HONG KONG MONETARY AUTHORITY
香港金融管理局

HALF-YEARLY MONETARY AND FINANCIAL STABILITY REPORT

March 2019

This Report reviews statistical information between the end of August 2018 and the end of February 2019.

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

Global economic expansion continued, but is losing momentum amid rising uncertainties due to lingering trade tensions, tighter financial conditions, and other idiosyncratic and cyclical headwinds. While investors have priced out another interest rate hike in the US as the Federal Reserve adjusted its stance on monetary policy to emphasise "data dependence" and the need for "patience", financial markets could become more sensitive to incoming data, particularly those warranting a tighter monetary policy, such as higher readings of US inflation.

Despite the triggering of the weak-side Convertibility Undertaking (CU) in March, the Hong Kong dollar continued to trade in a smooth and orderly manner. Total loan growth contracted slightly in the second half of 2018, reflecting subdued credit demand amid headwinds including lingering US-China trade conflicts and weaker global economic growth. The housing market also cooled down in the second half, with a visible fall in transactions and a decline in housing prices, before stabilising somewhat in early 2019.

Looking ahead, the Hong Kong banking sector will face multiple headwinds amid rising uncertainties in the external environment. Should these uncertainties intensify and persist into the longer term, they could significantly dampen business confidence and credit demand, thereby posing downward pressure on banks' profitability. With rising corporate leverage, banks should carefully assess how the possible deterioration in the external environment would affect the credit risk of their corporate exposure.

The external environment

The global economy continued to expand in the second half of 2018. However, while the US economy grew solidly, growth momentum elsewhere shifted down a gear. Among advanced economies, Japan and a number of major euro area countries experienced slower growth, and inflation was tepid. Slowing global trade flows and a plunge in oil prices posed cyclical headwinds to emerging market economies (EMEs). In January, in recognition of the softer global growth momentum, the International Monetary Fund revised downward its global growth projections for 2019 and 2020 by 0.2 and 0.1 percentage points, respectively, relative to October 2018.

As the growth outlook became less optimistic and with trade tensions taking hold, global equity market volatility surged in late 2018. The US Treasury yield curve flattened to levels not seen since the global financial crisis, sparking concerns among market participants of an imminent US recession. However, with US economic fundamentals still solid, a near-term recession remains a low-probability scenario.

Nevertheless, the global economic outlook is fraught with uncertainties. In the US, while benign inflation has allowed the Federal Reserve (Fed) leeway to put the rate hike cycle on pause, a more data-dependent Fed also suggests that financial markets will likely become more sensitive to incoming economic data, especially those warranting a tighter monetary policy, such as higher readings of inflation. At the same time, the outcomes of trade negotiations between the US and Mainland China, as well as those between the US and the European Union, remain uncertain. In the UK, it remains to be seen whether solutions to prevent a "hard" Brexit can be achieved.

In East Asia[1], while financial markets have stabilised on the back of a moderating US dollar and expectations of a pause in Fed rate hikes, a deteriorating external environment could weigh on the region's economic growth. Indeed, the weakening global trade momentum has already weighed on gross domestic product (GDP) growth in many East Asian economies and inflationary pressures have moderated. While this may alleviate the growth-inflation policy dilemma faced by the region's central banks, financial imbalances, such as high private sector indebtedness in some countries in the region, remain a challenge. Another challenge, as detailed in Box 1 (page 16), is that shocks emanating from Fed monetary policies — if they materialise — tend to have large spillover effects on EME sovereign bonds, including those issued by East Asian economies.

In Mainland China, growth slowed further in the second half of 2018, amid increased uncertainties in the external environment and some moderation in domestic demand. Looking ahead, the economic outlook remains uncertain as the outcome of the US-China trade talk remains unknown. Rising financing difficulties faced by private business owners especially small firms in the past few quarters that resulted from the notable contraction of shadow financing activities, coupled with weaker economic confidence, could also exert pressures on business activities. In this challenging economic environment, policymakers would have to continue to strike a balance between stabilising the economy and containing potential systemic risks, by adopting accommodative but targeted measures such as targeted required reserve ratio cuts. Meanwhile, the authorities also stepped up supply-side measures to enhance productivity growth, such as promoting competition among firms with different ownership structure and providing better social safety nets for individuals. The official growth target for 2019 was also tuned lower to the range of 6.0–6.5% from around 6.5% in 2018.

Risk-off sentiment prevailed in the Mainland financial market in 2018. Banks' asset quality also deteriorated somewhat over the review period, while leverage of listed non-financial corporate firms edged higher. Nevertheless, banks' loan loss provision increased further in the second half and their exposure to off-balance sheet wealth management products continued to decline; both developments help protect the banking system against potential deterioration in credit quality. Another bright spot is that the leverage of listed firms in overcapacity sectors, one of the major sources of banks' credit risks, declined further in the first three quarters of 2018. Box 2 (page 32) provides a more in-depth analysis of the factors leading to the recent improvement in the business performance of the overcapacity sectors.

The domestic economy

Compared with the first half of 2018, economic activities in Hong Kong softened in the second half. Sequential growth was muted and year-on-year growth also slowed. This dragged the full-year growth rate down to 3.0%, against 3.8% a year earlier.

Weakening economic activities occurred as the impact of the US-China trade conflict, either directly or indirectly, weighed on consumption and exports. Private consumption grew more slowly, probably due to heightened economic uncertainty and some negative wealth effects

[1] In this report, East Asia refers to a group of seven economies: Indonesia, Malaysia, the Philippines, Singapore, South Korea, Taiwan and Thailand.

associated with local asset price corrections. Externally, Hong Kong's export performance also worsened, particularly in the fourth quarter following the actual imposition of additional tariffs. Box 3 takes a closer look at the impact of the US-China trade conflict on Hong Kong's merchandise trade performance and discusses its near-term outlook and the associated risks.

Economic growth for 2019 is expected to slow further, mainly reflecting a slowdown in global growth. In the face of a number of cross-currents, Hong Kong's export performance is expected to continue to struggle. Domestically, private consumption will likely remain growth-supportive amid the low unemployment rate and rising household income, but the outlook for overall investment spending may become more uncertain. For 2019 as a whole, the Government forecasts real GDP growth in the range of 2–3%, while the latest growth forecasts by private-sector analysts averaged 2.3%; these forecasts are subject to a number of uncertainties and risks as discussed above.

Local inflation increased slightly to a still moderate level in the second half of 2018, due in part to the effect of earlier rises in fresh-letting private residential rentals. At the same time, the unemployment rate stayed low at 2.8%, the lowest level in more than 20 years, although growth in total employment showed initial signs of slowing. For 2019 as a whole, local inflationary pressures will likely stay mild, along with softer domestic growth momentum.

Monetary conditions and capital flows

After the triggering of the weak-side Convertibility Undertaking (CU) in the latter part of August, the Hong Kong dollar moved away from 7.8500 to trade between 7.8062 and 7.8499 until the weak-side CU was triggered again 4 times in March 2019 (up to 19 March 2019)[2]. The Hong Kong dollar exchange rate strengthened in September and November, partly reflecting the unwinding of interest carry trade positions as liquidity tightened. Stepping into 2019, the Hong Kong dollar softened against the US dollar with some rebuilding of interest carry positions. The weak-side CU was triggered again in March. Despite the triggering of the weak-side CU, the Hong Kong dollar continued to trade in a smooth and orderly manner. Due to the triggering of the weak-side CU, the Aggregate Balance edged down to HK$70.9 billion (as at March 19).

The Hong Kong dollar interbank interest rates broadly trended upwards during the second half, primarily reflecting expectations of US rate hikes. Compared to the first half of 2018, the three-month and 12-month Hong Kong Interbank Offered Rate (HIBOR) fixings moved up by about 30 basis points to 2.32% and 2.74% (monthly average term) respectively in December. Moving into 2019, the Hong Kong dollar interbank interest rates generally eased as seasonal demand faded. The composite interest rate, which measures the average Hong Kong dollar funding costs of retail banks, increased from 0.62% at the end of June 2018 to 0.83% at the end of January 2019. In view of the higher funding costs, retail banks raised their Best Lending Rates by 12.5–25.0 basis points after the rise in the target range for the US Federal Funds Rate in late September. The average lending rate for new mortgages moved along with the Best Lending Rates to around 2.45% at the end of January 2019.

Amid the uncertainties arising from the US-China trade tensions and Brexit negotiations, fund flow volatility may increase. In addition, substantial negative spreads between the Hong Kong dollar and the US dollar interest rates may encourage carry trade activities, leading to capital outflows. In such circumstances, the outflow and possible triggering of the weak-side CU is a natural process to be expected under the Linked Exchange Rate System.

[2] Based on the closing rate.

The offshore (CNH) and onshore (CNY) renminbi have experienced weakening pressure since early 2018, due to the fear of an escalation in trade tensions between Mainland China and the US. However, both stabilised in November amid optimism surrounding news that high-level trade talks between Mainland China and the US had resumed. The lingering trade tensions have so far not exerted significant impact on funding conditions in the offshore interbank market. The overnight CNH HIBOR mostly traded below 4% and the three-month CNH HIBOR hovered around 4%. Hong Kong's CNH liquidity pool expanded steadily during the second half, with renminbi customer deposits picking up by 5.2% in the second half of 2018. The average daily turnover of the renminbi real time gross settlement system continued to stay high, picking up further to RMB1,010.1 billion in 2018. Despite concerns over the US-China trade tensions, it is expected Hong Kong's offshore renminbi business will grow along with the progress of Mainland's capital account liberalisation, the development of the Stock and Bond Connect schemes, and increasing regional economic co-operation under the Belt and Road and Greater Bay Area Initiatives.

Asset markets

Over the past six months, the local equity market has been on a roller coaster ride. The market fell sharply at the beginning of the review period amid continued monetary tightening in the US, the considerable divide between the two sides in the US-China trade negotiations, and increased signs of weakness in the Mainland economy. Subsequently, the Fed switched to a "patient" monetary stance amid a weaker and more uncertain economic outlook, while Mainland China stepped up its efforts to reduce its bilateral trade surplus with the US and open its markets to foreign investors during the trade truce. Despite the highly politicised US indictment against a Mainland telecoms company, both sides showed friendly gestures and demonstrated determination to reach a deal. This set the backdrop for the sharp rebound in local equities at the beginning of 2019. Nonetheless, uncertainty still looms large in the period ahead as the two sides get into the details of the deal, if any. This is especially so in the difficult high-tech sphere with the impending US federal indictment case complicating the scene.

The Hong Kong dollar debt market grew slightly last year. Yields declined and performance improved towards year-end amid increased expectations of a more moderate pace of monetary normalisation in the US. As a result, the flow of bond funds reversed its direction and registered a mild increase in the second half of 2018. Hong Kong's offshore renminbi market saw a considerable rebound in issuance, ending a three-consecutive-year decline. However, total issuance was still outsized by maturing debt, as corporate deleveraging continued on the Mainland. The prospects for the local debt market in the year ahead will be challenging, depending on the global economic outlook, especially for the Mainland.

The residential property market moderated in the second half of 2018 amid the US-China trade tensions, global stock market corrections and higher local prime rates. Housing transactions dropped visibly and flat prices declined by 9.0% from the peak in July through December. However, housing affordability remained stretched, with both the price-to-income ratio and the income gearing ratio staying at high levels. During the same period, the non-residential property market showed tentative signs of softening, as suggested by lower transactions and some price consolidation.

In early 2019, secondary-market housing prices stabilised somewhat, and overall transactions picked up in part because more property developers pushed out new launches, with more attractive pricing than previously to lure buyers.

A host of external and domestic factors make the outlook for the housing market uncertain. On the external front, the uncertainty over the US-China trade tensions will continue to cloud Hong Kong's property market outlook, possibly through changes in market sentiment, economic prospects and financial conditions. On the domestic front, economic growth is softening, but employment conditions and income growth have remained largely stable which could provide some support for property demand. The trajectory for domestic interest rates partly hinges on the future path of the US policy rate, which in itself is uncertain. Over the longer term, the supply-demand gap is expected to narrow given increased flat completions during the past few years and the Government's effort to increase land and housing supply.

Banking sector performance

Notwithstanding an uncertain external environment, retail banks registered higher profits in the second half of 2018, with pre-tax operating profits rising by 14.3% compared with the same period in 2017. The increase in profits was mainly due to a significant growth in net interest income, which more than offset the increase in impairment charges and operating expenses. As a result, the return on assets rose to 1.23% in the second half of 2018 compared with 1.14% in the same period last year.

Banks' capital positions, as measured by Basel III standards, were structurally robust and strengthened further in the review period. The consolidated capital ratio of locally incorporated authorized institutions (AIs) rose to 20.3% at the end of December 2018. 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 increased to 167.6% and 54.3% respectively in the fourth quarter of 2018. 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 above the statutory minimum.

Reflecting subdued credit demand amid the lingering US-China trade conflict and weaker global economic growth, the full-year loan growth slowed notably to 4.4% in 2018 from 16.1% in 2017. On a half-yearly basis, total loans and advances contracted slightly by 0.9% in the second half of 2018, driven by a 3% drop in loans for use outside Hong Kong, while growth in domestic loans (comprising loans for use in Hong Kong and trade financing) decelerated notably to 0.1%. However, there were signs of stabilisation in loan growth since November 2018. The asset quality of banks' loan portfolios remained healthy by historical standards.

To broaden our understanding of the credit risk of Mainland-related lending by banks in Hong Kong, Box 4 (see page 73) provides a macro assessment of the credit risk for Mainland corporates based on locally-listed non-financial Mainland corporates that have borrowed syndicated loans from banks in Hong Kong. By assessing a broader set of key financial characteristics of Mainland corporates, the findings suggest that the Hong Kong banking sector, at least for the syndicated loan portfolio, is less exposed to riskier Mainland corporates. However, in view of concerns over Mainland's growth outlook and the uncertainty surrounding the US-China trade negotiations, banks should remain alert to the credit risk management of their Mainland-related exposure.

In the near term, the Hong Kong banking sector will face multiple headwinds, including the unresolved US-China trade tensions, weaker global economic growth, uncertainty over the pace of the US tightening cycle, and geopolitical risks. Should these uncertainties intensify and persist into the longer term, these could significantly dampen business confidence and credit demand, thereby posing downward pressure on banks' profitability. In view of the rising corporate leverage, banks should also carefully assess how the possible deterioration in the external environment could affect the credit risk of their corporate exposure.

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

During the review period, the global economy remained in expansion but growth momentum, especially outside the US, moderated amid a confluence of idiosyncratic and cyclical headwinds. In view of the less optimistic growth outlook, the Federal Reserve adjusted its stance on monetary policy, emphasising "data dependence" and the need for "patience" instead of providing forward guidance on further rate hikes. As the Federal Reserve becomes more data dependent, financial markets could become more sensitive to incoming data, and monetary policy could be perceived as more uncertain. At the same time, heightened global trade policy uncertainty and geopolitical risks will likely continue to cloud the world economic outlook.

In East Asia[3], amid signs of a slowing US rate hike cycle and a levelling-off in the US dollar, financial markets have generally stabilised since late 2018. However, the region could face a broad-based slowdown given the deteriorating external environment, namely the unresolved trade conflict between the US and Mainland China and weakening growth in the advanced economies.

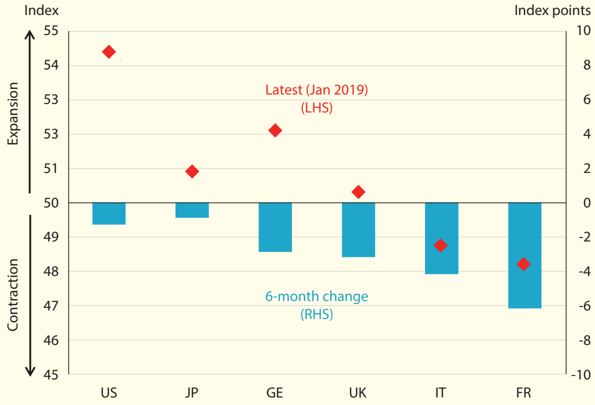
In Mainland China, growth momentum eased further in the second half of 2018 and growth outlook has become more uncertain amid the US-China trade conflict and financing difficulties that confront small firms. In response, policymakers adopted more targeted measures to stabilise the economy and to help private and small firms. Facing these challenges, policymakers will need to strike a delicate balance between continuing with the containment of systemic risks and supporting firms and the real economy.

2.1 External environment

The global economy continued to enjoy broad-based expansion in the second half of 2018. However, while the US economic performance remained solid overall, some signs of moderation emerged. There are also clear signs that growth momentum outside the US is slowing down. A number of country-specific shocks — including natural disasters in Japan, the introduction of new automobile emission standards in Germany, a spike in Italy's sovereign yields amid the fiscal standoff with the European Union (EU) and the outbreak of civil unrest in France — weighed on economic activities in advanced economies (AEs) (Chart 2.1). In addition, a cyclical moderation in world import growth has posed headwinds to industrial production in emerging market economies (EMEs) (Chart 2.2). The slump in oil prices during the fourth quarter also presented fresh challenges to commodity-exporting EMEs. In view of the softer growth momentum in the second half of 2018, the International Monetary Fund revised downward its 2019 global growth forecasts in January, by 0.2 percentage points to 3.5%.

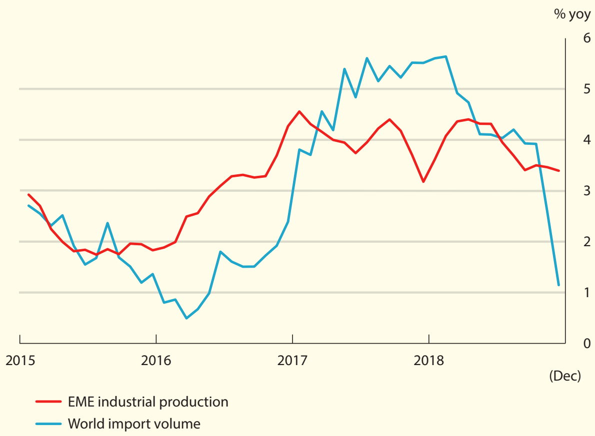
[3] In this chapter, East Asia refers to a group of seven economies; they are Indonesia, Malaysia, the Philippines, Singapore, South Korea, Taiwan and Thailand.

Chart 2.1
Composite Purchasing Managers' Index (PMI) in selected AEs



Note: US = United States, JP = Japan, GE = Germany, UK = United Kingdom, IT = Italy, FR = France.
Source: CEIC.

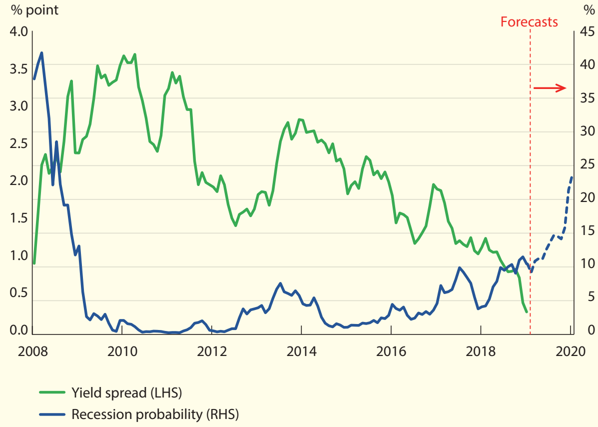
Chart 2.2
World import volume and industrial production in EMEs



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

In the fourth quarter, against the backdrop of slowing global growth, heightened trade policy uncertainty, concerns about the sustainability of US corporate earnings growth, and communications from the Federal Reserve (Fed) indicating that US monetary policy would continue to tighten, global equity markets corrected sharply. As financial market sentiment deteriorated, the flattening of the US Treasury yield curve accelerated to levels not seen since the global financial crisis, which led some market participants to speculate about the risks of an imminent US recession (Chart 2.3).

Chart 2.3
Spread between ten-year and three-month US Treasury yields and US recession probability



Note: The New York Fed provides monthly estimates of 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 spread between ten-year and three-month US Treasury rates.
Source: New York Fed.

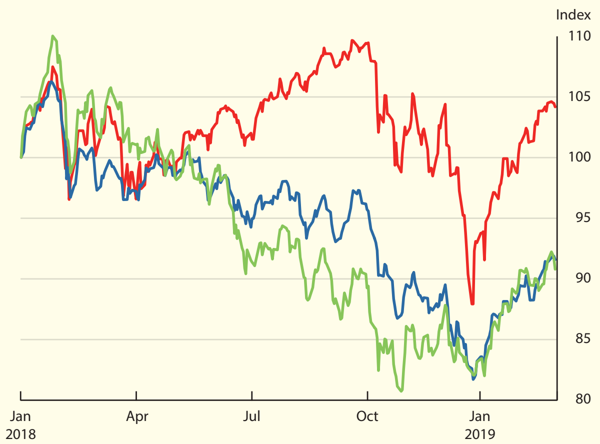
That said, a near-term US recession is unlikely. The US economic fundamentals remain solid, particularly in view of the tight labour market that will likely continue to underpin private consumption. At the same time, with the output gap estimated to have just returned to positive last year, the risks of an overheating economy prompting aggressive Fed tightening are relatively remote.[4]

Nonetheless, conceivably taking into account the sharp tightening in financial conditions since the fourth quarter, senior Fed officials began to emphasise a data-dependent approach to monetary policy in early January, highlighting that inflation pressure was "muted" and that they could be "patient" in determining future adjustments to monetary policy. In addition, following the January Federal Open Market Committee (FOMC) meeting, the Fed dropped its forward guidance on further interest rate hikes, and announced that it would be "prepared to adjust any of the details for completing balance sheet normalisation in light of economic and

[4] In January, the Congressional Budget Office estimated that the US output gap turned positive (at +0.3% of potential gross domestic product (GDP)) in the second quarter of 2018, the first time since the global financial crisis, and the positive output gap is expected to peak at +0.9% in the third quarter of 2019.

financial developments".[5] This shift in communications triggered a rally on global equity markets (Chart 2.4).

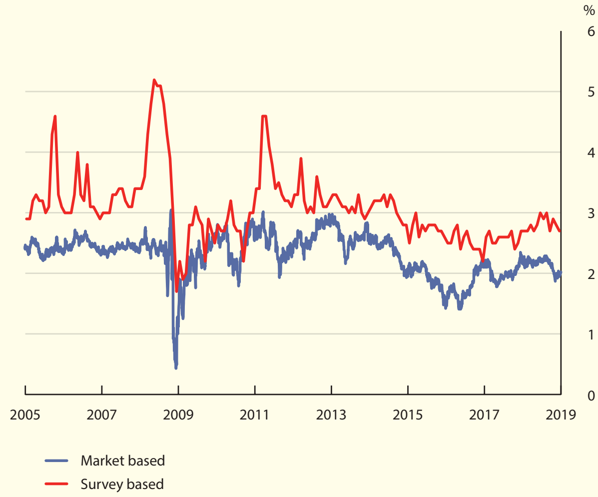
Chart 2.4
S&P 500, MSCI World (ex-US) and MSCI EM indices



Note: The MSCI World (ex-US) Index and the MSCI EM Index cover stock markets in developed economies (excluding the US) and EMEs respectively. All three series have been re-based to 100 on 1 January 2018.
Source: Datastream.

Despite the Fed's recent dovish signals, the US monetary policy outlook remains quite uncertain, and hinges on inflation and other developments. Modest inflation pressures so far have afforded the Fed leeway to pursue monetary policy normalisation in a gradual manner.[6] This "can afford to be patient" view is supported by well-anchored inflation expectations in recent years (Chart 2.5). In addition, as highlighted by Fed Chairman Jerome Powell in January, the US economic outlook has been facing a number of "cross currents", including the growth slowdown outside the US and trade policy uncertainty. These developments would likely call for a more cautious monetary policy stance.

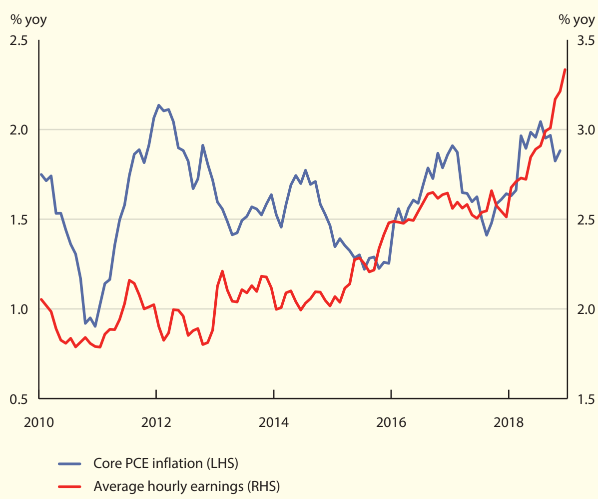
Chart 2.5
Market-based and survey-based indicators of US inflation expectations



Note: Market-based inflation expectations refer to the five-year, five-year forward inflation expectation rate, which measures the average expected inflation over a five-year period that begins five years from today, and is derived from yields of nominal and inflation-protected Treasury securities. Survey-based inflation expectations refer to results obtained from the University of Michigan's Survey of Consumers, and measures households' median expected price change in the next 12 months.
Source: St. Louis Fed.

Nonetheless, the overall US economy is likely to continue to perform, underpinned by a tight labour market. In this environment, wage growth may accelerate, which typically translates into higher inflation ahead (Chart 2.6). As such, there is a risk that market expectations, which have effectively priced out any prospects of Fed rate hikes in 2019, may have been overly complacent (Chart 2.7).

Chart 2.6
Average hourly earnings and core personal consumption expenditure inflation

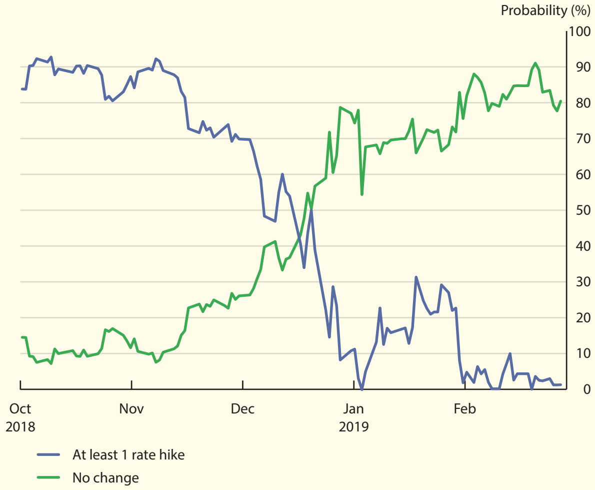


Note: Data on average hourly earnings growth are three-month moving averages.
Source: CEIC.

5 Please see "Statement Regarding Monetary Policy Implementation and Balance Sheet Normalisation", published by the Fed on 30 January 2019.

6 According to the minutes of the December 2018 FOMC meeting, many participants expressed the view that, "... in an environment of muted inflation pressures, the Committee could afford to be patient about further policy firming".

Chart 2.7
Futures-implied probability of no changes, versus at least one hike, in Fed funds target rate in 2019



Note: The probability series are imputed from prices of Fed funds futures contracts.
Source: Bloomberg.

To summarise, an extended pause in Fed rate hikes is not a foregone conclusion. In an attempt to minimise policy errors, the Fed has increasingly emphasised data dependency in its policymaking as a risk management strategy.[7] As a corollary, it is likely that financial markets could become more sensitive to incoming data, especially those that warrant monetary tightening.

The monetary policy outlook of other major central banks is also uncertain. In the euro area, the European Central Bank (ECB) ended its asset purchase programme (APP) in December, while continuing to reinvest the principal payments from maturing securities purchased under the APP in full, and reiterated its forward guidance of keeping policy rates unchanged at least through the summer of 2019. Nevertheless, the ECB downgraded its assessment of the near-term growth momentum in January, characterising the risks surrounding the growth outlook as having "moved to the downside"[8]; the implication of this downgrade for monetary policy remains to be seen.

In Japan, recent policy meetings of the Bank of Japan (BoJ) have indicated the Bank it could further ease its monetary policy stance, if needed, amid rising downside risks. However, hurdles for further policy easing are likely to be very high as the effectiveness of the measures has been called into question; and as the drawbacks of the prolonged ultra-low interest rate environment have become more visible. For instance, the regional banks' capital ratio has declined from 10.6% in 2015 to 9.7% in 2018 as low yields continued to weigh on their profitability. As such, the BoJ is likely to struggle within an already very limited policy space in the near term.

In addition to the uncertainty surrounding the global monetary policy outlook, the future outcomes of trade negotiations and heightened geopolitical risks represent two other key sources of risks to the global economic outlook. In early December, the US administration announced it would hold off tariff hikes against Mainland imports for 90 days, and extended the deadline again in late February, but it remains to be seen whether the two sides can reach a long-term trade deal. At the same time, the trade talks between the US and the EU have, at this stage, yielded little progress so far. As the outcomes of these trade negotiations remain uncertain, they may continue to cloud the global economic outlook.

Policy and geopolitical risks also abound. In the US, bipartisan disagreement over the funding of border security resulted in a 35-day shutdown of the federal government between late December 2018 and late January 2019. Although the impact of the shutdown on economic growth is likely to be transitory, there is a risk that the acrimonious relationship between the Trump

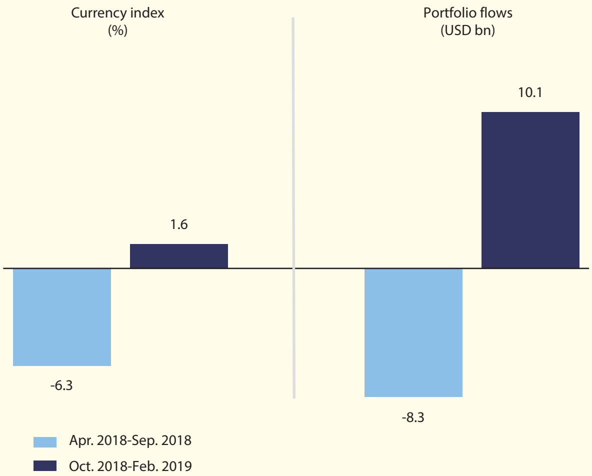
7 See, for example, speech by Fed Chairman Powell titled "Monetary Policy in a Changing Economy", delivered at the Jackson Hole Symposium on 24 August 2018, and speech by Fed Vice Chairman Clarida titled "Data Dependence and US Monetary Policy", delivered at The Clearing House and The Bank Policy Institute Annual Conference, 27 November 2018.

8 Separately, the European Commission revised downward the 2019 growth projection for the euro area, from 1.9% to 1.3%, in February.

administration and the House controlled by the Democratic Party could lead to more policy gridlock ahead. In the UK, the risks associated with Brexit and its spillover effects increased after the overwhelming defeat of the May administration's Brexit proposal in mid-January, and it remains to be seen whether last-minute solutions to prevent a disruptive "hard" Brexit can be found. Elsewhere, geopolitical tensions in the Middle East, such as the US's renewed sanctions on Iran, may also pose uncertainty to oil prices that could affect the global growth outlook.

In East Asia, financial markets generally stabilised in the fourth quarter of 2018 after experiencing bouts of market volatility in the first three quarters. The levelling-off in the US dollar since October and signs that the Fed may be patient with further rate hikes have alleviated the depreciation and capital outflow pressures faced by East Asian economies. Many regional currencies strengthened slightly against the US dollar in the fourth quarter, while portfolio inflows resumed (Chart 2.8).

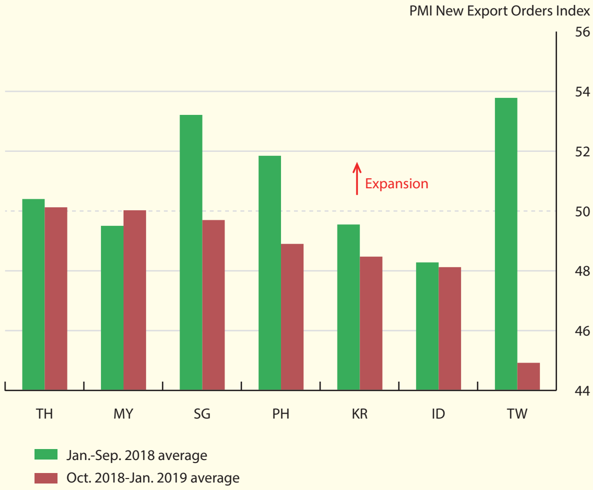
Chart 2.8
East Asia: Currency index and capital flows



Note: Currency index is Bloomberg JPM Asia dollar index (ADXY).
Sources: CEIC, EPFR and HKMA staff calculations.

Despite the stabilisation in financial markets, there are increasing signs that the region's economies may face a broad-based slowdown. Amid the weakening global trade momentum associated with the US-China trade conflicts, real GDP growth in most East Asian economies slowed in the second half of last year, largely driven by a decline in export growth. Indeed, the PMI new export orders sub-index, which indicates the external sector performance in the near-term, has declined to contractionary territory since the fourth quarter for many East Asian economies, suggesting that near-term growth momentum may further moderate (Chart 2.9).

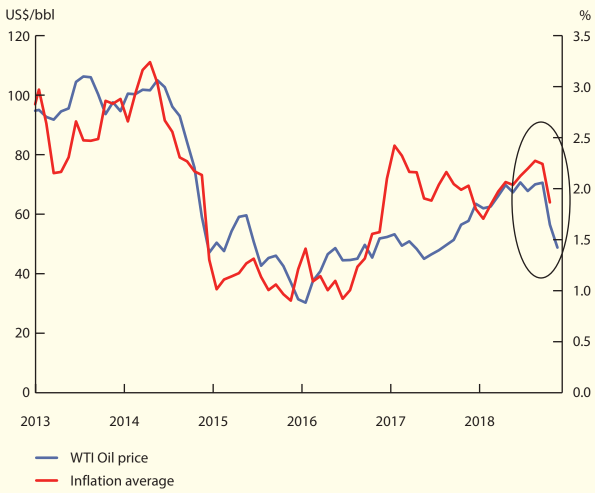
Chart 2.9
East Asia Markit PMI new export orders index



Note: Whole economy PMI for Singapore and manufacturing PMI for other economies.
Source: CEIC.

Amid the slowing growth environment and a recent drop in oil prices, inflationary pressures have weakened in East Asia (Chart 2.10).

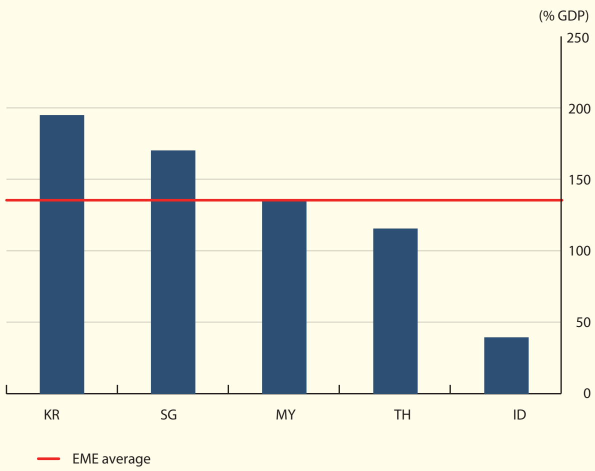
Chart 2.10
East Asia: Headline inflation and oil prices



Sources: Bloomberg, CEIC and HKMA staff estimates.

Coupled with modest inflationary pressures and weakened upward stress on the US dollar, the need for rate hikes among East Asian central banks has largely faded, alleviating the typical policy dilemma of supporting economic growth and taming inflation and capital outflows. Nonetheless, the presence of financial imbalances continues to pose a challenge for central banks, as private sector indebtedness remains high in some East Asian countries by emerging market standards (Chart 2.11).

Chart 2.11
Credit to the private non-financial sector (% of GDP) in East Asia



Note: data shown is for 2018: Q2
Source: BIS.

In the near term, economies in East Asia still face a number of headwinds. First, while the US and Mainland China's trade talks have been ongoing, the outcome of the trade conflict remains uncertain. Further escalation in the US-China trade dispute could dim the outlook for East Asia given the region's high degree of trade integration with Mainland China and the dampening effect of the conflict on investor confidence.

Second, US monetary policy and the outlook for the US dollar remain a source of uncertainty for the region. The Fed's recent communications indicate a pause in the rate hiking cycle, which may prompt strong capital inflows into the region. Depending on inflation and other developments, the uncertainty lies on whether the rate hike cycle could resume later in the year, which would pose familiar pressure on the region's currencies and financial assets and trigger a reversal of capital flows. Indeed, Box 1 shows that Fed policy shocks tend to have large spillover effects on EME sovereign bonds, including those issued by East Asian economies.

Box 1
Predictability of sovereign bond returns using technical trading rules with machine learning

Introduction[9]

This box studies return predictability of sovereign bond markets. In theory, future asset prices in an efficient market cannot be predicted by analysing historical data since prices only respond to new information. Therefore, predictability yielded by historical data analysis may suggest a less efficient price discovery in sovereign bond prices. The resulting impact can have important implications for borrowing costs and access to financing for governments and corporates and, consequently, economy-wide financial conditions. Thus, the predictability of sovereign bond markets merits closer scrutiny.[10]

We examine the predictability in two steps. First, we provide an overview of the return predictability by applying numerous trading rules to sovereign bond markets with the aid of a supervised machine learning (ML) technique. The trading rule is useful in identifying trends developed in financial asset prices, while the ML technique is useful to explain complicated price dynamics. Second, we specifically assess the extent to which predictability is affected by US monetary policies. This is motivated by the fact that, as global markets continue to manage their transition towards US monetary policy normalisation, such interest rate changes may create predictable moves in interest rates, and thus, predictable trends in the values of interest-rate sensitive assets such as sovereign bonds. Based on these steps, we aim to shed light on the potential spillover effects of Fed monetary policy shocks on global sovereign bond markets.

9 Details are in Fong and Wu (2019) "Predictability in sovereign bond returns using technical trading rules: Do developed and emerging markets differ?" *HKIMR working paper*, 03/2019.

10 A predictable market return can also reflect a higher risk premium embedded in asset prices. Nonetheless, how significantly the risk premium explains the predictability remains inconclusive in literature.

Data and Methodology

The study employs 48 sovereign bond market indices covering both AEs and EMEs in Table B1.1. These indices are in the form of the total return, which includes capital gain, accrued interest and any cash flow received. The sample period spans from 3 January 2000 to 30 September 2017. All time series are in daily frequency.

In our empirical study, we conduct an in-sample analysis to provide an overview of sovereign bond market predictability in the sample period. Specifically, the trading-rule strategy for each sovereign bond market is based on buy-and-sell signals indicated by 27,000 technical trading rules selected from moving average, filtering, support and resistance, and channel breakout rules (denoted as the primary strategy).[11] The predictability of each market is then measured by the excess return from the primary strategy over the return from a buy-and-hold strategy.[12] A sovereign bond market is considered more predictable when the primary strategy generates a higher excess return.

11 These 27,000 technical trading rules are formulated by considering a number of variants of each of these classes and a range of plausible parameterisations of each variant.

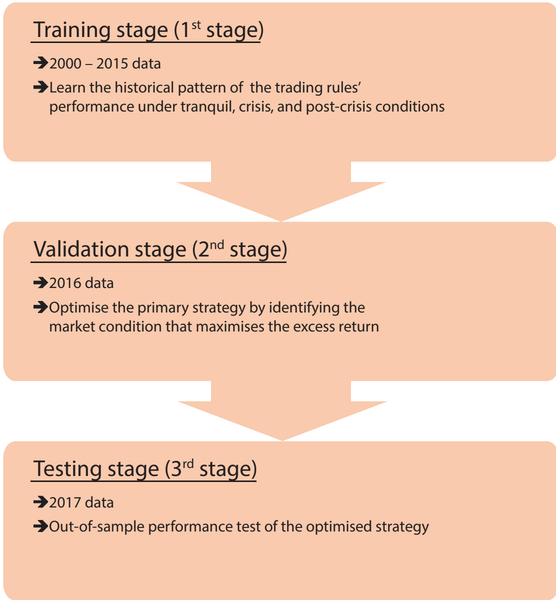
12 The excess return of the primary strategy is calculated as the simple average of the excess return from each of its 27,000 trading rules.

Table B1.1:
Sovereign bond market by market groups

Market group	Economies
Advanced economies (AEs)	Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, UK, US
Emerging Asia	Mainland China, India, Indonesia, South Korea, Malaysia, the Philippines, Taiwan, Thailand
Other emerging market economies (other EMEs)	Brazil, Chile, Czech Republic, Egypt, Greece, Hungary, Mexico, Morocco, Nigeria, Peru, Poland, Russia, Slovakia, Slovenia, South Africa, Turkey

We also conduct an out-of-sample analysis using an ML algorithm (naïve Bayesian classifier) to assess the predictability in 2017. The ML algorithm plays a role in optimising the primary strategy under a given market condition. The analysis consists of three stages (see Chart B1.1). In the first (training) stage, the algorithm learns the pattern of historical performances of each trading rule under the tranquil, crisis and post-crisis conditions based on the sample period from 2000 to 2015.[13] In the second (validation) stage, the algorithm optimises the primary strategy by identifying the market condition that maximises the excess return based on the 2016 data.[14] In the third (testing) stage, the algorithm uses the optimised strategy to predict the potential improvement in excess return in 2017. Given this setting, a more predictable sovereign bond market is expected to have a larger improvement in excess return by switching from the primary strategy to the optimised strategy.

Chart B1.1: Overview of the machine learning algorithm



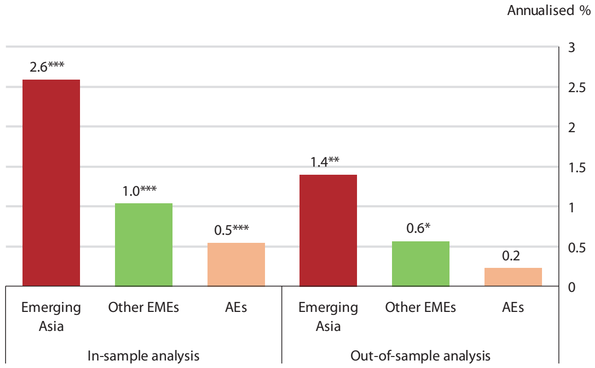
Empirical evidence

There are two empirical findings. First, both in-sample and out-of-sample analyses consistently show that the excess returns from our trading rule strategy are significantly larger for Emerging Asia than for other economies. Chart B1.2 depicts the average in-sample excess return (on the left) and the out-of-sample increment in excess return (on the right) across the three market groups. The in-sample analysis shows that the average excess returns are higher for Emerging Asia and other EMEs at 2.6% and 1% respectively, while only 0.5% for AEs. In our out-of-sample analysis, using the ML algorithm generates higher excess returns than not using it, with average increments of 1.4% and 0.6% for Emerging Asia and other EMEs respectively, whereas the increment for AEs is not significant (0.2%).

[13] The three conditions are defined based on the following sample periods: (i) 2000 to 2007 for tranquil condition; (ii) 2008 to 2013 for crisis condition; and (iii) 2014 to 2015 for post-crisis condition.

[14] The optimisation assigns a higher weight to rules with a higher chance of having a positive return, and a zero weight to rules that likely have a negative excess return.

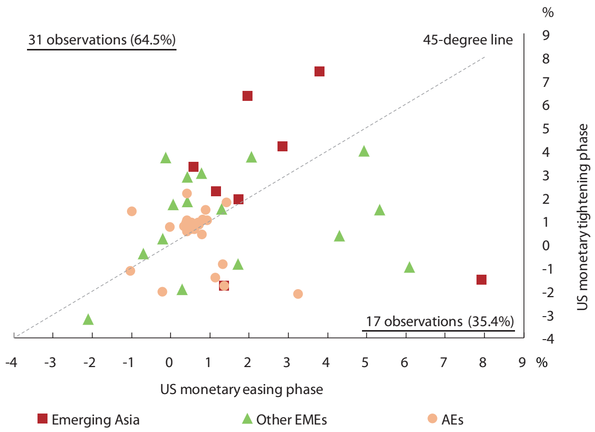
Chart B1.2:
Average excess returns of our trading-rule strategies by market group



Notes:
(1) In-sample excess returns by the primary strategy, based on full sample data from January 2000 to September 2017;
(2) Out-of-sample increment in excess returns by the optimised strategy, based on 2017 data;
(3) ***, ** and * denote statistical significance at 1, 5 and 10% respectively.

Second, the excess returns are generally larger when the US tightens its monetary policy. Chart B1.3 is a scatter plot of excess returns acquired from the primary strategy during the US tightening monetary cycle against those acquired during the easing cycle. Among these sovereign bond markets, about two-thirds scatter above the 45 degree line (i.e. the dotted line), suggesting that these markets generally acquire higher excess returns during the tightening phase. Compared to EMEs, most of the AEs scatter closer to the 45-degree line, reflecting that AEs' sovereign bond markets are less responsive to US monetary cycles.

Chart B1.3:
Excess return of primary strategy during different cycles of US monetary policy



Note: In-sample excess returns by the primary strategy, based on full sample data from January 2000 to September 2017.

Empirical implications

Based on the predictability of 48 sovereign bond markets in AEs and EMEs, our findings suggest that EMEs' sovereign bond markets, particularly in Emerging Asia, are more predictable. In comparison, the predictability of AEs remains lower despite using a machine learning algorithm to optimise our trading-rule strategy. This may reflect that sovereign bond market predictability is associated with an economy's fundamentals, such as the level of market openness.[15]

Our findings also suggest that shocks originating from US monetary policies may have greater impact on some Emerging Asia's sovereign bond markets. This may be attributable to the fact that, while these economies experienced more capital inflows during the US monetary easing cycle, tightening monetary policy by the US may create a destabilising effect on international capital flows, which could increase volatility in financial market and slow down the bond price adjustments to information. This highlights the need for policymakers in these markets to contend with potential spillovers from shifts in monetary policy expectations in the US. In particular, developing an efficient sovereign bond market is vital for EMEs facing the headwinds of higher government bond interest rates and bouts of volatility.

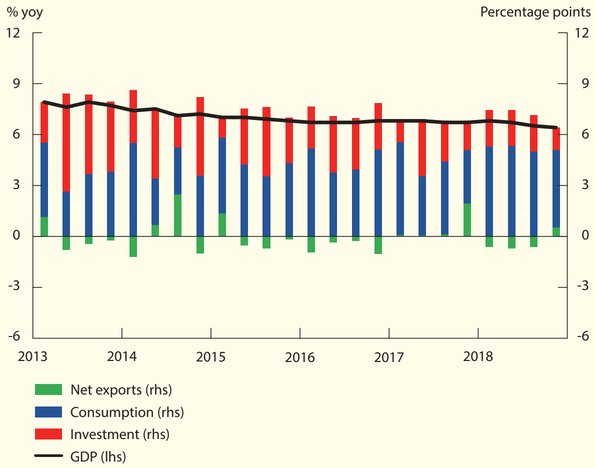
[15] Based on a logistic regression analysis, Fong and Wu (2019) identify that stronger fundamentals, such as faster economic growth, more effective government, higher financial openness and lower political risk, are significantly associated with the lower predictability of the trading-rule strategy.

2.2 Mainland China

Real sector

Economic growth in Mainland China decelerated further in the second half of 2018 amid increased uncertainties in the external environment and some moderation in domestic demand. Year-on-year real GDP growth declined to 6.4% in the fourth quarter from 6.7% and 6.5% in the second and third quarters respectively, registering the lowest year-on-year growth rate since 2009 (Chart 2.12). Taking the year as a whole, real economic growth moderated from 6.8 % in 2017 to 6.6% in 2018, slightly higher than the government growth target of around 6.5%.

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



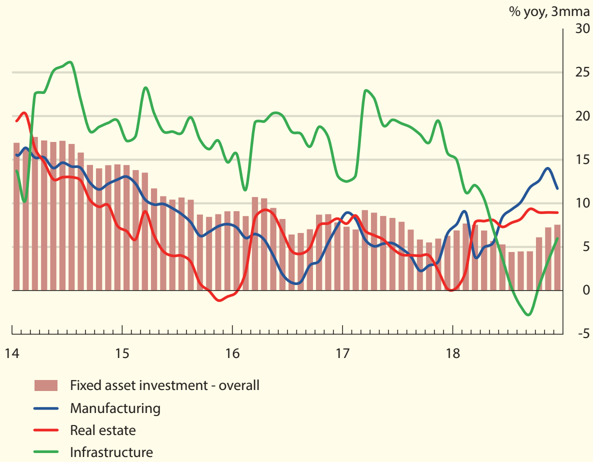
Sources: CEIC, National Bureau of Statistics (NBS) and HKMA staff estimates.

Behind the headline growth number, consumption growth moderated in the second half of 2018 alongside weaker consumer confidence. A breakdown of retail sales data of enterprises above designated size shows that sales of automobiles declined significantly towards the fourth quarter, while sales of some luxury items, such as cosmetics and jewellery, also slowed.[16]

[16] Enterprises above 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 & catering businesses with turnover equal to or higher than RMB2 million.

Fixed asset investment growth rebounded in the last few months of 2018, underpinned by a pick-up in infrastructure investment projects amid government measures to stabilise growth, as well as faster growth in manufacturing investment (Chart 2.13). On the external front, export growth weakened towards the end of 2018 amid the slowdown in global economic growth. The impact of the US-China trade conflict also appeared to have set in. As imports slowed at a faster pace than exports in the fourth quarter, the contribution of net exports to overall growth turned from negative in the third quarter to slightly positive in the fourth quarter.

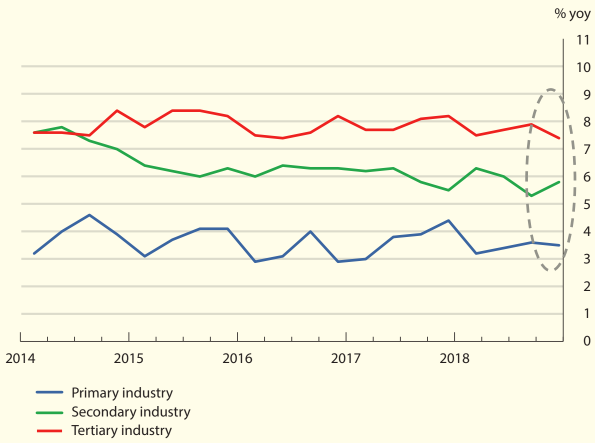
Chart 2.13
Mainland China: Fixed asset investment by industry



Sources: CEIC, NBS and HKMA staff estimates.

In value-added terms, the tertiary industry continued to fare well in the second half of 2018, albeit with growth softening somewhat towards the end of the year (Chart 2.14). While most sub-sectors in the industry registered slower growth in the second half, the information technology and software sub-sector continued to expand at an exceptionally fast pace of around 30% year on year during the period; the transportation and storage and financial sub-sectors even recorded accelerated growth. As for the secondary industry, business expansion of manufacturing activities slowed in the second half of the year, but some high-tech manufacturing sub-sectors such as electronic equipment and electrical machinery held up. On the back of accelerated infrastructure spending, construction sector growth also rebounded notably in the fourth quarter. As growth in the tertiary industry continued to outpace other sectors, its value-added share in the overall economy rose to 52.2% in 2018 from 51.9% a year ago.

Chart 2.14
Mainland China: Growth of value-added by industry



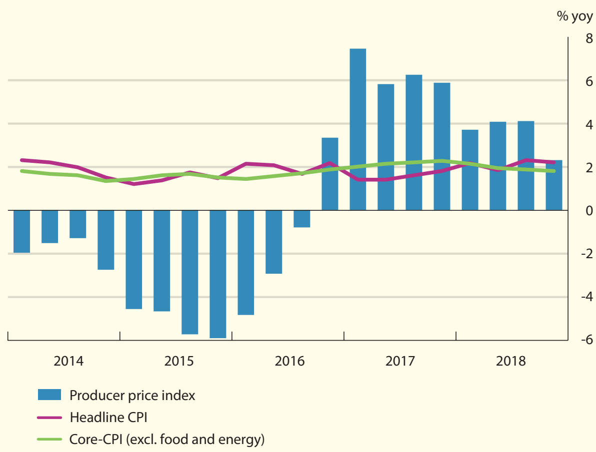
Sources: CEIC, NBS and HKMA staff estimates.

Looking ahead, the growth outlook has become more uncertain. On the external front, whether exports will weaken further mainly hinges on the economic performance of advanced economies, as well as the outcome of the ongoing US-China trade talk. On the domestic front, lingering concerns about the longer-term impact of the trade conflicts may continue to weigh on the confidence of business owners. In addition, the ability of higher value-added and high-tech manufacturing and service sectors to continue to drive economic growth appears to have weakened against the backdrop of rising financing difficulties facing private business owners, especially small firms, in the past few quarters.

In view of this more challenging economic environment, policy-makers have less room for error as they strive to strike a better balance between stabilising the economy and containing potential systemic risks. While supply-side reform — structural deleveraging, de-capacity and disciplining local government financing — remains a priority in 2019, monetary policy has become more accommodative, in order to support bank lending to small and private firms through focused and targeted easing measures. On the fiscal front, authorities have pledged to be more proactive through new tax and fee cuts and infrastructure projects. The latest consensus forecasts suggest that Mainland economic growth would ease to 6.2% in 2019, close to the midpoint of the government growth target range of around 6–6.5%.

Inflationary pressure was benign in the second half of 2018 amid slower economic growth. Headline consumer price inflation came in at an average of 2.3% year on year in the second half of 2018, slightly higher than the 2.0% recorded in the first half (Chart 2.15). Among the major components, food prices rose further from 1.2% year on year to 2.4% during the same period, but core inflation, measured as consumer prices excluding food and energy items, eased further from 2.0% year on year in the first half of 2018 to 1.8% in the second half. Meanwhile, producer price inflation further subsided from 3.9% year on year in the first half of 2018 to 3.2% in the second half amid declines in commodity prices and a moderation in overall economic activities.

Chart 2.15
Mainland China: Consumer price and producer price inflation

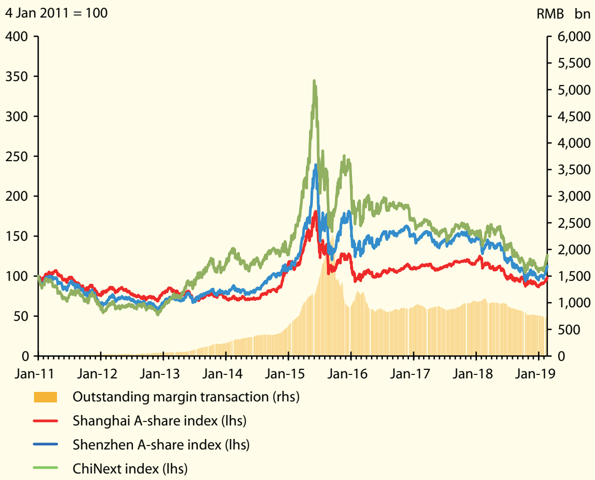


Sources: CEIC, NBS and HKMA staff estimates.

Asset Markets

Amid rising downward pressure on growth and the intensified US-China trade conflict, investor confidence in the stock market deteriorated notably during the review period. The Mainland equity market further slumped in the second half of 2018 before recovering somewhat in early 2019, with smaller-cap shares, especially those listed on the Shenzhen Stock Exchange, recording steeper losses than larger-cap stocks (Chart 2.16). Margin transactions also declined. In January 2019, outstanding margin loans reached their lowest level since July 2015.

Chart 2.16
Mainland China: The Mainland stock market indices and margin transactions



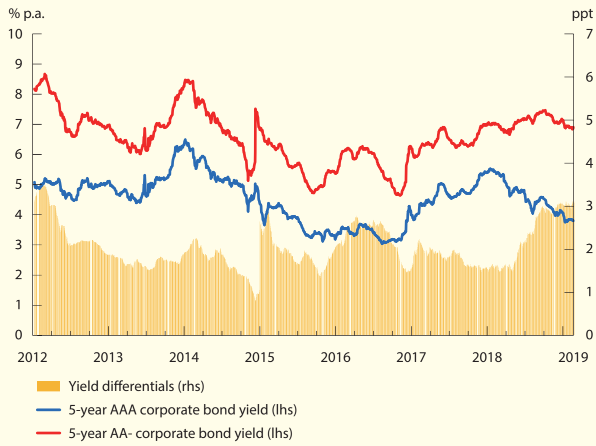
Sources: CEIC and HKMA staff estimates.

The drop in stock prices seemed to have triggered the selling of shares used as collateral, notably those pledged by small and medium-sized listed firms in return for loans. By the end of 2018, the outstanding contract value of shares pledged as collateral had dropped by some 13% in one year to around RMB5.5 trillion[17]; the market value of pledge shares is equivalent to about 10% of the total market capitalisation of the mainland-traded A-shares. Further analyses suggest that listed industrial firms may have faced more pressure than others, as a relatively big portion of the shares of these firms were pledged as collateral, coinciding with large declines in their stock price.

While lending on pledged shares appeared to have posed limited systemic risk to financial stability, given the low average pledge ratio and high average margin ratio[18], further declines in stock prices and the forced selling of pledged shares could reinforce each other in some extreme cases. In response, the authorities announced in October the setting up of a special fund to help ease the liquidity pressure that pledge borrowers might face in refinancing maturing pledged-share loans. This, in turn, lowered the credit risk that would be faced by creditors, such as securities companies. Following the introduction of the scheme, the stock market showed some signs of stabilisation.

In the bond market, funding costs further declined for corporate issuers with better credit ratings after several rounds of targeted required reserve ratio (RRR) cuts in the second half of 2018 (Chart 2.17). By contrast, yields of lower-rated corporate bonds stayed 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 2.17
Mainland China: five-year corporate bond yields



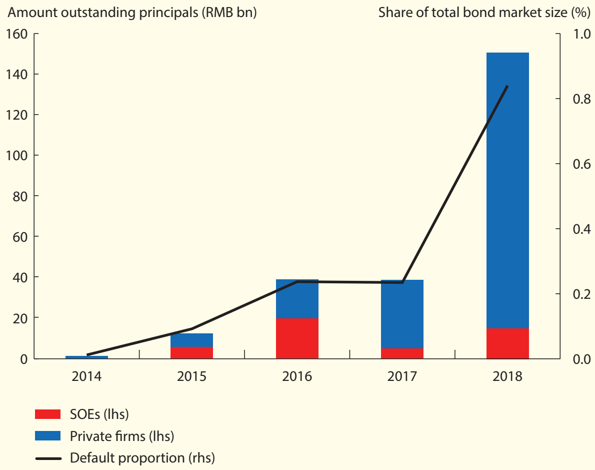
Sources: Wind and HKMA staff estimates.

[17] Based on pledged loan contract data provided by Wind.

[18] Pledge ratio=loan value/contract value of pledged shares. Margin ratio=current market value of pledge shares/(loan value*(1+interest rate)). According to market analysts, the pledge ratio in the A-share market ranges from 30% to 50% and the margin ratio from 140% to 160%, depending on the riskiness of the pledged shares.

Indeed, the second half of 2018 witnessed bond defaults by 46 corporate issuers, compared with just 15 in the first half[19]. The total size of default bonds increased to RMB150.7 billion in 2018, equivalent to around one percent of the total outstanding size of non-financial debt securities (Chart 2.18). Further analyses suggest the recent defaults were concentrated mainly in lower-rated private issuers, especially in the energy and materials industry.

Chart 2.18
Mainland China: Bond default size and proportion

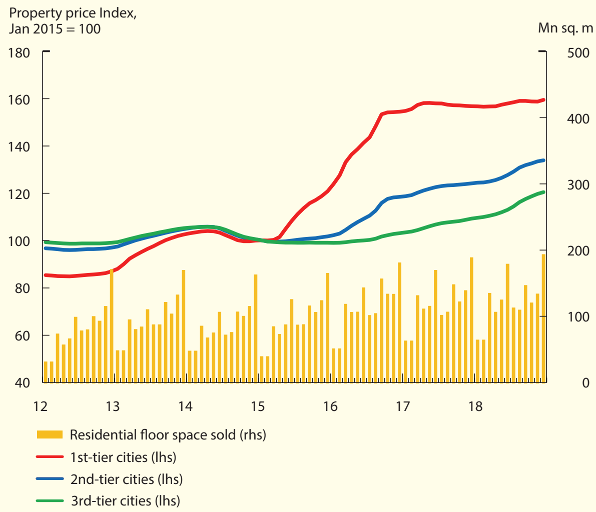


Sources: Wind and HKMA staff estimates.

In October, the People's Bank of China (PBoC) announced supportive measures to shore up demand in the bond market to facilitate bond issuance by private companies that were having difficulties with increased bond defaults. In particular, a credit risk swap called "credit risk mitigation warrants" became available to investors interested in holding bonds issued by private firms. At present, such a hedging market remains largely state-led, as the credit risk mitigation warrants have been mainly issued by the China Bond Insurance Co., a state-owned financial institution, together with commercial banks.

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 2.19). In lower-tier cities, property prices edged up, albeit at a much slower pace compared with 2016 when Mainland China was facing a home-buying frenzy.

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

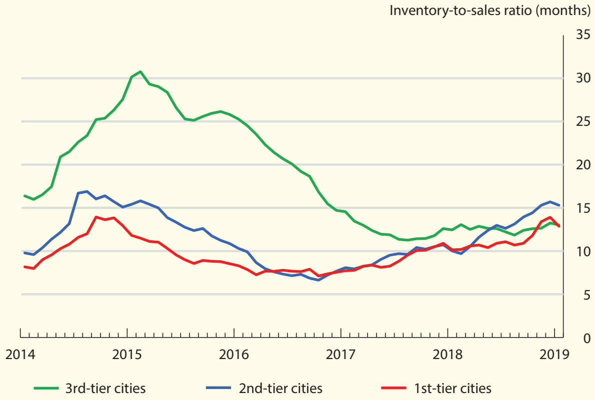


Sources: CEIC and HKMA staff estimates.

Housing oversupply, which plagued third-tier cities in previous years, remained largely in check, partly due to robust sales amid bullish market sentiment. By January 2019, the inventory-to-sales ratio in third-tier cities was stable at around 13 months, much lower than the peak of 31 months in early 2015 (Chart 2.20).

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

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



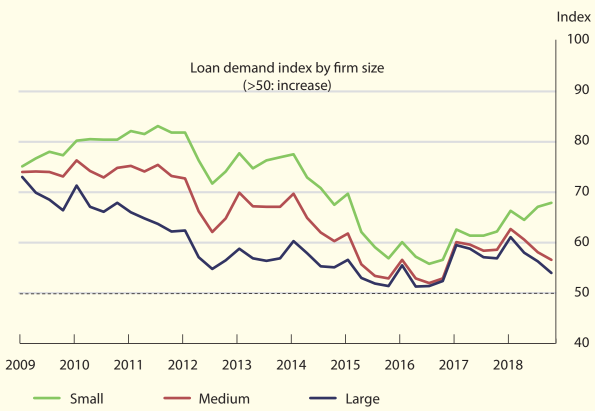
Sources: Wind and HKMA staff estimates.

To contain the potential risk and promote a stable and healthy development of the property market, the authorities accelerated the construction of indemnificatory housing, and sped up the development of the rental market along with a more flexible system to increase land supply.

Credit and asset quality

In the second half of 2018, loan demand showed a notable divergence among Mainland firms with different sizes. A quarterly survey by the PBoC shows that an increasing proportion of Mainland bankers reported rising loan demand from small firms, but declining demand from large and medium-sized firms (Chart 2.21).

Chart 2.21
Mainland China: Loan demand index by firm size

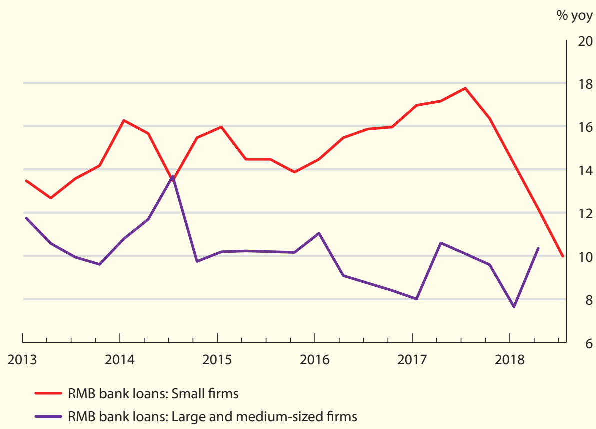


Source: PBoC.

The strong and growing demand for bank loans by small firms in the second half of 2018 was partly due to the reduced availability of credit for those small firms from informal channels. Continued financial deleveraging during the year also led to a notable deceleration in shadow banking activities, which had previously provided important funding support for small and private firms, especially those with limited access to formal finance. In response to this development, the PBoC introduced several rounds of easing measures in 2018, including targeted RRR cuts and a Targeted Medium-term Lending Facility (TMLF) to better support bank lending to small firms (see the "fiscal and monetary policy" section for details).

Following the targeted easing measures, the pace of growth in bank loans to the "smallest" firms, which are the small corporate borrowers with a total credit limit of less than RMB5 million, almost doubled from 9.8% year on year at the end of 2017 to 18% at the end of 2018. However, overall lending by banks to small firms continued to decelerate in the first three quarters of the year (Chart 2.22), possibly because Mainland banks had become more risk-averse amid rising economic uncertainties and thus preferred limiting their exposure to inferior borrowers with weaker financial positions including small firms.

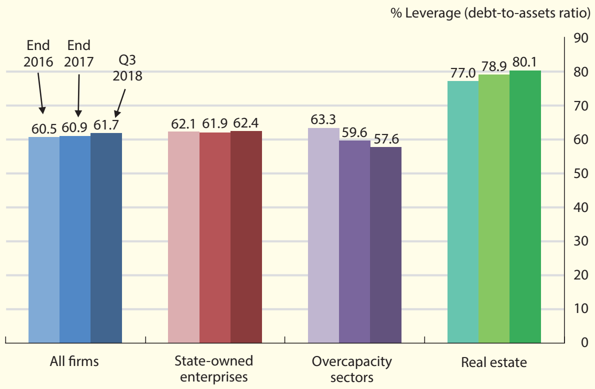
Chart 2.22
Mainland China: Growth in bank lending to corporate borrowers



Sources: PBoC and HKMA staff estimates.

Despite decelerated bank lending to small borrowers, the year-on-year growth in overall bank credit to Mainland firms accelerated to 13.4% in January of 2019 from 12.7% in June 2018. This suggests that an increasing amount of bank loans may have been granted to larger borrowers including state-owned enterprises (SOEs). Increased bank lending to larger borrowers reflected not only increased risk-aversion of banks, but also the government's counter-cyclical measures to support the economy, such as through accelerated infrastructure spending. As a result, the leverage ratio of listed state-owned enterprises (SOEs) rebounded slightly in the first three quarters of 2018, following a decline in 2017 (Chart 2.23). By contrast, the leverage ratio of firms in overcapacity sectors further declined in the first three quarters, as banks continued to tighten underwriting standards on vulnerable borrowers, such as firms in overcapacity sectors. In addition, continued improvement in corporate earnings of overcapacity sectors in the past few years also helped lower the leverage ratio.

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

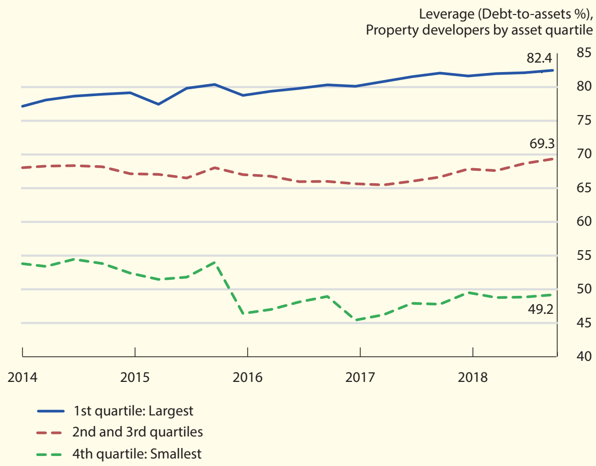


Sources: Bloomberg and HKMA staff estimates.

The reason behind recent improvements in the profitability of overcapacity sectors is the key to the assessment of whether such improvements can be sustained. Box 2 (page 32) finds that the improved return on equity (ROE) of listed firms in overcapacity sectors mainly stemmed from favourable developments, particularly in gross margin and administration efficiency. However, the still-subdued level of the asset turnover ratio seems to suggest that capacity utilisation remains far from ideal in these overcapacity sectors, and further improvement is needed to enhance the efficiency and long-term profitability of these sectors.

In the first three quarters of 2018, the leverage ratio of property developers further increased (Chart 2.23), amid buoyant market conditions especially in lower-tier cities. More in-depth analyses suggest that while larger developers with stronger financial positions are more leveraged, there are some signs that leverage has increased across developers of different sizes in the second half of the year (Chart 2.24). This is worth closer monitoring as the vulnerability of developers to a property price correction is likely to be greater with higher leverage.

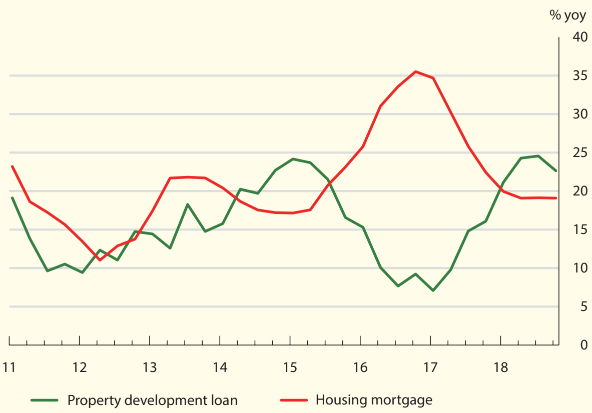
Chart 2.24
Mainland China: Corporate leverage of listed real estate developers by firm size



Sources: Bloomberg and HKMA staff estimates.

Reflecting the increased leverage of property developers, the growth rate of property development loans remained high at above 20% year on year in the second half of 2018. In comparison, year-on-year growth in mortgages slipped to 19.0% in the last quarter amid tightening measures on home purchases (Chart 2.25). As a result, the share of property development loans and mortgages together in total bank loans, which measures banks' direct exposure to the property market, increased slightly to 27.3% at the end of 2018 from 26.5% six months earlier.

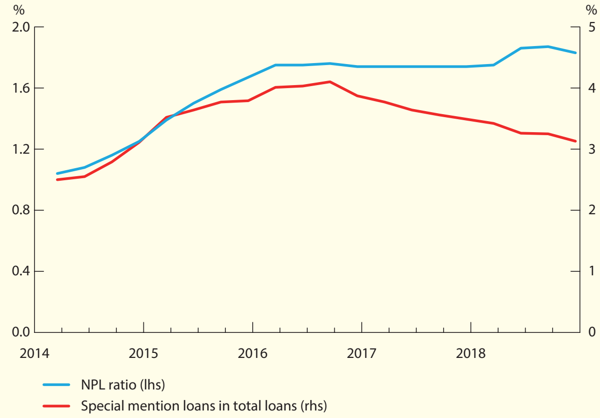
Chart 2.25
Mainland China: Growth in mortgage and property development loans



Sources: CEIC and HKMA staff estimates.

The asset quality of banks seemed to have faced some pressure in the second half of 2018 as economic growth momentum moderated. While the share of special mention loans in total bank loans continued to decline[20], the NPL ratio of Mainland banks remained at a relatively high level of 1.8% at the end of 2018 compared to the past few years, albeit having edged down in the last quarter of 2018 (Chart 2.26).

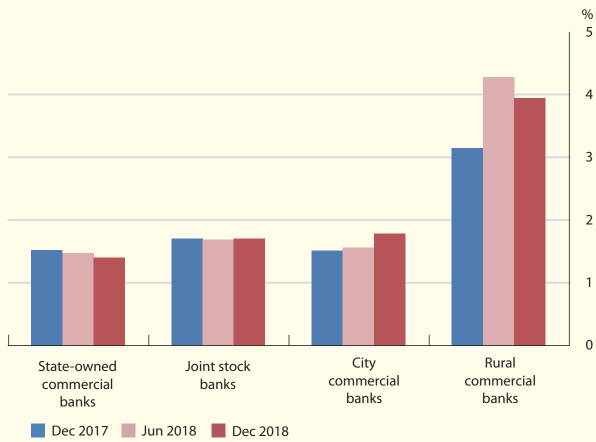
Chart 2.26
Mainland China: NPL ratio and special mention loan ratio



Source: CEIC.

A further examination suggests that the recent increase in the NPL ratio was mainly concentrated in smaller banks. More specifically, while the NPL ratio of state-owned and joint stock commercial banks remained largely stable in the second half of 2018, the NPL ratio of city commercial banks edged up further (Chart 2.27). Meanwhile, the NPL ratio of rural commercial banks, though declined, remained at a much higher level compared to other banks.

Chart 2.27
Mainland China: NPL ratio by bank type



Source: CEIC.

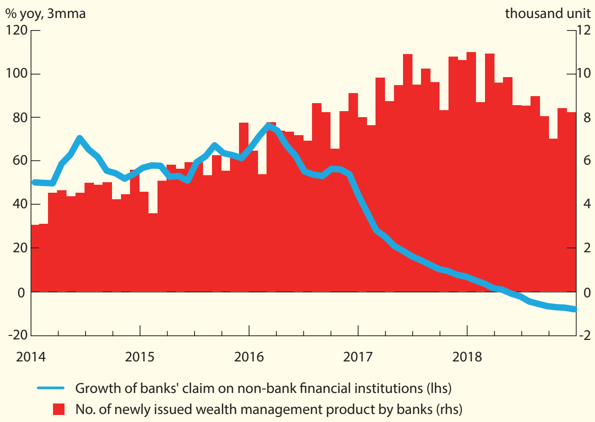
[20] A loan will be classified as "special mention loans" if the borrower has the ability to repay the loan currently, but may be affected by some unfavourable factors, according to the China Banking and Insurance Regulatory Commission. Non-performing loans (NPL) include loans that are classified as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

The increase in the NPL ratios of certain smaller banks was, in part, a result of more stringent enforcement of the NPL reporting standard to include all loans more than 90 days overdue (see for example related discussion in the Report issued in September 2018 for more details). That said, the rising NPL ratio of smaller banks may arguably also be attributable to increased exposure to the smallest borrowers and the deterioration in the repayment ability of borrowers amid moderating economic activities.

Despite higher NPL ratios, an imminent deterioration in overall bank asset quality is still remote. For now, the NPL ratio of Mainland banks, especially the systemically important ones, remains low. In addition, relatively high loan loss provisions can also help protect banks against future losses. At the end of 2018, the bad debt coverage ratio of banks increased to 186% from 179% in the second quarter.

During the review period, authorities continued to push ahead with financial deleveraging to contain the involvement of banks in shadow banking activities. As a result, banks' claims on non-bank financial institutions have started to decline since June 2018 (Chart 2.28), with the share of such claims in the total bank assets retreating to 9.7% at the end of 2018.

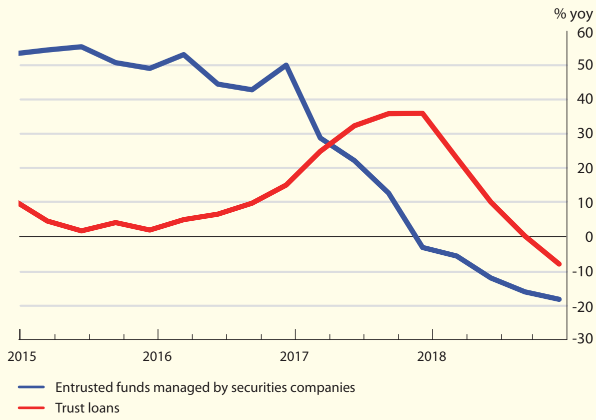
Chart 2.28
Mainland China: Growth of bank's claim on non-bank financial institutions and newly issued wealth management products (WMPs)



Sources: CEIC, Wind and HKMA staff estimates.

In the second half of 2018, the authorities also strengthened the risk management of WMPs issued or distributed by banks, as these products are also a major funding source for shadow banking activities[21]. Following the decline of banks' involvement in shadow banking activities (Chart 2.28), shadow banking activities, such as trust lending and entrusted funds managed by securities companies, declined in the second half of 2018 (Chart 2.29).

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



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

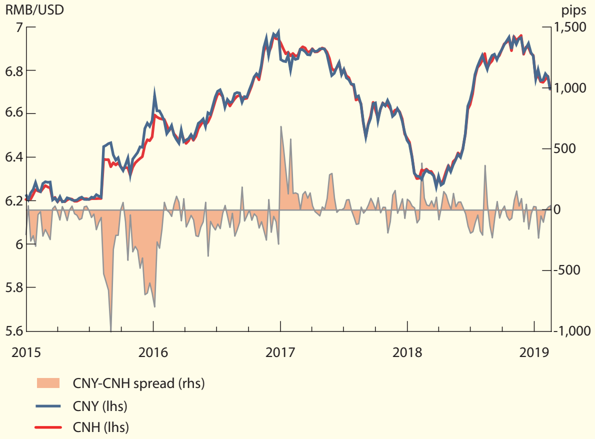
Exchange rate and cross-border capital flows

The onshore renminbi (CNY) exchange rate weakened further by 2.1% against the US dollar in September and October. Since then, it rebounded by 4.2% in the following four months amid stabilised market sentiment as the US-China trade talks restarted (Chart 2.30). Tracking closely its onshore counterpart, the offshore renminbi (CNH) exchange rate also strengthened in recent months, with the CNY-CNH spread trading within the range of -256 pips to 174 pips in November-February. The Bloomberg consensus forecast of renminbi exchange rate against the US dollar for the first quarter of 2019

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

was revised stronger to 6.78 at the end of February 2019 from 6.99 at the end of November 2018.

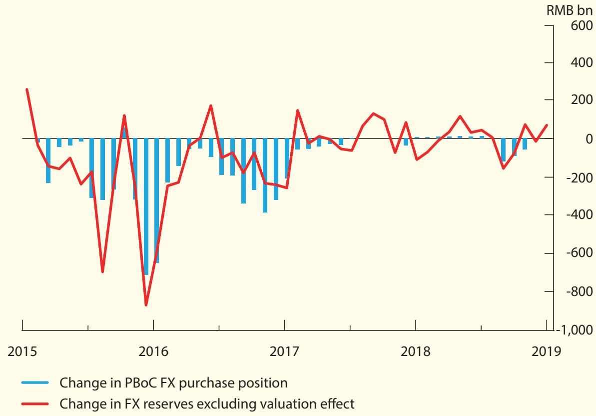
Chart 2.30
Mainland China: Onshore and offshore renminbi exchange rates against the US dollar



Sources: Bloomberg and HKMA staff estimates.

Amid moderated economic activities and rising uncertainties, capital outflow pressures increased somewhat in the second half of 2018. In particular, the two most commonly used measures for cross-border capital flows — the foreign reserves excluding valuation effects and the PBoC foreign exchange (FX) purchase position — showed some declines in the second half of last year before stabilising towards the end of the year, but the magnitude of such declines was considerably smaller than in the previous episodes when the renminbi also faced significant depreciation pressures (Chart 2.31), such as in 2015 and 2016. Overall, the Mainland headline foreign reserves remained largely stable in the review period and stood at US$3,088 billion at end-January 2019.

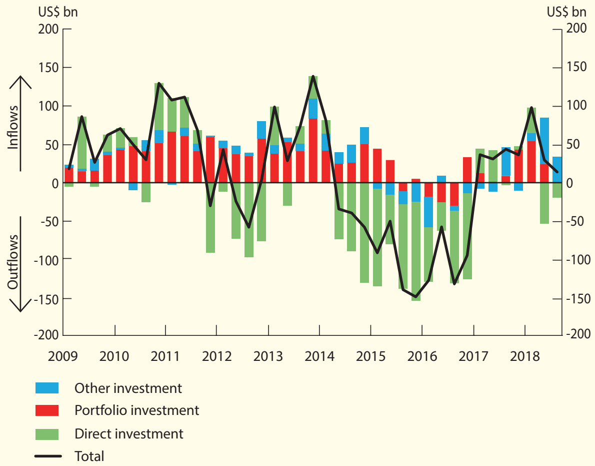
Chart 2.31
Mainland China: Changes in PBoC FX purchase position and FX reserves



Sources: CEIC, SAFE and HKMA staff estimates.

The latest statistics on the balance of payments also indicated that net inflows through the capital account eased in the second and third quarters of 2018 (Chart 2.32). In particular, net inflows through direct investment subsided notably during the period as inward direct investment from foreign firms faltered. Cross-border flows through "other investment" also turned to net outflows in the second and third quarters, mainly due to stronger cross-border lending than borrowing, as well as outflows in deposits and currency held by Mainland residents. In contrast, net inflows through portfolio investment accelerated during the period as Mainland investors slowed down overseas purchases while foreign investors continued to increase holdings of Mainland securities.

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



Sources: CEIC, SAFE and HKMA staff estimates.

The prospect of cross-border capital flows remains uncertain as concerns about the trade relationship between the US and China continues to linger. The evolving monetary policy divergence — Chinese monetary policy is tilted towards easing while Fed policy is expected to be neutral — could weigh on the renminbi exchange rate and thus affect cross-border fund flows. On the other hand, the inclusion of an increasing number of Mainland securities in benchmark indexes could be supportive of net inflows.

Fiscal and monetary policy

In view of the increased downward pressures on economic growth, the authorities, including the PBoC, the Ministry of Finance (MoF) and the National Development and Reform Commission, have taken concerted efforts to step up both supply-side and demand-side measures to support economic expansion, especially through private sector activities. In particular, the government advocated for level-playing fields and encourage fair business competition between private firms and SOEs with measures such as pushing ahead with market opening up, strengthening legal protection for private firms and supporting bond issuance by private firms. The authorities also decided to strengthen social safety nets to provide better education and health care, and accelerate infrastructure projects such as inter-city transportation and logistics. Other initiatives include introducing countercyclical measures such as further targeted monetary easing aimed at improving credit availability for small firms and fiscal measures to cut taxes and fees for both private firms and individuals.

On the monetary policy front, the PBoC rolled out more targeted easing measures to support bank lending to private and small firms (Table 2.1). In particular, the central bank injected liquidity into the banking system by further slashing the RRR in October 2018 and again in January 2019. The PBoC also expanded the coverage of small and micro-sized firms under the targeted RRR programme by making the guidelines less stringent: a firm with a total credit limit of less than RMB10 million is now eligible, compared to the previous threshold of RMB5 million. Meanwhile, the central bank had established a new Targeted Medium-term Lending Facility (TMLF), aimed at providing low-cost, longer-term funding to banks with enough exposure to small and private borrowers. To ease bank lending constraints posed by insufficient capital, the PBoC introduced a new Central Bank Bills Swap (CBS) programme in January to promote bank issuance of perpetual bonds. This measure allows primary dealers to swap the perpetual bonds issued by qualified banks with central bank bills, which should help increase the appeal of perpetual bonds and thereby supporting bank issuances of this bond to shore up their capital positions. On the bond financing front, the central bank had provided initial funds to set up financial instruments, such as credit risk mitigation instruments and credit enhancement guarantees, to support bond issuance by private firms.

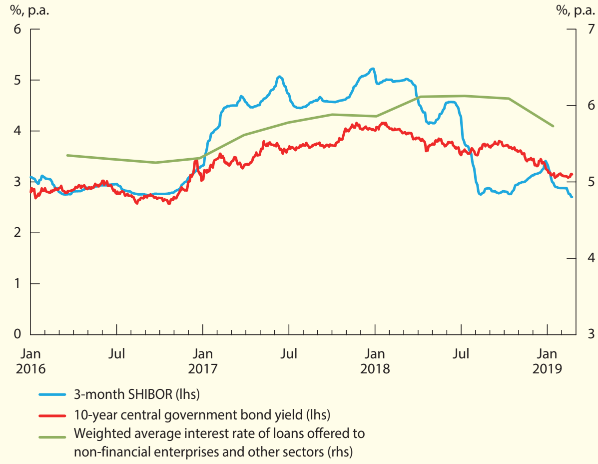
Table 2.1
Mainland China: Major monetary policy measures supporting private and small firms in 2018/19

Date	Measures
Jan 18	Targeted required reserve ratio (RRR) cut of 50–150 bps
Apr 18	RRR cut of 100 bps for most financial institutions (FIs)
Jun 18	Including AA-above green & agricultural financial bonds as well as high-quality small firm & green loans as qualified collaterals for Medium-term Lending Facility (MLF)
	Raising the quota of central bank lending supporting small firms, as well as sectors concerning rural areas and central bank discount (支小支農再貸款和再貼現額度) by a total of RMB150 billion
	Lowering interest rate for central bank lending dedicated to supporting small firms by 50 basis points
	Revitalising credit of more than RMB100 billion through measures facilitating the issuance of small firm supporting financial bonds and the issuance of securities backed by small firm loans
	Including loans for small firms with a credit line of up to RMB5 million as qualified collaterals for the MLF
	Assigning more weight on loans to small firms in the macroprudential assessment (MPA)
Jul 18	RRR cut of 50 bps for most FIs
Oct 18	RRR cut of 100 bps for most FIs
	Raising further the quota of central bank lending supporting small firms, as well as sectors concerning rural areas and central bank discount by another RMB150 billion
	Offering the initial funding for setting up bond-financing supporting instruments such as the credit risk mitigation instruments and credit enhancement guarantees
Nov 18	State Council announced to raise the coverage of loans for small firms qualified as MLF collaterals from a credit line of up to RMB5 million to RMB10 million
Dec 18	Establishing the targeted MLF (TMLF)
	Raising further the quota of central bank lending supporting small firms, as well as sectors concerning rural areas and central bank discount by another RMB100 billion
Jan 19	Expanding the coverage of small firms under the targeted RRR program from a credit line of less than RMB5 million to less than RMB10 million
	RRR cut of 100 bps for all FIs
	Establishing Central Bank Bills Swap (CBS)

Sources: PBoC and www.gov.cn.

Following the introduction of these accommodative measures, liquidity conditions in the banking system improved since the second half of 2018, with the three-month Shanghai Interbank Offered Rate (SHIBOR) notably easing back to the level in the first half of 2016 (Chart 2.33). Alongside the lower interbank funding costs, the ten-year central government bond yield also subsided to around 3.2% at end-February from around 3.6% at end-August. Meanwhile, the weighted average bank lending rate to the non-financial sector also edged down from 5.97% at end-June to 5.63% at end-December 2018. In particular, the weighted average bank lending rate to the corporate sector declined for a fourth consecutive month in December by a total of 25 basis points to 5.35%.

Chart 2.33
Mainland China: Major market interest rates



Sources: CEIC, PBoC and HKMA staff estimates.

The targeted easing measures seemed to have helped ease the financing difficulties for some firms, especially the smallest ones. According to the PBoC, the average lending rate to the smallest corporate borrowers with a credit limit of less than RMB5 million declined from 6.6% at the end of 2017 to 6.25% in September 2018. Meanwhile, growth in bank lending to these smallest borrowers also notably accelerated, with significantly more credit being extended to those in high-tech industries, such as scientific research and information. (For details please refer to the "credit and asset quality" section)

However, as illustrated in Chart 2.22, bank lending to small firms decelerated in the third quarter and shadow banking credit continued to contract. This suggests that overall credit conditions for small firms are still not ideal. In this sense, it remains to be seen whether the series of easing measures rolled out by Mainland authorities will further help improve credit access for private borrowers especially small firms, despite the better-than-expected aggregate financing figures in early 2019, which was mainly driven by a surge in bank bill financing and short-term loans.

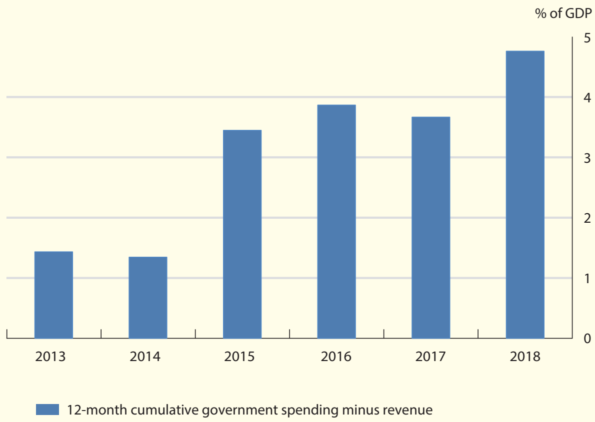
On the fiscal policy front, the authorities have adopted a more forceful and proactive policy stance to boost domestic demand. In an effort to support small business expansion, the authorities stepped up tax and fee cuts. For example, in January this year, the State Council announced to expand the value-added tax allowance coverage by raising the monthly sales ceiling for small firms from RMB30,000 to RMB100,000. Meanwhile, small and low profit businesses with an annual taxable income between RMB1–3 million and less than RMB1 million can enjoy a 50 percent and 25 percent reduction in income tax, respectively. In the 2019 government work report, the authorities announced to roll out more tax cuts particularly for manufacturing and small firms and lowering social security burden on business owners. In total, the government planned to cut tax and fees of business owners by around RMB2 trillion this year.

To lower the tax burden of households and shore up consumption, the authorities announced in December 2018 a special individual income tax deduction arrangement by excluding personal expenditures on children's education, continuing education, health treatment for serious diseases, housing loan interests, rent and elderly care from taxable income.

On the expenditure side, policymakers accelerated the approval of new infrastructure projects. In the latest government work report, the authorities decided to invest RMB2.6 trillion in 2019 into railway, highway, and waterway construction. Apart from conventional infrastructure projects, the government announced to push ahead with "new-form" infrastructure projects relating to artificial intelligence, the Industrial Internet, the Internet of Things and 5G commercialisation.

Reflecting the expansionary fiscal policy, the planned budget deficit is raised from RMB2.38 trillion in 2018 to RMB2.76 trillion in 2019, equivalent to 2.8 % of GDP, 0.2 percentage point higher than 2018. The gap between the expenditure and revenue in the government's general public budget and government-managed funds therefore is expected to further widen to 6.6% of GDP in 2019, after rising to 4.7% in 2018 (Chart 2.34).

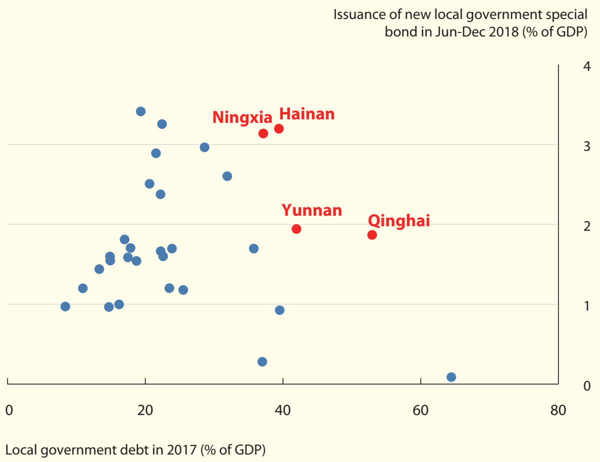
Chart 2.34
Mainland China: Difference between public spending and public revenue



Sources: Wind, MoF and HKMA staff estimates.

To fill the funding shortfall, outstanding local government debt rose by 11.4% in 2018, accelerating from an increase of 7.5% in 2017. For now, the overall risk of local government debt remains manageable as the local government debt-to-GDP ratio remained low at 20.4 % by 2018. However, for some provinces, fast increases in indebtedness combined with relatively weaker fiscal positions could be a concern. Provincial level data indicates that, between June and December 2018, amid government measures to support economic growth, some provinces with already relatively higher indebtedness, such as Hainan, Ningxia, Qinghai and Yunnan, also notably increased the issuance of local government bonds, particularly special bonds, to finance local infrastructure spending (Chart 2.35).

Chart 2.35
Mainland China: Issuance of local government special bonds in June-December 2018 and local government debt



Sources: Wind and HKMA staff estimates.

Box 2
Drivers behind the recent recovery in Mainland overcapacity sectors

Introduction

Overcapacity has gradually become a blight on the industrial landscape in Mainland China, in part due to over-investment through fiscal stimulus following the Global Financial Crisis (GFC). In 2013, Mainland authorities identified seven industries suffering severe overcapacity, including aluminium, cement, coal, flat glass, photovoltaic systems, shipbuilding, and steel.

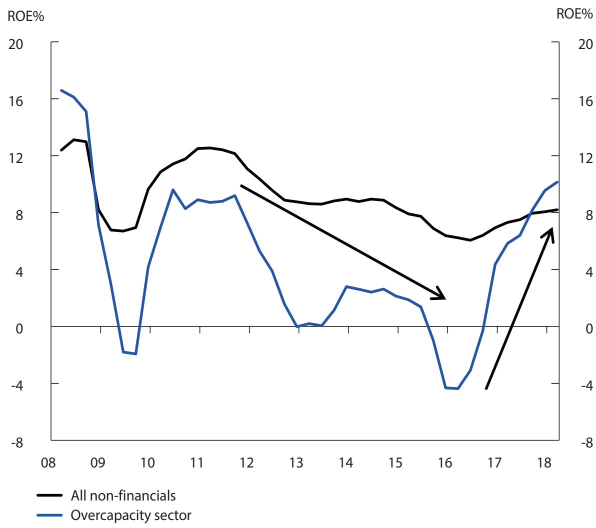
Among global competitors, Mainland companies have a sizeable presence in these seven industries. Despite mainly serving the domestic market, Mainland's production of steel, coal and cement occupies about 50%, 46% and 56% of world production, respectively. But the capacity utilisation ratios of these industries have fallen below 80% in recent years.

Indeed, the performance of overcapacity sectors has implications for both economic performance and financial stability. In 2015, around 3% of bank loans had been extended to overcapacity sectors[22], and their financial health could also have an impact on the business and financial conditions of their associated upstream and downstream industries.

Therefore, it is not surprising that tackling the overcapacity issue facing the Mainland economy has become a supply-side reform priority for the authorities since 2016. Amid the government's efforts to reduce capacity in those areas, the profitability of overcapacity sectors started to improve, snapping the deteriorating trend between 2011 and 2015 (Chart B2.1).

That said, other sectors not suffering overcapacity also enjoyed rising profitability during the same period, which raises the question of whether the recent improvement in the efficiency of overcapacity sectors reflects the success of the de-capacity campaign, or if it was just the result of a broad-based cyclical recovery. By using the data of listed non-financial Mainland firms, our analysis helps shed light on this question by exploring the potential drivers of improvements in the ROE of the Mainland overcapacity sectors after the GFC.

Chart B2.1
ROE% of listed firms in Mainland China



Sources: Bloomberg and HKMA staff estimates.

Methodology explained: the DuPont analysis

To identify the key factor affecting the profitability of Mainland overcapacity sectors, we use the DuPont analysis, a common form of financial statement analysis to decompose the ROE of Mainland firms into six multiplicative components: *financial leverage, administration efficiency, gross margin, financial expenses, tax retention rate, and asset turnover*[23]. The definitions and the interpretation of the six components are listed in Table B2.1.

[22] "Interest-bearing debt of major overcapacity sectors stood at 0.54 billion RMB, the experience from 1998" (http://finance.sina.com.cn/stock/hyyj/2016-01-29/doc-ifxnzanh0302556.shtml)

[23] Alternative forms of decomposition are also discussed by the financial statement analysis literature, for instance, Soliman (2008) and Dehning and Stratopoulos (2002).

Table B2.1
The DuPont equation and the six components

DuPont equation

Return on equity (ROE)
= Net Income (NI)/Equity (E)
= (Asset (A)/Equity (E))*
(Trading profit (EBIT)/Gross profit (GP))*
(Gross profit (GP)/Sales (S))*
(Trading profit (EBIT)/Pre-tax income (PTI))$^{-1}$*
(Net income (NI)/Pre-tax income (PTI))*
(Sales (S)/Equity (E))

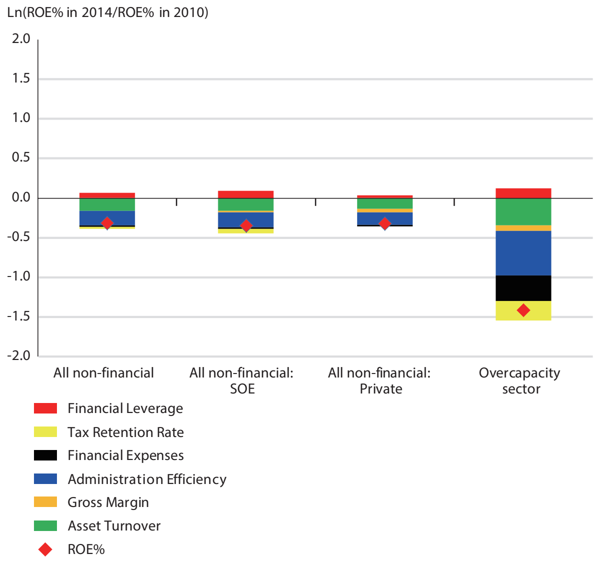
DuPont components	Interpretation
Financial leverage: Asset (A) / Equity (E)	A higher value suggests greater reliance of a firm on borrowed capital to finance its business activities.
Administration efficiency: Trading profit (EBIT)/ Gross profit (GP)	A higher value indicates lower administration expenses relative to gross profit of a firm.
Gross margin: Gross profit (GP)/ Sales (S)	A higher value represents lower production costs related to the revenue of a firm.
Financial expenses: (Trading profit (EBIT)/ Pre-tax income (PTI))$^{-1}$	A higher value indicates higher financial expenses including interest expenses, relative to EBIT.
Tax retention rate: Net income (NI)/ Pre-tax income (PTI)	A higher value indicates lower effective taxes relative to pre-tax income.
Asset turnover: Sales (S)/ Asset (A)	A higher value indicates higher asset use efficiency.

Among the six components, *asset turnover*, the ratio of the gross value of sales generated to the value of total assets, is of particular interest given its relevance to evaluating the extent of overcapacity of firms. *Asset turnover* is often used as a measure of asset utilisation and efficiency, which generally comes from the efficient use of property, plant, and equipment; efficient inventory processes; and other forms of working capital management (Nissim and Penman (2001)), and therefore deemed to have explanatory power about changes in future profitability (e.g. Soliman (2008) and Dehning and Stratopoulos (2002)).

Data and results

From some 2,800 listed non-financial firms in Mainland China, we identified 108 firms that belong to seven overcapacity industries as classified by Mainland authorities. Our analysis suggests there was an across-the-board decline in profitability of non-financial corporates from 2010 to 2014 (Chart B2.2)[24]. The decline in profitability of overcapacity sectors seemed to be particularly large, driven by a significant deterioration in *administration efficiency*, *asset turnover* and *tax retention rate*, notable increases in *financial expenses*, as well as a slightly weaker *gross margin*. In comparison, financial leverage of overcapacity sectors slightly increased, the only component contributing positively to profitability.

Chart B2.2
Changes in ROE% of listed firms from 2010 to 2014



Sources: Bloomberg and HKMA staff estimates.

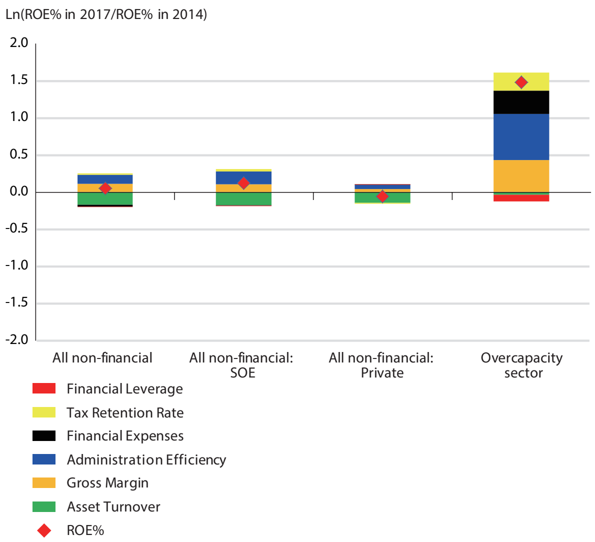
These results suggest that a worsening ROE after the GFC may well reflect over-investment and decreased efficiency in the economy. More specifically, an expansion in asset size and operating scale that cannot be compensated by proportional increases in profit, will lead to a deterioration in *asset turnover* and *administration efficiency*. If such expansion is mainly financed by credit rather than self-generated cash flows, which was the case in Mainland China from 2010 to 2015, *financial leverage* will increase and so will financial expenses. Other things being equal, expansion in production will increase

[24] ROE of Mainland overcapacity sectors troughed and declined to -4% in 2015. A negative value, however, makes it not feasible to calculate percentage changes in ROE for the 2010 to 2015 period. Therefore, the ROE in 2014 is used instead of 2015.

supply and drive down prices and thus gross margin. If such increases in supply are excessive relative to demand, overcapacity emerges.

In 2016 and 2017, the profitability of overcapacity sectors rebounded significantly amid the de-capacity efforts of the government. Although profitability of other sectors also improved, they did so to a much lesser extent than that of overcapacity sectors. The DuPont analysis suggests that improved *administration efficiency* and *gross margin* made the biggest contributions to the rebound in profitability of the overcapacity sectors, followed by lowered *financial expenses* and higher *tax retention rate*. However, the key component, asset turnover, the indictor for overcapacity, seemed little changed (Chart B2.3).

Chart B2.3
Changes in ROE% of listed firms from 2014 to 2017



Sources: Bloomberg and HKMA staff estimates.

The notable increases in both *administration efficiency* and *gross margin* of overcapacity sectors during 2015 to 2017 mainly reflect stronger growth in gross profit relative to administration or operation costs, due in part to global commodity price reflation, slashed overcapacity sector production amid the de-capacity campaign and cyclical improvement in domestic demand amid, for instance, buoyant property market conditions. In addition, *financial leverage* also slightly declined owing to the government's continued debt-reducing efforts on inefficient sectors, which helped lower *financial expenses* together with relatively loosened liquidity conditions.

However, there was little change in the *asset turnover* ratio in 2017 compared to 2014, which raises the question of whether overcapacity remained an issue for Mainland firms by 2017. If the de-capacity campaign slashed mainly production rather than production capacity, *asset turnover* would not significantly improve. It is also possible the campaign successfully cut outdated production capacity, and part of the outdated capacity was replaced by more advanced and productive capacity, which had yet to generate returns.

Whatever the reason, a low level of *asset turnover* suggests that capacity utilisation remains far from ideal. In 2017, the *asset turnover* ratio was 64.5%, only slightly higher than the level in 2015 when the profitability of overcapacity sectors reached a trough (first panel of Table B2.2). It remains much lower than the *asset turnover* ratio in 2010 and before the GFC when the ratio was close to 100%, and also compared with the long-term average of firms from similar industries in three major advanced economies[25] (second panel of Table B2.2). In this sense, further improvement in asset utilisation is needed to ensure the long-term profitability of the overcapacity sectors.

[25] The comparison group is 147 listed firms from the same seven industries in Germany, Japan and the US.

Table B2.2
The DuPont components of ROE: Overcapacity sectors in Mainland China and similar industries in AEs

	Mainland China			AEs
Unit: %	Right after the GFC 2010	When ROE troughed 2015	Latest observation 2017	Average of similar industrial sectors 1986–2017
ROE	8.8	-4.5	9.4	6.5
Financial leverage	251.3	284.0	260.8	353.0
Administration efficiency	52.8	-14.2*	56.3	35.0
Gross margin	10.7	7.3	15.3	14.9
Finance expenses	115.5	38.7*	116.3	140.0
Tax retention rate	76.3	109.2*	75.9	56.0
Asset turnover	94.1	53.3	64.5	97.0

Sources: Bloomberg and HKMA staff estimates.

*: As the EBIT was negative during 2015, it is not meaningful to compare these financial ratios to those in other years.

The cyclical performance of the Mainland economy in 2015–2017 could have accounted for notable improvements in some of the DuPont components. The sharp rebound in gross margins is unlikely to be driven by upgrades in production efficiency alone — rather, buoyant market conditions mentioned earlier provided a cyclical tailwind that may have also led to high gross margins. If this is the case, and the cyclical tailwind is to fade, robust improvement in gross margins seen in 2015–2017 may not be sustained for these overcapacity industries. For these firms to maintain long-term financial viability, they must persist in their efforts to improve capacity utilisation, such as the replacement of out-dated facilities, development of high-value-added production methods and the adoption of commercially-based decision making procedures regarding investment and deployment of assets. In summary, while the Mainland overcapacity sectors experienced a good financial performance in 2015–2017 against the backdrop of a favourable cyclical landscape, tackling the overcapacity problem remains a necessary task for firms in these sectors to sustain financial health for the long term.

Conclusions

In Mainland China, the profitability of overcapacity sectors has clearly improved after the government instituted industrial capacity cuts in 2016. What is less clear are the reasons behind the rebound in the profitability of these overcapacity sectors. Using financial data of listed firms and the DuPont analysis, we find that improved ROE of the Mainland overcapacity sectors mainly stemmed from favourable developments, particularly in gross margins amid the de-capacity campaign and cyclical improvement in domestic demand, as well as administration efficiency, likely reflecting improved efficiency in business operations.

Despite these developments, the subdued level of the asset turnover ratio seems to suggest that capacity utilisation remains far from ideal in the overcapacity sectors. Further improvement in asset utilisation is therefore needed to promote efficiency and, in turn, the long-term profitability of overcapacity sectors.

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3. Domestic economy

The Hong Kong economy softened in the second half of 2018, reflecting slower private consumption growth and poor export performance amid the US-China trade dispute. Real Gross Domestic Product growth for 2019 is expected to slow along with weakening global expansion. This growth outlook is subject to a number of uncertainties and risks, including those stemming from trade protectionism, the future direction of US monetary policy and Mainland's economic performance. Local inflationary pressures will likely stay mild in 2019, although there are potential risks on either side.

3.1 *Real activities*

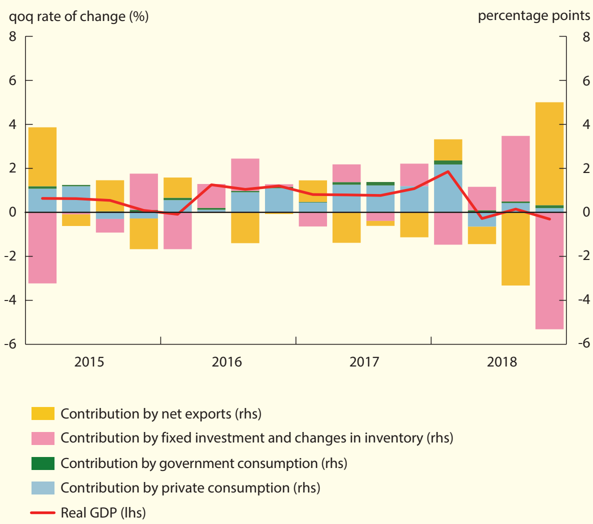
Economic activities in Hong Kong softened in the second half of 2018. Specifically, the economy struggled to sustain its strong momentum recorded in the first half, as the half-yearly growth rate of real Gross Domestic Product (GDP) turned slightly negative (Table 3.A and Chart 3.1). Economic growth also slowed on a year-on-year basis to a below-trend rate of 1.3% in the fourth quarter, dragging down the full-year growth rate to 3.0%, compared with 3.8% a year earlier.

Table 3.A
Real GDP growth

	Half-yearly growth rate (%)*		Year-on-year growth rate (%)	
2017	H1	1.9	Q1	4.4
			Q2	4.0
	H2	1.7	Q3	3.6
			Q4	3.5
2018	H1	2.2	Q1	4.6
			Q2	3.5
	H2	−0.1	Q3	2.8
			Q4	1.3
10-year average	(2008 H1–2017 H2)	1.3	(2008 Q1–2017 Q4)	2.7

* Based on seasonally adjusted volume index of expenditure-based GDP.
Source: C&SD.

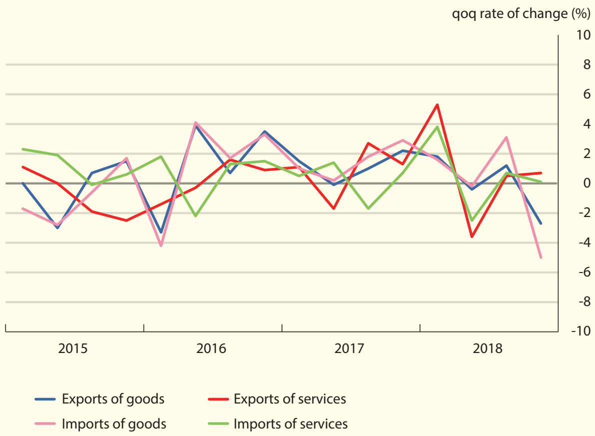
Chart 3.1
Real GDP growth and contribution by major expenditure components



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

Weakening economic activities occurred as the impact of the US-China trade conflict, either directly or indirectly, weighed on consumption and exports. Private consumption grew at a slower pace (Chart 3.1), likely due to heightened economic uncertainty and some negative wealth effects associated with local asset price corrections. Aggregate investment spending declined significantly amid fragile business confidence. Hong Kong's external merchandise trade performance also worsened, particularly in the fourth quarter following the actual imposition of additional tariffs (Chart 3.2). That said, net trade still contributed positively to GDP growth in the fourth quarter as total imports declined at an even faster pace than total exports. Box 3 takes a closer look at Hong Kong's merchandise trade performance and discusses its near-term outlook and the associated risks.

Chart 3.2
Exports and imports in real terms



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

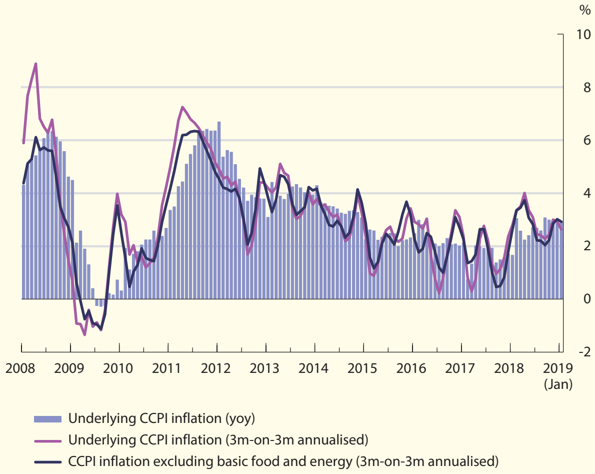
Along with the weaker economic activities, job creation appeared to have slowed in the second half of 2018. Total employment increased by just 0.1%, to around 3,873,000 at the end of 2018, lower than the 0.8% growth in the first half of the year. As output and employment growth was subdued, labour productivity showed little signs of improvement.

Economic growth for 2019 is expected to soften as the world economy slows further. In particular, Hong Kong's export performance is expected to continue to struggle amid a challenging external environment. Domestically, the low unemployment rate and rising household income will continue to support private consumption, but its pace of growth is anticipated to ease partly owing to weaker consumer confidence and negative wealth effects induced by earlier asset price corrections. For fixed capital formation, the outlook may become more uncertain. While building and construction activities should progress steadily on the back of increasing housing supply, firms may become more cautious about making capital investments amid heightened economic uncertainty. Sentiment indicators such as the Purchasing Managers' Index (PMI) for Hong Kong continued to hover in contraction territory, which suggests a further decline in year-on-year GDP growth in the near term, based on the predictive power of the PMI for future growth. The Government forecasts real GDP growth for 2019 in the range of 2–3%, while the growth forecasts by international organisations and private sector analysts range between 1.5–2.7%. This growth outlook is subject to a number of uncertainties and risks as discussed in previous chapters.

3.2 Inflation and unemployment

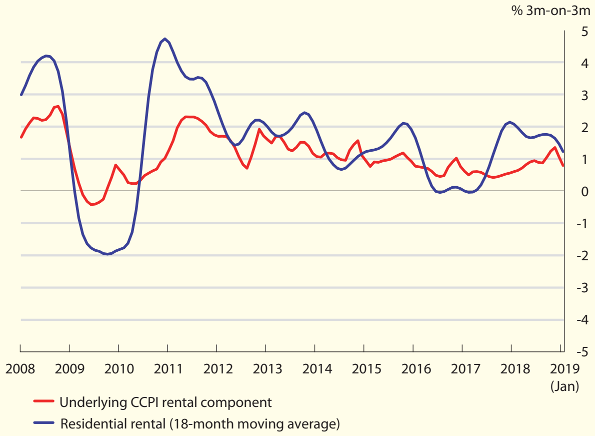
Local inflationary pressures continued to build up, but remained at a moderate level in recent months. On a year-on-year comparison, the underlying Composite Consumer Price Index (CCPI) rose by 2.8% in the third quarter and 2.9% in the fourth quarter, higher than the average rate of 2.4% over the first half of 2018. Inflation momentum, as measured by the annualised three-month-on-three-month underlying inflation rate, also picked up recently, from 2.5% in July 2018 to 2.6% in January 2019 (Chart 3.3). The mild increase in inflation momentum can be attributed to price increases in selected services. The earlier increase in fresh-letting residential rentals and faster rises in the price of meals away from home continued to push up service inflation (Chart 3.4). Labour cost pressures remained subdued in recent quarters (Chart 3.5).

Chart 3.3
Different measures of consumer price inflation



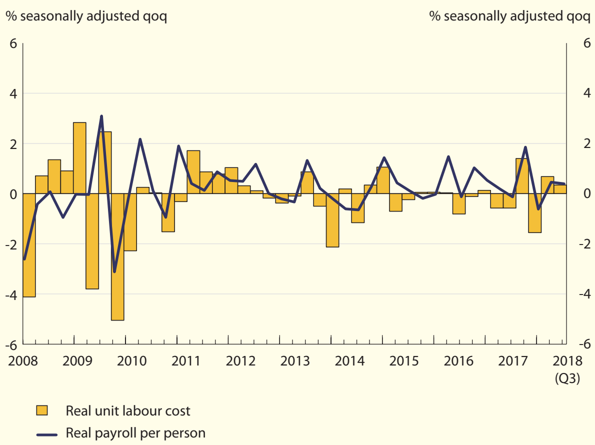
Sources: C&SD and HKMA staff estimates.

Chart 3.4
CCPI rental component and market rental



Sources: C&SD and Rating and Valuation Department.

Chart 3.5
Unit labour cost and payroll per person

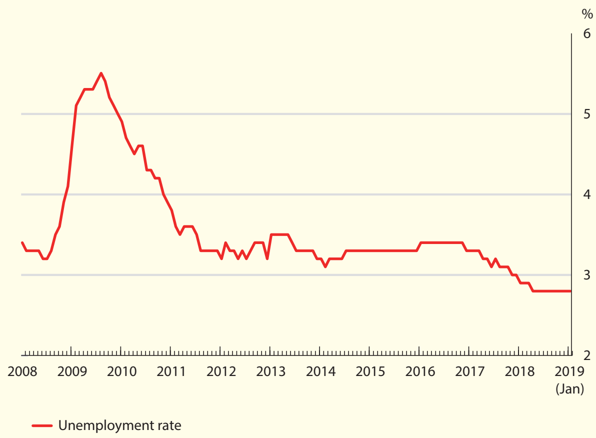


Sources: C&SD and HKMA staff estimates.

Looking ahead, local inflationary pressures will likely stay mild in 2019. This mainly reflects slower domestic growth momentum, although the earlier rising trend in private residential rentals will continue to filter through into consumer price inflation. Market consensus predicts the headline inflation rate at a moderate level of 2.2% for the year and the Government projects the underlying inflation rate to be 2.5%.

This outlook for inflation is subject to risks on both sides. On the downside, the seasonally adjusted unemployment rate has stayed at around 2.8%, the lowest in more than 20 years (Chart 3.6). Should the labour market deteriorate unexpectedly, the current near-zero output gap could turn negative, and additional downward pressure on inflation may emerge. On the other hand, if the local economy performs much better than expected, perhaps due to easing US-China trade tensions, this could boost local inflation.

Chart 3.6
Unemployment rate



Source: C&SD.

Box 3
The impact of the US-China trade dispute on Hong Kong's external merchandise trade: Preliminary evidence and implications

Introduction

The US-China trade conflict began in earnest in the second half of 2018: on 6 July and 23 August, the US imposed additional tariffs of 25% on imports from Mainland China worth US$34 billion and US$16 billion, respectively. Immediately following each of these two dates, Mainland China responded with 25% tariffs on equal amounts of imports from the US. On 24 September, the US levied 10% additional tariffs on a larger list of US$200 billion worth of Mainland imports; Mainland China immediately responded with 5–10% tariffs on US$60 billion worth of US imports. Since then, the two countries have started to engage in negotiations in an attempt to avert further tariffs.

As Hong Kong has long been an entrepôt for trade between the two economies, the additional tariffs are bound to have a direct impact on Hong Kong through the trade channel.[26] As such, the US-China trade dispute has important implications for the macro-financial stability of Hong Kong. This Box reviews Hong Kong's recent merchandise trade performance, and discusses its near-term outlook. In particular, we try to take a closer look at the impact of the additional tariffs by using more granular data — namely, drilling down to traded products that are directly affected by the additional tariffs.

Merchandise trade performance

To analyse the tariff effect, we first extract six sets of Hong Kong's re-exports subject to the three rounds of imposed tariffs described in the previous section. In the first two rounds, the US imposed tariffs mainly on capital and intermediate goods, while Mainland China targeted mostly agricultural products, chemicals, medical equipment and energy equipment. In the third round, the affected product lines grew in scope and involved more consumer goods. For brevity, we name products affected by these three rounds List 1, List 2 and List 3, correspondingly.

Using these more granular trade data, we examine the year-on-year changes in re-export value, in order to account for seasonality. Care should also be taken when interpreting the September 2018 data, as trading activities were somewhat disrupted by the super typhoon Mangkhut. Overall, the findings in this section should be regarded as preliminary evidence on the impact of the rounds of additional tariffs.[27]

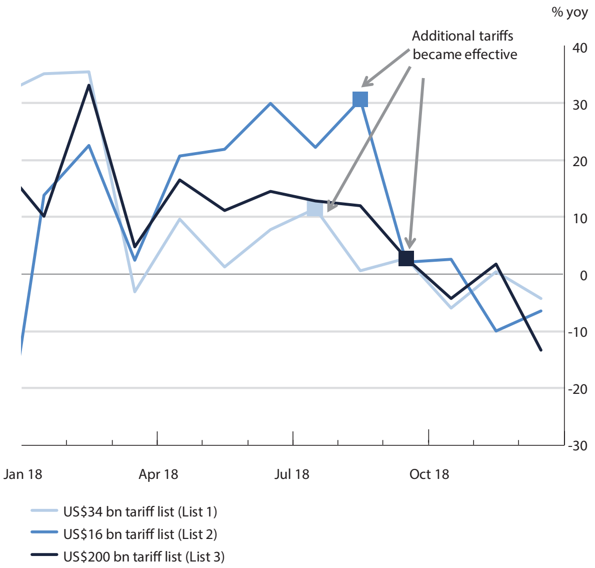
Re-exports of Mainland origin affected by tariffs

For re-exports from Mainland China to the US, the additional tariffs appear to have resulted in a sharp decline or growth slowdown in the corresponding re-exports shortly after the measures took effect (Chart B3.1). For example, the re-exports of List 1 and List 2 grew more slowly in the first month after the imposition of additional tariffs, while those of List 3 registered negative growth. In December, all three re-export lists registered negative growth.

26 There may also be an impact through indirect channels, including the financial channel (e.g. tightening of financial conditions induced by asset price corrections) and the uncertainty channel. For the latter, see "Box 2: Macroeconomic effects of uncertainty — implications of rising trade tensions for Hong Kong", *HKMA Half-yearly Monetary and Financial Stability Report*, September 2018.

27 A complete analysis would control for different factors and isolate the impact of tariff increases. However, the data necessary to conduct such an econometric analysis will only be available later.

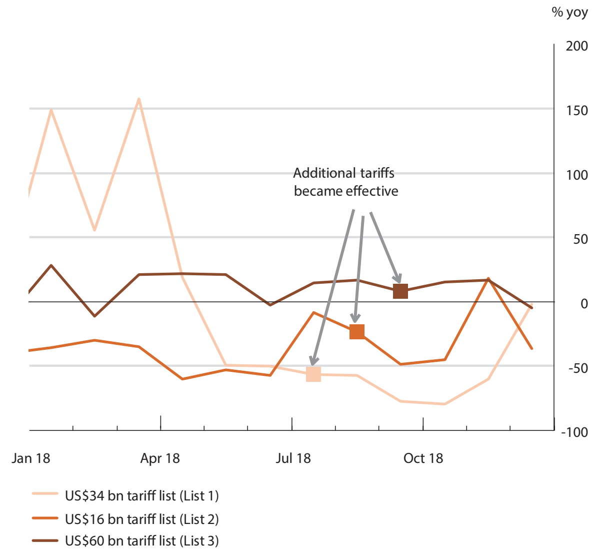
Chart B3.1
The value of Hong Kong's re-exports of Mainland origin to the US in 2018



Note: Estimated figures. The squares on the lines denote the month in which the tariffs became effective.

Sources: C&SD and HKMA staff estimates.

Chart B3.2
The value of Hong Kong's re-exports of US origin to Mainland China in 2018



Note: Estimated figures. The squares on the lines denote the month in which the tariffs became effective.

Sources: C&SD and HKMA staff estimates.

Re-exports of US origin affected by tariffs

In comparison, re-exports from the US to Mainland China portray a mixed picture (Chart B3.2). The additional tariffs appear to have led to a sharp decline in List 1 re-exports in the first few months following the implementation, but these re-exports picked up somewhat towards the end of the year. The growth in List 2 re-exports was largely negative for the whole year, while the List 3 growth-rate appears roughly stable.

Front-loading activities

Because of the time lag between the announcement and the eventual implementation of the tariffs (or merely a plausible threat of tariffs), an incentive might be for firms to increase their shipments for the goods that would be affected prior to the expected effective date. Indeed, anecdotal evidence and news reports suggest these front-loading activities were fairly prevalent. Some private-sector analysts also partially ascribed the strength in headline trade numbers to these activities prior to the lift in tariffs.

Our granular data reveal some evidence of front-loading for selected tariff lists, but only for re-exports from Mainland China to the US (Chart B3.1). Growth rates for List 1 and List 2 picked up somewhat in the few months before respective tariffs took effect. On the other hand, growth rates of re-exports from the US to Mainland China (Chart B3.2) do not clearly indicate front-loading activities.

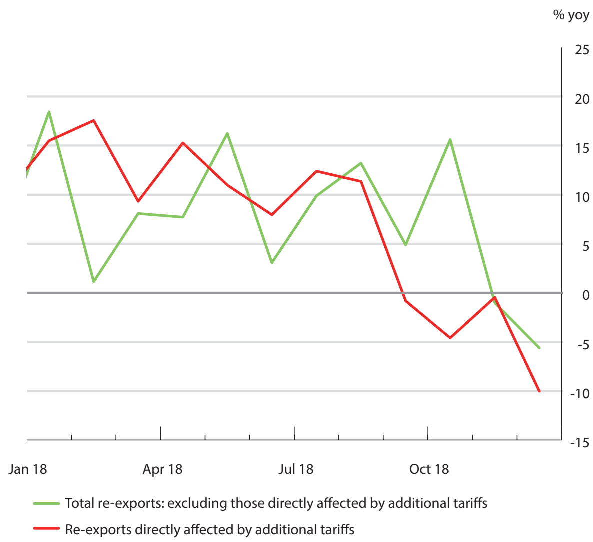
Re-exports not affected by the additional tariffs

It should be noted the re-exports that were directly affected by the additional tariffs accounted for just 4–5% of the total re-exports of Hong Kong. For a more complete picture of Hong Kong's trade performance, it is useful to also look at re-exports that are not covered by the additional tariffs.

Here we find total re-exports not affected by the additional tariffs also recorded negative growth in the last two months of 2018 (Chart B3.3). Since the third quarter, however, the decline in growth in re-exports affected by the tariffs (the red line), was clearly more severe, suggesting the tariffs had notable effects.

The slowdown in the growth of re-exports not affected by the tariffs, in part, reflects a broader weakening in external demand amid increased uncertainties due to lingering trade tensions, tighter global financial conditions and heightened geopolitical risks. In particular, the trade conflict has weighed on global economic sentiment and activities, as evidenced by corrections in major stock markets. This in turn could dampen import demand from other economies, thereby restraining Hong Kong's external trade performance.

Chart B3.3
The value of Hong Kong's re-exports in 2018

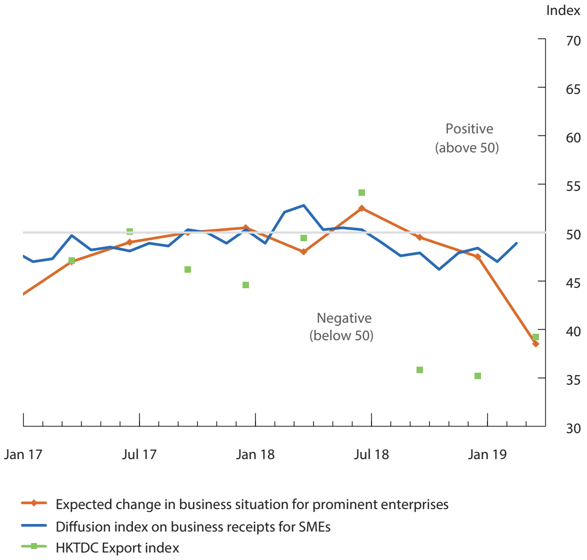


Note: Estimated figures.
Sources: C&SD and HKMA staff estimates.

Implications for Hong Kong

The near-term outlook for Hong Kong's merchandise trade remains challenging, even if the US-China trade tensions were to diminish. The likely slowdown in global expansion this year (see Chapter 2) will further restrain Hong Kong's export performance. Various sentiment indicators continue to point to weaker business prospects for both prominent and small businesses (Chart B3.4), with sentiment especially poor in the trade sector. Other sectors related to trade, such as logistics, could also be affected.

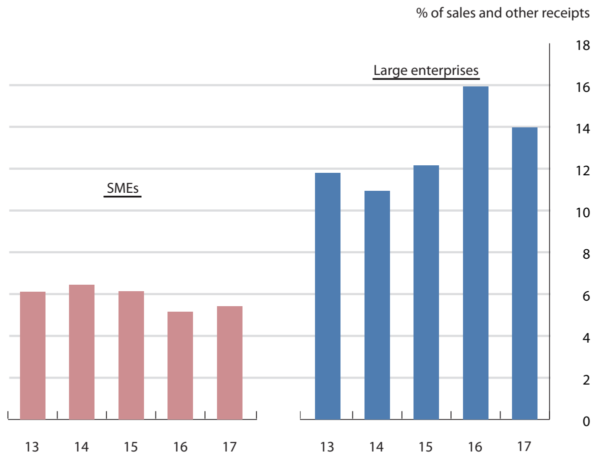
Chart B3.4
Surveys of business prospects for the import and export trade sector of Hong Kong



Note: The index for prominent enterprises also includes the wholesale sector as no breakdown is available.
Sources: C&SD and Hong Kong Trade Development Council (HKTDC).

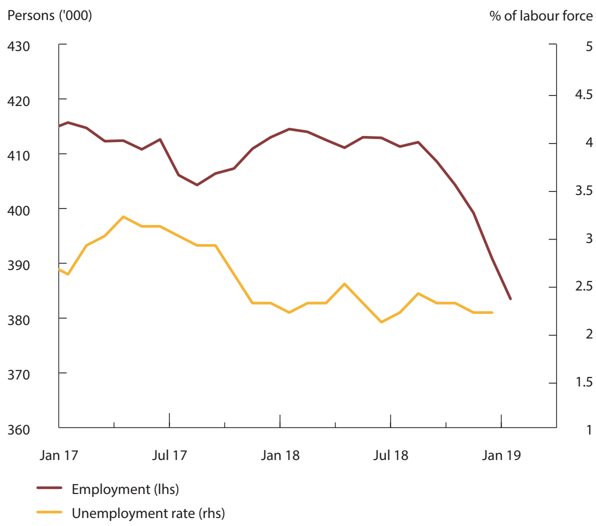
As one of Hong Kong's four key industries, the trading and logistics sector[28] contributes about one-fifth of GDP and employment to the economy. Consequently, the impact of the US-China trade conflict on the overall economy and the labour market should be closely monitored. In particular, given that small and medium enterprises (SMEs) are dominant employers in the import and export trade sector, their thin profit margins[29] (Chart B3.5) make them more vulnerable to trade shocks and may have repercussions on their hiring. In 2017, SMEs accounted for 99% of enterprises and 78% of persons employed in this sector.[30] A further deterioration in the external trade situation could test the resilience of the local labour market. In fact, total employment in this sector has been declining notably since August 2018, although the sectoral unemployment rate has yet to show signs of deterioration (Chart B3.6).

Chart B3.5
The profit ratios of the import and export trade sector over the past five years



Sources: C&SD and HKMA staff estimates.

Chart B3.6
Labour market conditions in the import and export trade sector of Hong Kong



Source: C&SD.

28 Besides import and export trade, the trading sector also includes wholesale businesses. The logistics sector comprises freight transport and storage services and postal and courier services.

29 The before-tax earnings ratio (abbreviated as profit ratio) denotes the ratio of profit before deducting tax, gain/loss on disposal of property, machinery and equipment, bad debts/write-off provisions, etc., to business receipts.

30 According to the conventional definition of non-manufacturing enterprises, SMEs refer to those firms with fewer than 50 employees or persons engaged.

Conclusions

This Box shows that the US-China trade conflict is taking its toll on Hong Kong's external merchandise trade. More granular data point to an immediate adverse impact following the tariff increases, especially for re-exports from Mainland China to the US that are subject to the additional tariffs. There was also some evidence of front-loading activities. In addition, re-exports that were not covered by the additional tariffs also retreated towards the end of 2018, perhaps reflecting a broader weakening in external demand amid increased uncertainties due to the lingering trade tensions, tighter global financial conditions and heightened geopolitical risks.

The near-term outlook for Hong Kong's merchandise trade remains challenging even if the US-China trade tensions were to abate, given the deceleration in global growth. Sector-wise, the import and export trade sector will bear the brunt of the headwinds, possibly with negative spillovers to the broader economy and the labour market. SMEs in this sector may be particularly vulnerable given their relatively thin profit margins.

4. Monetary and financial conditions

The Hong Kong dollar exchange rate strengthened in September and November, in part reflecting the unwinding of interest carry trade positions as liquidity conditions tightened amid anticipated seasonal funding demand. In early 2019, partly associated with the repatriation of proceeds raised in initial public offerings and some re-building of interest carry positions, the Hong Kong dollar weakened gradually and the weak-side Convertibility Undertaking (CU) was triggered in March. Despite this, the Hong Kong dollar remained traded in a smooth and orderly manner. Reflecting the expectation of US rate hikes and seasonal funding demand, Hong Kong Interbank Offered Rates broadly picked up during the second half of 2018 before easing in January 2019. Fund flows into and out of Hong Kong dollar in the near term may become more volatile amid uncertainties arising from the lingering US-China trade tensions, the Brexit negotiations and the less predictable pace of US monetary policy normalisation. If the large gaps between the Hong Kong dollar and US dollar interest rates remain, carry trade activities will likely keep the Hong Kong dollar weak in the near future and the weak-side CU may be triggered again, consistent with the design of the Linked Exchange Rate System.

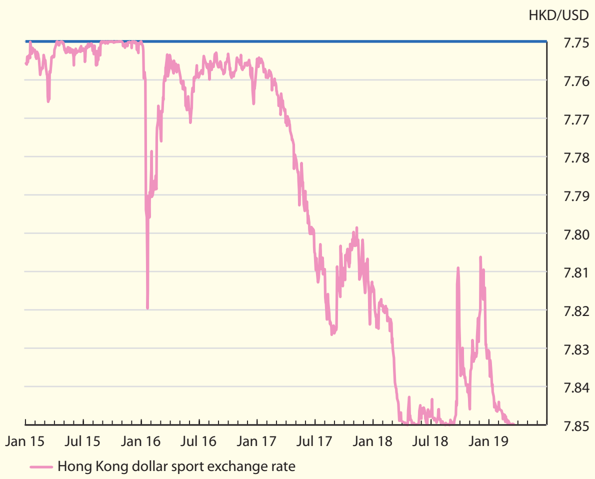
4.1 Exchange rate and capital flows

After the triggering of the weak-side Convertibility Undertaking (CU) in the latter part of August, the Hong Kong dollar moved away from 7.8500 to trade between 7.8062 and 7.8499 until the weak-side CU was triggered again 4 times in March 2019 (up to 19 March 2019) (Chart 4.1).[31] The Hong Kong dollar exchange rate briefly strengthened in September, partly reflecting unwinding of interest carry trade positions amid tightening interbank liquidity, before easing gradually in October. Since November, the Hong Kong dollar firmed again due to the unwinding of interest carry positions as liquidity conditions tightened amid year-end funding demand. Stepping into 2019, the spot rate weakened, partly associated with repatriation of proceeds raised in initial public offerings (IPOs) and some re-building of interest carry positions.

Widened interest rate gaps between the Hong Kong dollar and US dollar after the year-end attracted carry trade activities that sell Hong Kong dollar for US dollar, pushing the Hong Kong dollar exchange rate towards the weak-side. The weak-side CU was triggered again in March. Despite the triggering of the weak-side CU, the Hong Kong dollar continued to trade in a smooth and orderly manner. The Aggregate Balance remained unchanged at around HK$76 billion since August (Chart 4.2); it subsequently edged down to HK$70.9 billion (as at March 19) due to the triggering of the weak-side CU in March. The amount of outflows since April 2018 constitutes only a small part of the inflows since 2008, which amounted to around HK$1 trillion.

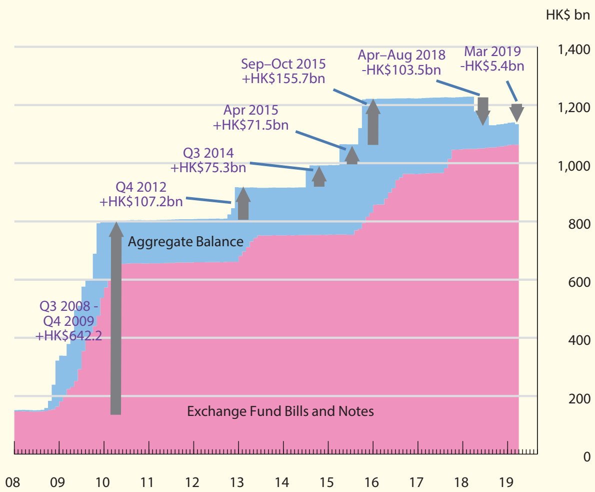
[31] Based on the closing rate.

Chart 4.1
Hong Kong dollar exchange rate



Note: Up to 19 March 2019.
Source: HKMA.

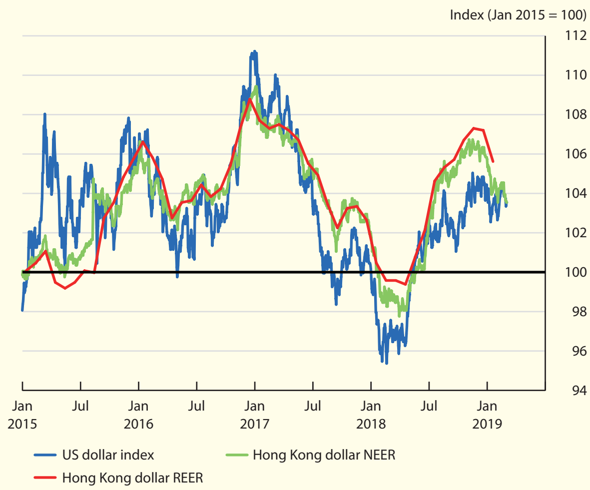
Chart 4.2
Fund flow indicators



Note: Up to 19 March 2019.
Source: HKMA.

Broadly in line with the movements of the US dollar, the Hong Kong dollar nominal effective exchange rate index (NEER) continued to strengthen during the review period (Chart 4.3). The Hong Kong dollar real effective exchange rate index (REER) generally followed the movement of 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.

According to the latest Balance of Payments (BoP) statistics, outflows in portfolio investment continued in the third quarter of 2018. Amid weak market sentiment and heightened volatility in the stock markets, the equity portfolio investment outflows by residents accelerated and more-than-offset the inflows by non-residents in the third quarter (Table 4.A).[32] In contrast, there were inflows by both residents and non-residents in debt securities in the third quarter.

Table 4.A
Cross-border portfolio investment flows

	2016	2017	2018		
(HK$ bn)			Q1	Q2	Q3
By Hong Kong residents					
Equity and investment fund shares	-354.7	-109.8	-101.2	-64.6	-134.5
Debt securities	-175.5	54.5	-108.0	-140.7	6.1
By non-residents					
Equity and investment fund shares	19.3	80.4	-77.3	-1.3	31.7
Debt securities	41.3	239.1	40.9	48.5	19.5

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

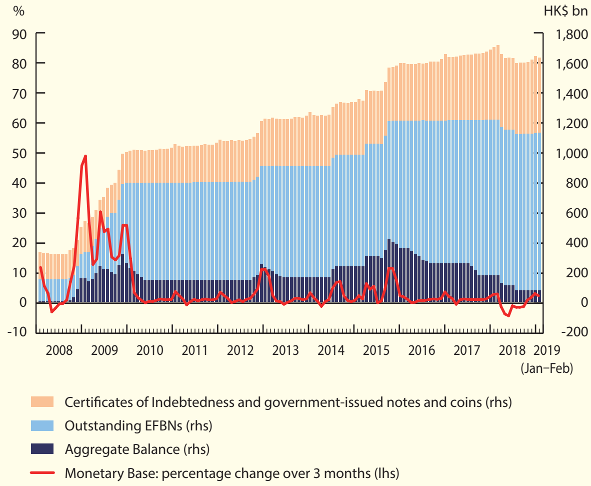
32 At the time of writing, the fourth-quarter BoP statistics were not yet available.

Looking ahead, fund flow volatility may increase amid uncertainties arising from the lingering US-China trade tensions, the Brexit negotiations and the less predictable pace of US monetary policy normalisation. In addition, substantial negative spreads between the Hong Kong dollar and US dollar interest rates may encourage carry trade activities, leading to capital outflows. Under the design of the Linked Exchange Rate System[33], the Hong Kong dollar exchange rate may weaken and the weak-side CU could be triggered again. In such circumstances, the outflow and possible triggering of the weak-side CU is a natural process to be expected under the Linked Exchange Rate System.

4.2 Monetary environment and interest rates

Hong Kong's monetary environment remained accommodative in the second half of 2018 despite the ongoing US interest rate normalisation and the repeated triggering of the weak-side CU during April to August. The Hong Kong dollar Monetary Base decreased slightly by 0.7% in the second half, standing at HK$1,632.9 billion at the end of 2018 (Chart 4.4). The decline in the Monetary Base was mainly led by the fall in the Aggregate Balance from HK$109.5 billion at the end of June 2018 to HK$76.4 billion at the end of 2018 as a result of the triggering of the weak-side CU in August, while there have been modest increases in Certificates of Indebtedness, government-issued notes and coins, and outstanding Exchange Fund Bills and Notes (EFBNs). The Hong Kong dollar Monetary Base remained largely stable in the first two months of 2019, with the Aggregate Balance staying virtually unchanged since August. Due to the triggering of the weak-side CU in March, the Aggregate Balance edged down to around HK$70.9 billion (as at March 19).

Chart 4.4
Monetary Base components

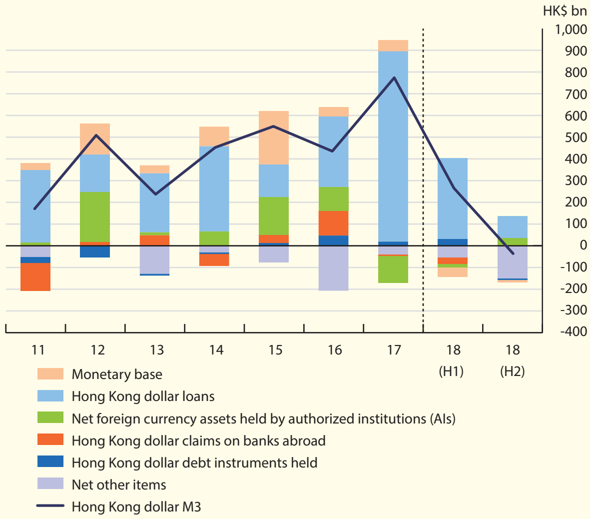


Source: HKMA.

As for broader measures of Hong Kong dollar monetary aggregates, they generally witnessed slower growth during the second half, in part, attributable to heightened uncertainties in the macroeconomic and financial environment. After expanding by 3.6% in the first half, the Hong Kong dollar broad money (HK$M3) edged up only by 0.1% in the second half (Chart 4.5). Hong Kong dollar deposits, a major component of HK$M3, were virtually unchanged compared with the end of June (Chart 4.6). Within Hong Kong dollar deposits, demand and savings deposits declined somewhat, in part due to reduced investment-related transactions moving into the second half. On the other hand, time deposits continued to record strong expansion amid a pick-up in deposit rates. Analysed by the asset-side counterparts, growth deceleration of HK$M3 was due to changes in banks' capital and reserves (which are included in "net other items").

[33] The Linked Exchange Rate System is working according to its design and consistently with the recently developed target zone model, which adequately describes and explains the exchange rate dynamics and the associated interest rate differential in a fully credible convertibility zone. For details, please see "Linked Exchange Rate System operations –mechanism and Theory", *HKMA Quarterly Bulletin*, December 2018 issue, pp.1–10.

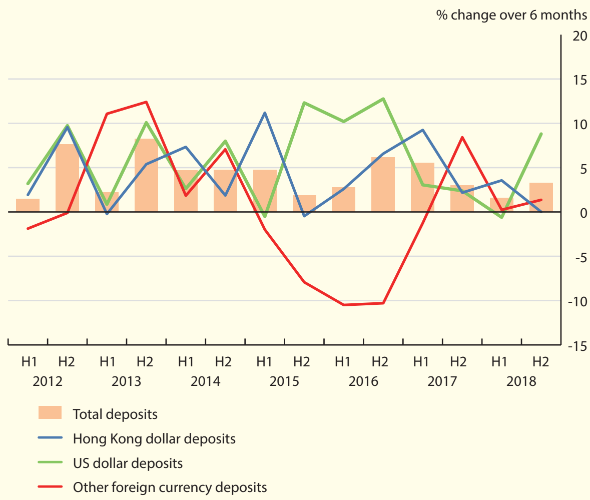
Chart 4.5
Changes in the HK$M3 and the asset-side counterparts



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 increased at a faster pace during the second half of 2018. The increase was mainly driven by US dollar deposits, which expanded strongly by 8.8% in the second half as banks attracted more deposits after raising their preferential US dollar deposit rates (Chart 4.6). Other foreign currency deposits grew by a modest 1.4% during the same period, within which renminbi deposits continued to increase. Overall, total deposits with AIs grew moderately by 3.3% in the second half, slightly faster than a 1.6% increase in the preceding half-year period.

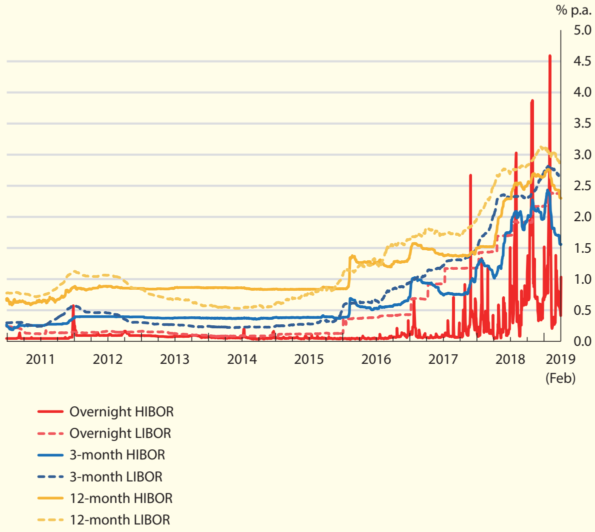
Chart 4.6
Deposit growth



Source: HKMA.

Although the Hong Kong dollar Monetary Base and deposits remained sizable, the Hong Kong dollar interbank interest rates faced some upward pressures in the second half of 2018, which primarily reflected US rate hikes. Seasonal liquidity needs also occasionally drove short-term interbank rates higher and resulted in their higher volatility vis-à-vis their long-term counterpart (Chart 4.7). The three-month and 12-month Hong Kong Interbank Offered Rate (HIBOR) fixings averaged, respectively, 2.32% and 2.74% in December, about 30 basis points higher than their averages in June. Stepping into 2019, the Hong Kong dollar interbank interest rates generally eased as seasonal demand faded. The February averages of three-month and 12-month HIBOR fixings eased to 1.65% and 2.39%, respectively.

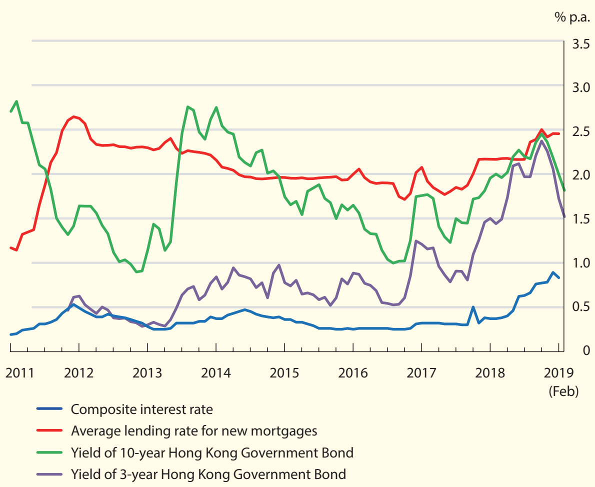
Chart 4.7
Hong Kong dollar and US dollar interbank interest rates



Sources: CEIC and HKMA.

Broadly tracking the movements of the US dollar yield curve, the Hong Kong dollar yield curve shifted downwards during the second half of 2018. The yields of the three-year and ten-year Hong Kong Government Bonds fell, respectively, by 45 basis points and 37 basis points to 1.56% and 1.83% at the end of February 2019 relative to the end of June 2018 (Chart 4.8).

Chart 4.8
Yields of Government Bonds, the composite interest rate, and the average lending rate for new mortgages



Source: HKMA.

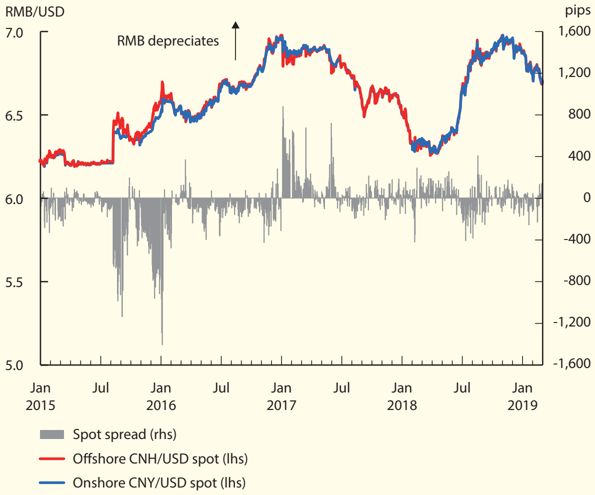
The composite interest rate, which measures the average Hong Kong dollar funding costs of retail banks, edged up during the review period. Underpinned by changes in both interbank and deposit funding costs, the composite interest rate increased from 0.62% at the end of June to 0.89% at the end of December, before easing to 0.83% at the end of January 2019 (Chart 4.8). In view of the tighter funding costs, retail banks raised their Best Lending Rates by 12.5–25.0 basis points following the increase in the target range for the Federal Funds Rate in September. However, retail banks did not adjust the rates again after another increase in the target range for the Federal Funds Rate in December. On the other hand, the average lending rate for new mortgages moved along with the raised Best Lending Rates to around 2.45% at the end of January 2019.

In the period ahead, the path of US dollar interest rates, fund flow patterns and domestic market activities (e.g. IPOs) will continue to be the key drivers of Hong Kong dollar interest rates. Given that the Hong Kong dollar Monetary Base remains sizeable — the banking sector is holding vast amounts of Exchange Fund papers — the pace of Hong Kong dollar interest rate increases should be modest as banks can use the Exchange Fund papers as collateral to obtain Hong Kong dollar liquidity via the discount window.

Offshore renminbi banking business

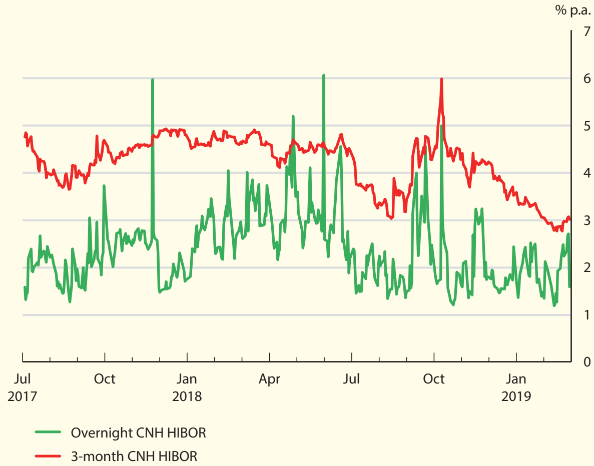
Against the background of an escalation in the US-China trade tensions, the offshore (CNH) and the onshore (CNY) have weakened since early 2018 (Chart 4.9). However, they both stabilised in November on the back of optimism surrounding the news that high-level trade talks between Mainland China and the US had resumed. During the review period, the spread between the CNY and the CNH was largely insignificant.

Chart 4.9
CNY and CNH exchange rates



Source: Bloomberg.

Chart 4.10
The overnight and the three-month CNH HIBOR fixings



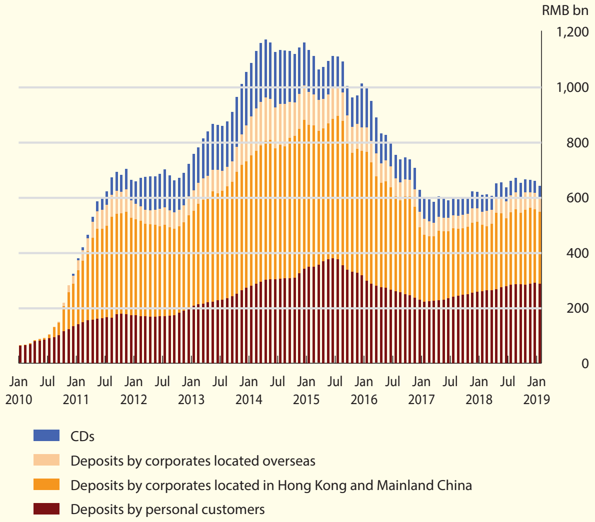
Source: CEIC.

The lingering US-China trade tensions have not so far exerted a significant impact on the funding conditions in the offshore interbank market. As liquidity conditions remained largely stable, the overnight CNH HIBOR mostly traded below 4% during the review period, with only an occasional pick up due to seasonal factors (Chart 4.10). The three-month CNH HIBOR hovered around 4% between September and December 2018, before easing to 3.02% at the end of February 2019, which may reflect the latest monetary easing measures by the People's Bank of China.[34] Nevertheless, it remains to be seen how the development of the US-China trade talks affect the CNH interbank market liquidity in 2019.

Hong Kong's CNH liquidity pool expanded steadily during the second half of 2018. Compared with a 2.6% increase in the first half, the total outstanding amount of renminbi customer deposits and certificates of deposit (CDs) grew slightly faster by 3.7% in the second half to total RMB657.7 billion at the end of 2018 (Chart 4.11 and Table 4.B). This was largely driven by renminbi customer deposits, which picked up by 5.2% in the second half following a 4.5% increase in the first half. In particular, corporate customer deposits expanded faster than personal customer deposits. The outstanding amount of CDs, however, dropped further by 14.1% in the second half, mainly due to a fall in CD issuances and the maturing of a relatively large amount of CDs in October.

[34] For details of the measures, please see the section Fiscal and Monetary policy under chapter 2.2 in this Report.

Chart 4.11
Renminbi deposits and CDs in Hong Kong



Source: HKMA.

Table 4.B
Offshore renminbi banking statistics

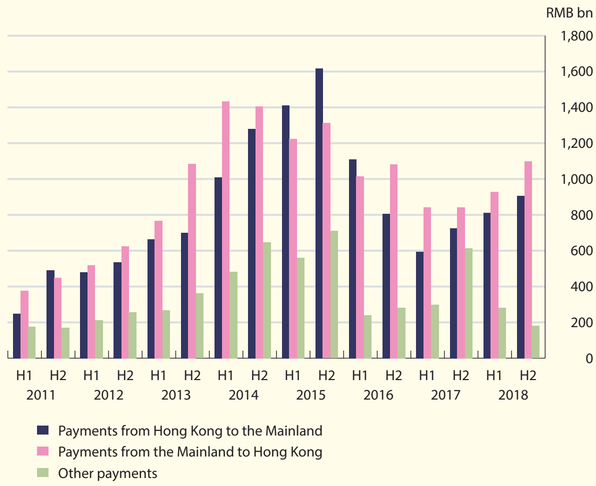
	Dec 2017	Dec 2018
Renminbi deposits & CDs (RMB bn)	618.4	657.7
Of which:		
Renminbi deposits (RMB bn)	559.1	615.0
Share of renminbi deposits in total deposits (%)	5.3	5.2
Renminbi CDs (RMB bn)	59.3	42.7
Renminbi outstanding loans (RMB bn)	144.5	105.6
Number of participating banks in Hong Kong's renminbi clearing platform	203	200
Amount due to overseas banks (RMB bn)	95.4	80.4
Amount due from overseas banks (RMB bn)	131.3	132.8
	2017	**2018**
Renminbi trade settlement in Hong Kong (RMB bn)	3,913.9	4,206.2
Of which:		
Inward remittances to Hong Kong (RMB bn)	1,682.5	2,027.0
Outward remittances to Mainland China (RMB bn)	1,318.3	1,715.3
Turnover in Hong Kong's RMB real time gross settlement (RTGS) system (Daily average during the period; RMB bn)	903.6	1,010.1

Source: HKMA.

Despite a steady expansion in Hong Kong's CNH liquidity pool, renminbi lending activities in Hong Kong continued to be weak. The outstanding amount of renminbi bank loans declined further by 14.3% during the second half to RMB105.6 billion at the end of 2018, albeit at a slower pace than the 14.7% decline in the first half.

Meanwhile, Hong Kong's renminbi trade settlement picked up during the second half. Transactions handled by banks in Hong Kong amounted to RMB2,184.6 billion during the second half of 2018, up by 8.1% compared with the first half (Chart 4.12). For 2018 as a whole, the average daily turnover of the renminbi RTGS system rose to RMB1,010.1 billion from RMB903.6 billion recorded in 2017.

Chart 4.12
Flows of renminbi trade settlement payments



Source: HKMA.

In the near term, the development of the CNH market in Hong Kong will continue to depend on Mainland's macro-financial conditions and the path of the renminbi exchange rate. Despite the lingering US-China trade tensions, Hong Kong's offshore renminbi business is expected to grow alongside continued liberalisation of Mainland's capital account, the development of the Stock and Bond Connect schemes, and more regional economic co-operation under the Belt and Road and Greater Bay Area Initiatives.

Asset markets

Hong Kong equity prices corrected sharply at the beginning of the review period as a result of continued monetary tightening in the US and escalated US-China trade conflict but rallied strongly towards the end with the Federal Reserve's signalling a "patient" approach to monetary policy and increased hopes of a trade deal between Mainland China and the US. The Hong Kong dollar debt market continued to expand on the back of steady growth in issuance last year, while its offshore renminbi debt market contracted. The residential property market slowed in the second half of 2018 amid the trade tensions and tightening financial conditions, before stabilising somewhat in early 2019.

4.3 Equity market

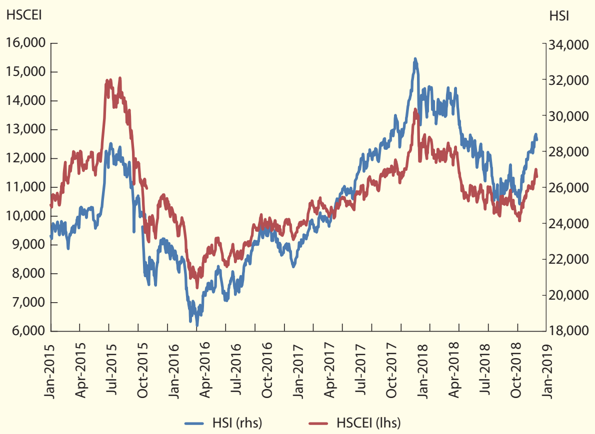
The local equity market took a roller coaster ride in the review period. The Hang Seng Index (HSI) continued to slide at the start and reached a 17-month low in late October amid more rate hikes in the US and elevated US-China trade tensions (Chart 4.13). As the Mainland economy slowed further and its US counterpart began to show its fatigue, a series of worse-than-expected earnings results turned off investors, sending US equity prices sharply lower as well. Sentiment weakened further when the deadlock between the Democrats and Republicans over the financing of the Mexican border wall led to a partial shutdown of the US Government. With the yield curve threatening to invert, uncertainty increasingly loomed over the outlook for the economy.

However, these negative developments appear to have had a positive side: they brought considerable incentives for the two economic superpowers to return to the negotiation table. During the trade truce, both sides showed friendly gestures and demonstrated willingness to make compromises. In particular, Mainland China purchased large amounts of agricultural products to help narrow the bilateral trade gap, and stepped up its legal reforms to help foreign direct investment. This was despite the complication created by the US indictment of a major Mainland telecoms company. With the Federal Reserve (Fed) indicating a switch to a more "patient" monetary policy, the market staged a cautious rebound towards the end of the review period with early signs that fund flows might once again head in a favourable direction (Chart 4.15).

Overall, the HSI and Hang Seng China Enterprises Index, also known as the H-share index, edged up by 3.32% and 5.12%, respectively from September 2018 to February 2019, due mainly to the rally in the last two months. Option-implied volatilities initially surged towards the end of last year, but have since subsided as calm returned to the market (Chart 4.14). The SKEW Index also declined markedly during the period, suggesting that downside protection was not valued as much as before.[35]

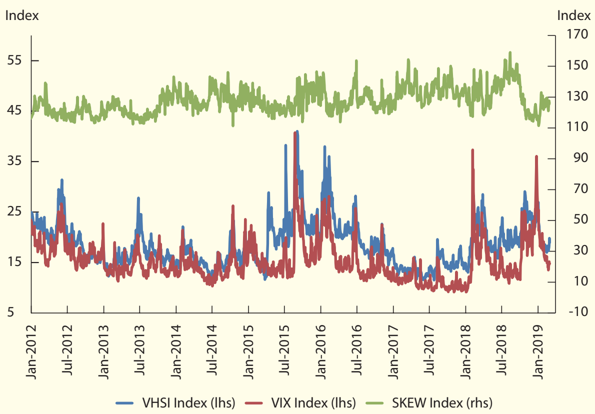
[35] The SKEW Index is calculated by the Chicago Board Options Exchange from the prices of the S&P 500 out-of-the-money options. A SKEW value of 100 means that the probability of outlier negative returns at a 30-day horizon is negligible. As SKEW rises above 100, the left tail of the S&P 500 returns 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 4.13
Equity prices in Hong Kong



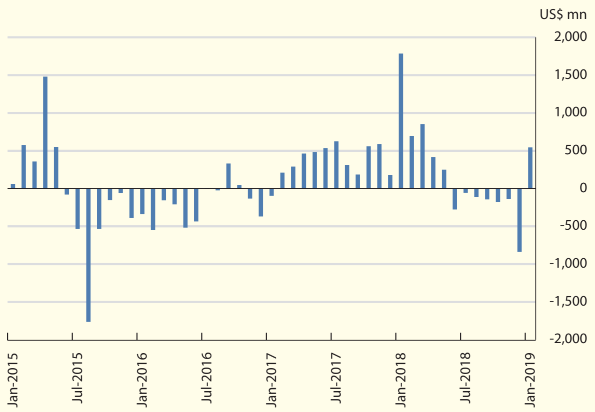
Source: Bloomberg.

Chart 4.14
Option-implied volatilities of the HSI and S&P 500, and the SKEW index



Sources: Bloomberg.

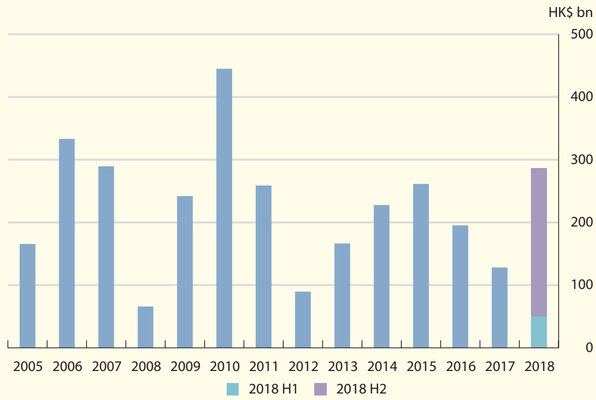
Chart 4.15
Equity market net fund flows into Hong Kong



Source: EPFR Global.

Contrary to the lacklustre performance of share prices, the primary market in Hong Kong recorded significant growth in 2018. To a certain extent this was attributable to the listing rules reform last April, which allowed companies with dual-class shareholding structures and pre-revenue biotech firms to list on the Hong Kong Stock Exchange. In 2018, funds raised from IPOs increased by 125% to HK$286.5 billion, putting Hong Kong once again at the top of the league table for IPOs globally (Chart 4.16).

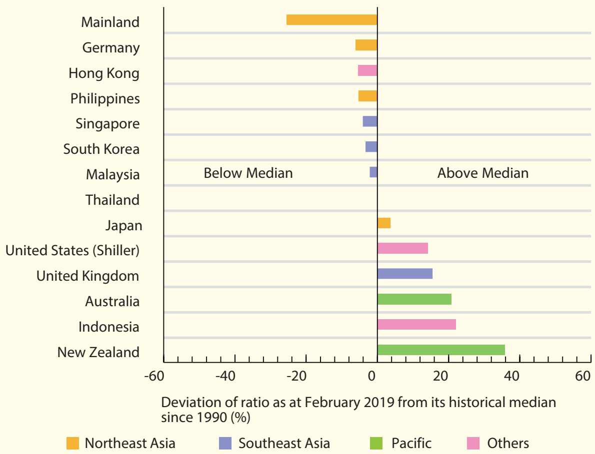
Chart 4.16
The IPO market in Hong Kong



Sources: CEIC and HKEx.

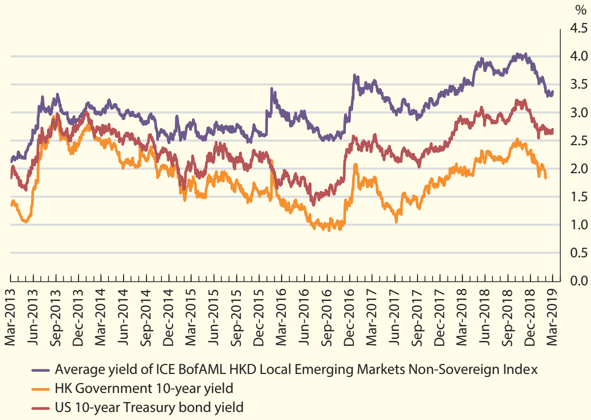
For 2019, the local equity market is expected to remain susceptible to the external environment. The outlook for US monetary policy may turn out to be a bright spot. However, apart from that, the outcome of the current trade talks remains highly uncertain, as Mainland China and the US are yet to finalise the implementation and structural details of a trade deal, if any. This is especially so in the difficult high-tech sphere with further developments likely in the highly politicised indictment case complicating the scene. Apart from this, there are several other wild cards, particularly the UK's hard Brexit risk, Italy's fiscal turmoil and Venezuela's political crisis. Valuation wise, Hong Kong is undoubtedly among the lowest globally, but it is unlikely to provide enough cushion should events unfold in an adverse and turbulent manner (Chart 4.17).

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



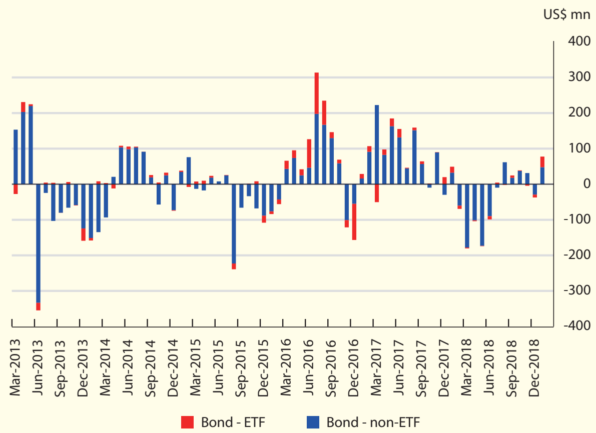
Sources: Bloomberg, CEIC and HKMA staff estimates.

Chart 4.18
Hong Kong dollar sovereign and non-sovereign bond yields and US 10-year Treasury yield



Sources: HKMA and ICE Data Indices.

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



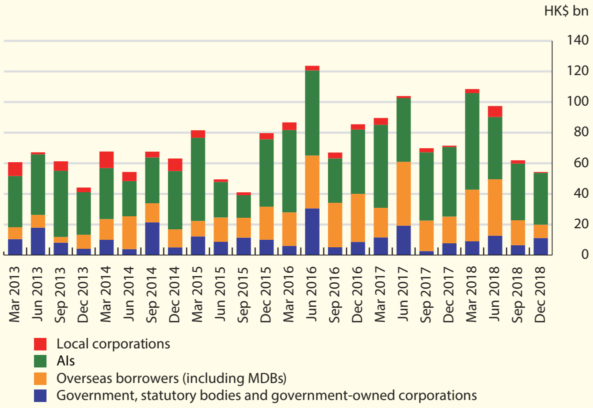
Source: EPFR Global.

4.4 *Debt market*

The Hong Kong dollar debt market continued to expand in 2018 on the back of steady growth in issuance, with the yields of both sovereign and non-sovereign bonds easing since the fourth quarter, after rising for an extended period (Chart 4.18). The easing went in tandem with the decline in US Treasury yields amid growing market expectations that the Fed would take a more patient and flexible approach to adjusting its target policy rate. Against the backdrop of a more moderate pace of monetary normalisation in the US, capital outflow pressure faced by East Asian economies has also eased, with international investors gradually returning from the sidelines. As a result, there appears to be an improved appetite for Hong Kong dollar debt, which is reflected in the net bond fund flows rebounding to positive territory since last August (Chart 4.19).

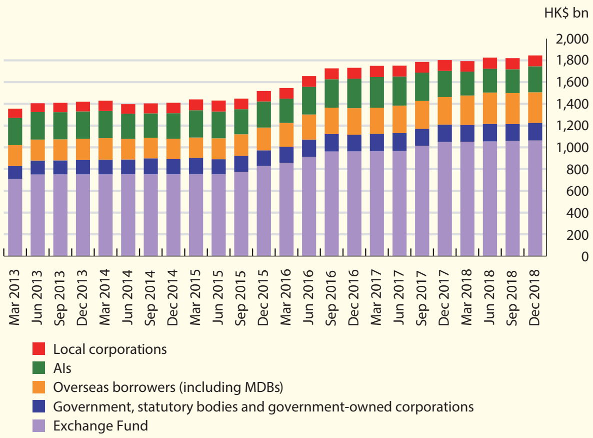
The total issuance of Hong Kong dollar debt increased by 6.6% to HK$3,555.1 billion in 2018 from the preceding year, mainly driven by the Exchange Fund's strong issuance that more than offset the decline of debts issued by the private sector (Chart 4.20). As a result, the outstanding amount of Hong Kong dollar debt rose by 2.4% year on year to HK$1,844.5 billion at the end of December (Chart 4.21). The amount was equivalent to 25.3% of HK$M3 or 20.8% of Hong Kong dollar-denominated assets of the banking sector. Within the total, overseas borrowers including multilateral development banks (MDBs) saw their debt outstanding increase by 11.0% from a year ago to HK$281.5 billion, more than offsetting the 0.5% year-on-year decline in outstanding debt of the local private sector.

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



Source: HKMA.

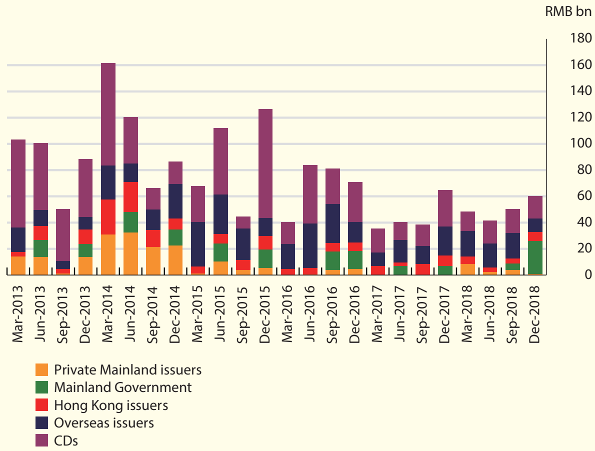
Chart 4.21
Outstanding Hong Kong dollar debt



Source: HKMA.

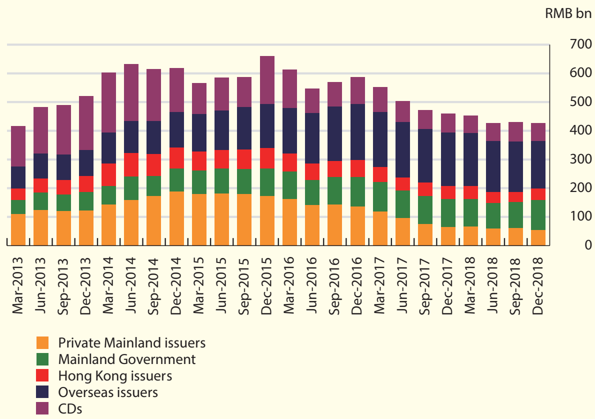
The sentiment underlying the primary offshore renminbi debt market in Hong Kong is mixed. New issuance showed tentative signs of recovery in 2018, after contracting for three years in a row. Total issuance increased by 11.5% year on year to RMB200 billion in 2018, driven by a rebound in issuance by private Mainland issuers, the Mainland government and overseas issuers (Chart 4.22). However, as the increase in issuance was more than offset by maturing debt, the total outstanding amount of offshore renminbi debt securities in Hong Kong registered a year-on-year decline of 7% to RMB427 billion at the end of December 2018, partly reflecting the continued deleveraging of the corporate sector and partly a more tarnished business outlook (Chart 4.23). The gap between onshore and offshore funding costs widened during the review period, which further underscored the disincentive for borrowers to roll over their debt offshore (Chart 4.24).

Chart 4.22
New issuance of offshore renminbi debt securities



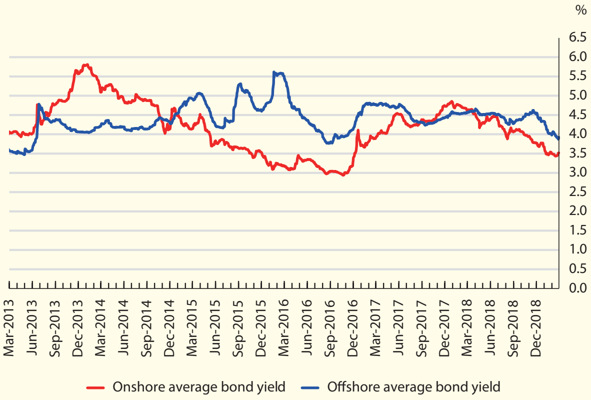
Sources: Newswires and HKMA staff estimates.

Chart 4.23
Outstanding amount of offshore renminbi debt securities and renminbi deposits in Hong Kong



Sources: Newswires and HKMA staff estimates.

Chart 4.24
Average yields of onshore vs. offshore renminbi bond indices



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

Looking ahead, despite expectations of a more gradual US monetary tightening, the near-term prospect for the local debt market remains challenging. In particular, in the wake of the US-China trade conflict and concerns about the global economic slowdown, corporates will be more cautious in launching new investment, thus dampening their incentives to issue Hong Kong dollar and offshore renminbi debt. However, a bright spot is emerging in the fast-growing green bond market. As an international financial centre and global renminbi business hub, Hong Kong is well-positioned to capitalise on the rising demand for green finance products, and serve as a financing platform for green projects on the Mainland and overseas. The supportive measures of the Government will also facilitate the development of this market segment.[36]

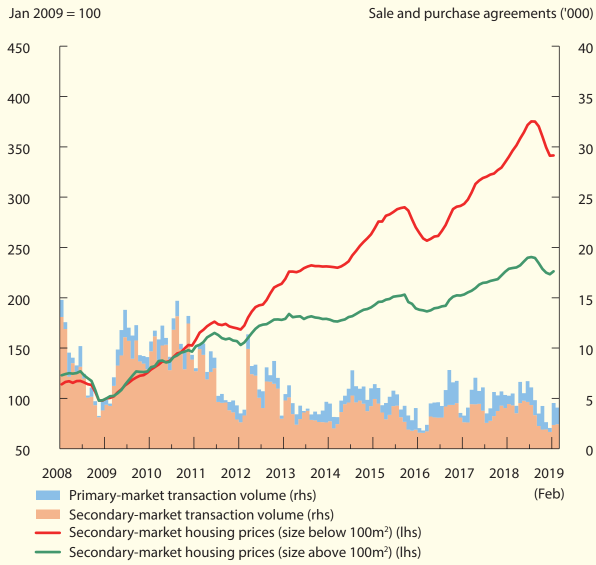
4.5 Property markets

Residential property market

The residential property market cooled down in the second half of 2018 amid the US-China trade tensions, stock market corrections, the rise in local Best Lending Rates and weakening domestic economic activities. Compared with the first half, average monthly housing transactions fell by more than 30% to 3,892 units (Chart 4.25). Housing prices also declined by 9.0% from the peak in July through December. In particular, the price of small and medium-sized flats (with a saleable area of less than 100m²) decreased at a faster pace than that of large flats (with a saleable area of at least 100m²). For 2018 as a whole, overall flat prices increased by just 1.8%, the slowest growth since 2009.

In early 2019, secondary-market housing prices stabilised somewhat, and overall market transactions picked up in part because more property developers introduced new launches with even more attractive pricing to lure buyers.

Chart 4.25
Residential property prices and transaction volume

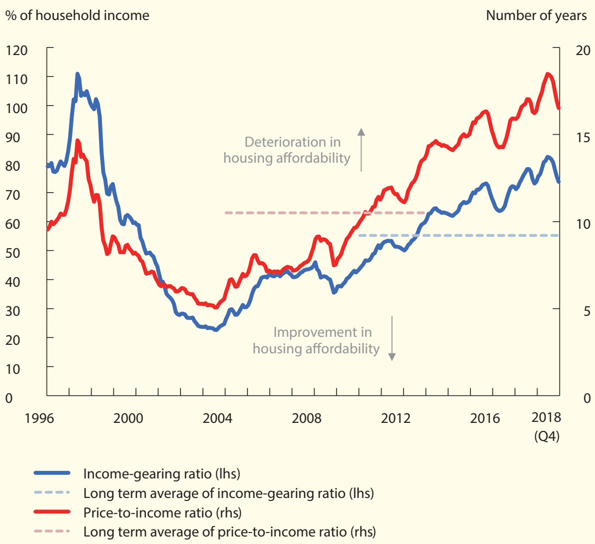


Sources: Rating and Valuation Department (R&VD) and Land Registry.

[36] For more details, see Section 4.4 of *HKMA Half Yearly Monetary and Financial Stability Report* (September 2018).

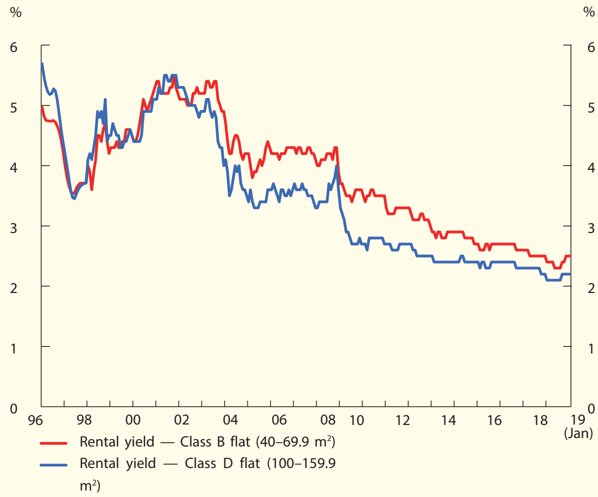
Housing affordability remained stretched despite the recent declines in housing prices. The house price-to-income ratio stayed high at 17.0 in the fourth quarter of 2018 compared with the 1997 peak of 14.7, while the income-gearing ratio was 75.7%, still much higher than the long-term average (Chart 4.26).[37] Mainly reflecting the decline in flat prices, the residential rental yields for both small and large flats picked up in recent months (Chart 4.27). As a result, the buy-rent gap, a measure of relative costs between buying and renting a typical housing unit[38], narrowed in the second half of 2018, but was still at a high level of 180.9% in the fourth quarter.

Chart 4.26
Indicators of housing affordability



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

Chart 4.27
Rental yields



Source: R&VD.

Although the residential property market saw some downward pressure, the eight rounds of macroprudential measures implemented by the HKMA over the past several years have helped strengthen the risk management of banks and the resilience of the banking sector to cope with housing price adjustments. In particular, the average LTV ratio for newly approved mortgages declined to 46% in January 2019 from 64% before the measures were first introduced in 2009. And, the DSR also decreased to 35.1%.

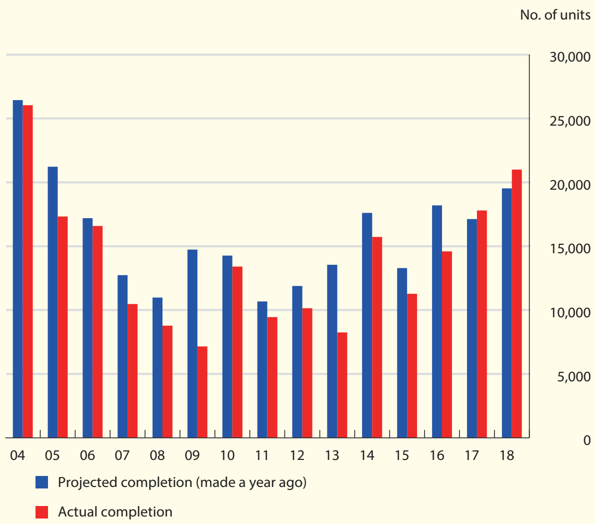
A host of external and domestic factors make the outlook for the housing market uncertain. On the external front, the uncertainty over the US-China trade tensions will continue to cloud Hong Kong's property market outlook, possibly through changes in market sentiment, economic prospects and financial conditions. On the domestic front, economic growth is softening, but employment conditions and income growth have remained largely stable which could provide some support for property demand. The trajectory for domestic interest rates partly hinges on the future path of the US policy rate, which in itself is uncertain. Over the longer term, the supply-demand gap is expected to narrow given increased flat completions during the past few years (Chart 4.28) and the

[37] 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 (DSR), which is subject to a maximum cap by the HKMA's prudential measures.

[38] 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.

Government's effort to increase land and housing supply.

Chart 4.28
Projected and actual private flat completion

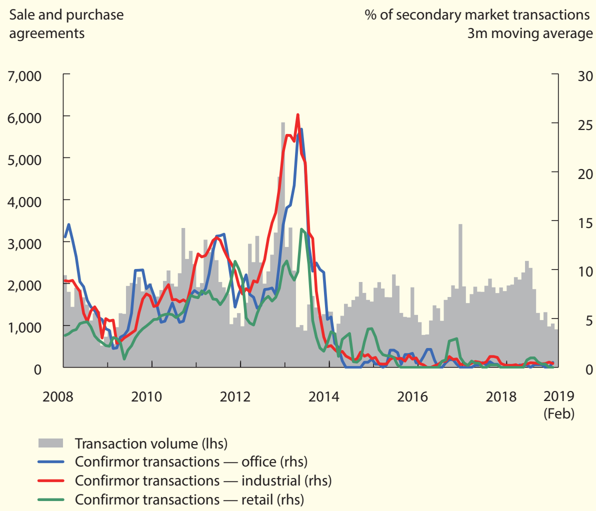


Sources: Transport and Housing Bureau and R&VD.

Non-residential property market

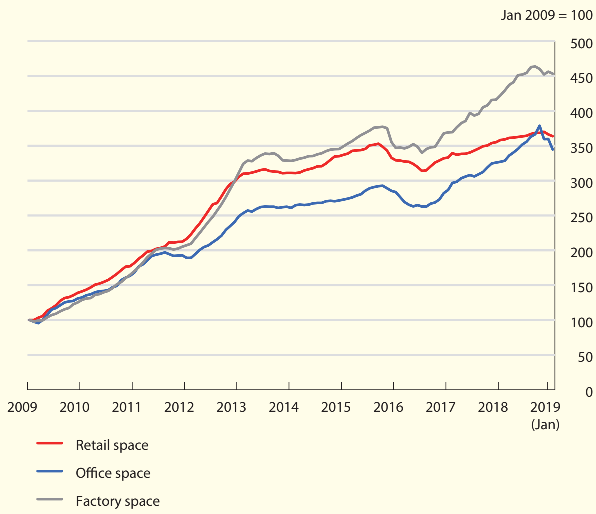
The non-residential property market also softened in the second half of 2018 as business prospects weakened. Transaction volume dropped to a monthly average of 1,495 units, and speculative activities remained inactive as indicated by low confirmor transactions (Chart 4.29). The price growth of office space, retail premises and flatted factories turned negative near the end of 2018 (Chart 4.30), and the leasing market also showed signs of moderation. Overall rental yields across segments continued to stay at a low range of 2.3–2.7% in January 2019.

Chart 4.29
Transactions in non-residential properties



Sources: Land Registry and Centaline Property Agency Limited.

Chart 4.30
Non-residential property price indices



Source: R&VD.

In the near term, the non-residential property market may face headwinds from the lingering trade protectionism, weakening global economic expansion and potential financial market volatility. In addition, the outlook for retail premises will also depend on business prospects in the sector. In that regard, a boost to inbound tourism arising from the new cross-border infrastructure projects could provide some support to the rental and capital values of retail space, even though they may face headwinds from softening local economic growth.

5. Banking sector performance

The profitability of retail banks continued to improve in the second half of 2018 compared with the same period in 2017 mainly due to higher net interest income. Capital and liquidity conditions remained sound and robust. Reflecting upward pressure on Hong Kong dollar interbank interest rates and retail deposit rates amid US interest rate normalisation, the overall Hong Kong funding costs for retail banks increased notably, albeit remaining relatively low. Against the uncertain external environment, bank credit contracted moderately in the second half. Nevertheless, there were signs of stabilisation in loan growth since November and asset quality remained healthy by historical standards. Looking ahead, the Hong Kong banking sector will face multiple headwinds arising from the lingering uncertainty over US-China trade relations, global economic slowdown, uncertainty over the pace of US tightening cycle, and geopolitical risks. With the rising corporate leverage, banks should remain alert to the credit risk of their corporate exposure to any further deterioration in the external environment.

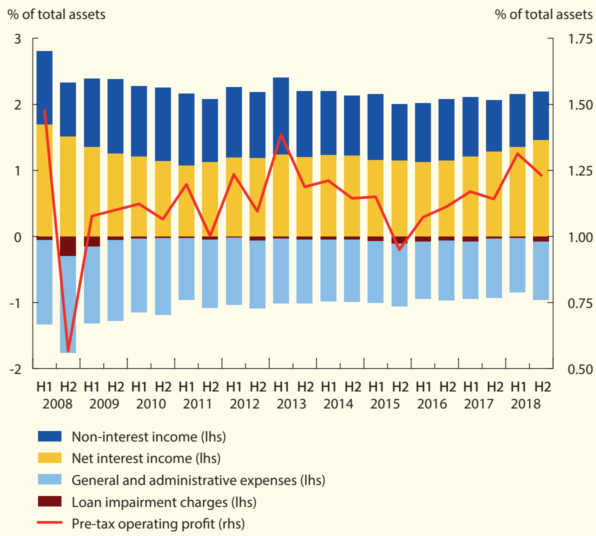
5.1 Profitability and capitalisation

Profitability

The aggregate pre-tax operating profit of retail banks[39] rose by 14.3% in the second half of 2018 compared with the same period in 2017, while the return on assets also rose to 1.23% from 1.14% (Chart 5.1). The strong performance was mainly due to a significant growth in net interest income, which more than offset increases in impairment charges and operating expenses.

For 2018 as a whole, the aggregate pre-tax operating profit of retail banks increased by 19.4%, with the return on assets rising to 1.27% from 1.16% in 2017.

Chart 5.1
Profitability of retail banks

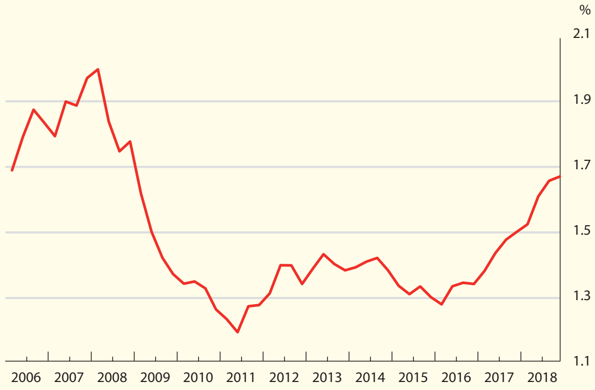


Note: Semi-annually annualised figures.
Source: HKMA.

The net interest margin (NIM) of retail banks widened further to 1.67% in the fourth quarter compared with 1.5% for the same period last year (Chart 5.2).

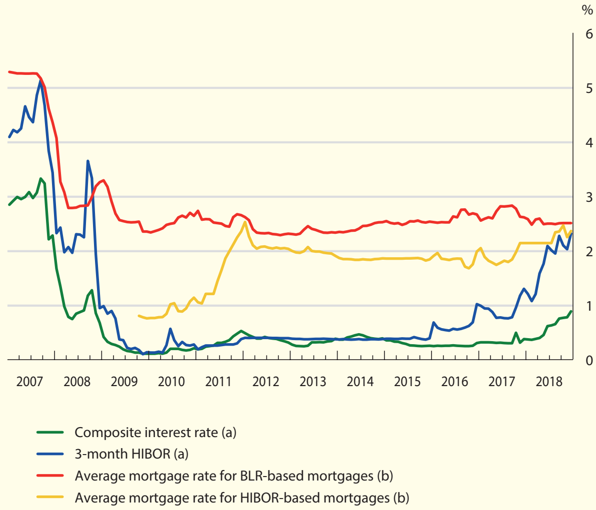
[39] Throughout this chapter, figures for the banking sector relate to Hong Kong offices only unless otherwise stated.

Chart 5.2
NIM of retail banks



Note: Quarterly annualised figures.
Source: HKMA.

Chart 5.3
Interest rates



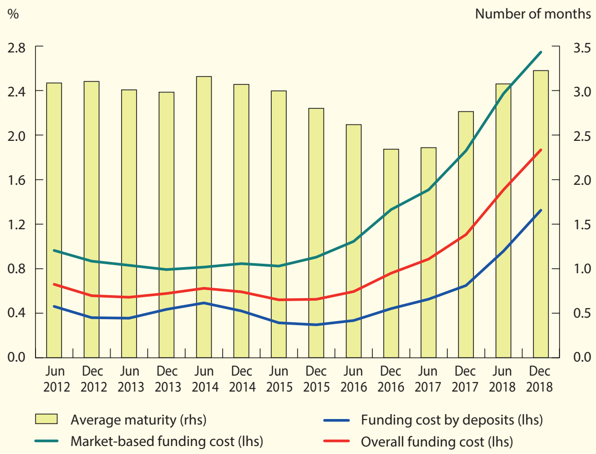
Notes:
(a) End of period figures.
(b) Period-average figures for newly approved loans.
Sources: HKMA and staff estimates.

Largely reflecting further US interest rate rises and declines in Hong Kong dollar interbank liquidity following the triggering of the weak-side Convertibility Undertaking (CU) in August 2018,[40] interbank funding costs in Hong Kong continued to experience upward pressure in the second half of 2018. In particular, the three-month Hong Kong Interbank Offered Rate (HIBOR) rose by 23 basis points in the second half (Chart 5.3).

Hong Kong dollar retail deposit rates also increased in the review period, as banks have generally lifted their time-deposit rates to compete for long-term stable funding.[41] In addition, banks have raised their savings deposit rates in line with the corresponding rise in their best-lending rates (BLR) following the US interest rate hike in late-September. Reflecting both higher wholesale and retail funding costs, the composite interest rate (a measure of the average cost of Hong Kong dollar funds for retail banks), increased to 0.89% in December 2018 from 0.62% in June, albeit remaining relatively low by historical standards.

More broadly, the aggregate Hong Kong dollar and US dollar funding cost for licensed banks in Hong Kong continued to trend upwards. The banks' average overall Hong Kong dollar and US dollar funding cost increased by 36 basis points in the second half of 2018, compared with a 40-basis-point increase in the first half (the red line in Chart 5.4).

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



Source: HKMA.

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40 The weak-side CU was triggered in mid- and late-August, with total accumulative capital outflows of HK$33.1 billion.

41 However, anecdotal evidence suggests that some banks have adjusted the time-deposit rates downward since mid-January in view of weaker credit growth and lower demand for long-term deposits.

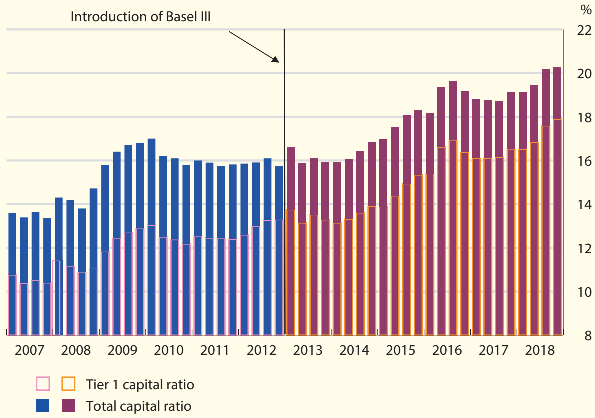
With HIBORs seeing a larger cumulative rise than the overall funding cost of banks in Hong Kong, this may represent a positive development for retail banks' HIBOR-based mortgage lending, which has been actively promoted in the past few years. However, the improvement in NIM may become more limited, as a larger portion of HIBOR-based mortgage loans have reached their BLR-based cap rates. As the timing of a future rise in BLR remains uncertain, the continued upward trend in banks' funding costs amid US interest rate normalisation could potentially weigh on the overall NIM.

The outlook for banks' profitability may be clouded by heightened uncertainties in the external environment. The lingering uncertainty over US-China trade relations coupled with slowing global economic growth could dampen business confidence and reduce demand for bank credit. Should this lead to a notable decline in lending and worsening asset quality, it could significantly weigh on banks' profitability.

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) rose further to 20.3% at the end of 2018 (Chart 5.5). The Tier 1 capital ratio also increased to 17.9%, with 16.0% being contributed by Common Equity Tier 1 (CET1) capital.

Chart 5.5
Capitalisation of locally incorporated AIs



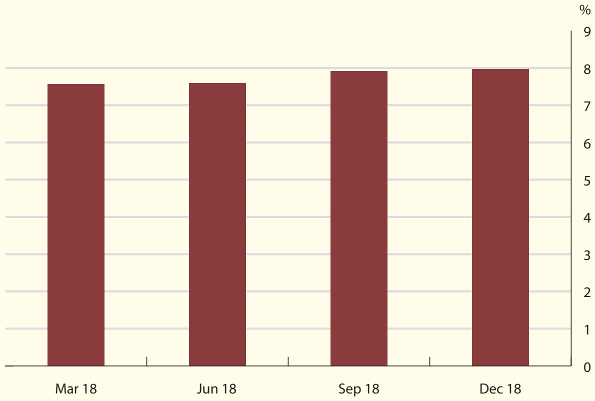
Notes:
1. Consolidated basis.
2. With effect from 1 January 2013, a revised capital adequacy framework (under Basel III) was introduced for locally incorporated AIs. The capital ratios from March 2013 onwards are therefore not directly comparable with those up to December 2012.

Source: HKMA.

Alongside the risk-based capital adequacy ratio, Basel III introduced a non-risk-based Leverage Ratio (LR) requirement as a "back-stop" to restrict the build-up of excessive leverage in the banking sector.[42] The minimum LR requirement took effect from 2018 in Hong Kong and the LR of locally incorporated AIs stayed at a healthy level of 8.0% at the end of 2018, exceeding the 3% statutory minimum (Chart 5.6).

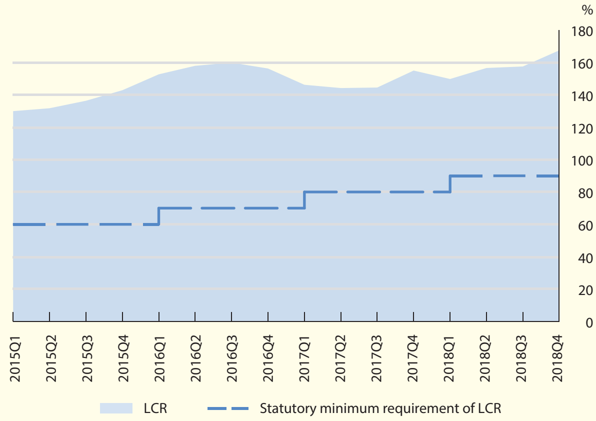
42 LR is calculated as the ratio of Tier 1 capital to an exposure measure, where the exposure measure includes both on-balance sheet and off-balance sheet exposures. Under the Basel III implementation timeline, the minimum LR requirement took effect from 2018, following a transitional period of 2013 to 2017 when banks were required to report their LR to supervisors for regulatory monitoring. 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

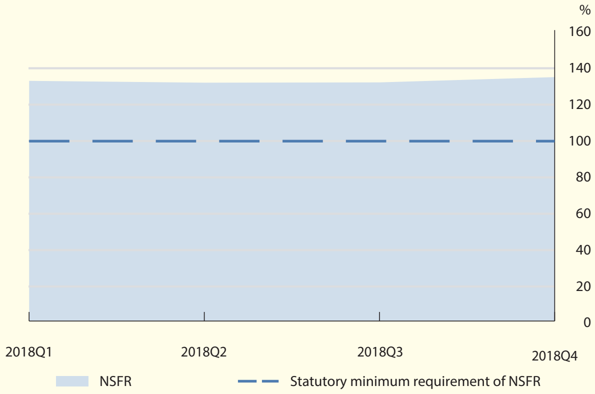
The liquidity positions of the banking sector, as measured by the Basel III Liquidity Coverage Ratio (LCR), remained sound during the review period. The average LCR of category 1 institutions rose to 167.6% in the fourth quarter of 2018, from 156.6% in the second quarter (Chart 5.7), well above the statutory minimum requirement of 90% applicable in 2018. The average Liquidity Maintenance Ratio (LMR) of category 2 institutions also saw an improvement to 54.3% in the fourth quarter from 51.3% in the second quarter, also well above the statutory minimum requirement of 25%.[43]

The Net Stable Funding Ratio (NSFR)[44], as a 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 135.6% in the fourth quarter of 2018 (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 134.3%, which also exceeded the statutory minimum requirement of 50% applicable in 2018. 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.

[43] The Basel III LCR requirement, phased-in from 1 January 2015, 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".

[44] 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 50% on average in each calendar month in 2018. The minimum CFR has risen to 75% since 1 January 2019. For details, see Banking (Liquidity) Rules (Cap. 155Q).

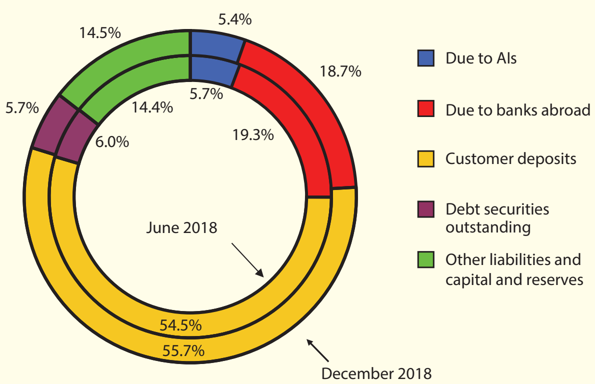
Chart 5.8
Net Stable Funding Ratio



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 2018, the share of customer deposits to all AIs' total liabilities increased slightly to 55.7% from 54.5% six months ago (Chart 5.9).

Chart 5.9
The liability structure of all AIs

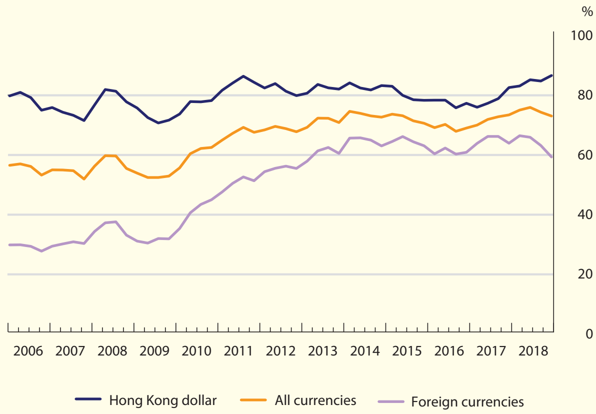


Notes:
1. Figures may not add up to total due to rounding.
2. Figures refer to the percentage of total liabilities (including capital and reserves).
3. Debt securities comprise negotiable certificates of deposit and all other negotiable debt instruments.

Source: HKMA.

As total loans and advances declined in the second half of 2018 while total deposits increased, the all-currency loan-to-deposit (LTD) ratio of all AIs dropped to 72.6% at the end of 2018 from 75.7% at the end of June (Chart 5.10). Similarly, the foreign currency LTD ratio of all AIs dropped to 58.3% from 65.2% during the same period. By contrast, the Hong Kong dollar LTD ratio increased slightly to 86.9% at the end of 2018 from 85.4% at the end of June, due to a much slower growth in Hong Kong dollar deposits than loans.

Chart 5.10
Average LTD ratios of all AIs



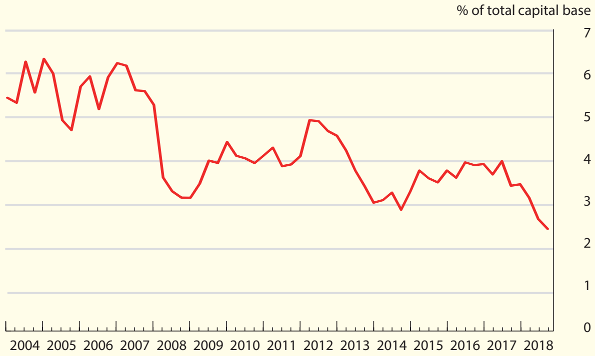
Note: Quarter-end figures.
Source: HKMA.

Interest rate risk

The interest rate risk exposure of locally incorporated licensed banks reduced slightly in the second half of 2018. It is estimated that under a hypothetical shock of an across-the-board 200-basis-point increase in interest rates, the economic value of locally incorporated licensed banks' interest rate positions could be subject to a decline equivalent to 2.44% of their total capital base at the end of 2018 (Chart 5.11).[45] Nevertheless, given the uncertainty surrounding the pace of further US interest rate rises, banks should pay close attention to their interest rate risk management.

[45] This estimation does not take into account the effects 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 an interest rate shock on locally incorporated licensed banks



Notes:

1. Interest rate shock refers to a standardised 200-basis-point parallel rate shock to institutions' interest rate risk exposure.
2. The impact of the interest rate shock refers to its impact on the economic value of the banking and trading book[46], expressed as a percentage of the total capital base of banks.

Source: HKMA.

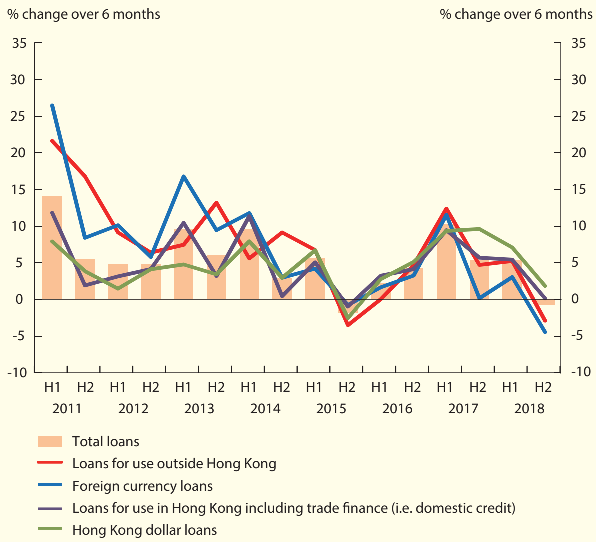
5.3 *Credit risk*

Overview

Against the backdrop of the lingering US-China trade tensions, tighter global financial conditions and weaker global economic growth, credit growth slowed notably in the second half of 2018. Nevertheless, there were signs of stabilisation in loan growth since November 2018.

On a half-yearly basis, total loans and advances of all AIs declined by 0.9% in the second half of 2018, after increasing by 5.3% in the first half (Chart 5.12). Such decline was driven by a slowdown in domestic loan growth (comprising loans for use in Hong Kong and trade financing) and a decline in loans for use outside Hong Kong. Growth in domestic loans decelerated to 0.1% while loans for use outside Hong Kong contracted by 3.0% in the second half, compared with 5.3% and 5.2% growth, respectively in the preceding six months. For 2018 as a whole, total loan growth slowed notably to 4.4% from 16.1% in 2017.

Chart 5.12
Loan growth



Source: HKMA.

The demand for credit is likely to remain weak in the near term. Results of the HKMA Opinion Survey on Credit Condition Outlook in December 2018 showed that 82% 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 rose to 18% (Table 5.A).

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

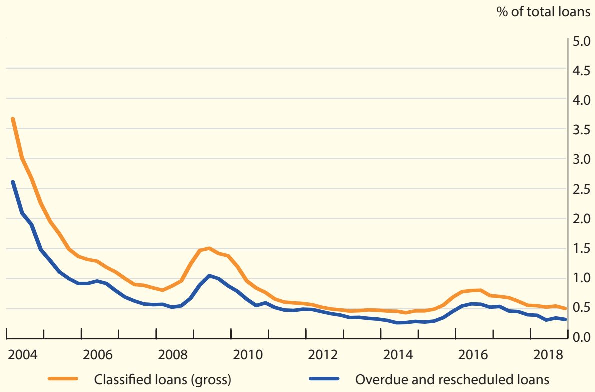
% of total respondents	Mar-18	Jun-18	Sep-18	Dec-18
Considerably higher	0	0	0	0
Somewhat higher	18	18	9	0
Same	82	82	77	82
Somewhat lower	0	0	14	18
Considerably lower	0	0	0	0
Total	100	100	100	100

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

[46] 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.

Despite a mild decline in total loans in the second half of 2018, the asset quality of banks' loan portfolios remained healthy. The gross classified loan ratio and the ratio of overdue and rescheduled loans of all AIs edged down to 0.55% and 0.36% at the end of December, respectively, compared with 0.61% and 0.40% at the end of June 2018. For retail banks, the gross classified loan ratio edged down to 0.50% while the ratio of overdue and rescheduled loans edged up to 0.32% (Chart 5.13). Both ratios remained at low levels 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[47]

Half yearly growth in household debt decelerated to 3.9% in the second half of 2018 from 5.3% in the first half. This was mainly driven by a slower growth in personal loans (which comprise credit card advances and loans for other private purposes), more than offsetting the faster growth in residential mortgage loans (Table 5.B).

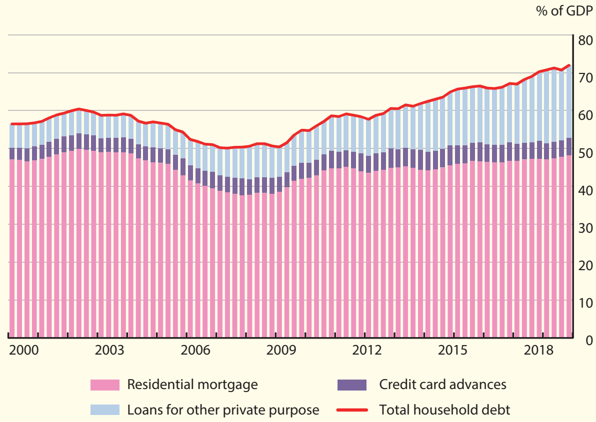
Table 5.B
Half-yearly growth of loans to households of all AIs

(%)	2015 H1	2015 H2	2016 H1	2016 H2	2017 H1	2017 H2	2018 H1	2018 H2
Residential mortgages	4.5	4.0	1.0	3.1	4.1	3.8	4.2	4.5
Personal loans	6.2	2.5	–0.5	7.2	7.2	12.4	7.5	2.6
of which:								
Credit card advances	–5.5	7.1	–5.7	8.7	–7.8	11.0	–5.0	10.6
Loans for other private purposes	10.5	1.1	1.2	6.8	11.9	12.7	10.7	0.9
Total loans to households	5.0	3.6	0.5	4.3	5.0	6.5	5.3	3.9

Source: HKMA.

With the nominal gross domestic product (GDP) in Hong Kong growing slower than household debt, the household debt-to-GDP ratio edged up to 71.9% in the fourth quarter of 2018 from 71.2% in the second quarter (Chart 5.14).

Chart 5.14
Household debt-to-GDP and its components



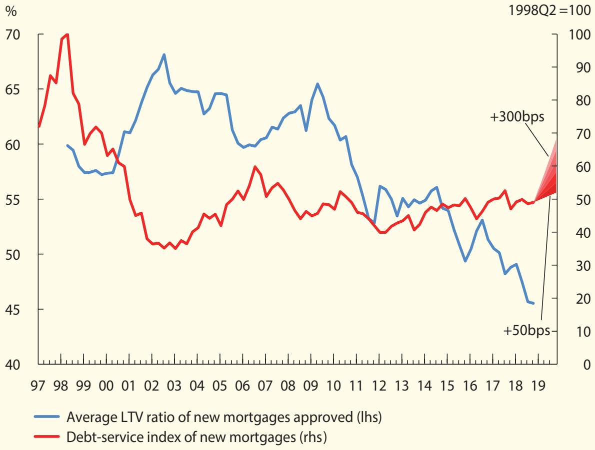
Notes:
1. Only borrowings from AIs are covered.
2. GDP refers to the annualised GDP, which is the sum of the quarterly GDP in the trailing four quarters.

Source: HKMA.

The credit risk of household loans stayed low during the review period. In particular, despite the recent decline in property prices, banks' mortgage portfolios remained healthy, with the delinquency ratio hovering at a low level of 0.02% at the end of 2018. The average loan-to-value (LTV) ratio of new mortgage loans approved declined further to 45.5% in the fourth quarter of 2018 from 47.5% six months earlier (Chart 5.15). This was 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.

[47] Loans to households constitute lending to professional and private individuals, excluding lending for other business purposes. Mortgage lending accounts for a major proportion of household loans, while the remainder comprises mainly unsecured lending through credit card lending and other personal loans for private purposes. At the end of 2018, the share of household lending in domestic lending was 29.8%.

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.

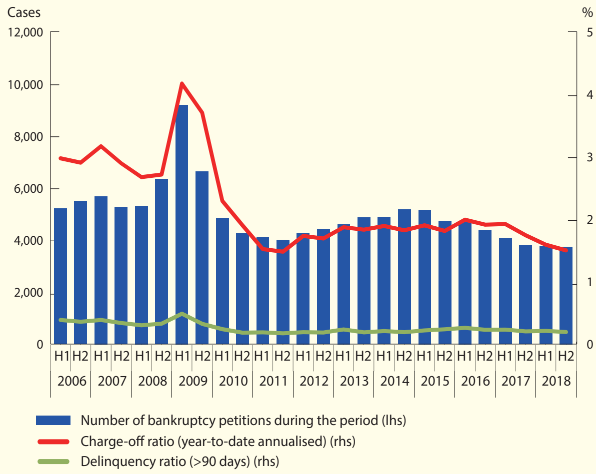
The debt-service index of new mortgages[48] hovered at a similar level of 49.0 in the fourth quarter of 2018 compared with 49.9 in the second quarter (the red line in Chart 5.15), suggesting the household repayment ability remained stable.

Given the uncertainty over the pace of US rate hikes, the outlook for domestic interest rates in the near term might become less clear. Nevertheless, if US interest rates rise faster than expected, domestic mortgage rates could increase sharply, and the debt-servicing burden of households could be under significant pressure. In particular, a sensitivity test suggests that the index could rise significantly to 68.2 in a four-quarter period if interest rates were to increase by 300 basis points[49], other things being constant.

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 down to 1.51% in the second half of 2018 and the delinquency ratio was largely unchanged at 0.21% at the end of 2018 (Chart 5.16). In addition, the number of bankruptcy petitions remained stable 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[50]

Domestic corporate loans (including trade finance) declined by 1.5% (on a half-yearly basis) at the end of 2018, in part due to the weaker credit demand amid the highly uncertain global environment. Analysed by economic sectors, there were almost broad-based declines in lending for major economic sectors, with trade financing being hardest hit, given the uncertainty arising from the US-China trade conflict (Chart 5.17).

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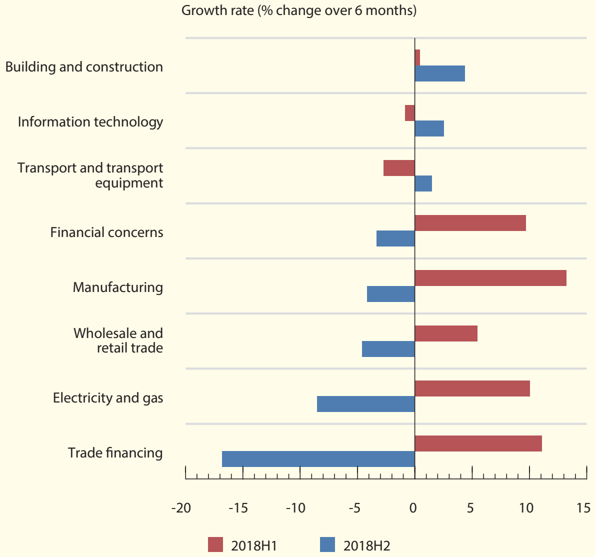
48 A higher value of the debt-service index indicates there is either a drop in household income, or an increase in interest rates, or an increase in the average mortgage loan amount drawn by households. Historical movements in the index suggest that a sharp rise in the index may lead to a deterioration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

49 The assumption of a 300-basis-point rise in interest rates is consistent with the prudential measure that requires AIs to have a three-percentage-point mortgage rate upward adjustment for stress testing property mortgage loan applicants' debt servicing ability.

50 Excluding interbank exposure. At the end of 2018, the share of corporate loans in domestic lending was 70.1%.

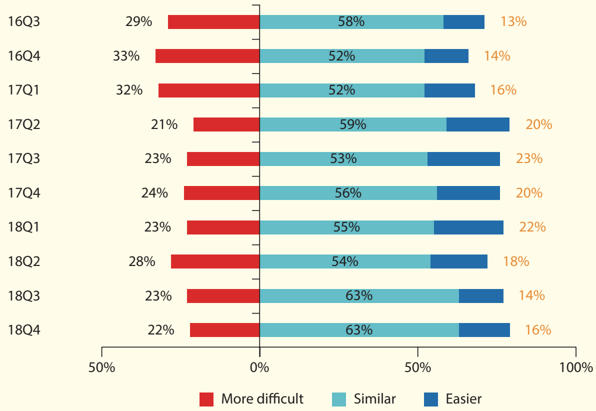
Chart 5.17
Growth in domestic corporate loans by selected sectors



Source: HKMA.

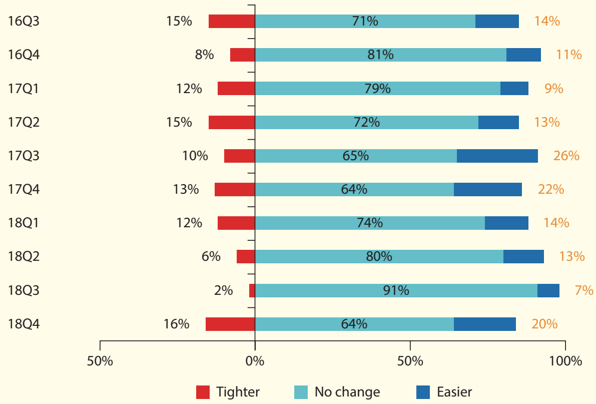
The decline in domestic corporate loans may raise concerns about the funding conditions for small and medium-sized enterprises (SMEs) in Hong Kong. In light of their importance to Hong Kong's economy and concerns about potential funding difficulties facing SMEs over the past few years, the HKMA has appointed the Hong Kong Productivity Council to conduct a survey of SMEs, starting from the third quarter of 2016. According to the survey on SMEs' Credit Conditions, the overall perception of banks' credit approval stance remained largely stable (Chart 5.18), although respondents with existing credit lines reported a tighter stance by banks in the fourth quarter of 2018 (Chart 5.19).[51] While this could partly reflect the impact of trade tensions on SMEs' business conditions, it might also reflect a modest increase in lending rates in the fourth quarter and a tightening of terms and conditions. At the same time, 95 SMEs (or 4% of respondents) reported they had applied for new credit in the fourth quarter. Excluding the "in progress" credit applications, only 6% of applicants reported they were unsuccessful, the same as the response in the third quarter (Chart 5.20).[52]

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

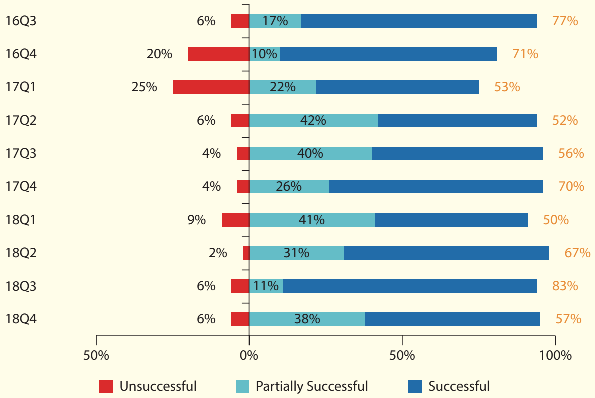


Note: Only covers respondents with existing credit lines.
Source: HKMA.

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

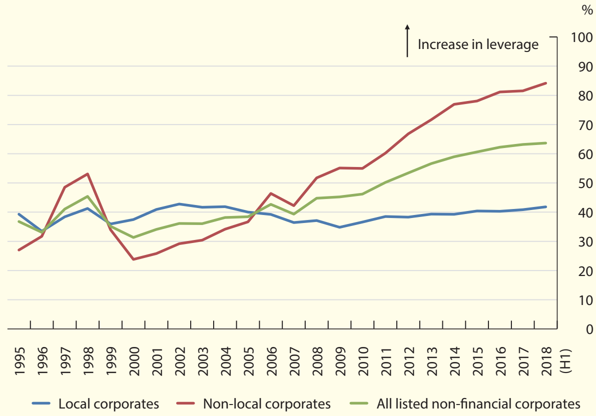
52 It should be noted that owing to a small sample size, the results of new credit applications from SMEs could be prone to large fluctuations, and the results should be interpreted cautiously.

Chart 5.20
Results of SMEs' new bank credit applications



Note: Only covers respondents who applied for new credit during the quarter, excluding the "in progress" credit applications.
Source: HKMA.

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



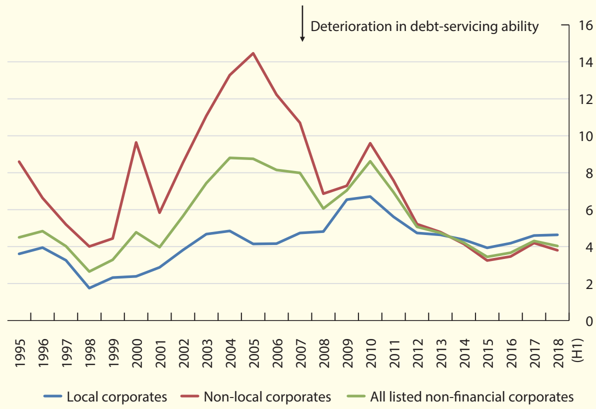
Notes:
1. Weighted average figures.
2. The leverage ratio is defined as the ratio of debt to equity. A higher value indicates higher leverage.
3. All non-financial corporates listed on the Hong Kong Stock Exchange are selected. Local and non-local corporates refer to listed firms that are domiciled in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

Source: HKMA staff estimates based on data from Bloomberg.

There were tentative signs of a weakening in financial conditions for the corporate sector during the review period. Based on accounting data for non-financial corporates listed in Hong Kong, the weighted average debt-to-equity ratio, as a measure of corporate leverage, edged up to 64% in the first half of 2018 from 63% in 2017 (the green line in Chart 5.21). The rise in corporate leverage was largely driven by non-local corporates (the red line), while the leverage for local corporates remained broadly stable at low levels.

In terms of debt-servicing ability, as measured by the interest coverage ratio (ICR) (Chart 5.22), non-local corporates also saw a deterioration in the ratio, which was due to lower earnings and higher interest expense. By contrast, the ICR of local corporates improved slightly during the same period.

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-Feb 2019.

Source: HKMA staff estimates based on data from Bloomberg.

It should be noted that due to the time lag for the availability of accounting data, the negative impacts of the lingering uncertainty over US-China trade relations, tightening global financial conditions and slower global economic growth may not have been fully reflected in the corporates' fundamentals and thus default risk. Banks should therefore stay alert to the credit risk of their corporate exposure.

Looking ahead, if the global economic environment deteriorates further, non-local corporates' earnings could be adversely affected, putting their debt-servicing ability to the test. The credit risk of local corporates may also be affected by the unfavourable environment. Therefore, banks should assess the potential impact on the asset quality of their corporate exposure in the event of a possible deterioration in the external economic environment.

Mainland-related lending and non-bank exposures

Largely reflecting weaker corporate credit demand amid slowing global economic growth, the banking sector's total Mainland-related lending began to decline. At the end of December 2018, total Mainland-related lending decreased by 3.8% to HK$4,249 billion (16.1% of total assets), from HK$4,414 billion (16.9% of total assets) at the end of June (Table 5.C). Trade finance loans, which were more affected by the trade dispute, had declined by 24.7% at the end of December 2018 compared with six months earlier. Other non-bank exposures increased by 4.73% to HK$1,396 billion (Table 5.D).

Table 5.C
Mainland-related lending

HK$bn	Mar 2018	Jun 2018	Sep 2018	Dec 2018
Mainland-related loans	4,409	4,414	4,321	4,249
Mainland-related loans excluding trade finance	4,068	4,064	4,010	3,985
Trade finance	341	351	311	264
By type of AIs:				
Overseas incorporated AIs	1,943	1,937	1,860	1,799
Locally incorporated AIs*	1,768	1,819	1,832	1,827
Mainland banking subsidiaries of locally incorporated AIs	699	658	629	622
By type of borrowers:				
Mainland state-owned entities	1,799	1,818	1,734	1,689
Mainland private entities	1,123	1,141	1,211	1,203
Non-Mainland entities	1,486	1,456	1,376	1,356

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	Mar 2018	Jun 2018	Sep 2018	Dec 2018
Negotiable debt instruments and other on-balance sheet exposures	950	916	956	977
Off-balance sheet exposures	415	417	430	420
Total	**1,365**	**1,333**	**1,386**	**1,396**

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[53] decreased to 0.54% at the end of December 2018 from 0.62% at the end of June. The ratio remained low compared with the recent high of 0.89% in March 2016, indicating the sound asset quality of banks' Mainland-related lending.

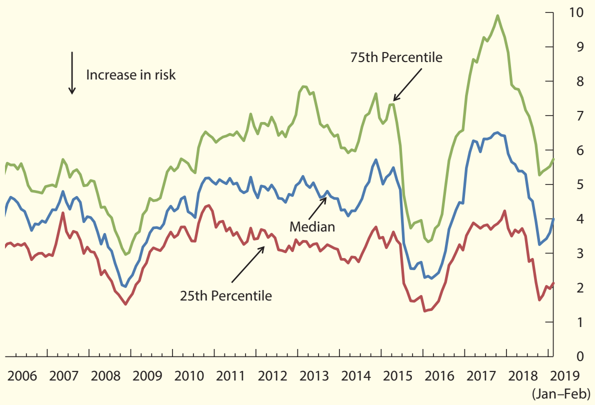
However, the volatile Mainland stock markets may signal a higher credit risk of Mainland corporates during the review period. The distance-to-default (DTD) index[54], a market-based default risk indicator, points to a broad-based increase in the credit risk of the Mainland corporate sector since April 2018 (Chart 5.23). The increase in default risk for the Mainland corporate sector, however, was largely driven by heightened financial market volatility, rather than an abrupt deterioration in the financial health of the corporate sector. In fact, the DTD index showed signs of improvement in late-2018 and early 2019 amid liquidity loosening measures by Mainland authorities.[55]

[53] Figures cover AIs' Hong Kong offices and Mainland branches and subsidiaries.

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

[55] These measures include several rounds of targeted required reserve ratio cuts in the second half of 2018 and January 2019. For details, refer to section 2.2 of the Report.

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.

To broaden our understanding of the credit risk of Mainland-related lending by banks in Hong Kong, Box 4 (see page 73) provides a macro assessment of the credit risk for Mainland corporates, based on Hong Kong-listed non-financial Mainland corporates that have borrowed syndicated loans from banks in Hong Kong. By assessing a broader set of key financial characteristics of these corporates, the findings suggest that the Hong Kong banking sector, at least for the syndicated loan portfolio, is less exposed to riskier Mainland corporates.

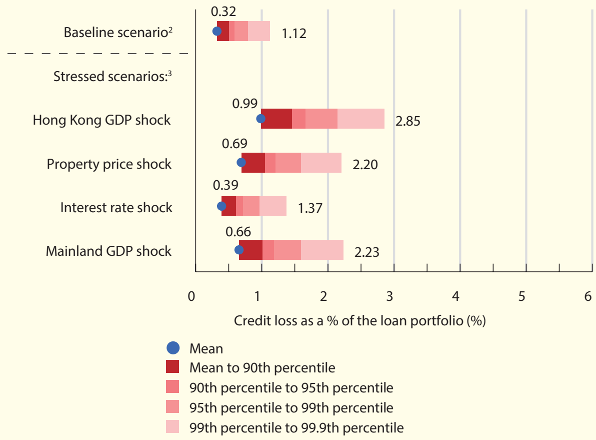
Nevertheless, in view of concerns over a possible further slowdown in the Mainland economy, banks should be attentive to the credit risk management of their Mainland-related exposure.

Macro stress testing of credit risk[56]

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 fourth quarter of 2020 under four specific macroeconomic shocks[57] using information up to the fourth quarter of 2018.

Taking account of tail risk, banks' credit losses (at the confidence level of 99.9%) under the stress scenarios range from 1.37% (Interest rate shock) to 2.85% (Hong Kong GDP shock), which are significant, but smaller than the 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 2018 Q4 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 Q1 to 2019 Q4.

   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 Q1 to 2019 Q4.

   Interest rate shock: A rise in real interest rates (HIBORs) by 300 basis points in the first quarter (i.e. 2019 Q1), followed by no change in the second and third quarters and another rise of 300 basis points in the fourth quarter (i.e. 2019 Q4).

   Mainland GDP shock: Slowdown in the year-on-year annual real GDP growth rate to 4% in one year.

Source: HKMA staff estimates.

56 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.

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

5.4 Systemic risk

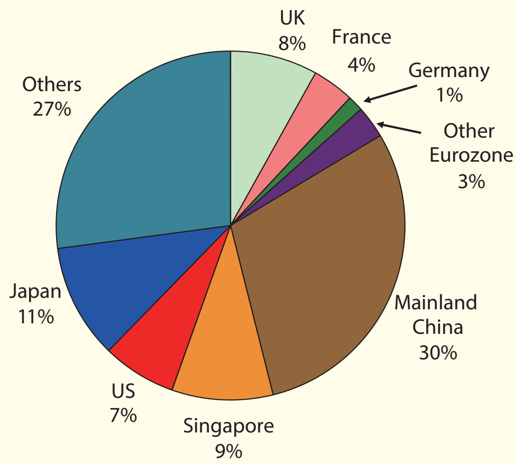
The global economic outlook continued to be clouded by the lingering uncertainty over the US-China trade relations, the uncertainty over the pace of US tightening cycle, and geopolitical risks. Should these uncertainties intensify and persist into the medium to long term, they could pose challenges for banks in Hong Kong on various fronts.

First, despite the continuing negotiations between the US and Mainland China on trade issues, the outcome remains highly uncertain. If the conflict continues unresolved or intensifies, it would adversely affect business confidence and corporate fundamentals, particularly those with significant exposure in the two economies. This, coupled with the slowing global economic environment, could put pressure on banks' credit risk management in view of the rising leverage of corporates.

Secondly, the pace of the US interest rate rise continues to be a key factor affecting the systemic risk to the Hong Kong banking sector. Given the increased emphasis on data dependency by the Federal Reserve in its future rate hike decisions, the pace and timing of future rises will likely be less predictable because of the highly uncertain global economic environment. As such, any sudden change in the trajectory of the pace of US interest rate rise could result in an abrupt repricing of interest rate expectations which, in turn, could heighten the volatility of domestic interest rates.

Thirdly, across the Atlantic, geopolitical risks related to Brexit also merit close monitoring. Although the government of the United Kingdom (UK) may request an extension to Article 50, the outcome remains highly uncertain. If a "hard" Brexit occurs and leads to 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 material direct exposure of the Hong Kong banking sector to banks in the UK and the broader euro area (Chart 5.25).

Chart 5.25
External claims of the Hong Kong banking sector on banks in selected economies at the end of 2018



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

Nevertheless, there was no major deterioration in interbank funding conditions 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[58], a common indicator of systemic liquidity risks in the short-term dollar funding market, widened to around 40 basis points at the end of 2018, but narrowed to around 22 basis points at the end of February 2019, which was low by historical standards (Chart 5.26).

[58] 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.

Chart 5.26
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.[59]

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 credit-to-GDP and property price-to-rent gaps[60]). Based on the information up to the latest decision date, the credit-to-GDP gap and the property price-to-rent gap narrowed to 9.8% and 10.0%, respectively. Despite a recent narrowing of the two gaps, they remained at elevated levels.

A simple mapping of the two indicators from the indicative buffer guide signals a CCyB rate of 2.5%, which is the current CCyB ratio. The signal from the indicative buffer guide was, in the view of the Monetary Authority, consistent with the information drawn from other reference indicators.[61]

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

	10-Jan-18	Q2-2018	Q4-2018
Announced CCyB rate	2.5%		
Date effective	01/01/2019		
Indicative buffer guide	2.4%	2.5%	2.5%
Basel Common Reference Guide	2.5%	2.5%	2.5%
Property Buffer Guide	2.0%	2.5%	2.5%
Composite CCyB Guide	2.4%	2.5%	2.5%
Indicative CCyB Ceiling	None	None	None
Primary gap indicators			
Credit/GDP gap	19.3%	15.8%	9.8%
Property price/rent gap	8.3%	12.0%	10.0%
Primary stress indicators			
3-month HIBOR spread* (percentage points)	0.06%	0.60%	0.42%
Quarterly change in classified loan ratio (percentage points)	−0.06%	0.01%	0.01%

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.

59 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 reaches 2.5% on 1 January 2019.

60 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.

61 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] (%)

	Dec 2017	Sep 2018	Dec 2018
Interest rates			
1-month HIBOR fixing[2] (quarterly average)	0.84	1.68	1.63
3-month HIBOR fixing (quarterly average)	1.04	2.00	2.16
BLR[3] and 1-month HIBOR fixing spread (quarterly average)	4.16	3.32	3.50
BLR and 3-month HIBOR fixing spread (quarterly average)	3.96	3.00	2.97
Composite interest rate[4]	0.38	0.76	0.89
		All AIs	
Balance sheet developments[5]			
Total deposits	2.0	1.1	2.1
Hong Kong dollar	–0.1	0.7	–0.7
Foreign currency	4.3	1.6	5.2
Total loans	2.9	–1.1	0.3
Domestic lending[6]	2.8	–1.2	1.3
Loans for use outside Hong Kong[7]	3.2	–0.9	–2.1
Negotiable instruments			
Negotiable certificates of deposit (NCDs) issued	3.3	–1.1	–6.2
Negotiable debt instruments held (excluding NCDs)	3.0	–1.5	4.2
Asset quality			
As a percentage of total loans[8]			
Pass loans	98.00	98.09	98.16
Special mention loans	1.33	1.31	1.29
Classified loans[9] (gross)	0.68	0.60	0.55
Classified loans (net)[10]	0.36	0.32	0.25
Overdue > 3 months and rescheduled loans	0.52	0.38	0.36
Classified loan ratio (gross) of Mainland related lending[11]	0.67	0.64	0.54
Liquidity ratios (consolidated)			
Liquidity Coverage Ratio — applicable to category 1 institutions (quarterly average)	155.0	157.6	167.6
Liquidity Maintenance Ratio — applicable to category 2 institutions (quarterly average)	49.4	52.0	54.3
Net Stable Funding Ratio — applicable to category 1 institutions	n.a.	132.6	135.6
Core Funding Ratio — applicable to category 2A institutions	n.a.	130.4	134.3
		Retail banks	
Profitability			
Loan impairment charges as a percentage of average total assets (year-to-date annualised)	0.06	0.03	0.05
Net interest margin (year-to-date annualised)	1.45	1.60	1.62
Cost-to-income ratio (year-to-date)	41.9	37.9	38.7
		Surveyed institutions	
Asset quality			
Delinquency ratio of residential mortgage loans	0.03	0.02	0.02
Credit card lending			
Delinquency ratio	0.22	0.21	0.21
Charge-off ratio — quarterly annualised	1.64	1.64	1.53
— year-to-date annualised	1.75	1.59	1.51
		All locally incorporated AIs	
Capital adequacy (consolidated)			
Common Equity Tier 1 capital ratio	15.3	15.8	16.0
Tier 1 capital ratio	16.5	17.6	17.9
Total capital ratio	19.1	20.2	20.3
Leverage ratio	n.a.	7.9	8.0

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. Quarterly change.
6. Loans for use in Hong Kong plus trade finance.
7. Including "others" (i.e. unallocated).
8. Figures are related to all AIs' Hong Kong offices, as well as locally incorporated AIs' overseas branches and major overseas subsidiaries.
9. Classified loans are those loans graded as "substandard", "doubtful" or "loss".
10. Net of specific provisions/individual impairment allowances.
11. Figures are related to all AIs' Hong Kong offices, as well as locally incorporated AIs' Mainland branches and subsidiaries.

Box 4
Assessing the credit risk of Mainland corporates: Evidence from Hong Kong banks' syndicated loans

Introduction

In recent years, the Hong Kong banking sector has become increasingly active in Mainland-related lending. As a result, assessing the credit risk of Mainland corporate borrowers has become an important part of financial stability analysis for Hong Kong. This box provides a macro assessment of the credit risk for Mainland corporates, based on 164 non-financial Mainland corporates listed in Hong Kong. We focus on this group because they are syndicated loan borrowers of banks in Hong Kong, as revealed by publicly available information.[62] Examining their financial characteristics will broaden our understanding of the credit risk of Mainland-related lending by banks in Hong Kong.

From the outset, it is important to state that the assessments are subject to two limitations. The most obvious is the identification of Mainland borrowers of banks in Hong Kong which is far from perfect, as the samples of "syndicated loan borrowers" are only part of the complete list. Secondly, the assessment can only provide macro-level implications, but less indicative at the individual bank level since the Mainland-related loan portfolio of each individual bank could be significantly different from the samples used in this analysis.

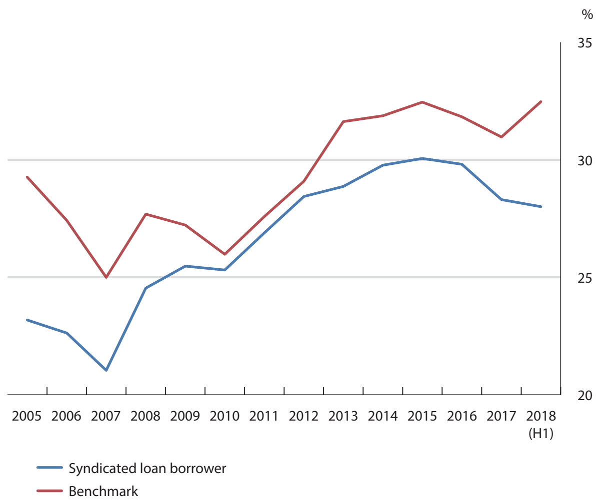
We start the analysis by assessing some common credit risk indicators for the syndicated loan borrowers. The assessment result will be compared with the corresponding market averages derived based on financial information of other Mainland non-financial corporates listed in Hong Kong (henceforth referred to as the benchmark). By doing so, we can have a broad sense of whether the Hong Kong banking sector is less or more exposed to riskier Mainland corporates in the syndicated loan market, compared with the benchmark.

Analysis of key financial ratios

a. Leverage

Chart B4.1 presents the average leverage ratio (defined as average debt-to-asset ratios of corporates weighted by asset size) for the two groups of Mainland corporates. While both groups exhibited a rising trend in leverage after the global financial crisis, the syndicated loan borrowers, on average, recorded a much lower level of leverage than the benchmark and showed clear signs of deleveraging since 2016.

Chart B4.1: Average debt-to-asset ratio



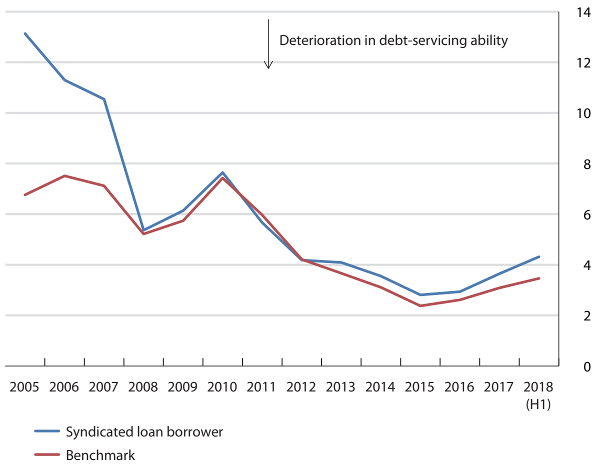
Source: Bloomberg.

[62] The procedure for sample selection is as follows: (1) we first identify a set of Mainland non-financial corporates (by country of risk or domicile) that have borrowed from banks in Hong Kong at least once in the syndicated loan market. (2) For those borrowers that are not publicly listed in Hong Kong, we use their parent companies that are listed in Hong Kong in our analysis. (3) If neither the immediate borrowers nor their parent companies are listed in Hong Kong, we drop them from the analysis.

b. Debt-servicing ability

Chart B4.2 presents the average interest coverage ratio (ICR, defined as earnings before interest and taxes divided by interest expense), a common indicator of debt-servicing ability. Consistent with the increasing trend in leverage after the global financial crisis, there was a general deterioration in the ICR for Mainland corporates. Nevertheless, the ICR bottomed out in 2015, with more notable improvement for the syndicated loan borrowers.

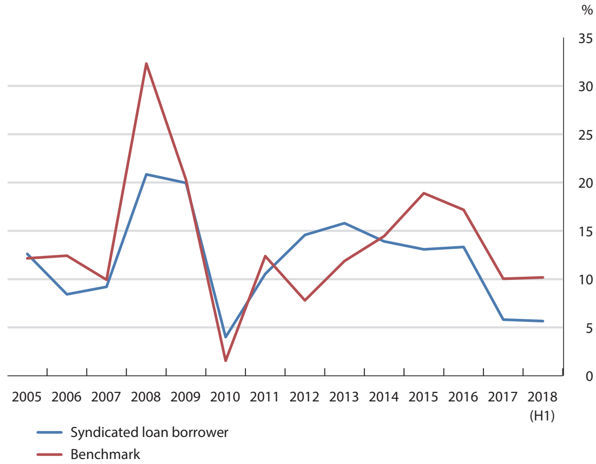
Chart B4.2: Average interest coverage ratio



Source: Bloomberg.

The debt-at-risk (DaR) ratio, which essentially measures the share of debt of those corporates with insufficient earnings to cover interest expenses (i.e. corporates with ICR lower than 1) to total debt of corporates, also improved significantly in recent years for Mainland corporates. While the benchmark ratio dropped almost by half from the recent peak of 19% in 2015 to 10% in the first half of 2018 (Chart B4.3), the ratio for syndicated loan borrowers dropped to an even lower level to 6% from 13%.

Chart B4.3: Debt-at-risk ratio

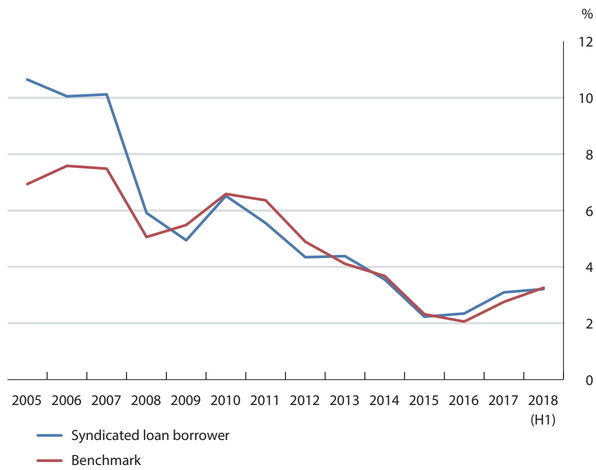


Source: Bloomberg.

c. Profitability

Mainland corporates also saw a recovery in profitability in recent years. In particular, their returns on average assets (ROA) continued to improve since 2016 (Chart B4.4). Although their ROAs remained below the long-term average, the improved profitability can strengthen their buffers against shocks.

Chart B4.4: Return on average assets

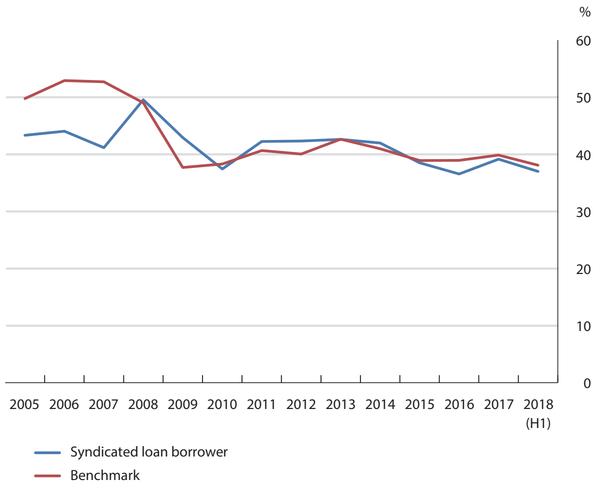


Source: Bloomberg.

d. Short-term financing risk

It is argued that many Mainland corporates may have relied excessively on short-term debt, making them more susceptible to refinancing risks as the liquidity conditions tighten. However, the average share of short-term borrowings to total borrowings (Chart B4.5), shows that the reliance on short-term debt is not particularly alarming. Indeed, the ratio has declined slightly in recent years for both groups of Mainland corporates.

Chart B4.5: Share of short-term borrowing to total borrowing



Source: Bloomberg.

Empirical assessment of Mainland corporates' credit risk

The assessment so far shows that Mainland corporates listed in Hong Kong experienced a broad-based improvement in credit risk indicators in recent years, although the improvement for some indicators was relatively mild. In addition, by comparing the credit risk indicators between the two groups of Mainland corporates, a key observation is that the average credit risk of the syndicated loan borrowers may be lower than the market average.

To understand how far the better financial characteristics of the syndicated loan borrowers contribute to lower credit risk, we consider a firm-year panel regression model to explain the one-year probability of default (PD)[63] of Mainland corporates. Based on the estimation result, we decompose the effects of different factors.

Factors considered in the model include the credit risk indicators discussed in the previous section.[64] The model also includes industry and time dummy variables to control for the effect of industry-specific and macroeconomic factors respectively. In addition, a dummy variable for state-owned enterprises (SOE)[65] is included to control for any potential structural difference in PD from the SOE status. Finally, a dummy variable for syndicated loan borrowers (i.e. Dummy $^{HKBK\_LOAN}$) is added in the model.[66] The coefficient estimate of this dummy variable can tell after controlling for all aforementioned factors, whether syndicated loan borrowers will have lower or higher credit risk compared to other Mainland corporates. In theory, the coefficient estimate can capture the effect of non-financial factors considered by banks when underwriting the syndicated loans (e.g. banks' assessments on the quality of management and corporate governance of Mainland corporates). The estimation result is presented in Table B4.A.

[63] The one-year PD is obtained from Bloomberg's DRSK module. According to Bloomberg, the PD is derived from first estimating the distance-to-default (DTD) based on the standard Merton model. The estimated DTD is then transformed into one-year PD by applying a non-linear mapping with the actual default rates, which addresses the potential issue of underestimation of default likelihood from the standard Merton model.

[64] To proxy DaR for individual corporates, a dummy variable (Dummy $^{ICR<1}$) that takes a value of one if a firm's ICR is below one, and zero otherwise is included in the model.

[65] The SOE dummy takes a value of one if the listed corporate is an SOE, and zero otherwise.

[66] The dummy takes a value of one if Mainland firm is identified as a syndicated loan borrower, and zero otherwise.

Table B4.A: Estimation result

Dependent variable	one-year PD
Dummy $^{HKBK\_LOAN}$	−0.345***
Debt-to-asset	0.028***
Return on assets	−0.022***
ICR	−0.001*
Dummy $^{ICR<1}$	0.813***
Short-term debt to total borrowing	0.008***
Industry dummy	Included
SOE dummy	Included
Time dummy	Included
Adjusted R^2	0.216
Observation	4,412

Note: ***, **, * denote the estimated coefficients are significant at 1%, 5% and 10% levels respectively. Standard errors are clustered at firm level.

Two empirical findings are worth highlighting. First, all explanatory variables are found to be statistically significant with the expected signs. This suggests that all credit risk indicators discussed in the previous section have an adequate explanatory power for the one-year PD of Mainland corporates. A back-of-envelope calculation finds that the healthier financial characteristics of syndicated loan borrowers relative to the benchmark, as shown in Charts B4.1 to B4.5, together translate into a lower average PD for the syndicated loan borrowers than the benchmark by 20 basis points, with the debt-to-asset ratio effect being the main contributor.[67] The estimate is economically significant, given the average PD for the syndicated loan borrowers was around 0.83% at the end of June 2018.

Secondly, the coefficient estimate of the dummy variable for syndicated loan borrowers is found to be negative and statistically significant. One plausible interpretation is that non-financial factors, such as corporate governance of the borrowers, considered by banks when underwriting syndicated loans for Mainland corporates, may contribute to a reduction in the default probability by, at most, 35 basis points.[68]

Conclusion

By assessing a broader set of key financial characteristics of Mainland corporates listed in Hong Kong, this study finds that those which had borrowed syndicated loans from banks in Hong Kong tend to have a lower credit risk than their counterparts. We also find that the lower credit risk of these loan borrowers is partly due to factors other than financial characteristics. This probably reflects, in part, the effects of non-financial factors which are considered by banks when underwriting the loans (e.g. management quality and corporate governance). Overall, the findings suggest that the Hong Kong banking sector, at least for the syndicated loan portfolio, is less exposed to riskier Mainland corporates. A key implication of these results is that while leverage ratio is often taken as a headline, or even the single indicator when assessing corporate sector risks, a comprehensive assessment should require a much broader set of indicators, including those for non-financial factors.

67 Specifically, we multiply the coefficients in Table B4.A with the difference of the average ratios between syndicated borrowers and the benchmark at the end of June 2018. On the whole, the Debt-to-asset, Dummy $^{ICR<1}$, Short-term debt to total borrowing and ICR contribute to a lower average PD for the syndicated loan borrowers by 12.5bps, 7 bps, 1 bps and 0.1 bps respectively. By contrast, due to the slightly lower average ROA for syndicated loan borrowers than the benchmark, the ROA contributes to a higher PD by 0.1 bps.

68 Another possible reason is that less risky Mainland corporates tend to have more access to different sources of external financing and hence are more likely to borrow from banks in Hong Kong. Nonetheless, the result still indicates that the banking sector is relatively less exposed to risky Mainland corporates in the syndicated loan market.

Glossary of terms

Aggregate Balance

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

Authorized Institution (AI)

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

Best Lending Rate

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

Certificates of Indebtedness (CIs)

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

Composite Consumer Price Index (CCPI)

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

Composite Interest Rate

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

Convertibility Undertaking (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.

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
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
CBS	Central Bank Bills Swap
CCPI	Composite Consumer Price Index
CCyB	Countercyclical capital buffer
CDs	Certificates of deposits
CDS	Credit default swap
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
DaR	Debt-at-risk
DF	Deliverable forward
DI	Direct investment
DSD	Doubling of the ad valorem stamp duty rates
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
EMEAP	Executives' Meeting of East Asia-Pacific Central Banks
EMEs	Emerging Market Economies
EPIFs	External primary income flows
EPU	Economic policy uncertainty
ETFs	Exchange traded funds
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
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
HKPC	Hong Kong Productivity Council

HK$M3	Hong Kong dollar broad money supply
HSCEI	Hang Seng China Enterprises Index
HSI	Hang Seng Index
ICR	Interest Coverage Ratio
IFC	International Finance Corporation
IMF	International Monetary Fund
IPO	Initial Public Offering
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
IRB	Internal Ratings-Based Approach
LTD	Loan-to-deposit
LTV	Loan-to-value
mn	Million
MDBs	Multilateral Development Banks
MLF	Medium-term Lending Facility
MoF	Ministry of Finance
MPA	Macro Prudential Assessment
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
OMDSR	Outstanding mortgage debt service ratio
OTC	Over-the-counter
p.a.	Per annum
P2P	Peer-to-peer
PBoC	People's Bank of China
PCE	Personal consumption expenditure
PD	Probability of Default
PMI	Purchasing Managers' Index
PPI	Producer Price Index
qoq	Quarter-on-quarter
qoqa	Quarter-on-quarter annualised
QE	Quantitative Easing
QQE	Quantitative and Qualitative Easing
R&VD	Rating and Valuation Department
REER	Real effective exchange rate
Repo	Repurchase operation
rhs	Right-hand side
RMB	Renminbi
ROA	Return on Asset
ROE	Return on equity
RRR	Required reserve ratio
RTGS	Real Time Gross Settlement
SAFE	State Administration of Foreign Exchange
SARS	Severe Acute Respiratory Syndrome
SDR	Special Drawing Rights
SHIBOR	Shanghai Interbank Offered Rate
SKEW	Chicago Board Options Exchange Skew Index
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

SWIFTs	Society for Worldwide Interbank Financial Telecommunication
S&P	Sale and Purchase Agreements of Building Units
S&P 500	Standard & Poor's 500 Index
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
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**.

Hong Kong Monetary Authority
55th Floor, Two International Finance Centre,
8 Finance Street, Central, Hong Kong
Telephone: (852) 2878 8196
Fax: (852) 2878 8197
E-mail: hkma@hkma.gov.hk
www.hkma.gov.hk

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