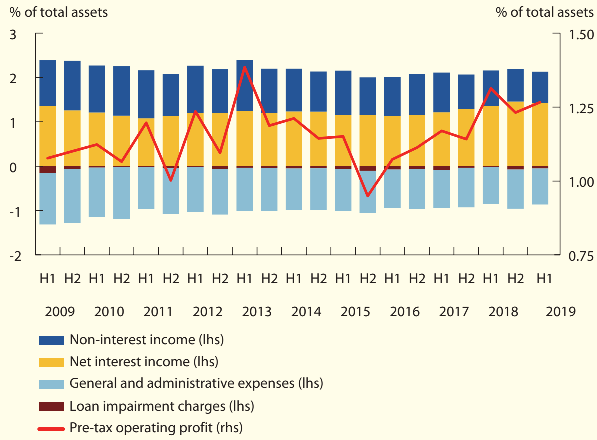
Looking ahead, the Hong Kong banking sector will face multiple headwinds, including the worsening of the US-China trade tensions, increased downside risks to the global economy, rising uncertainty over the timing and magnitude of monetary accommodation by some major central banks, and increased geopolitical risks. In view of the rising corporate leverage and household debt burden, banks should stay alert to the credit risk of their corporate and household exposures to any further deterioration in the external environment.

5.1 Profitability and capitalisation

Profitability

The year-on-year growth of aggregate pre-tax operating profit of retail banks[49] moderated to 0.6% in the first half of 2019. This was mainly due to a reduction in non-interest income and increases in impairment charges and operating expenses, which almost offset the growth in net interest income. Reflecting relatively slower growth in profits than assets, the return on assets reduced slightly to 1.27% in the first half of 2019, compared with the recent peak of 1.31% in the same period last year (Chart 5.1).

Chart 5.1
Profitability of retail banks

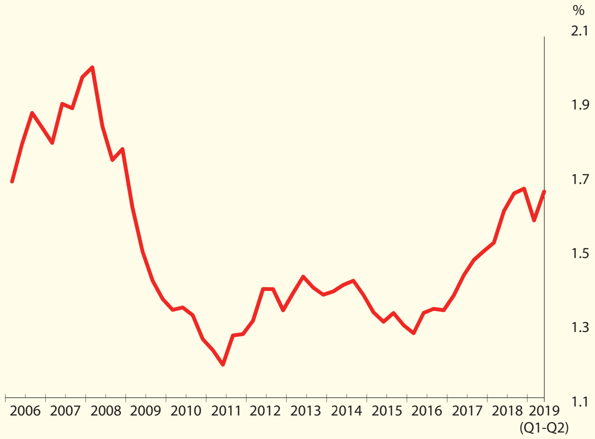


Note: Semi-annually annualised figures.
Source: HKMA.

The net interest margin (NIM) of retail banks widened to 1.66% in the second quarter compared with 1.61% for the same period last year (Chart 5.2).

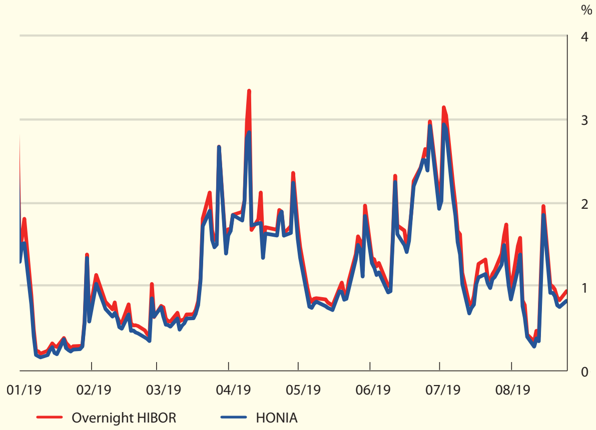
[49] Throughout this chapter, figures for the banking sector relate to Hong Kong offices only unless otherwise stated.

Chart 5.2
NIM of retail banks



Note: Quarterly annualised figures.
Source: HKMA.

Chart 5.3
Hong Kong dollar overnight interbank interest rates



Note: Daily figures.
Sources: TMA and HKMA.

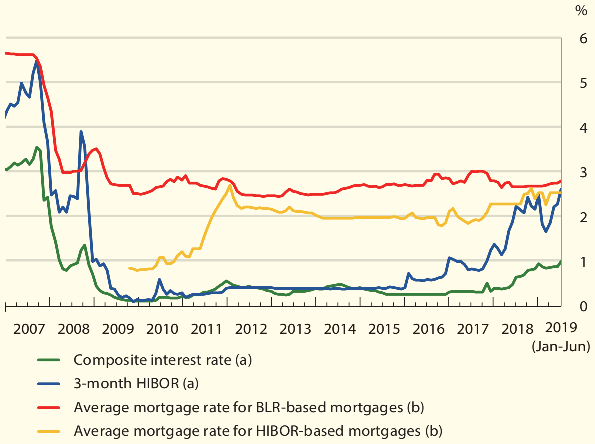
Despite some softening in the short-term Hong Kong dollar interbank rates in the first two months of 2019, interbank rates climbed notably in the second quarter due to a host of factors including seasonal funding needs and anticipated liquidity demand for large initial public offerings (IPOs) and dividend distributions by listed companies. Both the overnight Hong Kong Interbank Offered Rate (HIBOR) and the Hong Kong Dollar Overnight Index Average (HONIA)[50] saw upward movements with significantly higher volatility in the second quarter (Chart 5.3). The three-month HIBOR also reached a new post-crisis peak of 2.46% at the end of June (blue line in Chart 5.4).

Despite the fluctuations in HIBORs, the average Hong Kong dollar funding costs for retail banks, as measured by the composite interest rate, remained largely steady at around 0.82% during the first five months of 2019 (green line in Chart 5.4). However, retail banks were more active to source their funding from the retail deposit market towards the end of June. Partly reflecting keener competition for retail deposits, the composite interest rate picked up to 0.95% at the end of June, albeit remaining relatively low by historical standards.[51]

50 The Treasury Markets Association (TMA) had earlier proposed adopting the HONIA as the alternative reference rate for HIBOR. In line with the Financial Stability Board's recommendation, HONIA is an overnight interbank funding rate based solely on transaction data. The details of HONIA are available on the TMA's website (https://www.tma.org.hk/gb_newsevents_n1.aspx?NewsId=290).

51 Since June 2019, the composite interest rate has been calculated based on the new local "Interest rate risk in the banking book" (IRRBB) framework. As such, the June figure is not strictly comparable with those of previous months.

Chart 5.4
Interest rates



Notes:
(a) End of period figures.
(b) Period-average figures for newly approved loans.
Sources: HKMA and staff estimates.

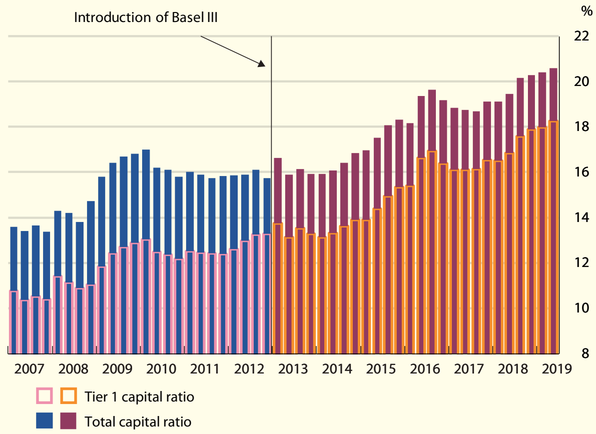
With a larger portion of HIBOR-based mortgage loans reaching their best-lending rate (BLR) cap rates amid the rising funding costs for banks in Hong Kong (see Chart 5.4), the improvement in NIMs brought about by a faster rise in HIBORs may become more limited going forward. Indeed, market information suggests that some banks have reduced the cash rebates for refinance mortgage loans and marked up the level of BLR cap rates for new mortgage lending.

The outlook for banks' profitability in the period ahead continues to be clouded by heightened uncertainties in both the local and external environments. The worsening US-China trade relations coupled with the weakening of local economic conditions and the recent social incidents in Hong Kong could dampen business confidence and reduce demand for bank credit. Meanwhile, the uncertainty over the timing and magnitude of monetary accommodation by some major central banks could also complicate the outlook of banks' NIM.

Capitalisation

Capitalisation of the Hong Kong banking sector continued to be strong and well above the minimum international standards. The consolidated total capital ratio of locally incorporated authorized institutions (AIs) increased to 20.6% at the end of June 2019 (Chart 5.5). The Tier 1 capital ratio also increased to 18.2%, with 16.3% being contributed by Common Equity Tier 1 (CET1) capital.

Chart 5.5
Capitalisation of locally incorporated AIs

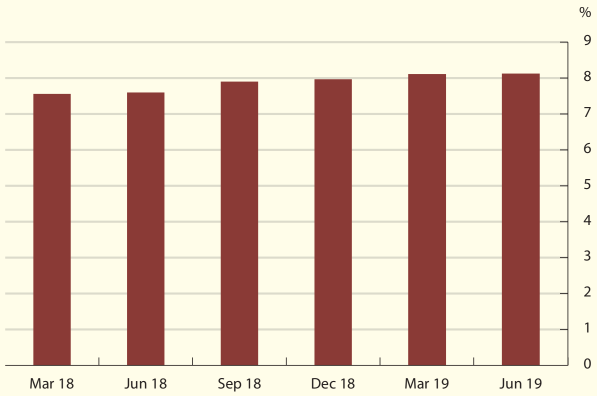


Notes:
1. Consolidated basis.
2. With effect from 1 January 2013, a revised capital adequacy framework (under Basel III) was introduced for locally incorporated AIs. The capital ratios from March 2013 onwards are therefore not directly comparable with those up to December 2012.
Source: HKMA.

Alongside the risk-based capital adequacy ratio, there is a Basel III non-risk-based Leverage Ratio (LR) requirement acting as a "back-stop" to restrict the build-up of excessive leverage in the banking sector.[52] The LR of locally incorporated AIs stood at a healthy level of 8.1% at the end of June 2019, exceeding the 3% statutory minimum (Chart 5.6).

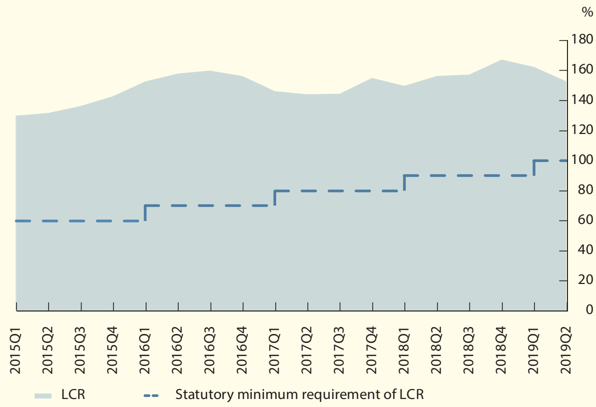
[52] LR is calculated as the ratio of Tier 1 capital to an exposure measure, where the exposure measure includes both on-balance sheet and off-balance sheet exposures. For details, see "Frequently asked questions on the Basel III leverage ratio framework" published by the Basel Committee on Banking Supervision (https://www.bis.org/bcbs/publ/d364.pdf).

Chart 5.6
Leverage Ratio of locally incorporated AIs



Note: Consolidated basis.
Source: HKMA.

Chart 5.7
Liquidity Coverage Ratio



Notes:
1. Consolidated basis.
2. Quarterly average figures.
Source: HKMA.

5.2 Liquidity and interest rate risks

Liquidity and funding

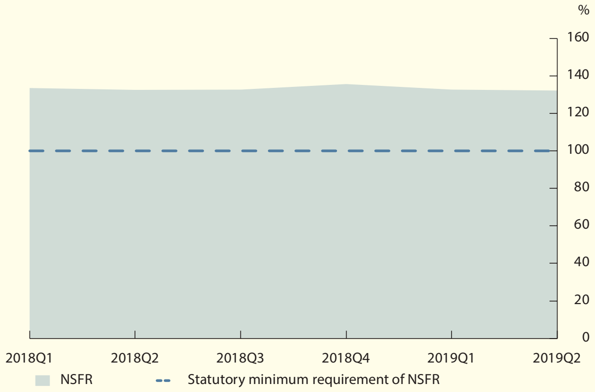
The liquidity positions of the banking sector, as measured by the Basel III Liquidity Coverage Ratio (LCR)[53], remained sound during the review period. Although the average LCR of category 1 institutions decreased to 152.8% in the second quarter of 2019, from 167.3% in the fourth quarter of 2018 (Chart 5.7), the ratio was well above the statutory minimum requirement of 100%. The average Liquidity Maintenance Ratio (LMR) of category 2 institutions edged up to 54.6% in the second quarter of 2019 from 54.3% in the fourth quarter of 2018, also well above the statutory minimum requirement of 25%.

The Net Stable Funding Ratio (NSFR)[54] , as part of the Basel III liquidity requirements, indicates a stable funding position of AIs. The average NSFR of category 1 institutions remained at a high level of 132.1% in the second quarter of 2019 (Chart 5.8), well above the statutory minimum requirement of 100%. The average Core Funding Ratio (CFR) of category 2A institutions stood at a high level of 135.8%, which also exceeded the statutory minimum requirement of 75% applicable in 2019. The strong liquidity and stable funding positions of AIs suggest the Hong Kong banking sector is well positioned to withstand a variety of liquidity shocks.

[53] The Basel III LCR requirement is designed to ensure that banks have sufficient high quality liquid assets to survive a significant stress scenario lasting 30 calendar days. In Hong Kong, AIs designated as category 1 institutions adopt the LCR; while category 2 institutions adopt the LMR. For details, see the HKMA's Supervisory Policy Manual (SPM) LM-1, "Regulatory Framework for Supervision of Liquidity Risk".

[54] In Hong Kong, category 1 institutions are required to comply with the NSFR; while category 2 institutions designated as category 2A institutions must comply with the requirements relating to the local CFR. According to the Banking (Liquidity) Rules, a category 1 institution must at all times maintain an NSFR of not less than 100%. A category 2A institution must maintain a CFR of not less than 75% on average in each calendar month in 2019. For details, see Banking (Liquidity) Rules (Cap. 155Q).

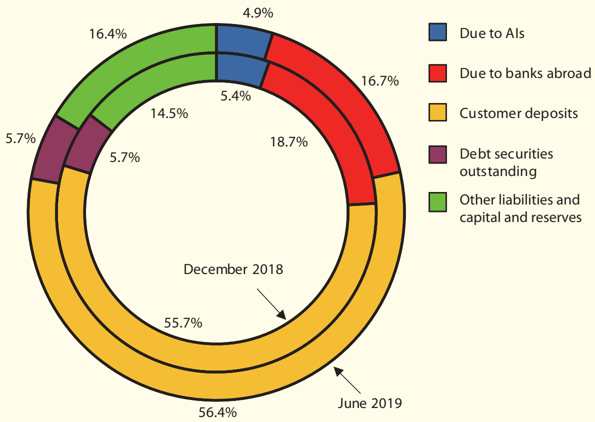
Chart 5.8
Net Stable Funding Ratio



Note: Consolidated basis.
Source: HKMA.

Customer deposits continued to be the primary funding source for AIs, underpinning a stable funding structure in the banking system. At the end of June 2019, the share of customer deposits to all AIs' total liabilities edged up to 56.4% from 55.7% six months ago (Chart 5.9).

Chart 5.9
The liability structure of all AIs

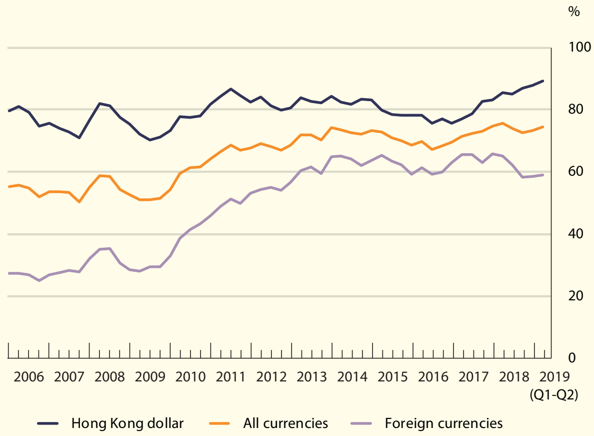


Notes:
1. Figures may not add up to total due to rounding.
2. Figures refer to the percentage of total liabilities (including capital and reserves).
3. Debt securities comprise negotiable certificates of deposit and all other negotiable debt instruments.

Source: HKMA.

With faster growth for Hong Kong dollar loans and advances than deposits, the average Hong Kong dollar loan-to-deposit (LTD) ratio of all AIs increased to 89.3% at the end of June 2019 from 86.9% at the end of 2018 (Chart 5.10). The average foreign currency LTD ratio also edged up to 58.9% from 58.3% during the same period. As a result, the average all-currency LTD ratio of all AIs rose to 74.5% from 72.6% six months ago. Nevertheless, the liquidity conditions remained ample, underpinned by the broadly stable level of deposits, and with no noticeable outflow of funds from the Hong Kong dollar or from the banking system in the second quarter.

Chart 5.10
Average LTD ratios of all AIs



Note: Quarter-end figures.
Source: HKMA.

Interest rate risk

The interest rate risk exposure of locally incorporated licensed banks remained at a low level in the second quarter of 2019. It is estimated that under a hypothetical shock of an across-the-board 200-basis-point increase in Hong Kong dollar and US dollar interest rates, the economic value of locally incorporated licensed banks' interest rate positions could be subject to a decline equivalent to 1.45% of their total capital base at the end of June 2019 (Chart 5.11).[55]

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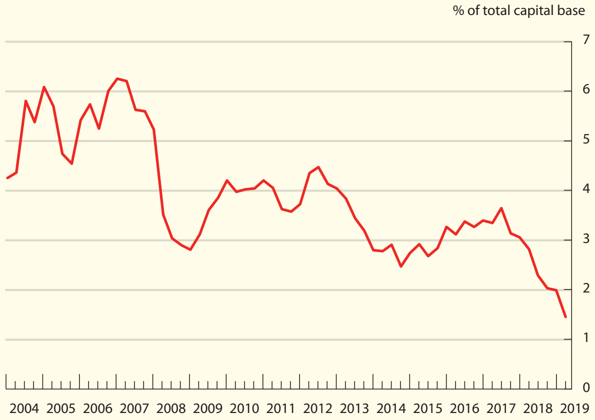
55 This estimation does not take into account the effect of any mitigating action by banks in response to the shock. The impact will be smaller if mitigating action is taken.

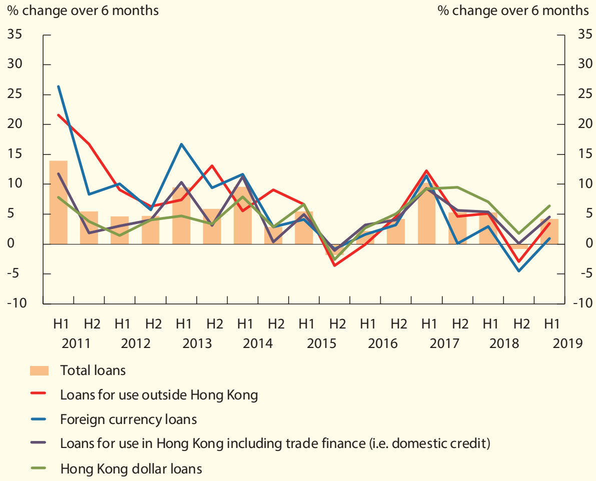
Chart 5.11
Impact of a Hong Kong dollar and US dollar interest rate shock on locally incorporated licensed banks



Notes:
1. Interest rate shock refers to a 200-basis-point parallel increase in both Hong Kong dollar and US dollar yield curves to institutions' interest rate risk exposure. The two currencies accounted for a majority of interest-rate-sensitive assets, liabilities and off-balance-sheet positions for locally incorporated licensed banks at the end of June 2019.
2. The impact of the interest rate shock refers to its impact on the economic value of the banking and trading book[56], expressed as a percentage of the total capital base of banks.
3. Since June 2019, the interest rate risk exposure has been calculated based on the new local IRRBB framework. As such, the figure for June 2019 is not strictly comparable with those of previous periods.

Source: HKMA.

Chart 5.12
Loan growth



Note: Since December 2018, figures for loans for use in/outside Hong Kong have been restated to reflect AIs' reclassification of working capital loans. The reported % change over six months for the first half of 2019 is calculated based on the reclassified loan data, while the historical % changes until the second half of 2018 are calculated based on the data without such reclassification.

Source: HKMA.

5.3 Credit risk

Overview

Bank credit resumed expansion in the first half of 2019. On a half-yearly basis, total loans and advances of all AIs increased moderately by 4.2% in the first half, following a 0.9% decline in the second half of 2018 (Chart 5.12).

Both domestic loans (comprising loans for use in Hong Kong and trade financing) and loans for use outside Hong Kong expanded in the review period. Growth in domestic loans quickened to 4.5% in the first half of 2019 from 0.1% in the second half of last year, in part reflecting an accelerated growth in household loans. Loans for use outside Hong Kong rebounded by 3.5%, after contracting by 3.0%.

The demand for credit is likely to be stable in the near term. According to the results of the HKMA Opinion Survey on Credit Condition Outlook in June 2019, 91% of the surveyed AIs expected loan demand to remain the same in the next three months, while the share of AIs expecting somewhat lower demand decreased to 5% from 18% in December 2018 (Table 5.A).

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

% of total respondents	Sep-18	Dec-18	Mar-19	Jun-19
Considerably higher	0	0	0	0
Somewhat higher	9	0	9	5
Same	77	82	86	91
Somewhat lower	14	18	5	5
Considerably lower	0	0	0	0
Total	100	100	100	100

Note: Figures may not add up to total due to rounding.

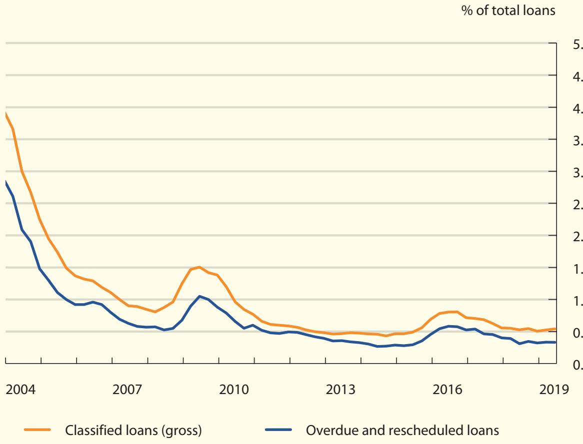
Source: HKMA.

The asset quality of banks' loan portfolios remained healthy in the first half of 2019. The gross classified loan ratio and the ratio of overdue and rescheduled loans of all AIs edged up to 0.56% and 0.39% at the end of June 2019, respectively, compared with 0.55% and 0.36% at the end of 2018. For retail banks, the gross

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

classified loan ratio and the ratio of overdue and rescheduled loans increased slightly to 0.54% and 0.33% respectively (Chart 5.13). Both ratios remained low by historical standards.

Chart 5.13
Asset quality of retail banks



Notes:
1. Classified loans are those loans graded as "sub-standard", "doubtful" or "loss".
2. Figures prior to December 2015 are related to retail banks' Hong Kong offices and overseas branches. Starting from December 2015, the coverage was expanded to include the banks' major overseas subsidiaries as well.

Source: HKMA.

Household exposure[57]

On a half yearly basis, growth in household debt accelerated to 6.7% in the first half of 2019 from 3.9% in the second half of last year. This mainly reflected strong growth in loans for other private purposes, while stable growth in residential mortgage loans also contributed (Table 5.B).

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

(%)	2016 H1	2016 H2	2017 H1	2017 H2	2018 H1	2018 H2	2019 H1
Residential mortgages	1.0	3.1	4.1	3.8	4.2	4.5	4.7
Personal loans	-0.5	7.2	7.2	12.4	7.5	2.6	11.0
of which:							
Credit card advances	-5.7	8.7	-7.8	11.0	-5.0	10.6	-3.8
Loans for other private purposes	1.2	6.8	11.9	12.7	10.7	0.9	14.5
Total loans to households	0.5	4.3	5.0	6.5	5.3	3.9	6.7

Note: Since December 2018, figures for loans to households have been restated to reflect AIs' reclassification of working capital loans. The reported half-yearly growth for the first half of 2019 is calculated based on the reclassified loan data, while the historical growth rates until the second half of 2018 are calculated based on the data without such reclassification.

Source: HKMA.

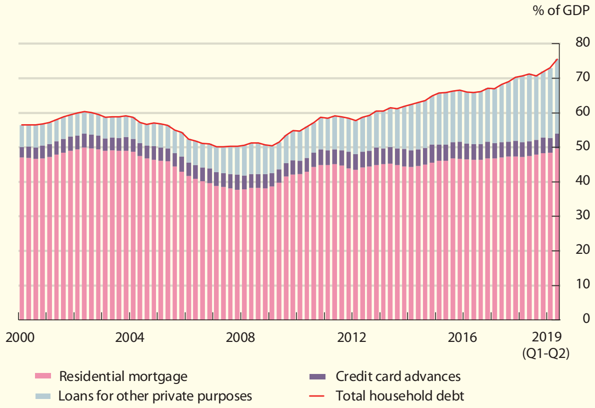
The key driver of the strong growth in loans for other private purposes in the first half of 2019 was the loans to private banking and wealth management customers, which were secured by various financial assets (including stocks, mutual funds and insurance policies). These loans have continued to grow at a fast pace in recent years. Since such loans were underwritten with prudent risk management and conservative collateral valuation, the risks of these loans are assessed to be manageable by the HKMA.[58]

With household debt growing faster than the nominal gross domestic product (GDP) in Hong Kong, the household debt-to-GDP ratio rose further to 75.5% in the second quarter of 2019 from 72.0% in the fourth quarter of 2018 (Chart 5.14).

[57] Loans to households constitute lending to professional and private individuals, excluding lending for other business purposes. Mortgage lending accounts for a major proportion of household loans, while the remainder comprises mainly unsecured lending through credit card lending and other personal loans for private purposes. At the second quarter of 2019, the share of household lending in domestic lending was 30.8%.

[58] For details, see a recent assessment by Cheung *et al.* (2018) "Understanding Household Indebtedness in Hong Kong", *HKMA Research Memorandum*, 07/2018.

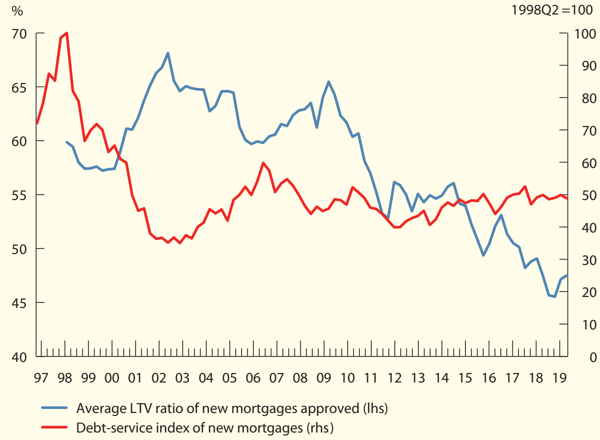
Chart 5.14
Household debt-to-GDP and its components



Notes:
1. Only borrowings from AIs are covered.
2. GDP refers to the annualised GDP, which is the sum of the quarterly GDP in the trailing four quarters.
3. Since December 2018, the figure for household debt has been restated to reflect AIs' reclassification of working capital loans.

Source: HKMA.

Chart 5.15
Average LTV ratio and household debt-servicing burden for new mortgage loans



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

Sources: HKMA and staff estimates.

The credit risk of household loans stayed low during the review period. In particular, banks' mortgage portfolios remained healthy, with the delinquency ratio hovering at a low level of 0.02% in the second quarter of 2019. The average loan-to-value (LTV) ratio of new mortgage loans approved increased to 47.5% in the second quarter of 2019 from 45.5% six months earlier (Chart 5.15). Despite the slight rise in the average LTV ratio, the figure was still well below the ratio of 64% in September 2009, just before the implementation of the first round of the HKMA's countercyclical macro-prudential measures.

The debt-service index of new mortgages[59] edged down to 48.9 in the second quarter of 2019 compared with 49.0 in the fourth quarter of 2018 (the red line in Chart 5.15), suggesting the household repayment ability remained stable.

While the 25-basis-point cut in the US policy rate in July may mark the beginning of a series of moves towards monetary accommodation, whether interest rates in Hong Kong will follow suit is uncertain. Indeed, various domestic factors, such as the decline in the Aggregate Balance of the banking system and strong demand for the Hong Kong dollar due to seasonal factors and IPO-related activities may suggest that domestic interest rates, particularly HIBORs may not immediately follow the move in US dollar interest rates. As such, the impact on household debt servicing burdens may be limited in the near term.

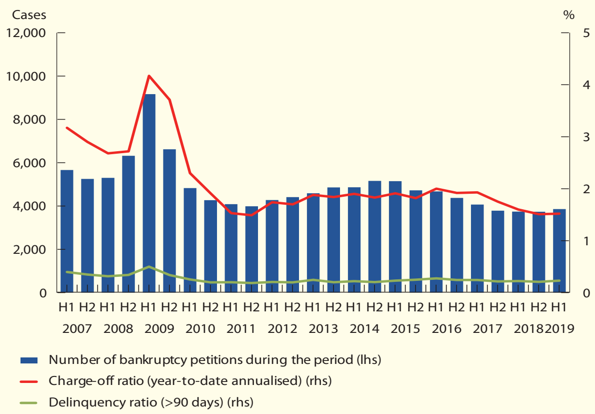
However, if the sluggish growth in the Hong Kong economy continues, it could significantly weaken the household debt servicing ability, as household income may be adversely affected. A

59 A higher value of the debt-service index indicates there is either a drop in household income, or an increase in interest rates, or an increase in the average mortgage loan amount drawn by households. Historical movements in the index suggest that a sharp rise in the index may lead to a deterioration in the asset quality of household debt.

sensitivity test suggests the debt-service index could rise notably to 54.3 from the current level of 48.9 if household income were to decrease by 10%, other things being constant.[60] Therefore, banks should remain alert to the risks associated with a rising level of household debt-servicing burden.

The credit risk of unsecured household exposure remained contained. The annualised credit card charge-off ratio edged up to 1.52% in the second quarter of 2019 and the delinquency ratio edged up to 0.23% at the end of June 2019 (Chart 5.16). In addition, the number of bankruptcy petitions edged up, albeit remaining at a relatively low level.

Chart 5.16
Charge-off ratio and delinquency ratio for credit card lending and bankruptcy petitions

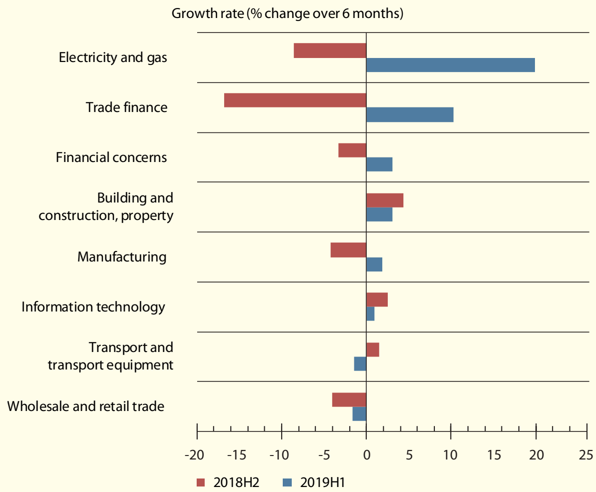


Sources: Official Receiver's Office and HKMA.

Corporate exposure[61]

Domestic corporate loans (including trade finance) resumed growth by 3.6% in the first half of 2019, after declining by 1.5% in the second half of 2018. Analysed by economic sectors, loans for the electricity and gas sector saw a notable rebound (Chart 5.17). Trade financing also recorded strong growth in the first quarter of 2019, but its growth momentum slowed in the second quarter amid rising US-China trade tensions.

Chart 5.17
Growth in domestic corporate loans by selected sectors



Note: Since December 2018, figures for loans for use in/outside Hong Kong have been restated to reflect AIs' reclassification of working capital loans. The reported % change over six months for the first half of 2019 is calculated based on the reclassified loan data, while the % changes for the second half of 2018 are calculated based on the data without such reclassification.

Source: HKMA.

For financial intermediation for small and medium-sized enterprises (SMEs), the demand-side survey on their credit conditions[62] for the second quarter of 2019 shows that their perception of the stance by banks on credit approvals, relative to six months ago, remained largely stable (Chart 5.18). Some 81% of the

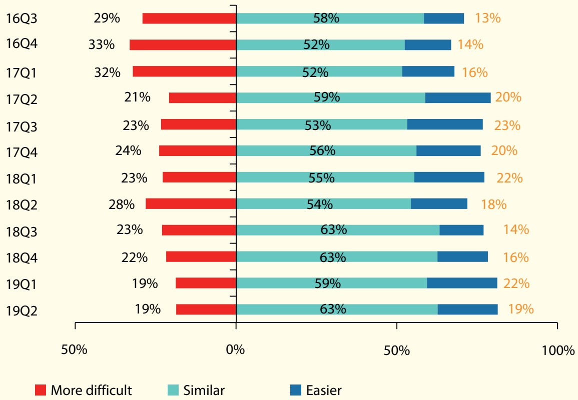
[60] The assumption of a 10% decrease in household income resembles what happened during the Asian financial crisis.

[61] Excluding interbank exposure. At the end of second quarter of 2019, the share of corporate loans in domestic lending was 69.1%.

[62] This Survey is conducted quarterly, covering some 2,500 SMEs from different economic sectors.

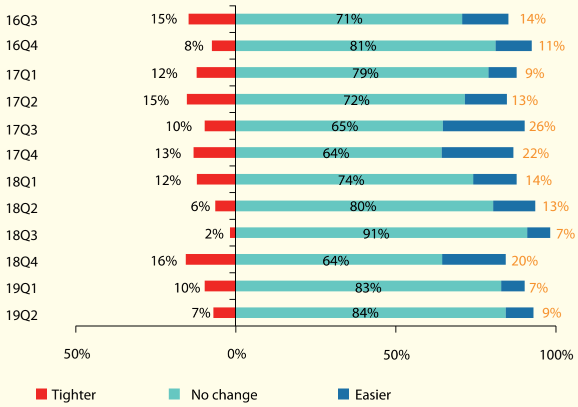
respondents perceived a similar or easier credit approval stance, whereas 19% of respondents perceived a more difficult stance, broadly similar to the results of the previous quarter. Of those respondents with existing credit lines, a slightly smaller proportion of SMEs reported a tighter stance by banks compared with the first quarter of 2019 (Chart 5.19).

Chart 5.18
SMEs' perception of banks' credit approval stance relative to 6 months ago



Source: HKMA.

Chart 5.19
SMEs' reported change in banks' stance on existing credit lines



Note: Only covers respondents with existing credit lines.
Source: HKMA.

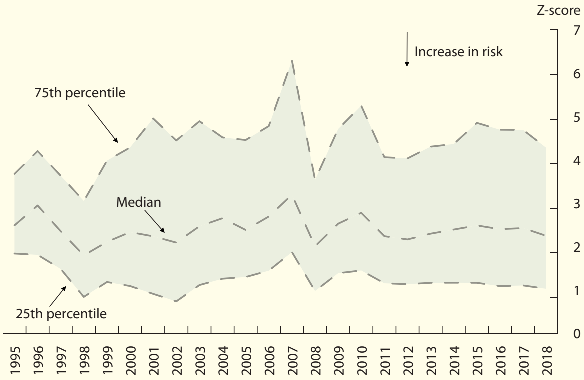
The Basel III regulatory reforms and the Hong Kong Mortgage Corporation (HKMC)'s SME Financing Guarantee Scheme (SFGS), which were introduced after the global financial crisis, may significantly affect credit conditions for SMEs in Hong Kong. Box 5 empirically assesses their effects on the supply of bank loans to SMEs in Hong Kong. The assessment finds that despite more stringent regulatory requirements under Basel III, there has not been a persistent negative effect on the supply of SME loans by banks in Hong Kong, probably due to their strong capital and liquidity positions. The assessment also finds that the public sector's loan guarantee schemes can effectively reduce funding difficulties facing SMEs.

Some indicators suggested that the credit risk of corporate exposures may increase slightly. In particular, the Altman's Z-score, a credit risk measure for the non-financial corporate sector based on accounting data, edged down for both the median and 75th percentile, suggesting a mild deterioration in the financial health of these corporates (Chart 5.20).

In addition, the weighted average debt-to-equity ratio, a common measure of corporate leverage, increased modestly to 65% in 2018 from 64% in 2017 (the green line in Chart 5.21), driven mainly by higher leverage by local corporates. Nevertheless, there were tentative signs of improvement for non-local corporates, as their average leverage reduced to 80% in 2018 from the peak of 83% in 2017 (the red line in Chart 5.21).

Despite the rise in corporate leverage, corporates saw a mild improvement in their debt servicing ability as indicated by a moderate rise in the weighted average interest coverage ratio (ICR) (the green line in Chart 5.22). The rise in the ratio was mainly driven by the improvement in the ICR of non-local corporates. By contrast, the weighted average ICR of local corporates saw a slight deterioration.

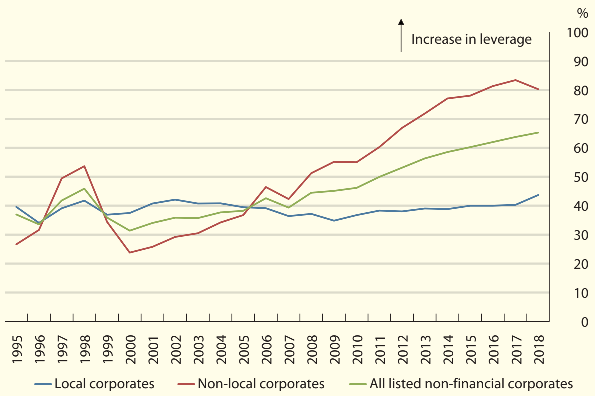
Chart 5.20
Altman's Z-score of listed non-financial corporates in Hong Kong



Notes:
1. All non-financial corporates listed on the Hong Kong Stock Exchange are selected.
2. Figures are calculated based on information up to end-August 2019.

Source: HKMA staff estimates based on data from Bloomberg.

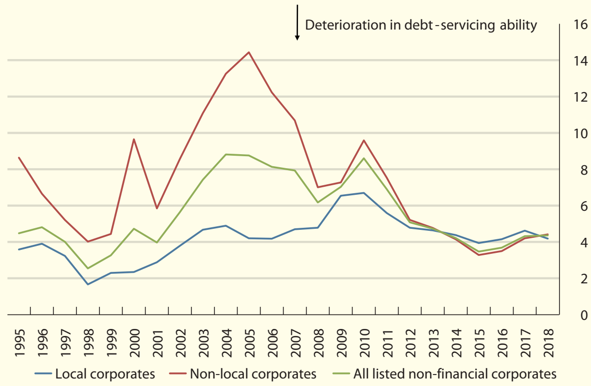
Chart 5.21
Leverage ratio of listed non-financial corporates in Hong Kong



Notes:
1. Weighted average figures.
2. The leverage ratio is defined as the ratio of debt to equity. A higher value indicates higher leverage.
3. All non-financial corporates listed on the Hong Kong Stock Exchange are selected. Local and non-local corporates refer to listed firms that are domiciled in and outside Hong Kong, respectively.
4. Figures are calculated based on information up to end-August 2019.

Source: HKMA staff estimates based on data from Bloomberg.

Chart 5.22
Interest coverage ratio of listed non-financial corporates in Hong Kong



Notes:
1. Weighted average figures.
2. The ICR is calculated by the earnings before interest and tax divided by the total interest expenses. A lower value indicates deterioration of debt-servicing ability.
3. All non-financial corporates listed on the Hong Kong Stock Exchange are selected. Local and non-local corporates refer to listed firms that are domiciled in and outside Hong Kong, respectively.
4. Figures are calculated based on information up to end-August 2019.

Source: HKMA staff estimates based on data from Bloomberg.

Looking ahead, the intensification of the US-China trade disputes and the increased downside risks to the global economy may lead to a deterioration in corporates' fundamentals and thus, undermine their debt-servicing ability. Therefore, banks should prudently manage the credit risk of their corporate exposures.

Mainland-related lending and non-bank exposures

The banking sector's total Mainland-related lending resumed positive growth in the first half of 2019. At the end of June 2019, total Mainland-related lending increased by 7.5% to HK$4,568 billion (17.1% of total assets), from HK$4,251 billion (16.1% of total assets) at the end of 2018 (Table 5.C).[63] Trade finance loans rebounded notably by 29.3% at the end of June 2019, compared with six months earlier. Other non-bank exposures increased by 7.9% to HK$1,507 billion (Table 5.D).

[63] Around one-third of the growth of Mainland-related lending in the first half of 2019 was attributable to the internal transfer of ownership of a bank's Mainland branch to its locally incorporated Hong Kong office in June 2019. Excluding the effect of this transfer of ownership, total Mainland-related lending would have increased by 4.9% during the period.

Table 5.C
Mainland-related lending

HK$ bn	Sep 2018	Dec 2018	Mar 2019	Jun 2019
Mainland-related loans	4,321	4,251	4,415	4,568
Mainland-related loans excluding trade finance	4,010	3,987	4,103	4,227
Trade finance	311	264	312	341
By type of AIs:				
Overseas incorporated AIs	1,860	1,800	1,873	1,897
Locally incorporated AIs*	1,832	1,828	1,896	1,920
Mainland banking subsidiaries of locally incorporated AIs	629	622	646	750
By type of borrowers:				
Mainland state-owned entities	1,734	1,690	1,811	1,858
Mainland private entities	1,211	1,203	1,230	1,276
Non-Mainland entities	1,377	1,358	1,375	1,433

Notes:
1. * Including loans booked in Mainland branches of locally incorporated AIs.
2. Figures may not add up to total due to rounding.
Source: HKMA.

Table 5.D
Other non-bank exposures

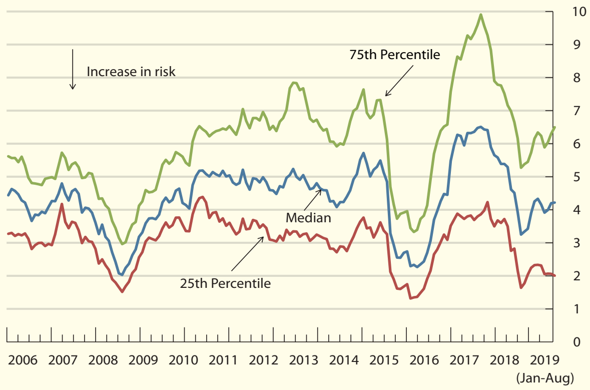
HK$ bn	Sep 2018	Dec 2018	Mar 2019	Jun 2019
Negotiable debt instruments and other on-balance sheet exposures	956	977	1,039	1,068
Off-balance sheet exposures	430	420	409	439
Total	**1,386**	**1,397**	**1,448**	**1,507**

Note: Figures may not add up to total due to rounding.
Source: HKMA.

The gross classified loan ratio of Mainland-related lending of all AIs[64] increased to 0.70% at the end of June 2019 from 0.55% at the end of 2018. Despite the deterioration in asset quality, the associated credit risk should be contained as the ratio remained lower than the recent high of 0.89% in March 2016.

Meanwhile, a forward-looking market-based indicator showed a slight improvement in the default risk for the Mainland corporate sector. The distance-to-default (DTD) index[65] rebounded in the first quarter of 2019 from a recent low in November 2018 (Chart 5.23), partly reflecting the buoyant performance of the Mainland stock markets. However, there have been tentative signs of deterioration in the index for the lower-tier corporates since early May, probably reflecting a less optimistic view by market participants about resolving the US-China trade dispute.

Chart 5.23
Distance-to-default index for the Mainland corporate sector



Note: DTD index is calculated based on the non-financial constituent companies (i.e. excluding investment companies and those engaged in banking, insurance and finance) of the Shanghai Stock Exchange 180 A-share index.
Source: HKMA staff estimates based on data from Bloomberg.

In view of the downside risk to the Mainland economy and the worsening of the US-China trade dispute, banks should stay alert to the credit risk management of their Mainland-related exposure.

64 Figures cover AIs' Hong Kong offices and Mainland branches and subsidiaries.

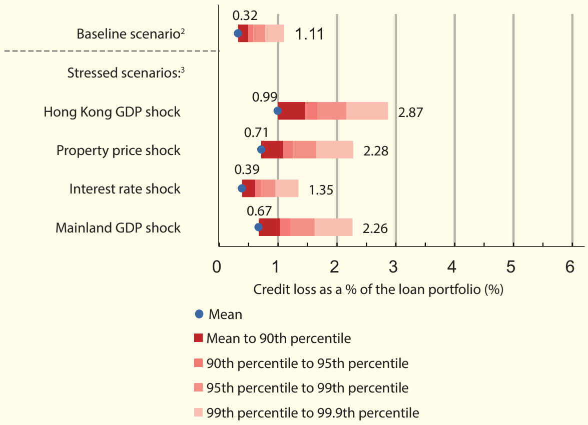
65 The DTD is a market-based default risk indicator based on the framework by R. Merton (1974), "On the pricing of corporate debt: the risk structure of interest rates", *Journal of Finance*, Vol. 29, pages 449–470, in which equity prices, equity volatility, and companies' financial liabilities are the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

Macro stress testing of credit risk[66]

Results of the latest macro stress testing on retail banks' credit exposure suggest the Hong Kong banking sector remains resilient and should be able to withstand rather severe macroeconomic shocks similar to those experienced during the Asian financial crisis. Chart 5.24 presents the simulated future credit loss rate of retail banks in the second quarter of 2021 under four specific macroeconomic shocks[67] using information up to the second quarter of 2019.

Taking account of tail risk, banks' credit losses (at the confidence level of 99.9%) under the stress scenarios range from 1.35% (Interest rate shock) to 2.87% (Hong Kong GDP shock), which are significant, but smaller than the estimated loan loss of 4.39% following the Asian financial crisis.

Chart 5.24
The mean and value-at-risk statistics of simulated credit loss distributions[1]



Notes:
1. The assessments assume the economic conditions in 2019 Q2 as the current environment. The Monte Carlo simulation method is adopted to generate the credit loss distribution for each scenario.
2. Baseline scenario: no shock throughout the two-year period.
3. Stressed scenarios:
   Hong Kong GDP shock: reductions in Hong Kong's real GDP by 2.3%, 2.8%, 1.6%, and 1.5% respectively in each of the four consecutive quarters starting from 2019 Q3 to 2020 Q2.
   Property price shock: Reductions in Hong Kong's real property prices by 4.4%, 14.5%, 10.8%, and 16.9% respectively in each of the four consecutive quarters starting from 2019 Q3 to 2020 Q2.
   Interest rate shock: A rise in real interest rates (HIBORs) by 300 basis points in the first quarter (i.e. 2019 Q3), followed by no change in the second and third quarters and another rise of 300 basis points in the fourth quarter (i.e. 2020 Q2).
   Mainland GDP shock: Slowdown in the year-on-year annual real GDP growth rate to 4% in one year.

Source: HKMA staff estimates.

5.4 *Systemic risk*

Against the backdrop of heightened downside risks to the global economy, the intensification of the US-China trade dispute, the recent social incidents in Hong Kong, uncertainty over the timing and magnitude of monetary accommodation by some major central banks and rising geopolitical risks, the Hong Kong banking sector is expected to face challenges on various fronts.

Although US-China trade talks resumed after the June G20 Summit, signs of intensification of the dispute emerged in early August. If conflicts between the world's two largest economies deepen, business confidence and corporates' financial conditions could be adversely affected, particularly for those with significant exposure to the two economies. This, coupled with weakening global economic conditions, could

66 Macro stress testing refers to a range of techniques used to assess the vulnerability of a financial system to "exceptional but plausible" macroeconomic shocks. The credit loss estimates presented in this report are obtained based on a revised framework from J. Wong et al. (2006), "A framework for stress testing banks' credit risk", *Journal of Risk Model Validation*, Vol. 2(1), pages 3–23. All estimates in the current report are not strictly comparable to those estimates from previous reports.

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

put the debt servicing ability of corporates to the test and pose challenges to banks' credit risk management in view of the rising corporate leverage in recent years.

Some central banks in major advanced economies have signalled or already moved towards monetary accommodation, partly in response to increased downside risks to the global economy. However, the timing and magnitude of monetary accommodation remain uncertain, as they hinge on the future path of economic growth. As such, there is a risk of an abrupt repricing of interest rate expectations which, in turn, could heighten the volatility of domestic interest rates.

Across the Atlantic, geopolitical risks related to Brexit still merit close monitoring. The outcome of Brexit remained highly uncertain due to the political gridlock in the UK surrounding the issue. If a larger-than-expected disruption stemming from a "no-deal" Brexit occurs, there could be abrupt shifts in cross-border banking flows from the UK. The subsequent spillover risks to the Hong Kong banking sector could be large, given the unmatched role of the UK banking system in distributing international banking flows and the significant interbank linkage between Hong Kong and the UK.[68]

Nevertheless, there has been no notable deterioration in interbank funding conditions so far during the review period. The spread between the three-month US dollar London Interbank Offered Rate (LIBOR) and its corresponding overnight index swap (OIS) rate[69], a common indicator of systemic liquidity risks in the short-term dollar funding market, has remained broadly stable (Chart 5.25).

Chart 5.25
Three-month US dollar LIBOR-OIS spreads

Source: Bloomberg.

The countercyclical capital buffer (CCyB) for Hong Kong

The CCyB is part of the internationally agreed Basel III standards and is designed to enhance the resilience of the banking sector against system-wide risks associated with excessive aggregate credit growth. Hong Kong has been implementing the CCyB in line with the Basel III implementation schedule through the phased-in arrangements, which were completed on 1 January 2019.[70]

68 At the end of June 2019, external claims on banks in the UK accounted for 8% of the Hong Kong banking sector's total external claims on banks outside Hong Kong.

69 An OIS is an interest rate swap in which the floating leg is linked to an index of daily overnight rates. The two parties agree to exchange at maturity, on an agreed notional amount, the difference between interest accrued at the agreed fixed rate and interest accrued at the floating index rate over the life of the swap. The fixed rate is a proxy for expected future overnight interest rates. As overnight lending generally bears lower credit and liquidity risks, the credit risk and liquidity risk premiums contained in the OIS rates should be small. Therefore, the LIBOR-OIS spread generally reflects the credit and liquidity risks in the interbank market.

70 Under the Basel III phase-in arrangements, the maximum CCyB rate was capped at 0.625% on 1 January 2016, with the cap rising by 0.625 percentage points each subsequent year until it reached 2.5% on 1 January 2019.

In setting the CCyB rate, the Monetary Authority considered a series of indicators (Table 5.E), including an "indicative buffer guide" (which is a metric providing a guide for CCyB rates based on the gap between the ratio of credit-to-GDP and its long term trend, and between the ratio of residential property prices to rentals and its long term trend)[71]. The latest indicative buffer guide, calculated based on the first quarter of 2019 data, is slightly less than 2% which signalled a CCyB of 1.75%, lower than the current rate.[72] This is mostly due to the recent narrowing of the credit to GDP gap from more than 12% in the previous quarter to about 9%, reflecting the recent slowdown in loan growth. The property price to rental gap, however, has widened again, reflecting the recent recovery in residential property prices.

However, the setting of the CCyB is not a mechanical exercise. In considering whether there is a build-up of systemic risk, the Monetary Authority will consider a broad range of reference indicators in addition to the indicative buffer guide.[73] These indicators suggested that system-wide risks in Hong Kong associated with a period of excessive credit growth have not subsided. Housing affordability remains highly stretched and household debt-to-GDP ratio has risen to a new high. Given these conditions the Monetary Authority considered that it is appropriate to maintain the CCyB at 2.5% at this juncture.

Table 5.E
Information related to the Hong Kong jurisdictional CCyB rate

	Q4-2018	15-Apr-19	09-Jul-19
Announced CCyB rate		2.5%	2.5%
Date effective		15/04/2019	09/07/2019
Indicative buffer guide	2.5%	0.9%	2.0%
Basel Common Reference Guide	2.5%	2.5%	2.2%
Property Buffer Guide	2.5%	0.3%	1.5%
Composite CCyB Guide	2.5%	0.9%	2.0%
Indicative CCyB Ceiling	None	None	None
Primary gap indicators			
Credit/GDP gap	9.8%	12.5%	9.1%
Property price/rent gap	10.0%	2.8%	6.7%
Primary stress indicators			
3-month HIBOR spread* (percentage points)	0.42%	0.23%	0.22%
Quarterly change in classified loan ratio (percentage points)	0.01%	-0.04%	0.02%

Notes:
1. The values of all CCyB guides, the Indicative CCyB Ceiling and their respective input variables are based on public data available prior to the corresponding review/ announcement date, and may not be the most recent available as of each quarter end (refer to SPM CA-B-1 for explanations of the variables). If there is a CCyB announcement, the date of the announcement is shown at the top of the respective column. If there is no CCyB announcement, the quarter in which a CCyB review takes place (normally close to quarter end) is shown at the top of the column.
2. *Following a review of the appropriate risk-free rate benchmark (previously identified as the 3-month OIS rate), the HKMA has decided to amend the definition of the interbank market spread to the difference between the 3-month HIBOR and 3-month Exchange Fund Bill yield, effective from April 2017.

Source: HKMA.

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

[71] The credit-to-GDP gap is the gap between the ratio of credit to GDP and its long-term trend, while the property price-to-rent gap is the gap between the ratio of residential property prices to rentals and its long-term trend.

[72] According to section 3.2.5 of the HKMA's SPM CA-B-1, the CCyB rate will be expressed in multiples of 25 basis points (without rounding up). Thus the indicative buffer guide would signal an extant CCyB rate to increase or decrease in multiple of 25 basis points.

[73] These included measures of bank, corporate and household leverage; debt servicing capacity; profitability and funding conditions within the banking sector and macroeconomic imbalances.

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

	Jun 2018	Mar 2019	Jun 2019
Interest rates			
1-month HIBOR fixing[2] (quarterly average)	1.23	1.29	2.04
3-month HIBOR fixing (quarterly average)	1.68	1.74	2.11
BLR[3] and 1-month HIBOR fixing spread (quarterly average)	3.77	3.83	3.09
BLR and 3-month HIBOR fixing spread (quarterly average)	3.32	3.38	3.01
Composite interest rate[4,5]	0.62	0.82	0.95
		All AIs	
Balance sheet developments[6]			
Total deposits	0.4	1.3	0.4
Hong Kong dollar	0.5	2.4	1.1
Foreign currency	0.2	0.1	–0.4
Total loans	1.6	2.3	1.8
Domestic lending[7]	1.7	2.2	2.3
Loans for use outside Hong Kong[8]	1.4	2.7	0.8
Negotiable instruments			
Negotiable certificates of deposit (NCDs) issued	–2.5	–4.1	1.1
Negotiable debt instruments held (excluding NCDs)	1.1	3.9	1.1
Asset quality			
As a percentage of total loans[9]			
Pass loans	98.07	98.17	98.15
Special mention loans	1.31	1.28	1.29
Classified loans[10] (gross)	0.61	0.56	0.56
Classified loans (net)[11]	0.32	0.28	0.25
Overdue > 3 months and rescheduled loans	0.40	0.41	0.39
Classified loan ratio (gross) of Mainland related lending[12]	0.62	0.63	0.70
Liquidity ratios (consolidated)			
Liquidity Coverage Ratio — applicable to category 1 institutions (quarterly average)	156.4	162.4	152.8
Liquidity Maintenance Ratio — applicable to category 2 institutions (quarterly average)	51.3	54.7	54.6
Net Stable Funding Ratio — applicable to category 1 institutions	132.5	132.7	132.1
Core Funding Ratio — applicable to category 2A institutions	127.3	134.1	135.8
		Retail banks	
Profitability			
Loan impairment charges as a percentage of average total assets (year-to-date annualised)	0.02	0.04	0.05
Net interest margin (year-to-date annualised)	1.57	1.58	1.62
Cost-to-income ratio (year-to-date)	37.3	38.4	38.0
		Surveyed institutions	
Asset quality			
Delinquency ratio of residential mortgage loans	0.02	0.02	0.02
Credit card lending			
Delinquency ratio	0.22	0.21	0.23
Charge-off ratio — quarterly annualised	1.65	1.52	1.58
— year-to-date annualised	1.60	1.52	1.52
		All locally incorporated AIs	
Capital adequacy (consolidated)			
Common Equity Tier 1 capital ratio	15.3	16.1	16.3
Tier 1 capital ratio	16.8	18.0	18.2
Total capital ratio	19.4	20.4	20.6
Leverage ratio	7.6	8.1	8.1

Notes:
1. Figures are related to Hong Kong offices only except where otherwise stated.
2. The Hong Kong Interbank Offered Rates are released by the Hong Kong Association of Banks.
3. With reference to the rate quoted by The Hongkong and Shanghai Banking Corporation Limited.
4. The composite interest rate is a weighted average interest rate of all Hong Kong-dollar interest-bearing liabilities, which include deposits from customers, amounts due to banks, negotiable certificates of deposit and other debt instruments, and Hong Kong-dollar non-interest-bearing demand deposits on the books of banks. Further details can be found on the HKMA website.
5. Since June 2019, the composite interest rate has been calculated based on the new local IRRBB framework. As such, the June figure is not strictly comparable with those of previous months.
6. Quarterly change.
7. Loans for use in Hong Kong plus trade finance.
8. Including "others" (i.e. unallocated).
9. Figures are related to all AIs' Hong Kong offices, as well as locally incorporated AIs' overseas branches and major overseas subsidiaries.
10. Classified loans are those loans graded as "substandard", "doubtful" or "loss".
11. Net of specific provisions/individual impairment allowances.
12. Figures are related to all AIs' Hong Kong offices, as well as locally incorporated AIs' Mainland branches and subsidiaries.

Box 5
Evaluation of the effects of bank regulatory reforms and loan guarantee schemes on small and medium-sized enterprise loans

Introduction

Small and-medium sized enterprises (SMEs) are key contributors to the Hong Kong economy. At the end of 2018, they accounted for more than half the total private sector employment. Anecdotal evidence suggests that although many SMEs in Hong Kong rely mainly on internal financing, bank credit is the most important external funding source. So, bank credit conditions for SMEs could have a significant impact on the performance of both SMEs and the broader economy.

Two key developments after the global financial crisis (GFC), namely the introduction of Basel III reforms and the launch of SME Financing Guarantee Scheme (SFGS)[74] by the Hong Kong Mortgage Corporation (HKMC) may have important implications for the bank credit conditions for SMEs in Hong Kong. On one hand, the more stringent regulatory requirements under Basel III may arguably induce negative impact on SME loans or bank lending in general.[75] On the other hand, the SFGS helps reduce the credit risk of SME loans, thus providing stronger incentive for banks to lend to SMEs. In view of the counteracting effects of these two key developments, it is therefore important to evaluate how far SME financing in Hong Kong may have changed after the GFC. This box empirically quantifies their effects on the supply of bank loans to SMEs in Hong Kong with a view to understanding the overall impact of these two key developments.

74 For details, see http://www.hkmc.com.hk/eng/our_business/sme_financing_guarantee_scheme.html.

75 For instance, less-capitalised banks may be incentivised to shift away from SME loans to other corporate loans under the more stringent Basel III capital requirements, as the capital requirement for SME loans may be higher than that of other corporate loans.

The empirical model and data

The assessment of the effect of Basel III regulatory reforms on SME loans is based on the econometric model developed by the Financial Stability Board's working group on evaluation of the effects of financial regulatory reforms on SME financing.[76] Basically, a difference-in-difference model is specified to explain banks' quarterly growth of SME loans with a dummy variable separating the pre- and post-reform periods.[77] The model further assumes that during the post-reform period, the average growth rate of SME loans for the group of banks that are more exposed to the reform (i.e. the treatment group) would be different from other banks (i.e. the control group). The difference can be taken as the cross-sectional effect of the regulatory reform. The model specification can be adjusted to test whether the regulatory effects are persistent or transitory.

The model is applied to estimate the effect of different regulatory reforms under Basel III, namely the risk-based capital (RBC), liquidity coverage ratio (LCR) and domestic systemically important banks (D-SIB).[78] For each regulatory reform, a specific balance sheet variable (i.e. exposure variable) is adopted to identify the group of "more exposed banks". For example, when assessing the effect of RBC, "more exposed banks" refer to those banks with the average ratio

76 The working group contains 16 jurisdictions including Hong Kong. The consultation report is available at https://www.fsb.org/2019/06/fsb-publishes-consultation-on-sme-financing-evaluation.

77 The pre- and post-reform periods are defined based on the announcement date of the reform in Hong Kong.

78 Leverage ratio and net stable funding ratio are excluded from the analysis, as they were implemented very recently, and therefore the sample in the post-reform period may be too small to obtain reliable estimates.

of Tier 1 capital over risk-weighted assets (RWA) in the pre-reform period lower than the bottom quartile. This assumes that less-capitalised banks tend to be more responsive to the RBC reform. Table B5.A summarises major characteristics of the model, including the definitions of the exposure variable for each of the regulatory reforms considered.

Table B5.A
Key characteristics of the model

Model for estimating the effects of the reforms

Dependent variable =
a (Pre/post-regulation dummy variable)* Dummy (Exposure variable) +*
b control variables for bank characteristics +*
bank fixed effects + time fixed effects + error term

For RBC and LCR:
Dummy (Exposure variable) = 1
if the exposure variable is below the bottom quartile

Reforms	Exposure variable
RBC	Tier 1 capital / RWA
LCR	(Cash + Due from Exchange Fund + Government bills, notes and bonds) / Total assets
D-SIB	Bank identified as D-SIB

The model includes bank fixed effects and various bank balance sheet variables to control for bank heterogeneity. It also includes time fixed effects to capture the effect of loan demand and other time-varying common factors.[79]

Apart from examining the effects on SME loans, this analysis considers two additional dependent variables, the quarterly growth of total corporate loans (including SME loans) and the share of SME loans in total corporate loans. These additional estimation results can provide a fuller picture and also facilitate robustness checks.

Data for estimations are mainly obtained from regulatory banking returns filed by banks in Hong Kong to the HKMA. Data of SME loans and corporate loans are from *the return of capital adequacy ratio*. The former is defined as the sum of on-balance sheet exposure to SMEs and small business reported under the internal ratings-based approach (IRB approach), and the amount of qualifying exposures to small businesses reported under the standardized (credit risk) approach (STC approach).[80] Corporate loans refer to the sum of SME loans defined above and all other corporate exposure under the IRB and STC approaches.

Other bank balance sheet variables are sourced from various banking returns.[81] These variables include size (measured by the natural logarithm of total assets), loan-to-asset ratio, loan-to-deposit ratio, ratio of liquid assets[82] to total assets, gross classified loan ratio, ratio of Tier 1 capital to RWA, return on assets, and ratio of Tier 1 capital to total assets. The dataset for estimations includes 19 locally incorporated licensed banks in Hong Kong, covering the period from the first quarter of 2010 to the third quarter of 2018.

Empirical findings on the effects of bank regulatory reforms

We first discuss the empirical findings on the effect of RBC, which can be summarised by the following three points. First, the growth of SME loans of less-capitalised banks is estimated to be not statistically different from that of other banks after the RBC reform. Second, for total corporate loans, less-capitalised banks are found to register higher growth by around 2.5

[79] This may capture the effect of SFGS (will be discussed later).

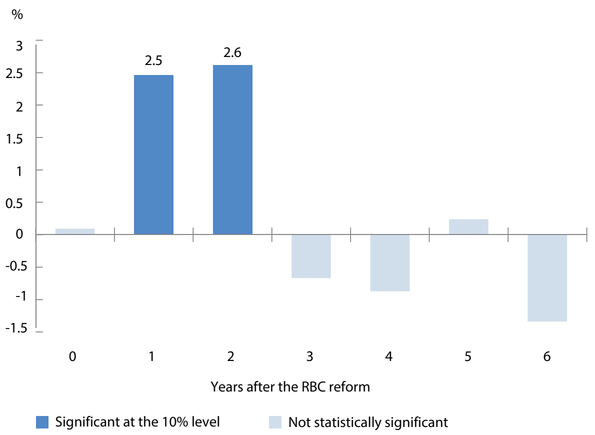
[80] For the IRB approach, SMEs are defined as corporates with an annual revenue equal or smaller than HK$500 million; small businesses refer to exposures to those corporates where the total exposure amount to the corporate is less than HK$10 million.

[81] These include *the return of assets and liabilities, the return of capital adequacy ratio, the quarterly analysis of loans and advances and provisions and the return of current year's profit and loss account.*

[82] Liquid assets are defined as the sum of cash, due from the Exchange Fund, and government bills, notes and bonds.

percentage points relative to that of other banks in the first two years after the RBC reform (Chart B5.1). These two findings together suggest that less-capitalised banks adjusted their corporate loan portfolios by shifting towards non-SME corporate loans after the RBC reform, which is in line with economic intuitions. But this portfolio adjustment effect is found to be transitory. Finally, consistent with the two findings above, the share of SME loans to total corporate loans of less-capitalised banks is estimated to decrease by around 1.4 percentage points relative to that of other banks, with the estimate being statistically significant.

Chart B5.1
Estimated effects of the RBC reform on growth of corporate loans



We repeated the same exercise for other aforementioned regulatory reforms. The estimation results, however, show that they do not generate any significant transitory or persistent effect on SME loans and corporate loans.

Empirical findings on the effect of SFGS

Before discussing the empirical findings on the effect of HKMC's SFGS, we highlight two features of the SFGS that influence the choice of the empirical method to estimate the effect of SFGS. First, the scheme was introduced in 2011, followed by refinements in 2012, 2016 and 2018 (see Table B5.B).[83] As the introduction of the scheme and the first two refinements occurred during the sample period, these events make the estimation of the effect of SFGS possible.

Second, the scheme has drawn positive responses from banks in Hong Kong. Indeed, all sample banks in this study are found to be participating banks of the scheme. As a result, empirically it is difficult to identify the cross-sectional effect of SFGS using the same estimation approach we did previously unless a suitable exposure variable can be identified to separate the treatment and control groups of banks. However, in this case, it appears that there is no ideal candidate for the exposure variable.

Table B5.B
HKMC's SFGS and its refinement

Effective since	1 Jan 2011	31 May 2012	1 Jun 2016	19 Nov 2018
Max. guarantee ratio	70%	80%		
Max. annual guarantee fee	4.2%	1.44%	1.3%	0.65%
Min. annual guarantee fee	0.5%		No minimum	
Max. credit amount (HK$ million)	12			15
Max. guarantee amount (HK$ million)	8.4	9.6		12
Max. guarantee period	5 years			7 years

Source: HKMC.

[83] The scheme aims to help SMEs to obtain financing from participating lenders for meeting their business needs to enhance their productivity and competitiveness in the rapidly changing business environment. The current scheme remains effective until the end of June 2022.

With these considerations, we aim at estimating the average effect of SFGS among banks. To this end, a time series model is specified to explain the estimate of time fixed effects obtained from the previous model for examining the effect of the RBC on SME loans. We choose to examine this estimate, as it captures time-varying common factors among banks. In theory, if the SFGS generates a significant homogenous effect across banks, the effect can be revealed from the estimate of time fixed effects after controlling for other common macroeconomic factors.

The model contains five explanatory variables, including a dummy variable that takes the value of one since the first quarter of 2011 and zero otherwise to capture the effect of the introduction of SFGS, and a step variable to capture the effects of the subsequent two refinements.[84] Two macroeconomic variables, the real GDP growth rate and the three-month HIBOR are included to control for changes in demand for SME loans over time. Finally, a dummy variable defined as one after the announcement of the RBC reform and zero otherwise is added in order to capture a potential homogenous effect of the RBC reform across banks.

The estimation result (Table B5.C) shows that the introduction of the SFGS significantly increases the supply of SME loans, with an average of seven percentage points increase in the quarterly growth of the loans.

Table B5.C
Estimation result for the effect of SFGS

Dependent variable	Estimates of time fixed effects from the RBC model
Introduction of SFGS	7.056***
Refinements of SFGS	-1.073
Real GDP growth	1.668***
3-month HIBOR	-2.466
Announcement of RBC	-3.845
R^2	0.551
Observation	35

Note: ***, **, * denote the estimated coefficients being significant at 1%, 5% and 10% levels respectively. Robust standard errors are used.

Conclusion

This analysis found that the more stringent regulatory requirements under Basel III have not generated a persistent negative effect on the supply of SME loans by banks in Hong Kong.[85] This may be due to the fact that banks in Hong Kong are generally highly capitalised with strong liquidity positions. The analysis also found that loan guarantee schemes by the public sector can effectively reduce funding difficulties facing SMEs. In sum, despite the potential counteracting effects, these two key developments after the GFC is likely to generate a net positive impact on bank credit conditions for SMEs in Hong Kong. Nevertheless, given that SMEs are particularly vulnerable to funding shocks, credit conditions of SMEs merit close monitoring, particularly in view of the recent worsening of domestic economic conditions.

84 The step variable takes an initial value of zero up to the first quarter 2012, then a value of one from the second quarter of 2012 to first quarter of 2016, and a value of two afterwards to reflect the two enhancements in 2012 and 2016 respectively.

85 There is a caveat that the estimates in this box mainly reflect the impact of earlier Basel III reform measures. Since the final package of Basel III reform includes other measures that specifically affect corporate loans, there may be a need to revisit this issue again after the implementation of the final package to ascertain the impact.

Glossary of terms

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

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

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

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

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

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

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

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

Convertibility Zone

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

Exchange Fund Bills and Notes (EFBNs)

Debt instruments issued by the HKMA for the account of the Exchange Fund. These instruments are fully backed by the foreign reserves. The HKMA has undertaken that new Exchange Fund paper will only be issued when there is an inflow of funds, thus enabling the additional paper to be fully backed by the foreign reserves. Since 1 April 1999, interest payments on Exchange Fund paper have been allowed to expand the Monetary Base. Additional Exchange Fund paper is issued to absorb such interest payments. This is consistent with the Currency Board discipline since interest payments on Exchange Fund paper are backed by interest income on the US dollar assets backing the Monetary Base.

Monetary Base

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

Money supply

The total stock of money available in the economy. Hong Kong has three measures of money supply: Money Supply definition 1 (M1) is defined as the sum of legal tender notes and coins held by the public plus customers' demand deposits placed with licensed banks. Money Supply definition 2 (M2) is defined as M1 plus customers' savings and time deposits with licensed banks plus negotiable certificates of deposit (NCDs) issued by licensed banks held outside the banking sector. Money Supply definition 3 (M3) is defined as M2 plus customers' deposits with restricted licence banks and deposit-taking companies plus NCDs issued by these institutions held outside the banking sector.

Nominal and Real Effective Exchange Rate (NEER and REER)

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

Abbreviations

1m moving average	One-month moving average
3m moving average	Three-month moving average
3m-on-3m	Three-month-on-three-month
AC	All-Country
AB	Aggregate Balance
AEs	Advanced economies
AFC	Asian Financial Crisis
APP	Asset Purchase Programmes
ASEAN	Association of Southeast Asian Nations
AIs	Authorized institutions
BIS	Bank for International Settlements
bn	Billion
BLR	Best lending rate
BoJ	Bank of Japan
BoP	Balance of Payments
BSD	Buyer's stamp duty
CAPE	Cyclically-adjusted price-to-earnings
CAR	Capital Adequacy Ratio
CBO	Congressional Budget Office
CBIRC	China Banking and Insurance Regulatory Commission
CCPI	Composite Consumer Price Index
CCyB	Countercyclical capital buffer
CDs	Certificates of deposits
CET1	Common equity tier-one
CFR	Core Funding Ratio
ChiNext	The start-ups board in the Shenzhen Stock Exchange
CIs	Certificates of Indebtedness
CNH	Offshore renminbi in Hong Kong
CNY	Onshore renminbi
C&SD	Census and Statistics Department
CPI	Consumer Price Index

CU	Convertibility Undertaking
DF	Deliverable forward
DI	Direct investment
DSD	Doubling of the ad valorem stamp duty rates
D-SIB	Domestic systemically important bank
DSR	Debt-servicing ratio
DTD	Distance-to-default
EBIT	Earnings before interest and tax
EBITDA	Earnings before interest, taxes, depreciation and amortization
ECB	European Central Bank
EFBNs	Exchange Fund Bills and Notes
EMBI	Emerging Market Bond Index
EMEAP	Executives' Meeting of East Asia-Pacific Central Banks
EMEs	Emerging Market Economies
EPIFs	External primary income flows
EPS	Earnings per share
EPU	Economic policy uncertainty
ETFs	Exchange traded funds
ETR	Effective tax rates
EU	European Union
EUR	Euro
FDI	Foreign direct investment
Fed	Federal Reserve
FI	Financial Institutions
FOMC	Federal Open Market Committee
FSB	Financial Stability Board
FX	Foreign exchange
G20	Group of Twenty
GBP	British Pound Sterling
GBs	Government Bonds
GDP	Gross Domestic Product
GFC	Global financial crisis
G-SIBs	Global systemically important banks
HIBOR	Hong Kong Interbank Offered Rate
HK	Hong Kong

HKD	Hong Kong dollar
HKEx	The Hong Kong Exchanges and Clearing Limited
HKMA	Hong Kong Monetary Authority
HKMC	Hong Kong Mortgage Corporation
HKPC	Hong Kong Productivity Council
HK$M3	Hong Kong dollar broad money supply
HONIA	Hong Kong Dollar Overnight Index Average
HSCEI	Hang Seng China Enterprises Index
HSI	Hang Seng Index
HTS	Harmonised Tariff Schedule
ICR	Interest Coverage Ratio
IFC	International Finance Corporation
IMF	International Monetary Fund
ISM	Institute for Supply Management
IPO	Initial Public Offering
IRB approach	Internal ratings-based approach
IRRBB	Interest rate risk in the banking book
IT	Information technology
JPY	Japanese Yen
LCR	Liquidity Coverage Ratio
LIBOR	London Interbank Offered Rate
LERS	Linked Exchange Rate System
LMR	Liquidity Maintenance Ratio
lhs	Left-hand side
LR	Leverage Ratio
LTD	Loan-to-deposit
LTV	Loan-to-value
mn	Million
MDBs	Multilateral Development Banks
MLF	Medium-term lending facility
MoF	Ministry of Finance
MRF	Mutual Recognition of Funds
MSCI	Morgan Stanley Capital International
MTN	Medium-term Note
NAFTA	North American Free Trade Agreement
NBER	National Bureau of Economic Research

NBS	National Bureau of Statistics
NCD	Negotiable certificate of deposit
NEER	Nominal effective exchange rate
NFIB	National Federation of Independent Business
NIE	Newly industrialised economies
NIM	Net interest margin
NPL	Non-performing loan
NSFR	Net Stable Funding Ratio
OECD	Organisation for Economic Co-operation and Development
OIS	Overnight indexed swap
OTC	Over-the-counter
p.a.	Per annum
P2P	Peer-to-peer
PBoC	People's Bank of China
PCE	Personal consumption expenditure
PMI	Purchasing Managers' Index
POE	Privately-owned enterprise
PPI	Producer Price Index
qoq	Quarter-on-quarter
qoqa	Quarter-on-quarter annualised
QE	Quantitative Easing
QQE	Quantitative and Qualitative Easing
RBC	Risk-based capital
R&VD	Rating and Valuation Department
REER	Real effective exchange rate
Repo	Repurchase operation
rhs	Right-hand side
RMB	Renminbi
ROE	Return on equity
RRR	Required reserve ratio
RTGS	Real Time Gross Settlement
RWA	Risk-weighted assets
SAFE	State Administration of Foreign Exchange
SARS	Severe Acute Respiratory Syndrome
SDR	Special Drawing Rights

SFGS	SME Financing Guarantee Scheme
SHIBOR	Shanghai Interbank Offered Rate
SKEW	Chicago Board Options Exchange Skew Index
SLF	Standing Lending Facility
SLO	Short-term Liquidity operation
SMEs	Small and medium-sized enterprises
SOEs	State-owned enterprises
SPM	Supervisory Policy Manual
SSD	Special stamp duty
SSE	Shanghai Stock Exchange
STC approach	Standardized (credit risk) approach
SWIFTs	Society for Worldwide Interbank Financial Telecommunication
S&P	Sale and Purchase Agreements of Building Units
S&P 500	Standard & Poor's 500 Index
TMA	Treasury Markets Association
th	Thousands
TMLF	Targeted Medium-term Lending Facility
TLTRO	Targeted Longer-Term Refinancing Operation
TWI	Trade Weighted Index
UK	United Kingdom
US	United States
USD	US dollar
VAR	Vector autoregressive
VAT	Value-added tax
VHSI	HSI Volatility Index
VIX	Chicago Board Options Exchange Market Volatility Index
WMPs	Wealth management products
WTO	World Trade Organisation
yoy	Year-on-year

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

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