HONG KONG MONETARY AUTHORITY
香港金融管理局

HALF-YEARLY MONETARY AND FINANCIAL STABILITY REPORT

March 2020

This Report reviews statistical information between the end of August 2019 and the end of February 2020.

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

The outbreak of the novel coronavirus (COVID-19) since early 2020, by manifesting itself in a shock to both demand and supply, presented the global economy with challenges unlike past crises. While major central banks and several governments have rolled out stimulus measures since early March to contain the economic fallout of this health crisis, financial markets remained volatile and global financial conditions have tightened.

Despite uncertainties in the external and domestic environment, both Hong Kong foreign exchange and money markets continued to operate in a smooth and orderly manner. With the Hong Kong dollar remaining firm, the Aggregate Balance being stable and total deposits growing modestly, no significant outflows from the Hong Kong dollar or Hong Kong's banking system were observed during the review period. Total loan growth decelerated in the second half of 2019 after a moderate rebound in the first half. The residential property market has generally softened since mid-2019, albeit showing some fluctuations.

Looking ahead, the Hong Kong banking sector will continue to be challenged by a number of downside risk factors arising from the uncertainties over the extent of the coronavirus outbreak, future US-China trade relations, geopolitical tensions and domestic social incidents. Banks should carefully assess how the possible intensification of these risk factors could impact the asset quality of their loan portfolios particularly when the levels of corporate leverage and household debt-servicing burdens have been rising.

The external environment

Since the fourth quarter of 2019, tentative signs of global growth stabilisation emerged amid increased monetary accommodation by major central banks, de-escalating US-China trade tensions and receding risks of a "no-deal" Brexit. Since late January, however, concerns over the rising worldwide cases of the coronavirus infection resulted in sharp gyrations in global financial markets. In response to the evolving risks posed by the outbreak, several major central banks aggressively lowered their policy rates and stepped up liquidity provision measures, while a number of governments also rolled out targeted measures to assist the real economy. Nonetheless, global financial conditions have tightened amid widening credit spreads and plunging equity markets.

Looking ahead, downside risks to the global outlook have increased. The coronavirus outbreak would dampen global activities, and the scale of the economic fallouts would depend on the severity and duration of the outbreak. Further down the road, trade tensions between the US and its major trading partners may re-emerge, and the post-Brexit European Union-UK trade negotiations could be bumpy.

Weak global demand continued to weigh on growth in East Asia[1]. The region's exports to all major destinations, including the US, European economies and Mainland China, stayed weak in the second half of 2019. Some major telecommunication equipment exporters in the region reported improved earnings recently, but whether this marks a broad-based tech cycle rebound is yet to be seen. The financial market responded positively to the "phase one" US-China trade deal announced in December 2019 as it partly reduced global trade uncertainties. Nonetheless, the region will continue to face headwinds from weakening corporate earnings, and high private sector leverage. The coronavirus outbreak has also raised concerns that the region's economy may be facing further pressure on top of the ongoing weakness in growth. Travel restrictions imposed by many regional economies will likely hit the tourism sector in Asia, especially those which rely more on travel service exports. The outbreak could also affect the region's manufacturing sector given its closely integrated supply chain with Mainland China.

In Mainland China, economic growth continued to decelerate in the second half of 2019 amid sluggish domestic and external demand. While the signing of the "phase one" trade deal with the US helps to temporarily reduce external uncertainties facing the Mainland economy, downward pressure remains amid the coronavirus outbreak, the ongoing economic rebalancing and the slowdown in the global economy. The Central Economic Work Conference held in December 2019 made stabilising the economy a top priority for 2020, and containing financial risks is also a focus. The latest consensus forecasts suggest that Mainland China's economic growth will ease to 5.2% in 2020.

During the review period, Mainland authorities continued to announce targeted monetary and fiscal policies to support the private sector, especially smaller private business owners. Despite the efforts, some media reports and market analysts pointed out that private industrial firms might have suffered equity declines in recent years, which was seen as a sign of "retreat of the private sector". Box 2 examines the drivers for equity changes of Mainland industrial firms using listed firm data from 2018, and finds that privately-owned enterprises or small firms were not intrinsically more likely to suffer shrinkage in size or "retreat". While negative profits were found to be the biggest contributing factor, other factors especially structural factors are worth noting (see more details in Box 2).

The domestic economy

Economic activities contracted markedly during the second half of 2019. In particular, the economy has entered a recession as real Gross Domestic Product (GDP) declined consecutively over the past three quarters. This dragged down the full-year growth rate for 2019 to -1.2%, compared with a 2.9% expansion a year earlier, marking the first annual decline since 2009.

Moderating domestic demand, especially private consumption, was the main drag on GDP in the second half of 2019 as local social incidents caused major disruptions to consumption-related activities and the resultant weaker economic outlook lowered consumer and business confidence. Hong Kong's external trade performance continued to be subdued amid the renewed US-China trade tensions, weaker global economic growth and a severe setback in inbound tourism.

In view of the strong economic headwinds, the Government introduced several rounds of measures between August and December 2019 to support the economy. To allow banks to be more

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

supportive to the domestic economy and help mitigate the economic cycle, the HKMA announced on 14 October a reduction in the Countercyclical Capital Buffer (CCyB) ratio of banks from 2.5% to 2.0%, thereby allowing banks to have an expected additional headroom of HK$200–300 billion to lend to enterprises, especially small and medium-sized enterprises (SMEs).

The economic performance for 2020 is expected to be very challenging, with significant near-term downside risks associated with the coronavirus outbreak. Some sectors, such as retail, accommodation, food services, tourism and transport, which have yet to recover from the disruptions caused by the social incidents, will be doubly hit. However, the countercyclical fiscal measures announced in the 2020/21 Budget, which include a one-off cash handout and a new concessionary low-interest loan under the SME Financing Guarantee Scheme with 100% Government guarantee, are expected to provide some support to households and enterprises (especially SMEs).[2] On 16 March 2020, the HKMA further reduced the CCyB ratio of banks from 2.0% to 1.0%, which will allow banks to be more supportive to the domestic economy, in particular those sectors and individuals that are expected to experience additional short-term stress due to the impact arising from the outbreak. Analysed by GDP components, private consumption and investment will likely remain weak because of the fragile consumer and business confidence. While government consumption will contribute to economic growth, public investment expenditure is anticipated to be relatively sluggish following the completion of some major infrastructure projects. On the external front, the "phase one" trade deal between the US and Mainland China is assessed to be slightly positive for the local economy in the short term.[3] However, Hong Kong's external trade performance will continue to be weighed down by weak global economic growth and trade flows. In particular, the coronavirus outbreak may lead to regional supply chain disruptions and slower cross-border economic activities (e.g. tourism), thereby restraining Hong Kong's exports. The Government forecasts real GDP growth for 2020 in the range between -1.5% and 0.5%, and the growth estimates by international organisations and private sector analysts averaged -1.5%. This subdued economic outlook is subject to a number of uncertainties and risks, including those stemming from the slowing global economy, the US-China trade relations, Mainland's economic performance and local social incidents.

The labour market faced increasing pressures in the second half of 2019 and early 2020, with total employment moderating, the unemployment rate rising and the real payroll index showing a year-on-year decline. Specifically, the unemployment rate rose from a multi-year low of 2.8% in June 2019 to 3.7% in February 2020, partly reflecting the impact of the social incidents and the coronavirus outbreak on the retail, accommodation and food services sectors. Looking ahead, the unemployment rate will likely rise further given the weakened economic prospects and the coronavirus outbreak. Box 3 discusses in more detail the recent developments in the labour market and its near-term outlook.

Local inflationary pressures continued to accumulate up to the third quarter of 2019 mainly due to elevated fresh pork prices, but the sequential momentum of inflation gradually eased thereafter along with weakened economic activities. In the near term, inflation is expected

[2] Other relief measures in the Budget include reducing salaries tax and profits tax by 100%, subject to a ceiling, as well as waiving rates of domestic properties and registration fees for businesses. Meanwhile, some banks have also implemented short-term relief measures such as interest-only repayments for mortgage loans and relief loans for SMEs.

[3] Our in-house analysis suggests that the trade deal will have a small net positive impact on Hong Kong's nominal GDP in the short term, although the actual outcome will be subject to high uncertainty. The impact is likely to come mainly from a reduction in uncertainty which increases consumption and investment, while the potential impact on trade is estimated to be limited given the offsetting effects from the tariff rollback and possible trade diversion (away from Hong Kong).

to moderate because of the sub-par economic conditions, the consolidation of private residential rentals and mild imported inflation. Market consensus forecasts the headline inflation rate for 2020 to be between 0.6% and 3.7%, and the Government projects the underlying inflation rate to be 2.5%.

Monetary conditions and capital flows

The Hong Kong dollar exchange rate started to strengthen gradually from mid-October 2019, underpinned by equity-related Hong Kong dollar demand including initial public offerings (IPOs). Since December, the strengthening of the Hong Kong dollar gained further momentum, partly due to some buoyant IPO activities and partly to the unwinding of short Hong Kong dollar positions amid tightened liquidity towards the end of the year. As liquidity eased after the Lunar New Year holiday, the Hong Kong dollar exchange rate slightly softened at the end of February. Overall, the Hong Kong dollar continued to trade in a smooth and orderly manner without triggering the Convertibility Undertaking during the review period. The Aggregate Balance remained unchanged at around HK$54 billion.

The short-term Hong Kong dollar interbank interest rates witnessed fluctuations, reflecting seasonal liquidity demand as well as more capital market activities, such as IPOs, since the fourth quarter of 2019. Box 4 studies how market attention to future IPO activities could affect three-month HIBOR. Meanwhile, the composite interest rate picked up gradually from 0.94% at the end of July 2019 to 1.01% at the end of January 2020. This reflected that banks continued to raise their preferential deposit rates in attracting deposit funds. With the increase in the prime-based cap by some banks, the average lending rate for new mortgages moved up to around 2.6% in October, but declined slightly to around 2.5% in January 2020 amid the lower Best Lending Rates in the market since November.

With the Hong Kong dollar staying firm, the Aggregate Balance remaining stable and total deposits growing modestly, no significant outflows from the Hong Kong dollar or Hong Kong's banking system were observed during the review period. Nonetheless, we will need to monitor the impact arising from any worsening of the coronavirus outbreak amid the uncertain external environment. Given the ample foreign reserves and robust banking system, the HKMA has the capability, resources and commitment to withstand capital outflows and safeguard Hong Kong's monetary and financial stability.

During the review period, the offshore (CNH) and the onshore (CNY) renminbi exchange rates strengthened with optimism over the US-China trade deal, before facing weakening pressure since late January 2020 amid the coronavirus outbreak. The CNH traded roughly at a premium against the CNY in the latter part of 2019, but saw widened discount briefly in late January 2020. The spread in general remained moderate by historical standards. The CNH liquidity pool in Hong Kong expanded moderately following a modest decline in the last review period, with the total outstanding amount of renminbi customer deposits and certificates of deposit increasing to RMB637.4 billion at the end of January 2020. Other renminbi business in Hong Kong also gathered strength, with renminbi bank lending and renminbi trade settlement in Hong Kong recording strong gains. The average daily turnover of the renminbi real time gross settlement system stayed high at RMB1,133.9 billion for the whole of 2019. Despite uncertainties surrounding the external environment, Hong Kong's offshore renminbi business is expected to benefit from the ongoing liberalisation of Mainland's capital account, more allocation into renminbi assets by international investors, and deepened regional economic and financial co-operation under the Belt and Road and Guangdong-Hong Kong-Macao Greater Bay Area initiatives.

Asset market

The local stock market has gone on a roller coaster ride over the past six months. Following a sharp correction last summer, it regained lost ground significantly at first, before tumbling again on the outbreak of the coronavirus towards the end of the review period. The initial rebound was attributed to a much improved investor sentiment following a major rally in equity markets worldwide, triggered by markedly reduced risks of a global recession. The global economic outlook brightened up, due in part to signs that global growth began to stabilise, aided by the lagged effects of the monetary accommodation of leading central banks, and partly to the two largest global economies being able to find a way to avoid a full-blown trade war. Looking ahead, however, considerable uncertainties remain, especially regarding how Mainland's macroeconomy will perform in the face of the current global health crisis, and with the US-China trade negotiations entering the tough second phase.

The Hong Kong dollar debt market continued to expand last year with issuance growing steadily. A steeper rebound in local currency yields relative to those of the US dollar in the second half of the year helped reverse the flow of bond funds in favour of Hong Kong. The offshore renminbi debt market grew rapidly on the back of a large jump in public sector issuance. As the funding cost difference between onshore and offshore markets narrowed, private sector issuance also registered a considerable increase. However, the near term outlook for the domestic debt market development, including both Hong Kong dollar and renminbi debts, will undoubtedly face formidable challenges in view of the great uncertainties surrounding the next phase of the US-China trade negotiations and the effects of the outbreak.

The residential property market has generally softened since mid-2019, albeit showing some fluctuations. Market sentiment was dampened initially by the renewed US-China trade tensions, the local social incidents, weakened domestic economic activities, and later the coronavirus outbreak. Official data showed that average monthly transactions and secondary-market housing prices generally softened from the recent peak in May 2019. However, market data from real estate agencies suggest secondary-market transactions picked up in recent weeks. Despite the slight decline in flat prices, housing affordability remained stretched, with the price-to-income ratio and the income gearing ratio staying high by historical standards.

The outlook for the residential property market is subject to a host of uncertainties and risks as discussed above. For example, the outbreak of the coronavirus, coupled with the current economic recession and the rising unemployment rate, will dampen housing demand and new project launches. Some external risk and uncertainty factors, such as the pace of global economic growth and the international financial market volatility, may also affect housing market sentiment. On the other hand, the very low interest rates may provide some support to asset markets, while market activity could rebound when the outbreak fades out, as suggested by the experience of the post–SARS period in 2003. Over the longer term, the outlook for the housing market will depend on the housing supply-demand gap. Although actual completions in 2019 saw a shortfall compared with projections, the Government expects private housing completions will remain high in the forthcoming years.[4]

Banking sector performance

Given increasing uncertainties in both the global and domestic economic environments, retail banks in Hong Kong registered a slight decrease in their profits in the second half of 2019, with pre-tax operating profits declining moderately by 1.5% compared with the same period in 2018. Although the net interest income registered a mild increase during the review period, profits were constrained by increases in loan impairment charges and operating expenses. As

[4] The Rating and Valuation Department forecasts gross completions at around 20,000 units per year in 2020 and 2021, compared with the average of 13,500 units per annum in the past ten years (2010–2019).

a result, the return on assets reduced slightly to 1.13% in the second half of 2019 compared with 1.23% in the same period of 2018.

The consolidated total capital ratio of locally incorporated authorized institutions (AIs) increased further to 20.7% at the end of 2019. To provide greater flexibility for banks to support businesses (especially SMEs) amid the significant deterioration in the domestic economic environment since the second quarter of 2019, the Countercyclical Capital Buffer rate for Hong Kong was lowered from 2.5% to 2% in October 2019 and further to 1% in March 2020. The liquidity positions of AIs were generally sound, as the average Liquidity Coverage Ratio of category 1 institutions and the average Liquidity Maintenance Ratio of category 2 institutions stayed at high levels of 159.9% and 56.3% respectively in the fourth quarter of 2019. In addition, the average Net Stable Funding Ratio of category 1 institutions and the average Core Funding Ratio of category 2A institutions both stayed at levels well exceeding their statutory minimum requirements. The asset quality of banks' loan portfolios also remained healthy by historical standards during the review period.

After a moderate rebound in the first half of 2019, growth in bank credits receded again in the second half against the backdrop of increasing uncertainties in both global and domestic economic environments. On a half-yearly basis, growth in total loans and advances of all AIs decelerated to 2.4% in the second half of 2019, after increased moderately by 4.2% in the first half. Growth in domestic loans (comprising loans for use in Hong Kong and trade financing) and loans for use outside Hong Kong decelerated to 2.5% and 2.2% in the second half of 2019, compared with 4.5% and 3.5% growth, respectively, in the preceding six months. Nonetheless, for 2019 as a whole, the total loan growth accelerated to 6.7% in 2019 from 4.4% in 2018.

Meanwhile, with total loan growth outpacing deposit growth during the review period, the average all-currency loan-to-deposit (LTD) ratios of all AIs rose to 75.4% at the end of 2019 from 74.5% six months earlier. The average Hong Kong dollar LTD ratio of all AIs also edged up due to a slight decline in Hong Kong dollar deposits in the second half of 2019. Nevertheless, the liquidity conditions of the Hong Kong dollar and the banking sector remained sound, underpinned by the stable Aggregate Balance and the broadly stable level of deposits. In addition, no significant outflow of funds from the Hong Kong dollar or from the banking system was observed during the review period.

On the overall development of the market, the Hong Kong banking sector is witnessing the launch of the virtual bank. This follows the HKMA's granting of eight licences for these new banks. As virtual banks are expected to attract new customers, initially through more convenient products and attractive deposit rates, the keener competition for deposits may pose upward pressures on the funding cost of incumbent banks. While the near term impact is likely to be mild, in view of the limited business scale of virtual banks, the longer- term impact may depend on how far incumbent banks seek to accelerate their adoption of financial technologies (fintech) to stay competitive. As suggested by the results in Box 5 (see page 81), a bank with a higher level of fintech adoption is statistically associated with larger improvements in its cost efficiency and profitability.

Looking ahead, the Hong Kong banking sector will continue to be challenged by a number of downside risk factors arising from the uncertainties over the extent of the coronavirus outbreak, future US-China trade relations, geopolitical tensions and domestic social incidents. Banks should carefully assess how the possible intensification of these risk factors could impact the asset quality of their loan portfolios particularly when the levels of corporate leverage and household debt-servicing burdens have been rising.

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

In late 2019, signs of stabilising global activities raised hopes of a global economic recovery. However, such hopes were dented by rising global cases of the coronavirus infection from late January 2020, with mounting concerns over the risks of a global recession triggering bouts of global financial market sell-offs. To contain the economic fallouts, major central banks and several governments have rolled out stimulus measures since early March. In view of the wider spread of the coronavirus, downside risks to the global growth outlook have increased.

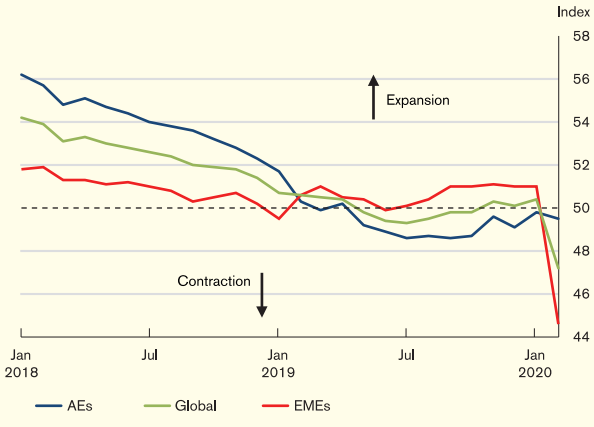
In East Asia, weak global demand clouded the region's economies in the second half of 2019. And, while the coronavirus is expected to dampen growth in regional economies in the near term, with the tourism industry being particularly hard-hit, the region will continue to face challenges from weakening corporate earnings and high private-sector leverage.

In Mainland China, economic growth continued to decelerate in the second half of 2019 amid sluggish domestic and external demand. And, despite the signing of the US-China "phase one" trade deal which helps temporarily reduce external uncertainties, downward pressure remains amid the coronavirus outbreak, the ongoing economic rebalancing and global economic slowdown, which is likely to be counteracted by policy responses on both the monetary and fiscal fronts.

2.1 External environment

Amid lingering trade tensions and policy uncertainty, global economic growth remained soft in the second half of 2019, dampened by sustained weakness in manufacturing and investment. That said, nascent signs of growth stabilisation emerged in the final quarter (Chart 2.1), thanks partly to the earlier monetary easing by the Federal Reserve (Fed) and the European Central Bank (ECB), as well as de-escalating global trade tensions following the agreement of a "phase one" US-China trade deal.

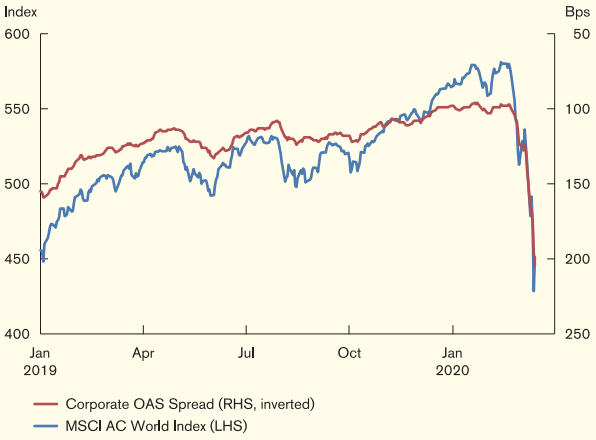
Chart 2.1
Manufacturing Purchasing Managers' Indices



Source: CEIC.

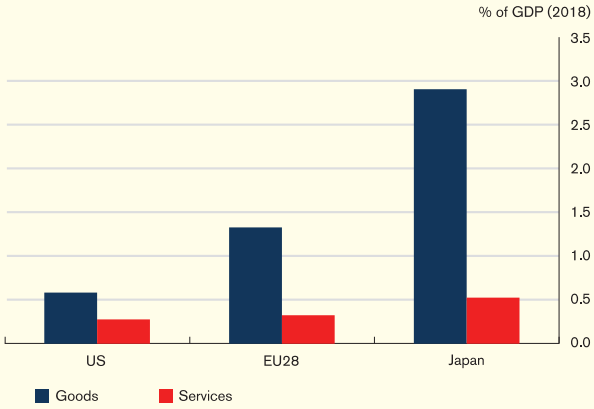
From late January, however, global financial markets experienced bouts of sell-offs amid concerns over rising cases of the coronavirus infection and the subsequent economic fallouts (Chart 2.2). By causing disruptions to production activities and weighing on economic growth in the Mainland, the outbreak could potentially result in significant global spillovers, given the importance of Mainland China in global supply chains and as a major global export destination (Chart 2.3). A surge in international virus cases outside of Mainland China since late February risked adding further supply chain disruptions and weighing directly on economic activity in the affected economies.[5]

Chart 2.2
MSCI All-Country (AC) World Index and Bloomberg-Barclays Corporate Option-Adjusted Spread (OAS)



Note: The corporate OAS spread shown refers to the Bloomberg-Barclays Global Aggregate Corporate Average Option-Adjusted Spread, which measures the yield spread of a basket of global investment grade, fixed-rate corporate debt after adjusting for embedded options. A smaller OAS suggests greater risk appetite in corporate bond markets.
Source: Bloomberg.

Chart 2.3
Exports of goods and services to Mainland China by selected major advanced economies in 2018 (as % of their Gross Domestic Product)



Note: EU28 refers to the European Union (EU) and the UK.
Sources: CEIC, Eurostat, OECD and HKMA staff calculations.

In response to the potentially significant economic fallouts of the virus outbreak, a number of central banks (including the Fed, the Bank of Canada and the Bank of England) have cut their policy rates since early March, while several governments also announced targeted measures to support affected households and businesses. However, financial markets remained under heavy sell-off pressures, resulting in a marked tightening of global financial conditions which could potentially exacerbate downward pressures on the global economy (Chart 2.4).

Chart 2.4
Bloomberg advanced economies' financial conditions index (FCI)

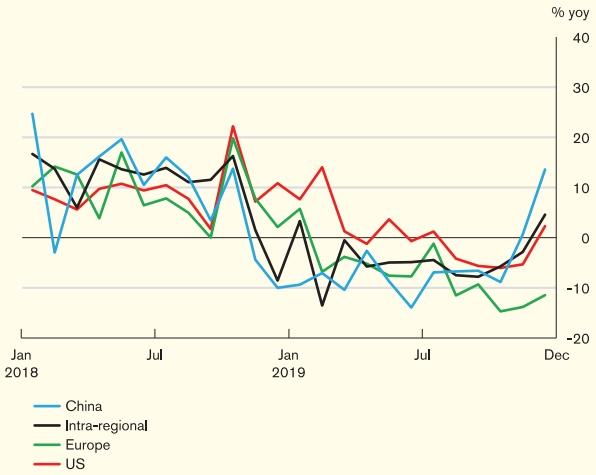
Note: The Bloomberg advanced economies' FCI is the simple average of Bloomberg FCIs of the US, UK and the Euro Area. Readings above (below) zero indicate financial conditions that are more accommodative (restrictive) than the average level prior to the Global Financial Crisis.
Source: Bloomberg.

[5] The virus outbreak could affect the broader economy through multiple channels. Local outbreaks of the coronavirus and the resulting containment efforts, social distancing, income loss, and uncertainty could take a serious toll on consumer spending. For firms, disruptions to production activity and loss of revenues could translate into cash flow problems or even layoffs and closures.

Beyond the coronavirus, the global economic outlook is also clouded by other downside risks and uncertainties. On trade tensions, in particular, while policy risks receded somewhat following the US-China "phase one" trade deal, subsequent negotiations could be difficult, as a number of more thorny structural issues remain to be resolved. In Europe, future EU-UK trade negotiations could be expected to be bumpy, thereby prolonging the post-Brexit uncertainty. Separately, the sharp fall in global oil prices since March could entail headwinds for major oil-exporting EMEs.

In East Asia, real activity remained subdued in the second half of 2019 amid the lacklustre global demand. The region's exports to all major destinations, including the US, European economies and Mainland China, stayed weak in the second half (Chart 2.5). There are some early signs that the region's tech cycle downturn is bottoming out, with large electronic companies reporting improvement in profits in late 2019.[6] However, whether this will mark any meaningful rebound in the region's tech exports is yet to be seen.

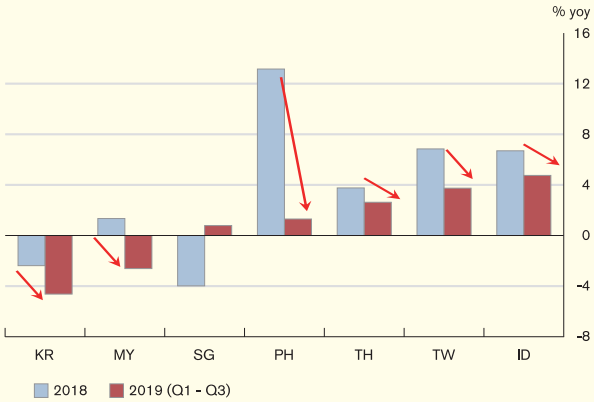
Chart 2.5
East Asia: Merchandise exports to major destinations



Sources: CEIC and HKMA staff calculations.

The continuing weaknesses in growth and lingering trade uncertainties have also weighed on investors' sentiment, with gross fixed capital investment in most East Asian economies declining in 2019 (Chart 2.6). Such decline in investment could undermine the region's potential growth in the longer term. To support economic growth in an environment of tepid inflation, the central banks of Indonesia, the Philippines and South Korea reduced their policy interest rate again in the second half of 2019 after their rate cuts in the first half, while the Bank of Thailand also lowered its policy interest rate for the first time since 2015.

Chart 2.6
East Asia: Gross fixed capital formation

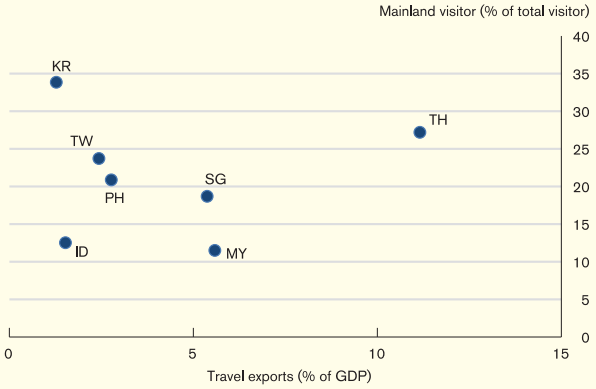


Sources: CEIC and HKMA staff calculations.

The outbreak of the coronavirus has raised concerns that the region's economies may be facing yet further pressure on top of the ongoing weakness in growth. Many regional economies have imposed travel restrictions to and from Mainland China. As a result, the first-round economic impact from the virus would be felt most by the tourism industry. Economies where Mainland visitors account for a large share of their inbound tourists and travel services exports account for a significant share of their GDP would be hardest hit (Chart 2.7). The outbreak could also affect the region's manufacturing sector given the closely integrated supply chains with Mainland China.

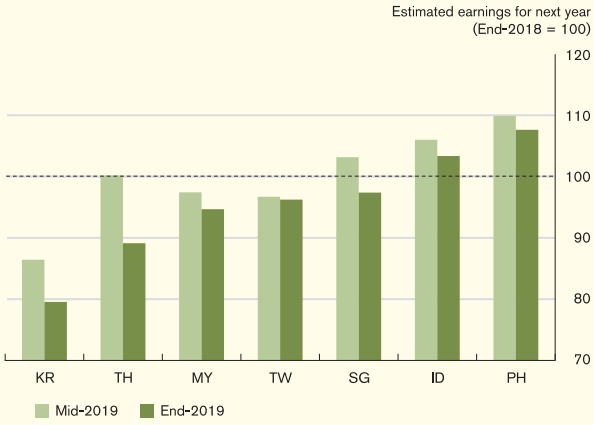
[6] For instance, major technology companies in the region like Samsung Electronics and Taiwan Semiconductor Manufacturing Co Ltd reported better-than-expected earnings for the fourth quarter of 2019.

Chart 2.7
East Asia: Travel exports and Mainland visitors



Note: Data as of Q3 2019.
Sources: CEIC and HKMA staff calculations.

Chart 2.8
Expected earnings of benchmark stock indices' constituents



Source: Bloomberg.

In the near term, the outbreak will continue to weigh on economic activities and investor sentiment. Experience of the 2003 Severe Acute Respiratory Syndrome (SARS) outbreak suggests that such effect could be short-lived, but it depends on the severity and spread of the outbreak and the effectiveness of the government's remedial actions. Indeed, economies in East Asia will face multiple headwinds.

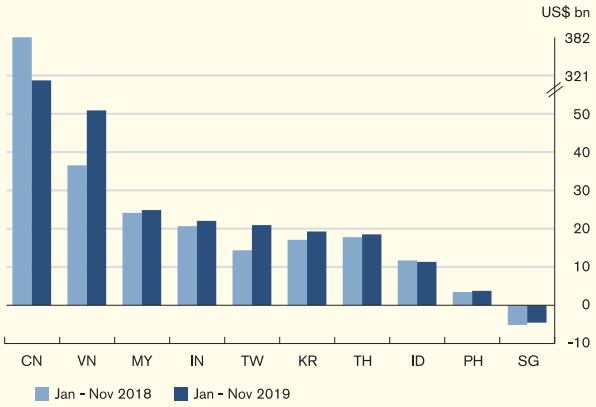
First, while the market is expecting corporate earnings to deteriorate in the near term (Chart 2.8), the globally accommodative monetary conditions have encouraged search for yield activities and thus driven up asset prices without much support from fundamentals. The region's equity market has, therefore, become more vulnerable to a turn in investor sentiment.

Second, the weakening corporate earnings and economic growth may make the region's private sector more difficult to service their debt. While the lowering of domestic interest rates could provide some breathing space for indebted corporates and households, it could also sow the seeds of a further debt build-up. As detailed in Box 1, the risk of private-sector debt overhang could also be intensified by an increase in benchmark-driven fund inflows into the region's financial markets, although the influence appears to be limited to corporates with stronger financial fundamentals and to longer-term borrowing.

Third, on the external front, the rising trade surplus with the US could increase the risk of East Asian economies being faced with a more inward-looking US trade policy. Despite recent progress on the first phase trade deal between the US and Mainland China, trade tension still remains as fundamental issues are yet to be resolved. International companies may continue to diversify their China-centric supply chains to avoid tariffs, as evidenced by the rising trade surplus of many Asian economies with the US (Chart 2.9). As of November 2019, the year-to-date aggregated trade surplus of nine emerging Asian economies (excluding Mainland China) with the US has increased to approximately

US$167 billion. Such a widening in the trade surplus with the US, if it continues, could put these Asian economies at risk of being the next target of the trade war. For example, the US administration has imposed a huge tariff of up to 456% on Vietnam's steel imports in July 2019.[7] In view of this, the region's trade outlook is still highly uncertain, despite the trade truce between the US and Mainland China.

Chart 2.9
Trade in goods surplus with the US



Source: US Bureau of Economic Analysis.

[7] For details, please see press releases by the U.S. Department of Commerce on 2 July 2019 and 16 December 2019.

Box 1
Implications of benchmark-driven investment for emerging market economies

Introduction

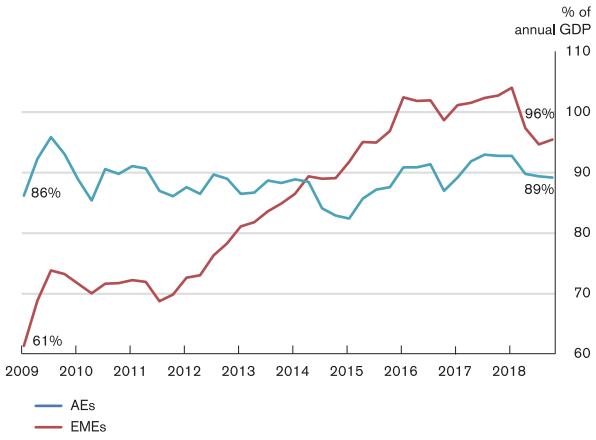
Over the past decade, international financial integration has intensified, leading to a considerable increase in cross-border portfolio flows globally. A recent estimate suggests that benchmark-driven funds dictate as much as 70 per cent of these flows.[8] Benchmark-driven funds include not only the funds that track investment indices in lock step — commonly known as passive funds — but also those actively managed with reference to investment indices.[9] They can help promote financial market development of emerging market economies (EMEs) by bringing in foreign investors whom these economies otherwise would not be able to attract or reach out to. As a result, this has helped diversify the investor base of EMEs, aiding their long-term growth and stability.

However, can these benefits be harnessed without a cost? For passive bond funds in particular, there are concerns that investing in these funds could weaken the discipline of the underlying corporate bond issuers and lead to a build-up of their leverage.[10] For benchmark-driven funds in general, it is argued that their growth has made portfolio flows more volatile globally in recent years and rendered EMEs more vulnerable given their higher sensitivity to global factors and factors that tend to affect EMEs as a whole.[11] This box examines the financial stability implications of these two issues.

Passive bond funds and corporate leverage[12]

Passive bond funds allocate their investments into the constituent bonds of the underlying benchmark index in proportion to their weightings in the index. As a result, compared with actively managed funds, the mechanical investment decision of passive bond funds could make it less compelling for the issuers of the constituent bonds to act in the interests of the funds' investors.[13] Worse still, from a financial stability point of view, such behaviour encourages excessive borrowing, posing significant credit and solvency risks to the corporate sector of EMEs, especially in view of its sharply higher leverage after the global financial crisis (Chart B1.1).

Chart B1.1
Corporate leverage of EMEs



Note: Figures refer to the outstanding credits to non-financial corporates and expressed as % of GDP.

Source: BIS.

8 Raddatz, Schmukler and Williams (2017) "International asset allocations and capital flows: The benchmark effect", *Journal of International Economics*, 108(C).

9 Portfolio managers of active funds are also found to have a strong tendency to "hug" their benchmarks as tightly as possible to mitigate their career risk of short-term underperformance. See Miyajima and Shim (2014) "Asset Managers in Emerging Market Economies," *BIS Quarterly Review*, September 2014.

10 Sushko and Turner (2018) "The implication of passive investing for securities markets", *BIS Quarterly Review*, March 2018.

11 "Vulnerabilities in a Maturing Credit Cycle", Chapter 1 in April 2019 edition of the IMF's "*Global Financial Stability Report*".

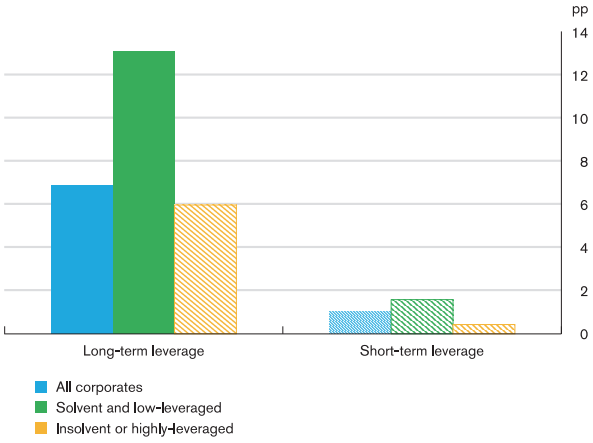
12 Wu and Wong (2019) "Does Passive Bond Investing Encourage Corporate Leverage in Emerging Market Economies?", *HKMA Research Memorandum*, 2019/13.

13 Portfolio managers of actively managed funds can actively cut the holdings of the bonds whose issuers are deemed by them to be too aggressive.

Using EMEs corporates weights in a major EME corporate bond index as a proxy for the exposure of their bonds to passive bond funds investments,[14] it is found that an increase in the exposure will drive up the long-term, but not short-term, leverage of these corporate issuers. The solid blue bar in Chart B1.2 depicts the estimated effects. Apart from promoting the development of corporate bond markets in EMEs, the widened investor base by the passive bond funds for the long-term debts issued is also beneficial to the development of EMEs corporates.

Furthermore, the effect is significant only on EMEs corporates with stronger fundamentals, specifically better solvency and lower leverage (represented by the solid green bar in Chart B1.2). The higher costs of financial distress faced by the highly-leveraged or insolvent corporates appear to have kept them from falling deeper into the debt trap. Taken together, these findings suggest that the growth of passive bond fund investments does not necessarily lead to a material increase in the solvency risks of the corporate sector in EMEs.

Chart B1.2
Effect of corporates exposure to passive bond funds on leverage



Notes:
(1) Figures refer to the estimated effect of a 0.1 pp increase in corporates' weighting in the CEMBI index on the sample corporates' debt-to-equity ratio.
(2) Solvent (insolvent) corporates refer to those whose interest-coverage ratio is higher (lower) than one, while highly (low) – leveraged corporates are those whose debt-to-equity ratio is higher (lower) than the sample median.
(3) Solid bars denote statistical significance at the 10% level.

[14] The Corporate Emerging Market Bond Index Broad Diversified (CEMBI) compiled by J.P. Morgan is chosen for the analysis. At end-2017, CEMBI tracked US$314 billion worth of US dollar-denominated bonds issued by EMEs non-financial corporates, sharing 49% of all corporate debt securities in EMEs.

Benchmark-driven funds and capital flows[15]

To see whether the growth of benchmark-driven funds will make portfolio flows more volatile for EMEs, it is important to examine the impact of benchmark-driven funds on the volatility of their total foreign portfolio investment (FPI) flows relative to that of all the other funds, which are not subject to any constraint. First of all, with equity investment being the focus, it is found that the volatility of benchmark-driven FPI flows is estimated to be generally lower than that of unconstrained FPI flows for each of the 15 EMEs under study. Hence, faster growth of benchmark-driven funds is likely to reduce, rather than increase, the volatility of total FPI flows.

However, the pairwise correlation of benchmark-driven FPI flows between the EMEs is generally found to be much higher than that of unconstrained FPI flows. This is consistent with the absorption ratio — a statistical measure of how similar their risk exposures are — being much higher for the former than for the latter. This suggests that benchmark-driven FPI flows are more likely to co-move (Chart B1.3). Indeed, benchmark-driven FPI flows are estimated to be more sensitive to various global and common EME shocks, as proxied by extreme movements of the VIX index, the BBB yield spread and the MSCI EM index (Chart B1.4). Therefore, despite the generally lower volatility of benchmark-driven FPI flows, their rapid growth potentially increases the risk of the so-called sudden stop for EMEs in times of extreme market adversity.

[15] Lau, Sze and Wong (2020) "Impacts of Benchmark-driven Investment on Volatility and Connectivity of Emerging Market Capital Flows", *HKIMR working paper*, 03/2020.

Chart B1.3
Absorption ratios of FPI flows

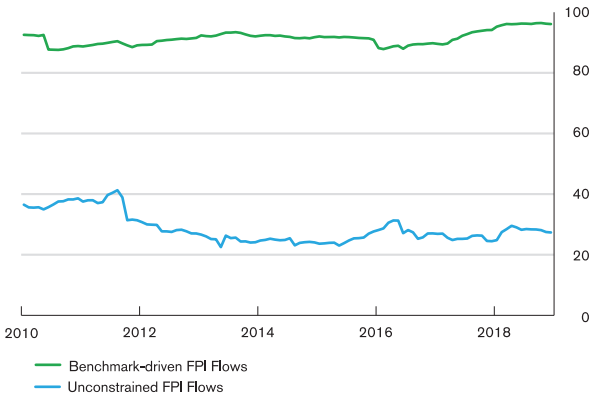
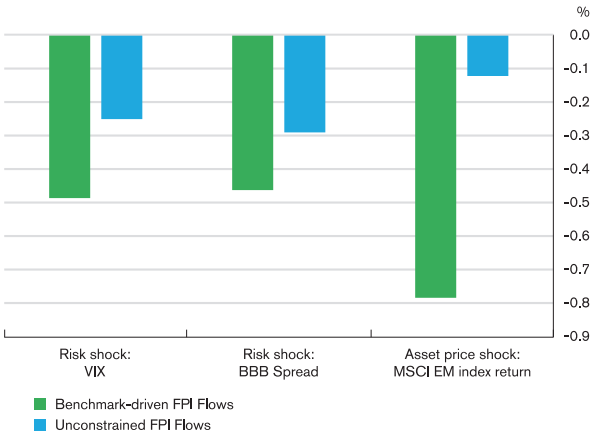


Chart B1.4
Sensitivity of FPI flows to external shocks



Note: Figures refer to the conditional means of the change in benchmark-driven FPI flows and unconstrained FPI flows as a percentage of their respective holdings in response to the specified shock.

Conclusion

Benchmark-driven funds have played an increasingly important role in fostering the development of capital markets in EMEs. On the one hand, they act as important vehicles for foreign investors to tap the lucrative investment opportunities offered by the rapid economic growth of EMEs. On the other hand, they serve as effective mechanisms for EMEs to help fund their economic development.

For the policymaker, the passive or mechanical nature of the investor behaviour associated with these funds has both advantages and disadvantages. A major advantage is that they make FPI flows generally less volatile. However, during economic booms, such behaviour tends to encourage excessive borrowing and breed borrowers with weaker discipline. Fortunately, such negative influence appears to be limited to corporates with stronger financial fundamentals and to longer-term borrowing.[16] Nonetheless, this bears watching as corporate debt continues to amass in many EMEs in view of the current protracted low interest rate environment globally, especially with their FPI flows found likely to be more sensitive now to global shocks than before.

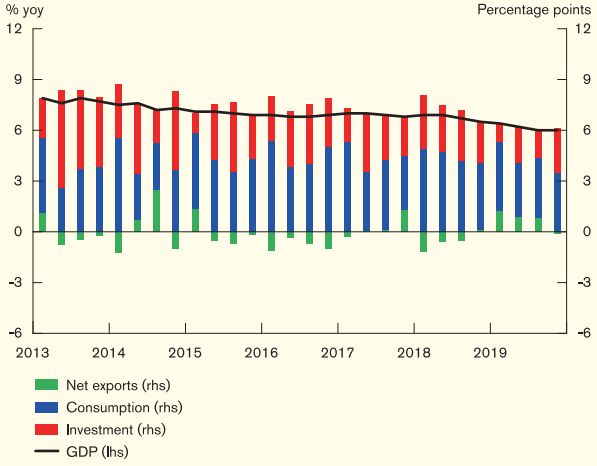
[16] In an effort to reduce the negative influence from passive bond funds, bond index providers have been increasingly adopting alternative weighting schemes for their indices, by incorporating factors such as the credit quality or duration risks of bonds, instead of their outstanding market values only.

2.2 Mainland China

Real sector

Economic growth in Mainland China continued to decelerate in the second half of 2019 amid sluggish domestic and external demand. Year-on-year real GDP growth slowed to 6.0% in the third and fourth quarter from 6.4% in the first quarter and 6.2% in the second (Chart 2.10). Taking the year as a whole, real economic growth moderated from 6.7% in 2018 to 6.1% in 2019, close to the lower bound of the official growth target.

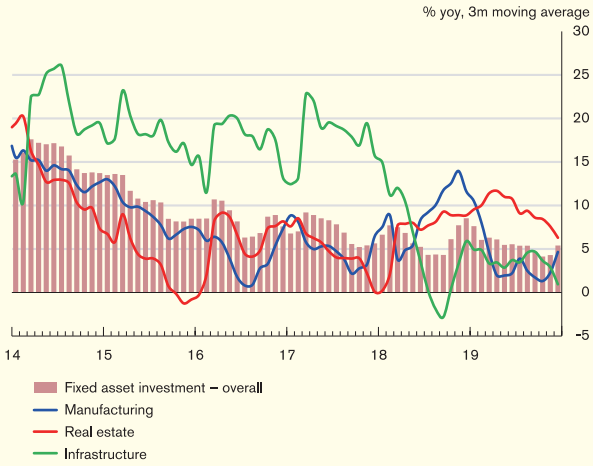
Chart 2.10
Mainland China: Contribution to GDP growth by demand component



Sources: CEIC, NBS and HKMA staff estimates.

Behind the headline growth number, consumption growth decelerated in the second half of the year alongside softer consumer sentiment. A breakdown of retail sales of enterprises above designated size suggested that sales of durable goods, especially automobiles and jewellery, decelerated in the second half, while non-durable goods sales held up relatively well.[17] Fixed asset investment growth also decelerated in the second half amid a broad-based slowdown in major segments. In particular, while real estate and infrastructure investment softened notably in the second half, manufacturing investment accelerated in the last few months of 2019 amid progress in the US-China trade talks, but remained weak compared with the first half (Chart 2.11). As the US and Mainland China were reaching an initial trade deal, both exports and imports rebounded towards the end of 2019 after contracting in previous quarters. The contribution of net exports to overall growth, however, turned negative in the fourth quarter from positive in the first three quarters, as imports rebounded at a much faster pace than exports towards the end of 2019.

Chart 2.11
Mainland China: Fixed asset investment by industry

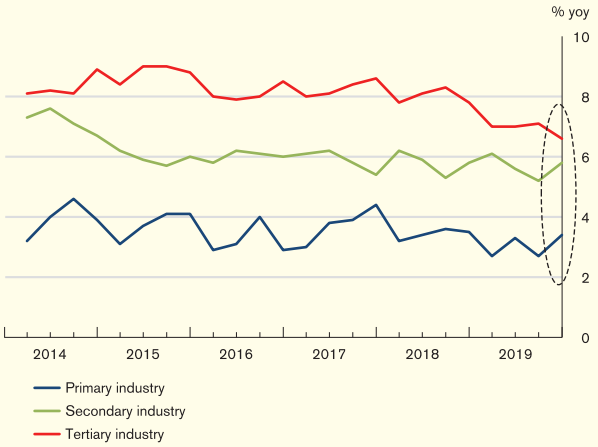


Sources: CEIC, NBS and HKMA staff estimates.

In value-added terms, the tertiary industry continued to fare well in the second half of 2019 amid solid expansion in some higher value-added subsectors such as IT and software, although the headline growth softened towards the end of the year (Chart 2.12). In comparison, business expansion in manufacturing activities decelerated in the third quarter but rebounded in the fourth quarter, in part reflecting the progress made in the US-China trade negotiations. High-tech manufacturing continued to hold up well in the second half of 2019. As tertiary industry growth further outpaced other sectors, its share of value-added in the overall economy rose slightly to 53.9% in 2019 from 53.3% in 2018.

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

Chart 2.12
Mainland China: Growth of value-added by industry



Sources: CEIC, NBS and HKMA staff estimates.

Looking ahead, while the signing of the US-China "phase one" trade deal helps reduce external uncertainties facing the Mainland economy temporarily, downward pressure remains amid the ongoing economic rebalancing and global economic slowdown. The outbreak of the coronavirus put additional strains on the Mainland economy. In the short run, service sectors especially retail sales, entertainment, catering and accommodation, transportation and tourism will be hit directly, while indirect impacts through disruptions in transportation and the labour market are likely to ripple through the whole economy.

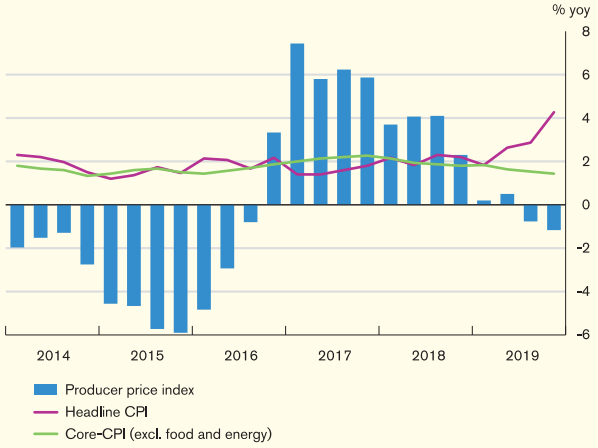
In the face of internal and external headwinds, the annual Central Economic Work Conference held in December 2019 made stabilising the economy a top priority for 2020, reiterating that the authorities will maintain a proactive fiscal policy stance, with an emphasis on policy effectiveness and efficiency. The authorities will also maintain a prudent monetary policy stance to strike a balance between containing financial risks and providing support to the economy by lowering financing costs especially for private and small firms.

To mitigate the potential negative impact of the coronavirus outbreak on growth and financial stability in particular, authorities including People's Bank of China (PBoC), China Banking and Insurance Regulatory Commission (CBIRC), Ministry of Finance (MoF), China Securities Regulatory Commission (CSRC), and State Administration of Foreign Exchange (SAFE) issued a series of measures to shore up market confidence and support the real sector in early February. Key measures include maintaining ample liquidity in the banking system, providing interest subsidies to firms that are critical in supplying materials and equipment to fight the virus, as well as encouraging banks to provide lending support to companies affected by the outbreak, particularly the smaller ones.

While most market analysts expect that economic growth in the first quarter of this year will likely decelerate due to the coronavirus outbreak, the adverse impact will be less pronounced for the full year of 2020. The latest consensus forecasts suggest that Mainland economic growth will ease to 5.2%, 0.7 percentage point lower than the pre-outbreak forecasts.

Inflationary pressure remained moderate during the review period. Headline consumer price inflation edged higher to an average of 3.6% year on year in the second half of 2019 from 2.2% in the first half (Chart 2.13), mainly driven by a notable increase in food prices, especially pork due to the impact of the African swine fever. In comparison, core inflation, measured as consumer prices excluding food and energy items, declined from an average of 1.7% year on year in the first half to 1.5% in the second half of 2019 amid lukewarm economic conditions. On the production front, reflecting sluggish industrial activities, producer price inflation fell into the negative territory in the second half, registering a deflation of 1.0% year on year on average.

Chart 2.13
Mainland China: Consumer price and producer price inflation

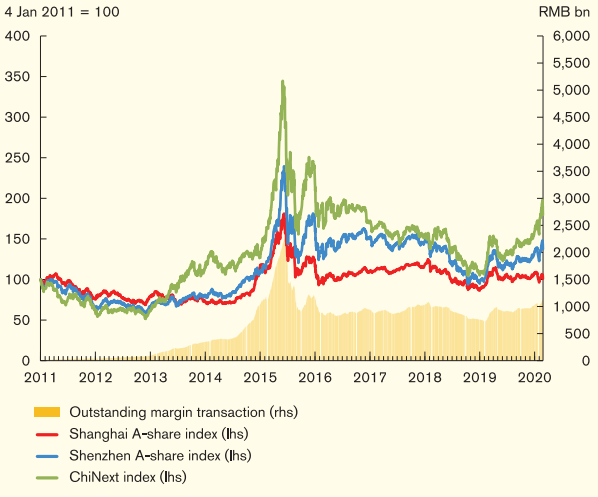


Sources: CEIC, NBS and HKMA staff estimates.

Asset Markets

The Mainland equity market steadily rose in the second half of 2019 before getting hit by the coronavirus outbreak in January 2020. All major boards recorded gains in the second half of 2019 with small caps outperforming large ones. In particular, Shanghai A-share index went up by 2.4% and Shenzhen A-share index climbed 10.3%. In comparison, the ChiNext index, often referred to as "China's Nasdaq", gained 19% (Chart 2.14).

Chart 2.14
Mainland China: The Mainland stock market indices and margin transactions



Sources: CEIC and HKMA staff estimates.

While buoyant market conditions in part reflected improved market sentiment towards the end of 2019 amid the "phase one" trade agreement between the US and Mainland China, the increased weights of China A-shares in the MSCI indices leading to more capital inflows to Mainland equities also played a role. In addition, a solid expansion of manufacturers and service providers with higher value added in recent quarters seemed to have provided support to the rally in stock prices of hi-tech and innovative firms as well.

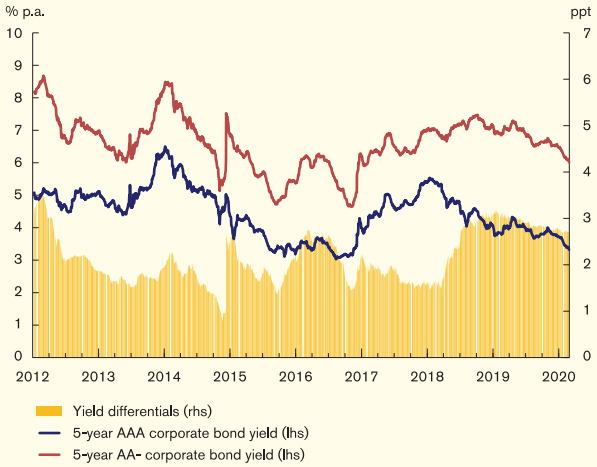
In line with a boosted risk appetite of investors, the outstanding size of margin loans – an indication of leverage used by stock market investors – had also reached a one-year high towards the end of 2019. That said, it was still much smaller than the previous high in mid-2015 before the market turmoil.

However, the coronavirus outbreak in January 2020 sent the stock market on a roller-coaster ride. The Shanghai A-share index wiped out its half-year's gain and dropped 7.7% upon market reopening on 3 February after the Lunar New Year holiday, but then quickly made up the lost ground following a notable rebound of 5% towards the end of February.

Despite improved market sentiment in the second half of 2019, investors remained vigilant over the potential risks from weak-performing firms. In the bond market, while the overall funding costs for corporate issuers edged down in the second half of 2019, the yield spread between issuers with different credit quality remained wide. In particular, corporate issuers with better credit ratings continued to enjoy a relatively lower funding cost after several rounds of required reserve ratio (RRR) cuts (Chart 2.15). By contrast, yields of lower-rated corporate bonds, albeit lowered, stayed at high levels. The persistent yield spread likely reflected the lingering concern of investors in

the face of the deteriorated debt servicing ability of firms with weaker financial positions amid the economic slowdown.

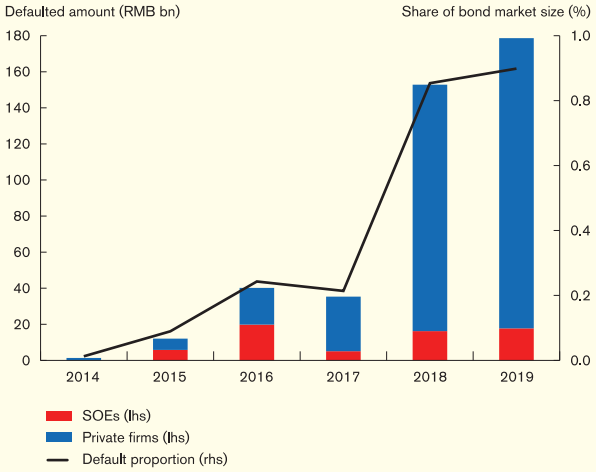
Chart 2.15
Mainland China: Five-year corporate bond yields



Sources: Wind and HKMA staff estimates.

Indeed, the second half of 2019 witnessed bond defaults by 51 corporate issuers, compared with 46 in the first half and 54 in the whole of 2018[18]. The amount of defaulted bonds increased to RMB 179 billion in 2019, 16.3% up from 2018 (Chart 2.16). That said, the relative size of the defaults compared with the entire market – the share of defaulted bonds in total outstanding non-financial debt securities – remained low, although slightly increased to 0.9% in 2019 from 0.8% in 2018. Further analyses suggest that the majority of defaults in the second half of 2019 were concentrated in lower-rated private issuers, especially diversified holding firms, mining firms and construction firms.

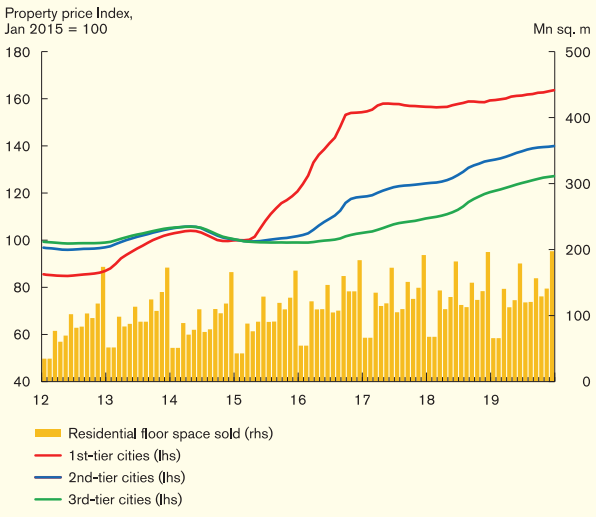
Chart 2.16
Mainland China: Bond default size and proportion



Sources: Wind and HKMA staff estimates.

In the second half of 2019, Mainland property prices further inched up amid buoyant market conditions (Chart 2.17). Reflecting the authorities' efforts to contain potential systemic risks associated with the property market, tightening measures remained in place especially in major cities, including increased down-payment requirements, and home purchase and sale restrictions.

Chart 2.17
Mainland China: Residential prices by tier of cities and floor space sold

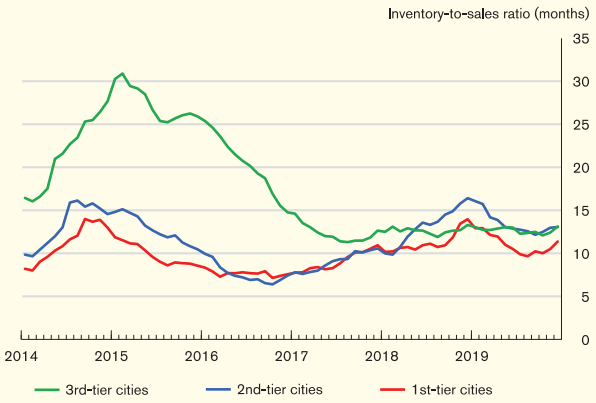


Sources: CEIC and HKMA staff estimates.

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

In lower-tier cities, housing oversupply issues remained largely in check thanks to the buoyant property market. By December 2019, the inventory-to-sales ratio in third-tier cities declined to 13 months, much lower than the peak of 31 months in early 2015 (Chart 2.18).

Chart 2.18
Mainland China: Inventory-to-sales ratios by tier of cities



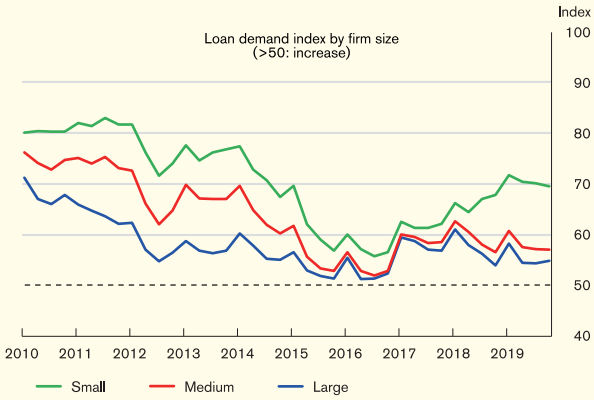
Sources: Wind and HKMA staff estimates.

In the near term, measures to temper speculative demand, such as increased down-payment requirements, are likely to stay in place especially for major cities. In December 2019, the Central Economic Work Conference reiterated the principle that "houses are for living in, not for speculation". For certain lower-tier cities, however, it is reported that local authorities relaxed some restrictive policies such as home purchase restrictions for talented migrants amid the recent economic slowdown. On the supply side, the government pledged to accelerate the construction of indemnificatory housing, as well as to speed up the development of the rental market alongside more flexible ways to increase land supply.

Credit allocation and bank asset quality

In the latter half of 2019, the divergence in loan demand of Mainland firms with different sizes narrowed. In particular, loan demand of large-sized firms showed a soft rebound in the fourth quarter, while that of small-sized firms edged downwards amid the government's efforts to encourage banks' lending towards smaller corporate borrowers (Chart 2.19).

Chart 2.19
Mainland China: Loan demand index by firm size



Source: PBoC.

Nevertheless, the demand for bank loans by small firms remained strong, suggesting that the overall formal credit supply continued to fall short of demand for small firms in recent quarters as credit availability from informal channels for small firms further worsened. Indeed, following the decline of banks' involvement in shadow banking activities and wealth management product (WMP) issuance amid ongoing financial deleveraging, shadow banking activities, such as trust lending and entrusted funds managed by securities companies contracted further in 2019 (Chart 2.20).

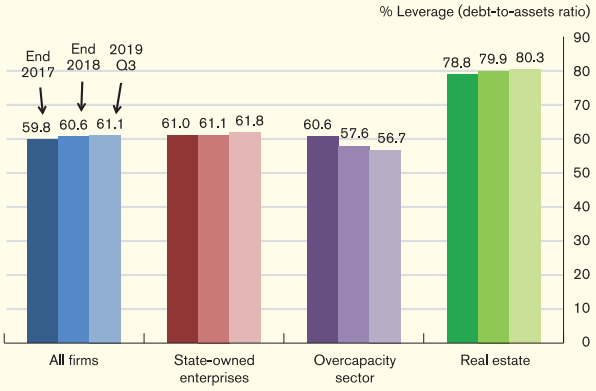
Chart 2.20
Mainland China: Growth of trust loans and entrusted funds managed by securities companies

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

To fill the gap left by informal credit contraction, the PBoC introduced several rounds of RRR cuts last year, including two cuts specifically targeting qualified smaller banks in order to facilitate lending to small and micro-sized firms (see the fiscal and monetary policy section for details). As a result, outstanding bank loans to the "smallest" firms with a credit limit less than RMB10 million expanded by over 25% in 2019 compared with 18% in 2018, almost twice the overall loan growth. Reflecting increased loan supply, the average borrowing cost of the "smallest" firms declined to 6.70% at the end of 2019 from 7.39% in 2018.

While the growth of bank lending to the "smallest" firms accelerated further, the expansion of overall bank loans extended to the corporate sector remained largely stable at around 11% in 2019. Although there is no further public information on the distribution of bank credit among firms of different sizes, other than the "smallest" ones, analyses of the listed firm data point to continued deleveraging in overcapacity sectors in the first three quarters of 2019 (Chart 2.21), likely reflecting further tightened loan underwriting standards by banks on inferior corporate borrowers with weaker repayment abilities.

Chart 2.21
Mainland China: Corporate leverage of listed firms

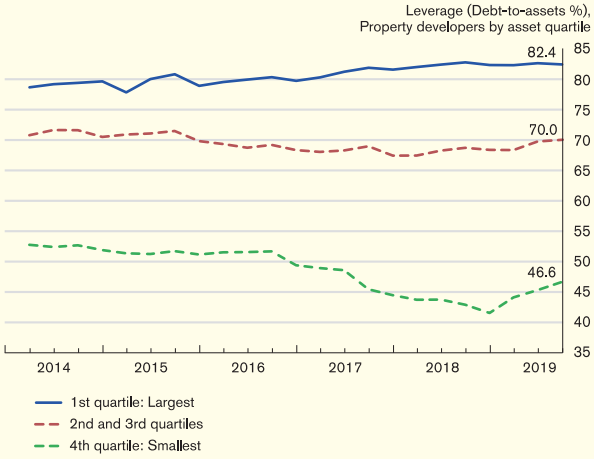


Sources: Bloomberg and HKMA staff estimates.

Overcapacity sectors continued to deleverage, while the overall leverage of listed firms was maintained at a reasonable level. This seems to reflect the ongoing structural deleveraging moves, which are targeted at maintaining the overall leverage of the economy while deleveraging the less efficient borrowers, such as zombie firms, and re-allocating financial resources to more efficient market entities.

Among the most leveraged industries, real estate has a significant financial stability implication given its linkages to both real and financial sectors. By the third quarter of 2019, the leverage ratio of property developers remained largely stable (Chart 2.21). Further analyses suggest that the leveraging was mainly concentrated in large and medium-sized developers whose financial positions are usually better. For small developers, although the level of their leverage remained relatively low, it rebounded after late 2018 amid the buoyant property market conditions in lower-tiers cities, where these small developers are usually concentrated. Given the relatively weaker financial positions of small developers, the rapid increase in leverage warrants close monitoring (Chart 2.22).

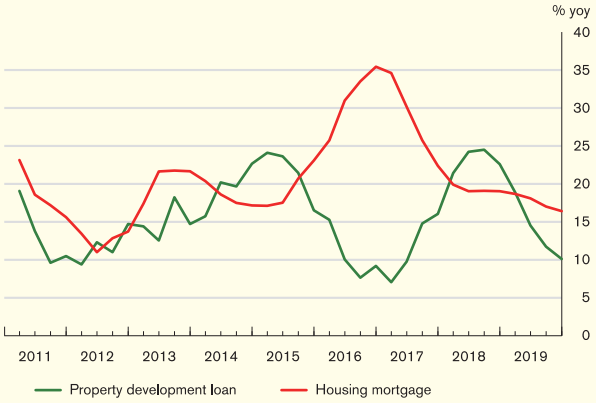
Chart 2.22
Mainland China: Corporate leverage of real estate developers by company size



Sources: Bloomberg and HKMA staff estimates.

Despite the increased leverage of small developers, year-on-year growth in overall property development loans further declined to 10.1% in December 2019 from 22.6% at end-2018 mainly reflecting a high base effect. Growth in mortgages also slowed to 16.4% year-on-year in the fourth quarter of 2019 from 19.0% at the end of 2018, likely due to the tightening measures in place (Chart 2.23). The share of property development loans and mortgages together in total bank loans, which measures banks' direct exposure to the property market, remained largely stable at around 28%.

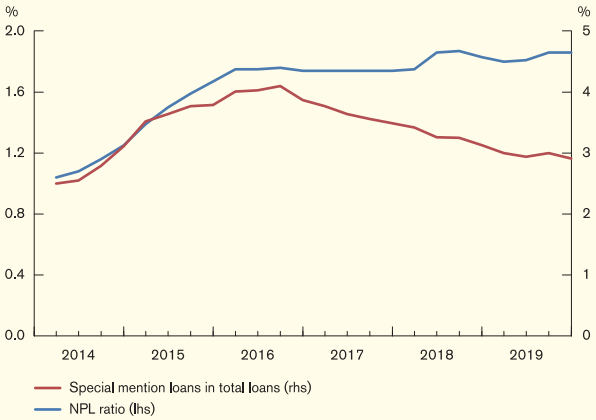
Chart 2.23
Mainland China: Growth of mortgage and property development loans



Sources: CEIC and HKMA staff estimates.

The overall bank asset quality remained robust during the review period. The overall non-performing loan (NPL) ratio stayed below 2%, though slightly edging up to 1.86% in the fourth quarter from 1.83% at the end of 2018. The share of special mention loans in total bank loans was largely steady at a relatively low level around 3.0% during the same period[19] (Chart 2.24).

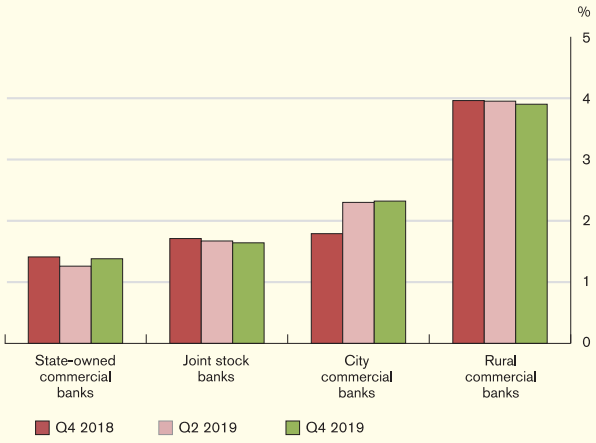
Chart 2.24
Mainland China: NPL ratio and special mention loan ratio



Source: CEIC.

However, smaller banks seemed to have faced some pressures, in part reflecting the fact that the repayment ability of corporate borrowers, especially smaller ones, deteriorated amid the recent economic slowdown. During the review period, the NPL ratio of rural commercial banks remained at relatively high level around 4%. For city commercial banks, the NPL ratio remained largely stable at around 2.30% at the end of 2019 compared with six months ago, in part reflecting accelerated disposal of bad assets especially in the fourth quarter (Chart 2.25).

Chart 2.25
Mainland China: NPL ratio by bank types



Source: CEIC.

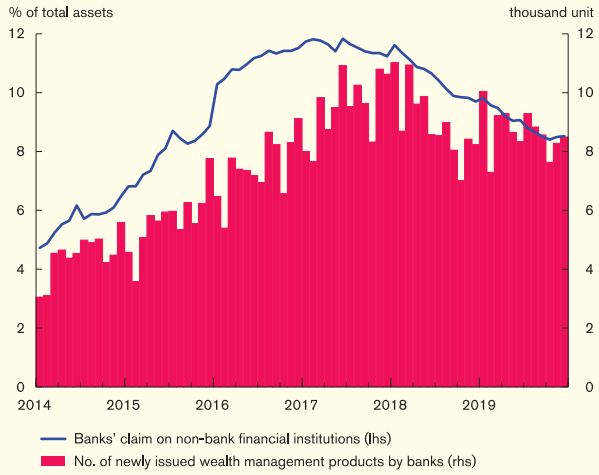
[19] A loan will be classified as special mention loans if the borrower has the ability to repay the loan currently, but may be affected by some unfavourable factors, according to the CBIRC. NPLs include loans that are classified as substandard, doubtful or loss, which are loans that are unlikely to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

To contain potential systemic risks facing the banking system, the authorities strengthened the regulation of smaller banks and improved bank crisis management by establishing a "four lines of defense" mechanism[20]. As a result, although three small banks defaulted in 2019, the associated impact on the stability of the whole banking sector was rather limited. In particular, after Baoshang Bank's takeover, the interbank funding costs such as short-term repo rates and Shanghai Interbank Offered Rate (SHIBOR) picked up, but the magnitudes were not particularly large. The interbank funding costs soon came down after the PBoC's liquidity injection. In comparison, market reaction seemed to be rather modest on the defaults of Bank of Jinzhou and Hengfeng Bank.

Despite the asset quality pressures facing smaller banks, the overall risk in the Mainland banking sector appears moderate. For now, the NPL ratio of Mainland banks, especially the systemically important ones, remains largely stable at low levels. In addition, relatively high loan loss provisions can also help protect banks against future losses. At the end of 2019, the provision coverage ratio of banks stood at 186%, well above the regulatory requirement. However, close monitoring is recommended for smaller banks, especially as a large proportion of their borrowers are small service providers and local manufacturers that are particularly vulnerable to the adverse impact of the coronavirus outbreak.

During the review period, Mainland banking regulator continued to limit banks' involvement in shadow banking activities to contain systemic risks. Consequently, shadow banking further contracted in the second half of 2019. In particular, the share of banks' claims on non-bank financial institutions in the total bank assets had declined for almost eight quarters by the end of 2019 (Chart 2.26). With the tightening measures on shadow banking activities in place, the issuance of WMPs by banks, which are a major funding source for shadow banking activities, also declined in the second half of 2019.

Chart 2.26
Mainland China: Share of banks' claim on non-bank financial institutions in total bank assets and newly issued WMPs



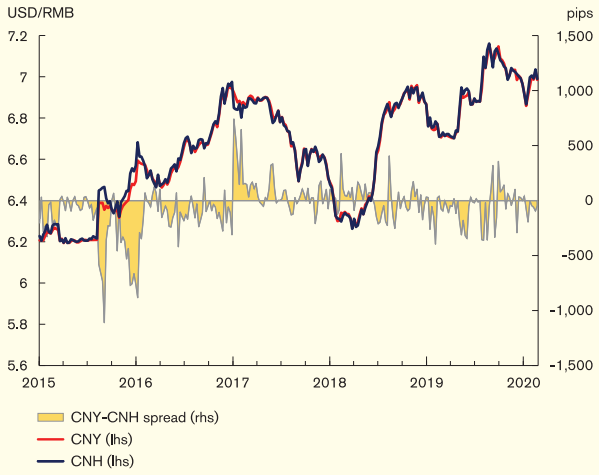
Sources: CEIC, Wind and HKMA staff estimates.

Exchange rate and cross-border capital flows

After depreciating by 3.8% in the first three quarters in 2019 on concerns over the US-China trade dispute and sluggish economic momentum, the onshore renminbi (CNY) strengthened by 2.7% in the final quarter amid improved sentiment as the two nations announced the "phase one" trade agreement. It further appreciated in early 2020 following the US removal of its "currency manipulator" label on Mainland China in mid-January. However, the renminbi weakened to 7.02 on 3 February from 6.86 on 17 January amid fears of the downward pressures on the Mainland economy brought by the coronavirus outbreak (Chart 2.27).

[20] "Four lines of defence" refers to four liquidity management tools of the central bank – central-bank discounts, central-bank lending to provide liquidity, the standing lending facility, and the required reserve ratio which may help contain liquidity risks facing smaller banks and prevent risks from spilling over to the whole banking system.

Chart 2.27
Mainland China: Onshore and offshore renminbi exchange rates

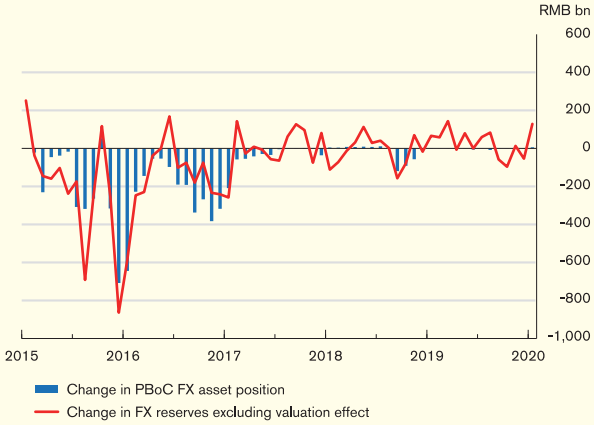


Sources: Bloomberg and HKMA staff estimates.

Compared with its counterpart in the onshore market, the offshore renminbi (CNH) was more volatile for most of the time during the review period. The latest Bloomberg consensus forecast expected the renminbi exchange rate against the US dollar for the second quarter of 2020 to be largely stable at around 7.0 amid the coronavirus outbreak.

Despite improved sentiment on the foreign exchange (FX) market in the second half of 2019, there were some signs of capital outflows, likely reflecting lingering concerns over an economic slowdown. Excluding the valuation effect, the foreign reserves are estimated to have declined slightly in the second half of 2019 after increasing notably in the first half. The PBoC FX asset position, another commonly used indicator for cross-border capital flows, also pointed to mild capital outflows in both the first and second half of 2019 (Chart 2.28). However, the outflow pressures were much smaller compared with earlier years when the CNY depreciated significantly. For the whole of 2019, the Mainland headline foreign reserves remained largely stable at above US$3 trillion.

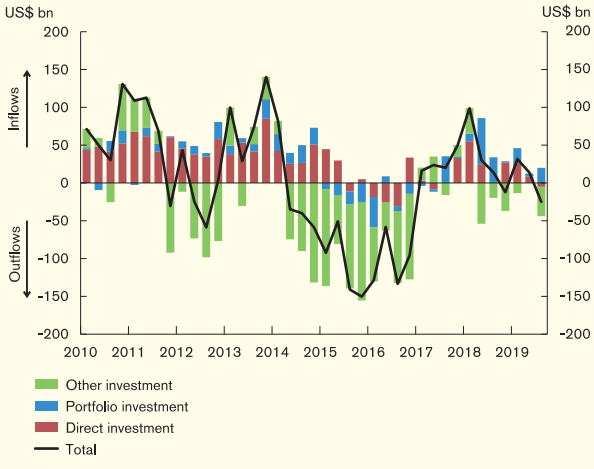
Chart 2.28
Mainland China: Changes in PBoC FX asset position and FX reserves



Sources: CEIC, SAFE and HKMA staff estimates.

The latest statistics on the balance of payments also indicated modest capital outflows in the third quarter (Chart 2.29). In particular, net outflows through other investment increased during the period, mainly due to the strong repayment of foreign loans by residents and the increased net outflows of trade credit. Direct investment also recorded net outflows for the first time after registering net inflows for eight consecutive quarters owing to stagnant inward investments by non-residents. In contrast, cross-border capital inflows through portfolio investments remained strong, as residents reduced overseas securities purchases while international investors increased holdings of Mainland equities.

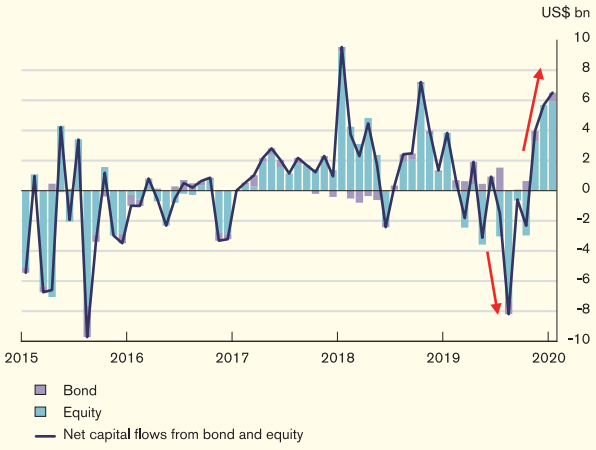
Chart 2.29
Mainland China: Net cross-border capital flows by type of flows



Sources: CEIC, SAFE and HKMA staff estimates.

Looking ahead, capital flows are likely to remain volatile over the short term. On the one hand, the "phase one" trade deal helped boost market confidence. In fact, based on more frequent and recent data, there were significant net inflows into the equity market in the last two months of 2019 and the first month of 2020, reversing the capital outflows trend amid the twists and turns of trade disputes earlier in 2019 (Chart 2.30). In addition, the increased weights of China A-shares in the MSCI indices announced in late February 2019 and the gradual inclusion of Mainland bonds in the Bloomberg Global Aggregate bond index starting from 1 April 2019, as well as the further opening-up of the Mainland financial markets will continue to provide support to capital inflows in the near term.[21] Nonetheless, uncertainties in the development of the coronavirus outbreak and the next stage of trade talks, the global economic slowdown and potential geopolitical risks remain a drag for investor sentiment.

Chart 2.30
Mainland China: Funds allocated to Mainland equities and bonds



Note: The figures also include those from the offshore markets such as investment in H-Shares.
Source: EPFR.

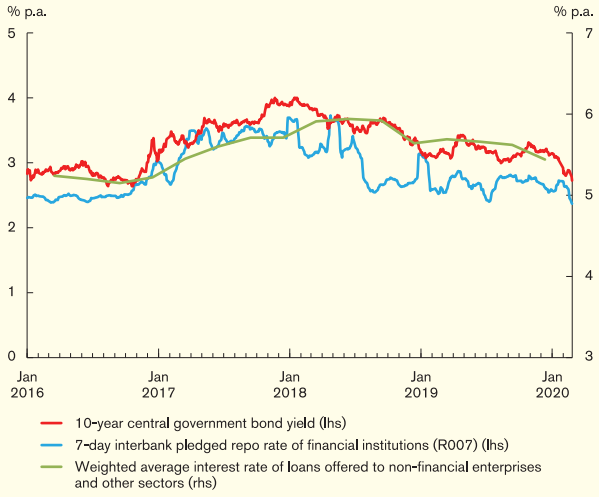
[21] The SAFE also removed investment quota for Qualified Foreign Institutional Investors and Renminbi Qualified Foreign Institutional Investors in September 2019 while the CSRC later announced the removal of the equity cap in foreign-invested securities and fund management firms which would take effect in phases starting from the beginning of 2020.

Fiscal and monetary policy

On the monetary policy front, while adopting a prudent stance, the PBoC continued to improve monetary transmission efficiency to lower the financing costs of the real sector especially for small and private firms amid the economic slowdown and the coronavirus outbreak. Following the refinement of the loan prime rate (LPR) formation mechanism on 17 August, the PBoC has lowered one-year LPR twice in September and November by five basis points each in 2019. As a result, the one-year LPR stood at 4.15% at the end of 2019, 16 basis points lower than before the refinement of the LPR formation. During the review period, the PBoC also announced several rounds of RRR cuts to release more liquidity to the banking system. In particular, the PBoC introduced a targeted RRR cut of 100 basis points for specific city commercial banks that primarily serve local businesses together with a broad-based RRR cut of 50 basis points in September. Another broad-based RRR cut of 50 basis points was announced in January 2020 to both ease liquidity conditions ahead of the Lunar New Year and further promote bank lending to corporates. In early February, the PBoC also net injected RMB550 billion into the banking system through open market operations and lowered the seven-day and 14-day reverse repo rates as well as the one-year LPR by 10 basis points each in response to the coronavirus outbreak.

Thanks to several rounds of interest rate and RRR cuts since the second half of 2019, the overall liquidity conditions in the banking system remained largely stable despite some credit events of smaller banks in 2019 and the coronavirus outbreak in 2020. Both the average seven-day interbank pledged repo rate of financial institutions (R007) and the 10-year central government bond yield came down during the review period (Chart 2.31).

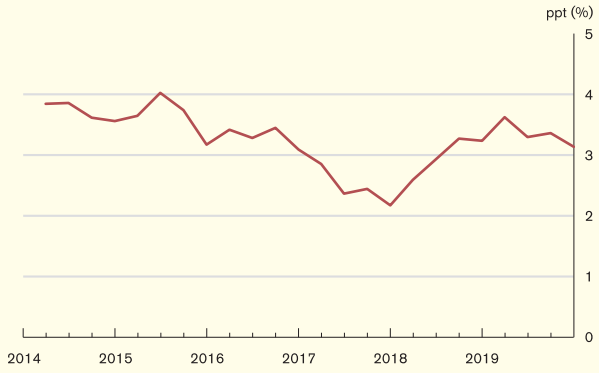
Chart 2.31
Mainland China: Major market interest rates



Sources: CEIC, PBoC and HKMA staff estimates.

Amid lowered interbank funding costs, the weighted average bank lending rate to the non-financial sector also decreased in the second half of 2019. The risk premium on corporate loans remained elevated despite narrowing somewhat during the period, in part reflecting lenders' concern over a potential deterioration in the repayment ability of corporate borrowers amid the recent economic slowdown and the US-China trade tensions (Chart 2.32).

Chart 2.32
Mainland China: Spread of the weighted average bank lending rate to the non-financial sector (general loans only) over one-year central government bond yield



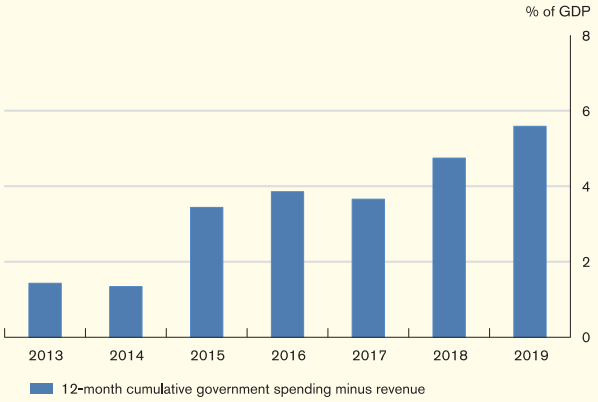
Note: General loans refer to bank loans excluding mortgages and bill financing, which are a proxy for corporate loans.
Sources: CEIC, PBoC and HKMA staff estimates.

In an effort to push ahead with interest rate liberalisation and lower financing costs for the real sector, Mainland financial institutions were instructed by the PBoC in December 2019 to gradually switch the reference rates of existing loans from the old benchmark lending rate to the LPR starting from 2020. This move expedited the process of the transition to a more market-based interest rate system, which was expected to improve monetary transmission and better channel policy rate cuts to the real sector.

On fiscal policy, the government continued to adopt a proactive stance. In 2019, the government cut a total of RMB2.3 trillion in tax and fees for Mainland corporates. As part of its anti-virus efforts, the government also announced the provision of interest subsidies to firms providing critical support to contain the coronavirus outbreak, as well as cuts in tax and fees especially for small businesses. Reflecting the government's efforts to reduce the fees and tax burden facing Mainland corporates, the growth in the overall government tax revenue eased from 8.3% year on year in 2018 to 1.0% in 2019.

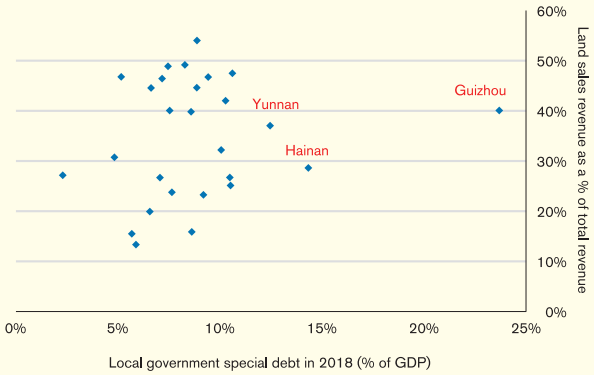
Despite a much slower expansion in tax revenue, growth in overall public expenditure remained high at 8.1% in 2019, although slightly slower compared with 8.8% in 2018. Reflecting the proactive stance, the 12-month cumulative gap between expenditure and revenue in the government's general public budget and government-managed funds widened further to 5.6% of GDP in 2019, after rising to 4.7% in 2018 (Chart 2.33).

Chart 2.33
Mainland China: Difference between public spending and public revenue



Sources: Wind, MoF and HKMA staff estimates.

Chart 2.34
Mainland China: Land sales revenue and local government special debt in 2018



Sources: Wind and HKMA staff estimates.

To finance the funding shortfall, local governments accelerated the issuance of special bonds. In particular, the newly issued special bonds reached RMB2.6 trillion in 2019 compared with about RMB2.0 trillion in 2018. The MoF also allowed the early issuance of RMB1 trillion local government special bonds in 2020 to further facilitate public spending.

Amid the accelerated bond issuance, the outstanding local government debt increased by 15% year on year to RMB21 trillion at the end of 2019, compared with a 12% increase in 2018. However, the overall risk of local government debt remains manageable as the local government debt-to-GDP ratio remains at a relatively low level, albeit edging higher to 21.5% at the end of 2019 from 20.4% at the end of 2018.

That said, some local governments may face refinancing pressures, given that revenue from land sales, a major source of local government income, decelerated significantly to 11% in 2019 from 25% in 2018. Indeed, our analysis suggests that some local governments, such as Guizhou, Hainan, and Yunnan, could be more sensitive to changes in property market conditions given their relatively higher indebtedness combined with a heavy reliance of their revenue on land sales in the past (Chart 2.34).

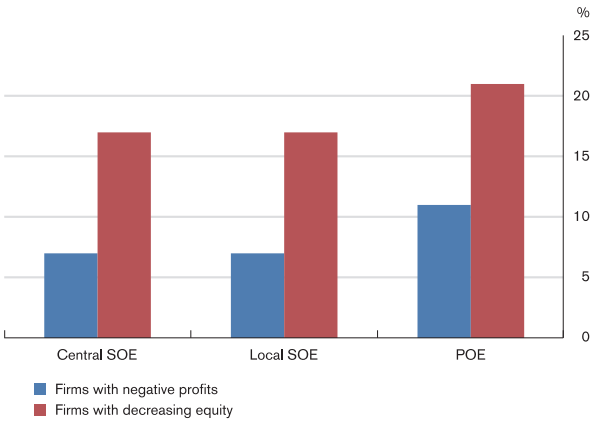
During the review period, Mainland authorities continued to roll out targeted monetary and fiscal policies to support the private sector especially smaller private business owners. Nevertheless, some media reports and market analysts have argued that despite the efforts, private industrial firms might have suffered equity declines. Box 2 examines the drivers of equity changes of Mainland industrial firms and finds that privately-owned enterprises or small firms were not intrinsically more likely to suffer shrinkage in size or a "retreat" (see more details in Box 2).

Box 2
What is behind the equity decline in Mainland Enterprises?

Introduction

2018 is perceived by many as a particularly difficult year for firms in Mainland China amid government efforts to deleverage the corporate sector, and the US-China trade tensions. Even listed firms, the "cream of the crop", faced a grim year. Data from firms' annual reports shows that a significant proportion of the firms made losses as well as experienced a decrease in equity in 2018[22] (Chart B2.1).

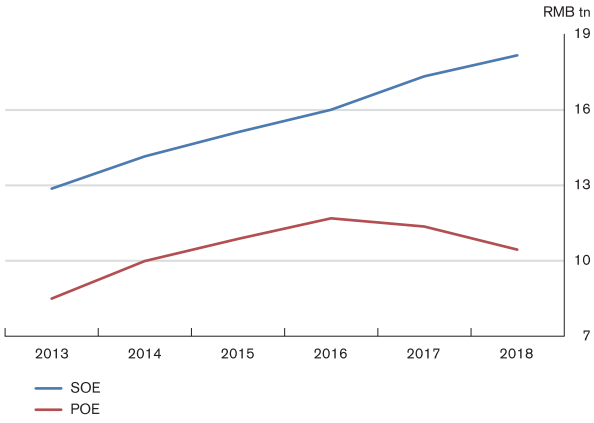
Chart B2.1
Percentage of loss-making firms and equity-decreasing firms in 2018



Sources: Wind and HKMA staff calculations.

Apart from the fact that a notable share of firms suffered losses, two observations emerge from Chart B2.1. First, notably more firms suffered declines in equity than recording losses. This suggests there should be other important reasons leading to the contraction in equity. Second, it seems that on average, more POEs made losses and experienced a drop in equity than SOEs. This finding appears to echo what has been documented by some studies using aggregate data, where the total equity of private industrial firms above designated size was found to have declined since 2017, while that of state-owned firms continued to increase[23] (Chart B2.2).

Chart B2.2
Changes in owner's equity by firm type



Source: CEIC.

Motivated by these observations, our study tries to answer the following questions, 1) What are the reasons behind this decline in equity for Mainland firms if loss-making is not the sole reason? 2) Does ownership or size explain the fact that more POEs suffer equity declines compared with SOEs? And 3) What are the implications of this decrease in equity of Mainland firms?

Equity composition from an accounting perspective

To answer these questions, we start by examining the major components affecting firms' equity. In particular, under the generally accepted accounting principles in Mainland China (PRC GAAP), the main components of owner's equity can be expressed as follows:

$$\begin{aligned} &Total\ equity \\ &= paid\ in\ capital + capital\ reserves \\ &+ retained\ earnings \\ &+ other\ comprehensive\ income\ (OCI) \end{aligned}$$

[22] In comparison, these figures were much smaller in 2017 especially for privately-owned enterprises (POEs). Specifically, the percentages of loss-making firms were 6%, 4%, and 3% respectively for central state-owned enterprises (SOEs), local SOEs, and POEs in 2017, while the percentages of equity-decreasing firms were 12%, 12%, and 7% respectively.

[23] See studies such as Tang (2018) and Zhang (2018), which showed that POEs were adding leverage passively in 2018 because POE assets decreased more quickly than liabilities.

Events that change these right-hand side components can in turn cause changes in equity[24]. For instance, making profits can improve owner's equity through adding to retained earnings. Indeed, many factors can affect total equity, and making a profit/loss is just one of them. A summary of key equity-changing events is shown in Table B2.1.

Table B2.1
Key events affecting equity components

	Paid-in capital	Capital reserves	Retained earnings	OCI
Issuing new shares	√	√		
Share buybacks	√	√		
Profit/Loss			√	
Dividend distribution			√	
M&A under common control		√		
Change in the fair value of available-for-sale financial assets				√

The first four factors listed in Table B2.1 are the most important – new share issuance, share buyback, current period profits or losses, and dividend distribution. For listed firms, new shares can still be issued on the secondary markets (seasoned equity offering, SEO), which increase both paid-in capital and capital reserves. Shares bought back become treasury stocks which offset owner's equity[25]. The current period net profits increase total equity, while net losses decrease total equity. Distributing dividends to shareholders decreases total equity.

Other events, though less common, can affect total equity as well. If a company acquires another company and both the acquiring and the acquired companies are controlled by the same third party, then the difference between the purchase price and the acquired company's identifiable net assets will be absorbed by other capital reserves. In other cases, if a company holds stocks of other listed companies and classifies these stocks as available-for-sale financial assets, then increases in the market value of these stocks will increase other comprehensive income (OCI) and thus total equity.

Note that the table does not cover all equity-changing events, especially those that are less common compared with the key events listed here[26]. In addition, events that only cause redistribution among equity components and do not affect total equity are not listed in the table.

Factors driving equity movement: empirical framework and results

We study how these equity-changing events affect total equity and whether ownership type matters, by conducting a firm level cross-sectional analysis. Our study uses listed industrial firm data in 2018. There are 2,158 firms in our final sample[27], of which 71% are POEs, 11% are central SOEs, and 18% are local SOEs[28]. The regression equation takes the following form:

$$\Delta Equity_i = \beta_0 + \beta_1 * Ownership_i + \beta_2 * Small\ Firm_i + \beta_3 * Equity\ Event_i + \beta_4 * Industry\ Dummies_i + e_i$$

where $\Delta Equity = (Equity_{2018} - Equity_{2017})/Equity_{2017} * 100$. *Ownership* is a vector of variables including the local SOE and the POE

[24] Strictly speaking, retained earnings correspond to two items under the PRC GAAP, undistributed profits and surplus reserves; here we use retained earnings for simplicity.

[25] Firms can buy back their own shares for various purposes such as rewarding shares to employees or cancelling these shares to boost share price and investor confidence. Regardless of the final purpose, shares bought back first become treasury stocks which decrease total equity, before further actions are taken towards these treasury stocks to fulfil the original purpose of the share buyback.

[26] Other events include donation from shareholders, reclassification among different types of financial instruments, share-based payments, reclassifying fixed assets to investment properties, equity changes in invested companies, issuing perpetual bonds or convertible bonds, incurring foreign currency translation differences.

[27] We exclude ST (special treatment) stocks because their indicators tend to have abnormal values and may skew the results. Also, data is winsored at 1% and 99% to minimise the influence of outliers.

[28] Ownership type may change across years for a small fraction of firms. The classification here is based on firms' ownership type at the end of 2017.

dummies. In this sense, the reference group is central SOEs. *Small Firm* is a dummy variable which equals to 1 for small firms[29]; it is included because small firms are usually viewed as more fragile and may suffer more in adverse conditions. *Equity Event* is a vector of variables including the four major factors (profits, dividend distribution, seasoned equity offering and share buybacks) in the baseline specification and two additional factors (OCI and related-party M&A dummy[30]) in alternative specifications. Except for the related-party M&A dummy, all equity-changing factors are scaled by total equity at end-2017. Industry fixed effects are controlled for in all specifications.

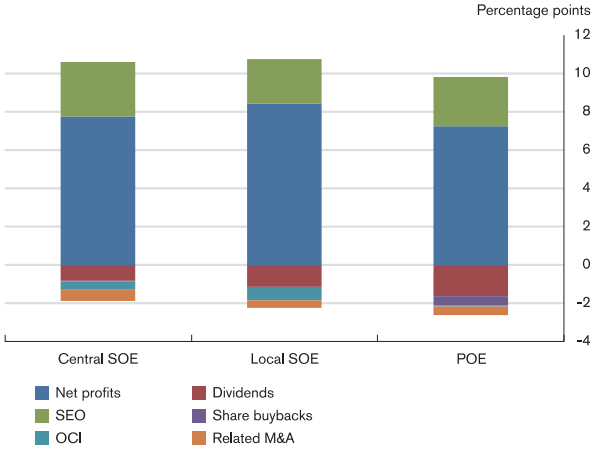
Table B2.2
Effects of equity-changing factors on total equity

	Baseline - full sample	With additional controls - full sample	With additional controls - equity losing firms
Small firm dummy	0.66	0.40	2.51***
	(1.37)	(0.85)	(3.30)
Local SOE dummy	0.89	0.97	-0.14
	(1.13)	(1.27)	(-0.12)
POE dummy	1.24*	0.87	-1.68
	(1.80)	(1.30)	(-1.61)
Profits	1.03***	1.03***	0.83***
	(58.90)	(60.80)	(40.38)
Dividends	-0.61***	-0.64***	-0.74***
	(-9.48)	(-10.17)	(-7.12)
SEO	0.71***	0.71***	0.09*
	(56.69)	(58.13)	(1.94)
Share buybacks	-0.89***	-0.82***	-0.46***
	(-5.61)	(-5.32)	(-2.67)
OCI		1.65***	0.68***
		(8.89)	(3.64)
Related party M&A		-3.57***	-3.84***
		(-6.06)	(-4.85)
Constant	-1.11	-0.51	-3.61**
	(-1.20)	(-0.56)	(-2.52)
Obervations	2158	2158	435
Adjusted R-squared	0.787	0.799	0.830

Note: t-statistics in parentheses.
* p<0.1 ** p<0.05 *** p<0.01

The main regression results are shown in Table B2.2. The coefficients of the small firm and POE dummies are either statistically insignificant or positive, suggesting that being a small firm or a POE does not negatively affect total equity. All coefficients of major equity events are statistically significant and have expected signs. Making profits or issuing new shares through SEO increases equity[31], while distributing dividends or buying back shares decreases equity. Less prominent factors such as OCI and related-party M&A also matter.

Chart B2.3
Contribution of major equity events – full sample



Sources: Wind and HKMA staff estimates.

Chart B2.3 shows the average contribution of each equity event based on the full sample estimation (second column of Table B2.2). The figure shows that similarly for all three types of firms, on average profit is the largest equity-influencing factor and the effect of SEO is also sizable. Dividend distribution is an important dragging factor for equity, and POEs seem to have distributed the most among all three types of firms. OCI is found to decrease equity as well, especially for SOEs, which may suggest that SOEs' investment portfolios performed worse. In comparison, share buybacks affect POEs more

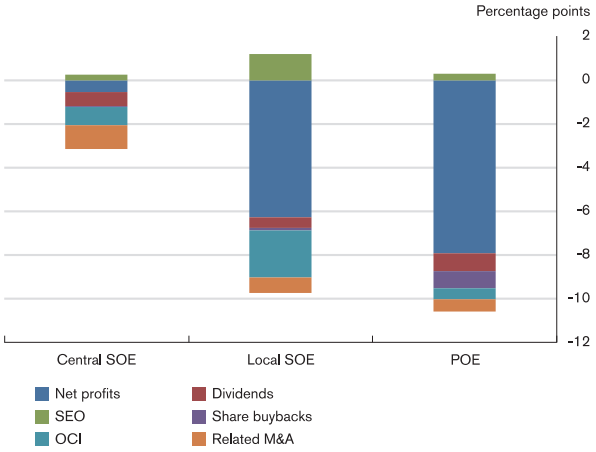
[29] The small firm dummy captures firms whose asset size is in the lowest 25% among all firms.

[30] Due to data limitation, we use related party M&A to proxy for M&A under common control.

[31] To be precise, there are three ways to conduct SEO: rights issues, public offerings, and private placements. The SEO in our regression is mainly private placements as the other two ways were rarely used by firms in the sample.

than SOEs, suggesting POEs bought back more shares. One plausible reason is that POEs did so to boost their stock price, if they had pledged shares as collaterals to obtain external funding.

Chart B2.4
Contribution of major equity events – equity-decreasing firm only



Sources: Wind and HKMA staff estimates.

The contribution of equity factors for a subgroup of our sample, firms that suffered an equity decrease in 2018, is presented in Chart B2.4 (results based on the third column of Table B2.2). In general, central SOEs experienced little equity decrease, and negative profits only played a minor role. By contrast, incurring losses is the biggest factor leading to equity decline for both local SOEs and POEs. Other than that, local SOEs suffered more from negative OCI, but enjoyed larger SEO funding. In comparison, POEs that suffered equity declines received little equity funding from SEO, while larger dividend distribution as well as share buybacks added to the decrease in equity.

Conclusion

2018 was a particularly difficult year for the Mainland corporate sector amid ongoing domestic restructuring and the trade disputes between the US and Mainland China. Using listed industrial firm data in 2018, we find that while on average Mainland listed firms continued to expand, an increasing share of firms suffered decreases in equity. When exploring factors affecting changes in the equity of firms, two observations emerge.

First, ownership or size of listed firms is found to have no significant marginal explanatory power over the recent declines in firms' equity. This means that POEs or small firms were not intrinsically more likely to suffer shrinkage in size or a "retreat" as declared by some media reports and market analysts.

Second, such decreases in equity were particularly significant for local SOEs and POEs, with the biggest contributing factor being negative profits. While the profitability of firms may improve on measures being introduced by government, such as interest or tax/fee cuts, factors resulting in equity declines due to more structural issues are worth noting. For instance, losses in OCI seem to be the second most important reason for local SOEs' equity decline, highlighting the inefficiency of these firms that invest beyond their primary operations. In comparison, share buybacks of equity-declining POEs, if done for the purpose of propping up the stock price to sustain credits from share pledging, could also be of concern.

One caveat to our study is that due to data limitation, we only include listed firms in our sample and the situation for non-listed firms could be different. For example, studies show that some POEs have dropped out of the above-designated-size group[32] and we cannot rule out the possibility that some went bankrupt, instead of only experiencing balance sheet contraction. In this light, our findings from listed firms presented in this study may not be able to be generalised to all Mainland industrial firms.

[32] For example, Ding (2019) documented that the number of enterprises above designated size has shrunk since 2017 and most of the firms that fall below the threshold are POEs.

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3. Domestic economy

Alongside weakened private consumption, subdued investment spending and poor export performance, the Hong Kong economy contracted in the second half of 2019, entering into a recession for the first time since 2009. The economic performance for 2020 is expected to be very challenging, with significant near-term downside risks associated with the coronavirus outbreak. This outlook is subject to further uncertainties and risks, including those stemming from the slowing global economy, the US-China trade relations, Mainland's economic performance and local social incidents. Unemployment will likely rise further in 2020 due to various economic headwinds, while local inflationary pressures are expected to moderate, although there are potential risks on either side.

3.1 Real activities

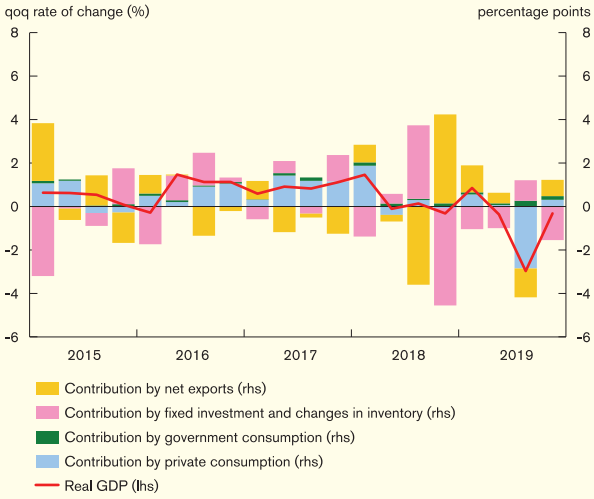
The economy contracted sharply during the second half of 2019. On a year-on-year basis, real Gross Domestic Product (GDP) contracted by 2.8% in the third quarter and 2.9% in the fourth quarter (Table 3.A). The economic contraction in the second half dragged down the full-year growth rate to -1.2%, compared with a 2.9% expansion a year earlier, marking the first annual decline since the 2009 global financial crisis.

Table 3.A
Real GDP growth

		Year-on-year growth rate (%)
2018	Q1	4.5
	Q2	3.4
	Q3	2.6
	Q4	1.1
2019	Q1	0.7
	Q2	0.4
	Q3	-2.8
	Q4	-2.9
10-year average	(2009 Q1 – 2018 Q4)	2.8

Source: C&SD.

Chart 3.1
Real GDP growth and contribution by major expenditure components

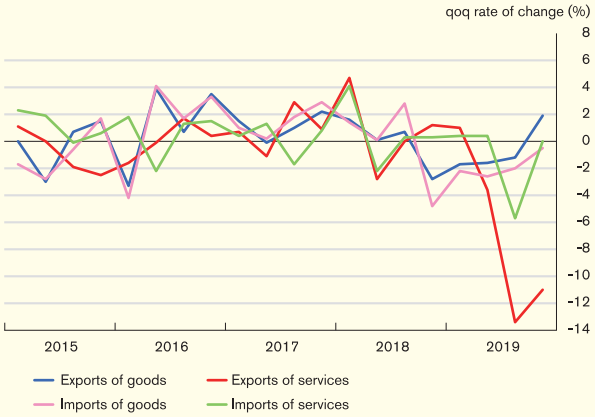


Note: Growth rates are seasonally adjusted.
Sources: C&SD and HKMA staff estimates.

On a quarter-on-quarter basis, economic activities slowed visibly in the second half of the year (Chart 3.1). Specifically, real GDP declined successively by 0.4%, 3.0% and 0.3% in the second, third and fourth quarters, indicating that the economy had entered into a recession. Domestically, private consumption constituted the main drag on GDP in the third quarter and has since contracted significantly as local social incidents caused major disruptions to

consumption-related activities and the resultant weaker economic outlook lowered consumer confidence.[33] Aggregate investment spending remained weak and pulled down GDP in the fourth quarter due to heightened economic uncertainty and gloomy business sentiments.[34] Externally, Hong Kong's trade performance continued to be subdued amid the escalated US-China trade tensions, weaker global economic growth and plunging tourist arrivals (Chart 3.2).[35] Net trade contributed negatively to GDP in the third quarter driven by a sharp contraction in exports of services, but turned positive in the fourth quarter partly reflecting an improvement in the goods trade balance.

Chart 3.2
Exports and imports in real terms



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

In view of the strong economic headwinds, the Government introduced several rounds of measures between August and December 2019 to alleviate the financial burden of residents, safeguard jobs and support enterprises, particularly small and medium-sized enterprises (SMEs) as well as those in the hard-hit sectors, such as retail, food services, transport and tourism.[36] To allow banks to be more supportive to the domestic economy and help mitigate the economic cycle, the HKMA announced on 14 October a reduction in the Countercyclical Capital Buffer (CCyB) ratio of banks from 2.5% to 2.0%, thereby providing banks with more flexibility to release HK$200–300 billion in bank credit to enterprises including SMEs.

Hong Kong's economic performance in 2020 is expected to be very challenging, with significant near-term downside risks associated with the coronavirus outbreak. Some sectors, including those already suffering from the disruptions caused by the social incidents in 2019, will be doubly hit. However, the countercyclical fiscal measures announced in the 2020/21 Budget, which include a one-off cash handout and a new concessionary low-interest loan under the SME Financing Guarantee Scheme with 100% Government guarantee, are expected to provide some support to households and enterprises (especially SMEs).[37] On 16 March 2020, the HKMA further reduced the CCyB ratio of banks from 2.0% to 1.0%, which will allow banks to be more supportive to the domestic economy, in particular those sectors and individuals that are expected to experience additional short-term stress due to the impact arising from the outbreak. Analysed by GDP components, private consumption and investment will likely remain weak because of fragile consumer and business confidence. While government consumption will contribute to economic growth, public investment expenditure is anticipated to be relatively sluggish following the completion of some major infrastructure projects. On the

[33] The Consumer Confidence Index compiled by the City University of Hong Kong fell to 52.8 and 68.7 respectively in the third and fourth quarters of 2019, reaching the lowest levels on record since the fourth quarter of 2008.

[34] The Purchasing Managers' Index has remained in the contractionary zone since April 2018 and dropped to 33.1 in February 2020, the lowest level on record.

[35] Tourist arrivals plummeted by 39.1% year-on-year in the second half of 2019, especially those from Mainland China (-40.8%), along with tourist spending as indicated by decreases in retail sales.

[36] These measures include rent concessions, utility subsidies for domestic and non-domestic households, principal moratorium under the existing SME Financing Guarantee Scheme, a new 90% Loan Guarantee Product, etc.

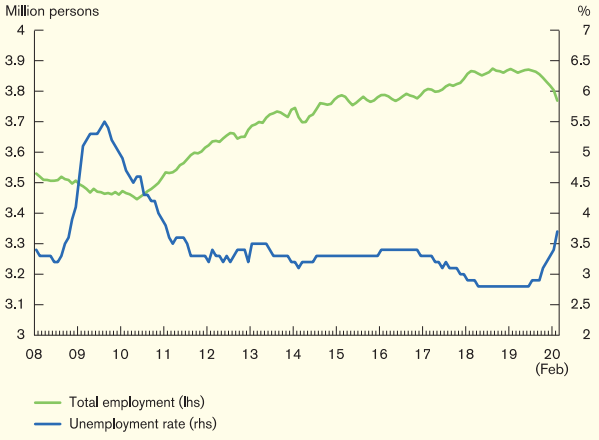
[37] Other relief measures include reducing salaries tax and profits tax by 100%, subject to a ceiling, as well as waiving rates of domestic properties and registration fees for businesses. Some banks have also implemented short-term relief measures such as interest-only repayments for mortgage loans and relief loans for SMEs.

external front, the "phase one" trade deal between the US and Mainland China is assessed to be slightly positive for the local economy in the short term.[38] However, Hong Kong's external trade performance will continue to be weighed down by weak global economic growth and trade flows. In particular, the coronavirus outbreak may lead to regional supply chain disruptions and slower cross-border economic activities (e.g. tourism), thereby restraining Hong Kong's exports. The Government forecasts real GDP growth for 2020 in the range between -1.5% and 0.5%, and the growth estimates by international organisations and private sector analysts averaged -1.5%. This subdued economic outlook is subject to a number of uncertainties and risks as discussed in previous chapters.

3.2 Labour market conditions

The labour market came under increasing pressures in the second half of 2019 and in early 2020. The seasonally adjusted unemployment rate rose from a multi-year low of 2.8% in June 2019 to 3.3% in December 2019 and further to 3.7% in February 2020 (Chart 3.3). Partly reflecting the impact of the social incidents, the retail, accommodation and food services sectors were hit hard, with the unemployment rate of these sectors rising to 6.1%, the highest in about a decade.[39] Amid the slowing economy, total employment declined by 0.5% year-on-year in the second half of 2019 and dropped further to 3,768,800 persons in February 2020. The decline in employment mostly came from the trade, wholesale, retail, accommodation, food services and construction sectors. Real payroll also showed a year-on-year decline of 0.3% in the third quarter. Looking ahead, the labour market will continue to face more challenges and the unemployment rate will likely rise further given the sluggish economic outlook discussed above. Box 3 discusses in more detail the recent developments in the labour market and its near-term outlook.

Chart 3.3
Labour market conditions



Source: C&SD.

3.3 Inflation

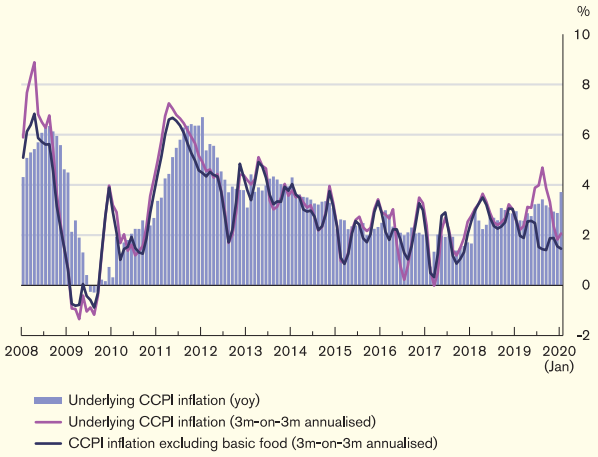
Local inflationary pressures continued to accumulate up to the third quarter of 2019 mainly due to elevated fresh pork prices, but the sequential momentum of inflation gradually eased thereafter along with weakened economic activities. On a year-on-year comparison, the underlying Composite Consumer Price Index (CCPI) increased by 3.3% in the third quarter, before moderating somewhat to 3.0% in the fourth quarter. Inflation momentum, as measured by the annualised three-month-on-three-month underlying inflation rate, also softened from the peak of 4.7% in August 2019 to 2.1% in January 2020. The slower inflation momentum was attributable to the reduced price pressures on a broad range of CCPI components. For tradable items, while inflation of basic food items remained visible due to elevated fresh pork prices, price pressures for consumable goods such as clothing and footwear as well as durable goods remained generally soft. For services, the growth

[38] Our in-house analysis suggests that the trade deal will have a small net positive impact on Hong Kong's nominal GDP in the short term, although the actual outcome will be subject to high uncertainty. The impact is likely to come mainly from a reduction in uncertainty which increases consumption and investment, while the potential impact on trade is estimated to be limited given the offsetting effects from the tariff rollback and possible trade diversion (away from Hong Kong).

[39] In addition, the unemployment rate in the construction sector reached 6.8% in February 2020.

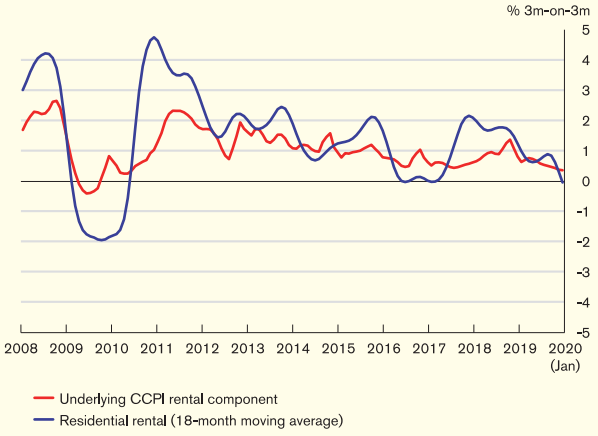
in the rental component of the CCPI has also been on a downtrend in tandem with the earlier consolidation of fresh-letting residential rentals (Chart 3.5). Labour cost pressures edged up slightly, but stayed at modest levels in recent quarters (Chart 3.6).

Chart 3.4
Different measures of consumer price inflation



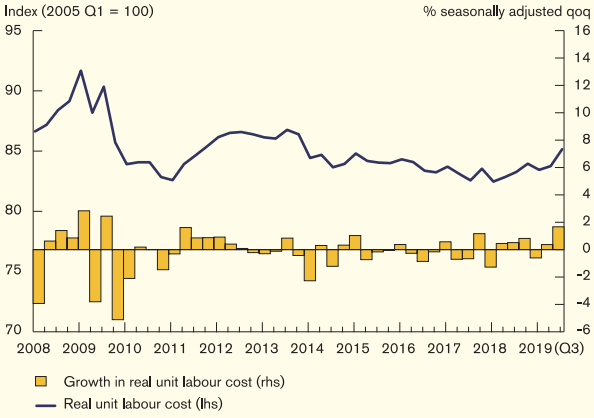
Sources: C&SD and HKMA staff estimates.

Chart 3.5
CCPI rental component and market rental



Sources: C&SD and Rating and Valuation Department.

Chart 3.6
Unit labour cost



Sources: C&SD and HKMA staff estimates.

In the near term, local inflationary pressures are expected to moderate. Domestically, the sub-par economic conditions, together with a widening negative output gap, will continue to put downward pressures on local inflation. In particular, the rental component of inflation should ease further following the continued feed-through of the consolidation of private residential rentals. Externally, imported inflation will likely remain mild on the back of weak global economic growth and soft energy prices. Market consensus forecasts the headline inflation rate for 2020 to be between 0.6% and 3.7%, and the Government projects the underlying inflation rate to be 2.5% and the headline inflation rate to be 1.7%.

This inflation outlook is subject to offsetting risk factors. On the one hand, if the economy deteriorates more sharply than expected (due to, for example, a prolonged period before the coronavirus outbreak is contained), this could further dampen inflation, given that the estimated output gap has become more negative since the third quarter of 2019. On the other hand, if the disrupted supply of fresh pork re-intensifies, it will exert upward pressures on inflation.

Box 3
An assessment of Hong Kong's labour market: Recent developments and near-term outlook

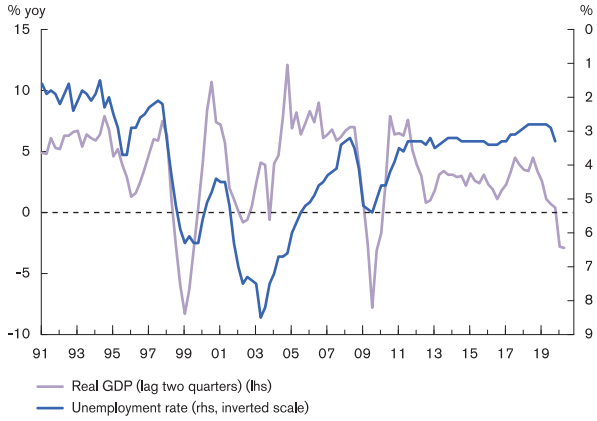
Introduction

Despite a clear economic slowdown, the unemployment rate remained low at 2.8–2.9% in the first nine months of 2019. It climbed more visibly to 3.3% towards the end of the year along with the prolonged social incidents. The labour market faces even stronger headwinds entering into 2020 due to the outbreak of the coronavirus. Against this backdrop, this Box reviews recent developments in the labour market, and discusses its near-term outlook. In particular, we examine why the overall labour market was broadly "resilient" (the unemployment rate barely moved) in the first three quarters of 2019, and how this may shed light on future developments. Our analysis also highlights some risk factors that could lead to a sharp increase in the unemployment rate.

Recent labour market developments

It should be noted that the unemployment rate is a lagging indicator, partly because it is costly to adjust labour demand. Empirically, the unemployment rate tends to lag behind year-on-year real GDP growth by about two to three quarters (Chart B3.1). And this lagged response may explain why the unemployment rate remained stable at about 2.9% in the third quarter despite a sharp deterioration in real economic activities.

Chart B3.1
Real GDP growth and unemployment rate

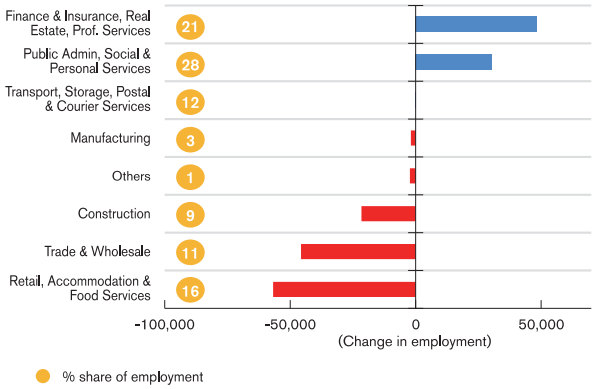


Note: Quarterly data.
Source: C&SD.

On the demand side, while employment in the trade sector and the retail and tourism-related sector were hard hit by US-China trade tensions and the local social incidents, some large economic sectors remained supportive of the overall labour market. Specifically, the financial, business, public administration, social and personal services sectors still saw employment growth in 2019, partially offsetting the fall in trade and retail employment (Chart B3.2). Indeed, despite the current economic recession, Hong Kong's financial system remained sound and resilient, and financial activities were vibrant in terms of fintech developments and new equity issuance. All these may have helped support employment in the financial and business services sector. In addition, the public administration, social and personal services sector, which includes education, human healthcare and social work activities, appears to be less cyclically-sensitive. Correlation analysis reveals that while employment in many sectors is highly correlated with real GDP, the public administration, social and personal services sector is more cyclically-neutral. In other words, even if the economy slows, the employment in

this sector may not be significantly affected cyclically.

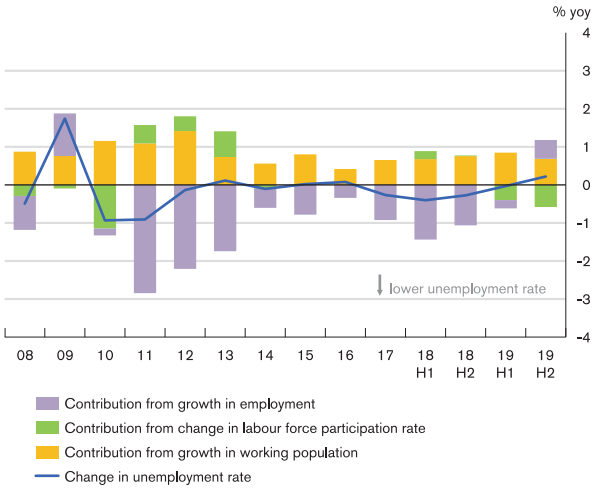
Chart B3.2
Sectoral employment changes in 2019



Note: Employment share refers to 2018.
Source: C&SD.

On the supply side, the labour force participation rate (LFPR)[40] declined from 61.2% in 2018 to 60.5% in 2019 and the unemployment rate was cushioned by this recently lower LFPR. Chart B3.3 shows a breakdown of the changes in the unemployment rate (the blue line) into different supply and demand factors. The breakdown reveals that the LFPR exerted downward pressure on the unemployment rate (the green bars) in 2019.[41] On the other hand, rising employment in the first half of 2019 (the purple bar) also helped keep the unemployment rate in check. As the economy contracted markedly in the second half, declining employment put upward pressure on the unemployment rate. Taken together, while employment declined amid the economic recession, the lower LFPR helped mitigate the rise in the unemployment rate in the latter part of 2019.

Chart B3.3
Factors contributing to changes in the unemployment rate



Note: Period averages. Decomposition not exact. Residuals not shown here.
Sources: C&SD and HKMA staff estimates.

Some changes in the labour market structure are also worth mentioning. In particular, the increased share of voluntary part-time employees may have helped firms to retain workers. In fact, self-employment and underemployment as a share of total employment declined to about 6% and 1% respectively in recent years, but voluntary part-timers increased continually to become the second largest group in total employment (about 7% in 2017).[42] As such, companies can adjust the work hours of part-timers and potentially retain or absorb more labour. Our calculation suggests that average working hours per week generally declined, from a recent peak of 48 hours in 2010 to about 44 hours now, partly reflecting the fact that more part-timers are now in employment.

In summary, partly reflecting some labour-supportive sectors and lower LFPR, the overall labour market was broadly stable for the better part of 2019, before turning more sluggish towards the end of the year amid the local social incidents. With these observations, what are the prospects for the near-term?

[40] LFPR refers to the proportion of land-based non-institutional population aged 15 and above participating in the labour market.

[41] Working population grew steadily over the years owing to net migration and, to a lesser extent, natural population growth. As potential labour supply increases, it tends to raise the unemployment rate (the yellow bars in the chart).

[42] Forms of employment include full-time employees, underemployed employees, voluntary part-time employees, self-employed, employers and unpaid family workers.

The near-term outlook for the labour market

The labour market will face mounting pressure and the unemployment rate will likely rise further in 2020 as the impact from a further decline in labour demand more than offsets the small cushion provided by reduced labour supply. As the economy has slipped into a recession and is combating the coronavirus outbreak, the demand for labour in the logistics, retail and tourism sectors, which have yet to recover from the impact of the social incidents in 2019, will be doubly hit in the near term. Additionally, the SMEs in these sectors will be particularly vulnerable. Other sectors will also be under increasing stress amid the outbreak which hampers various economic and financial activities, both locally and cross-border. As a result, a significant reduction in labour demand will raise the unemployment rate. For labour supply, the labour force participation rate should continue to mitigate the rise in the unemployment rate. However, its impact is likely to be temporary and small. Indeed, private-sector analysts forecast the unemployment rate for 2020 to reach about 3.1–4.7%, up from 3.0% in 2019.

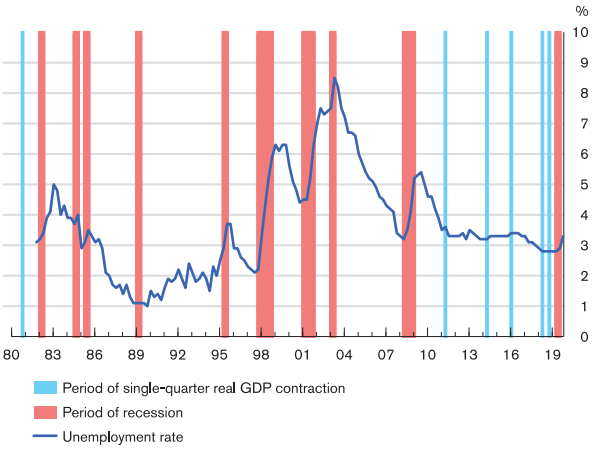
This dimmer labour market outlook is subject to a host of uncertainties and risks. For example, the impact of the increased share of voluntary part-timers on the unemployment rate is somewhat uncertain as there are two offsetting forces. When there is a deeper economic downturn, the unemployment rate may increase if firms find it easier to terminate employment. However, the unemployment rate may not rise much if firms find it easier to adjust manpower or work hours instead of laying off workers outright.

More importantly, the unemployment rate tends to rise much more sharply during a shock than average historical patterns suggest. In other words, we have to be aware of non-linear labour market adjustments. In particular, these rapid adjustments are likely to be associated with an economic recession, an outbreak or rising company bankruptcy and closure. We now take a closer look at these phenomena.

Economic recession

Compared with a single quarter of real GDP contraction, an economic recession can lead to a much sharper increase in the unemployment rate (Chart B3.4). In addition, the deeper the recession, the higher the unemployment rate (Table B3.A). This is particularly relevant to Hong Kong's present situation as the economy has entered into a recession, coupled with the possibility of trade tensions, renewed local social incidents and the coronavirus outbreak, that are likely to drag on in the near term.

Chart B3.4
Economic recession and unemployment rate



Note: Recession denotes two consecutive quarters or more of negative quarter-on-quarter growth in real GDP.
Sources: C&SD and HKMA staff estimates.

Table B3.A
Economic recession and unemployment rate

Major recessions (Time period)	Depth of recession: decline in real GDP	Changes in unemployment rate
Asian financial crisis (1997 Q4 to 1998 Q4)	-9.0% in 5 quarters	+ 3.8 ppts
Global financial crisis (2008 Q2 to 2009 Q1)	-7.5% in 4 quarters	+ 1.9 ppts
Burst of IT bubble (2001 Q1 to 2001 Q4)	-1.1% in 4 quarters	+ 1.9 ppts
Outbreak of SARS (2003 Q1 to 2003 Q2)	-2.5% in 2 quarters	+ 1.1 ppts

Sources: C&SD and HKMA staff estimates.

Outbreak

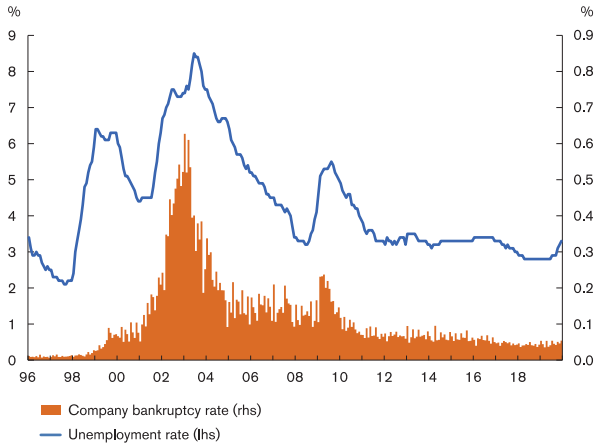
Experience during the Severe Acute Respiratory Syndrome (SARS) period in 2003 suggests that the unemployment and underemployment rates can increase sharply because of an abrupt fall-off in economic activity. At that time, the unemployment rate increased from 7.4% in December 2002 to a high of 8.5% in June 2003 (see also Table B3.A). The underemployment rate also rose from 3.1% to 4.3% as some employees were temporarily suspended from work or asked to take no-pay leave.

Compared with SARS, the impact of the coronavirus outbreak may be larger, so the unemployment rate could rise even faster for two reasons. First, the share of total employment in the tourism sector has increased, up from 4.4% in 2002–2003 to 6.6% in 2018. While the share of total employment in the retail sector has remained roughly steady over the years at about 8–9%, it has become more dependent on tourist spending. As such, the deterioration in inbound tourism due to the current outbreak may have a larger impact on employment compared with SARS. Second, inbound tourism and tourism-related sectors bounced back swiftly in the second half of 2003, partly boosted by the launch of the Individual Visit Scheme in late July that year. A repeat of the favourable effect from such an initiative appears to be less likely now. Of course, the ultimate impact will also depend on the persistence and spread of the outbreak.

Bankruptcy and closure

Company bankruptcies and closures can deepen job losses, thus causing a further spike in the unemployment rate (Chart B3.5). This risk appears imminent as news reports suggest that some retail shops or small businesses are closing down, or considering closing this year or after the expiry of their tenancies.

Chart B3.5
Company bankruptcy rate and unemployment rate



Sources: Official Receiver's Office and C&SD.

That said, the relief measures and liquidity support announced by the authorities, including rent cuts, the principal moratorium under the existing SME Financing Guarantee Scheme, new Loan Guarantee Products (i.e. 90% Loan Guarantee Product and Special 100% Loan Guarantee Product) and the reduction in banks' CCyB ratio, should provide some support to enterprises, especially the SMEs and, hence, the labour market.

Concluding remarks

Partly reflecting some labour-supportive sectors and the lower LFPR, the overall labour market was broadly stable for the better part of 2019, before turning more sluggish towards the end of the year amid the local social incidents. In the near term, the unemployment rate is likely to increase further as a result of the coronavirus outbreak and the more broad-based downturn in the economy, which need to be monitored closely, as these events can be associated with a sharp increase in the unemployment rate.

However, there are some caveats to this assessment. The unemployment rate may understate the labour market slack. For example, as voluntary part-time employee numbers have increased, and are reported as employed, the

economic downturn could lead to a further shift to this type of employment, for example, working fewer hours instead of being laid off. And, while this may curb an increase in the unemployment rate, labour hours and earnings may see faster and sharper downward adjustments. In addition, businesses may respond to lower aggregate demand by shortening business hours, or asking employees to reduce work hours or take no-pay leave, which will not be reflected in the unemployment rate (though in the underemployment rate).

Therefore, looking at the unemployment rate alone as an indicator of labour market slack may not be sufficient. To monitor labour market conditions, we should adopt a holistic approach and also look at the underemployment rate, labour movements across different types of employment, average working hours, wage and earnings, as well as other more timely indicators, such as the employment sentiment.

4. Monetary and financial conditions

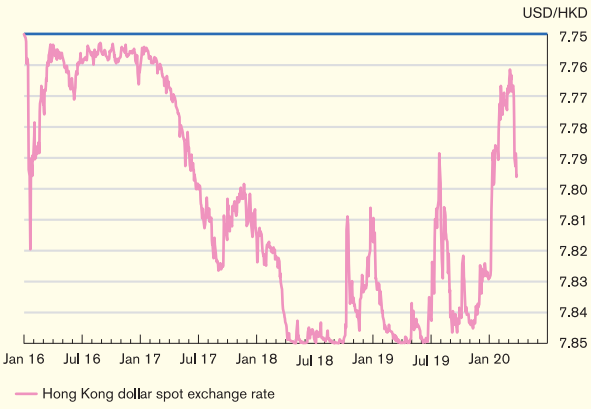
The Hong Kong dollar exchange rate strengthened from October and gained further momentum in December with the exchange rate staying at the strong side of the Convertibility Zone in recent months. The strong demand for Hong Kong dollars was partly due to equity-related demand, and partly to the unwinding of short Hong Kong dollar positions amid tightened liquidity towards year-end. Overall, Hong Kong foreign exchange and money markets continued to operate in a smooth and orderly manner. While market sentiments over the coronavirus outbreak amid the uncertain external environment may lead to higher fund flow volatility, Hong Kong is able to withstand outflows without compromising its financial stability given the ample foreign reserves and robust banking system.

4.1 Exchange rate and capital flows

The Hong Kong dollar exchange rate started to strengthen gradually since mid-October, underpinned by equity related Hong Kong dollar demand including initial public offerings (IPOs) (Chart 4.1). In December, the strengthening of Hong Kong dollar gained further momentum, with the exchange rate staying at the strong side of the Convertibility Zone from mid-December to February. The Hong Kong dollar rally was partly due to some buoyant IPO activities, and partly due to the unwinding of short Hong Kong dollar positions amid tightened liquidity towards the end of the year. As liquidity eased after the Lunar New Year holiday, the Hong Kong dollar exchange rate eased slightly and closed at 7.7956 on 28 February.

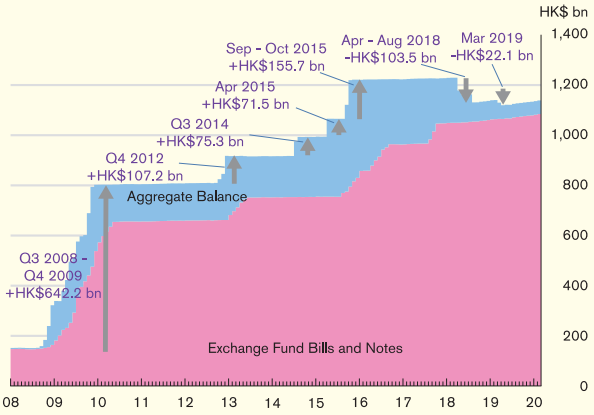
Overall, the Hong Kong dollar continued to trade in a smooth and orderly manner during the review period. As neither the strong-side nor the weak-side Convertibility Undertaking (CU) was triggered during the review period, the Aggregate Balance (AB) remained unchanged at around HK$54 billion (Chart 4.2).

Chart 4.1
Hong Kong dollar exchange rate



Source: HKMA.

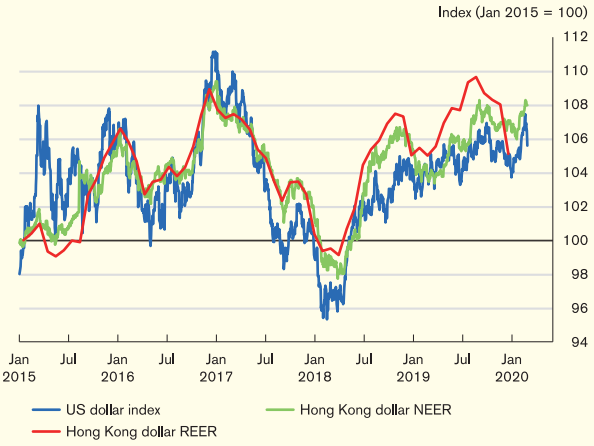
Chart 4.2
AB and Exchange Fund Bills and Notes (EFBNs)



Source: HKMA.

Broadly in line with the movements of the US dollar, the Hong Kong dollar nominal effective exchange rate index (NEER) edged up during the review period (Chart 4.3). The Hong Kong dollar real effective exchange rate index (REER) generally followed the movement of the NEER, as the small inflation differential between Hong Kong and its trading partners only had a limited impact on the REER.

Chart 4.3
NEER and REER



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

When measuring fund flows in Hong Kong, it is important to distinguish between two distinct and yet related concepts of fund flows: (1) Hong Kong dollar flows; and (2) cross-border flows. Hong Kong dollar flows focus on the currency dimension of fund flows which is useful for assessing monetary stability, particularly under the Linked Exchange Rate System (LERS). Cross-border flows focus on the geographical movement of funds through the Hong Kong banking system which is useful for assessing the stability of Hong Kong's financial system as a whole.

The two fund flow concepts require different indicators for monitoring. For the Hong Kong dollar flows, it is useful to focus on the Hong Kong dollar exchange rate and the AB. If the general public or investors engage in a massive rebalancing of their Hong Kong dollar assets into foreign currency counterparts, demand for Hong Kong dollars would naturally decline, leading to weakening of the Hong Kong dollar exchange rate. Under the LERS mechanism, if the Hong Kong dollar exchange rate weakens to the weak-side CU of HK$7.85 to one US dollar, the HKMA stands ready to buy Hong Kong dollars on request from banks, leading to a contraction in the AB. With the AB remaining virtually unchanged since April 2019, and the Hong Kong dollar exchange rate staying at the strong side of the Convertibility Zone in recent months, no significant outflows from the Hong Kong dollar system were observed during the review period.

In monitoring cross-border flows, the size of Hong Kong's total bank deposit is a useful indicator. When there is a significant outflow of funds from the Hong Kong banking system, banks' deposits must decline. Total deposits grew at a modest pace during the review period, suggesting that no significant cross-border outflows have occurred.[43]

Hong Kong dollar foreign exchange and money markets continued to operate in a smooth and orderly manner during the review period, suggesting that the impact from the coronavirus outbreak on Hong Kong's monetary environment remained contained. However, the risk posed by the coronavirus warrants close monitoring.

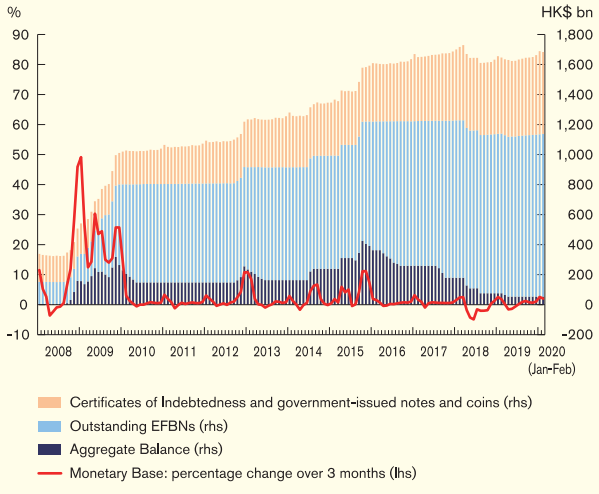
[43] For a detailed analysis of Hong Kong's deposit growth during the review period, see section 4.2.

Given the ample foreign reserves and robust banking system, the HKMA has the capability, resources and commitment to withstand outflows and safeguard Hong Kong's monetary and financial stability.

4.2 Monetary environment and interest rates

Despite the uncertain external environment and the slowdown in the domestic economy, Hong Kong's monetary environment remained relatively accommodative. The Hong Kong dollar Monetary Base remained sizeable, picking up by 4.0% since the end of June to HK$1,689.4 billion at the end of January 2020 (Chart 4.4). As the CU was not triggered during this period, the AB stayed virtually unchanged at around HK$54 billion. Other components of the Monetary Base, including outstanding EFBNs, Certificates of Indebtedness (CIs), and government-issued notes and coins, increased at a steady pace.

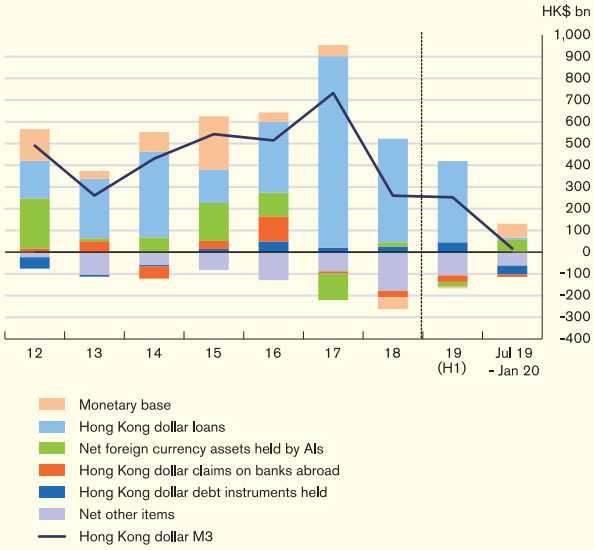
Chart 4.4
Monetary Base components



Source: HKMA.

The broader measures of the Hong Kong dollar monetary aggregate remained largely stable during the review period. After expanding by 3.5% in the first half of 2019, the Hong Kong dollar broad money (HK$M3) edged up by 0.2% in the seven-month period since the end of June 2019. Analysis by the asset-side counterparts shows that growth in HK$M3 since the end of June was mainly due to the pick-up in net foreign currency assets held by banks and the Monetary Base (through the rise in CIs and government-issued notes and coins) (Chart 4.5). As a major component of HK$M3, Hong Kong dollar deposits, stayed virtually unchanged during the seven-month period since the end of June (Chart 4.6). Within Hong Kong dollar deposits, time deposits continued to grow moderately, to some extent due to higher Hong Kong dollar deposit rates.

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



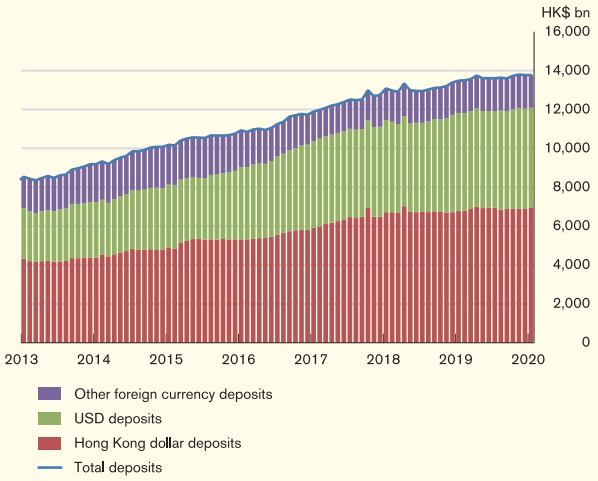
Note: The HK$M3 in the monetary survey has been adjusted to include foreign currency swap deposits.

Source: HKMA staff estimates.

Foreign currency deposits expanded moderately by 2.3% during the seven-month period since the end of June 2019 (Chart 4.6). The increase was mainly driven by US dollar deposits, which expanded by 3.5%. Other foreign currency deposits decreased by 1.0% during the same period, within which renminbi deposits declined slightly in Hong Kong dollar terms. Overall, total deposits with authorized institutions (AIs) grew steadily by 1.2% since the end of June. Supported by the growth of total deposits, total broad money supply in Hong Kong also picked

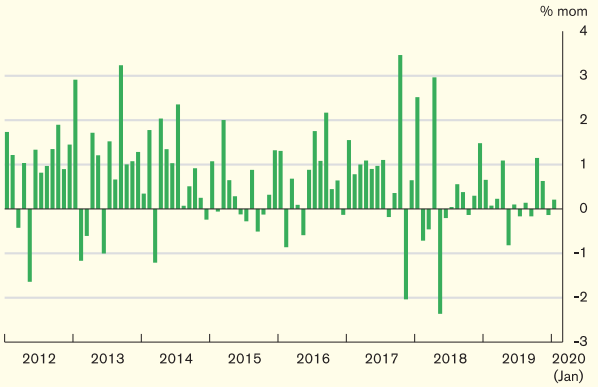
up at a relatively steady pace, with total M2 and M3 increasing by 1.6% and 1.5% respectively since the end of June (Chart 4.7). As monthly monetary statistics are subject to volatilities due to a wide range of transient factors, such as seasonal and IPO-related funding demand as well as business and investment-related activities, caution is required when interpreting the statistics.

Chart 4.6
Deposit with AIs by currencies



Source: HKMA.

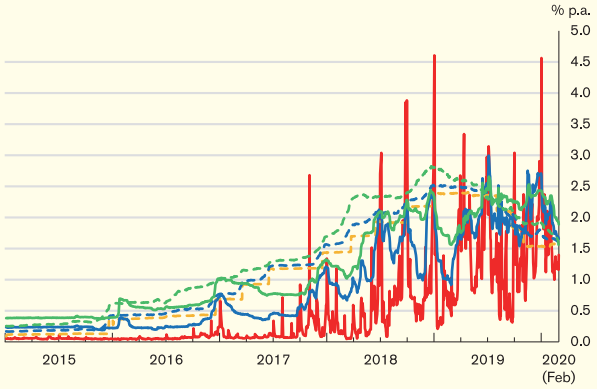
Chart 4.7
Total broad money supply (M2)



Source: HKMA.

While the monetary environment stayed relatively accommodative, the short-term Hong Kong dollar interbank interest rates witnessed fluctuations, reflecting seasonal liquidity demand as well as more capital market activities since the fourth quarter of 2019. In particular, largely driven by vibrant equity IPO activities in Hong Kong's equity market, the overnight Hong Kong interbank offered rate (HIBOR) saw occasionally large fluctuations in late October and mid-November (Chart 4.8).[44] Other short-term HIBORs generally picked up during the review period. While large IPO subscriptions exert sizeable pressure on the overnight HIBOR, Box 4 empirically shows how market attention to future IPO activities could also affect the 3-month HIBOR. This could happen if market participants pre-position themselves in anticipation of future closing dates of large IPO subscriptions by preparing medium term funding in advance.

Chart 4.8
Hong Kong dollar and US dollar interbank interest rates

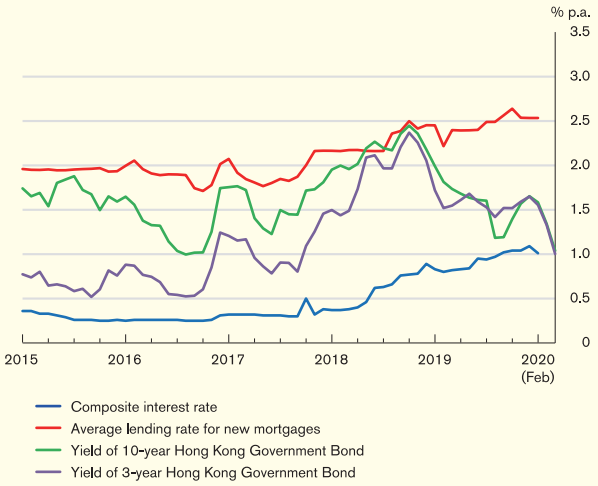


Sources: CEIC and HKMA.

For the Hong Kong dollar yield curve, it shifted downwards along with the movement of the US dollar counterparts. Compared with the end of June 2019, yield of the 10-year Hong Kong Government Bond declined by 60 basis points to 1.04% as at 28 February 2020 (Chart 4.9). Meanwhile, yield of the three-year Hong Kong Government Bond moved down by 50 basis points during the same period to 1.00%.

[44] Based on Hong Kong Exchanges and Clearing Limited (HKEX)'s data, more than HK$167 billion was raised in Hong Kong's equity market in October and November.

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



Sources: HKMA and staff estimates.

On the retail front, the composite interest rate, which measures the average Hong Kong dollar funding costs of retail banks, rose gradually from 0.94% at the end of July 2019 to 1.01% at the end of January 2020. Such pick-up mainly reflected the rise in the weighted deposit rate as banks continued to raise their preferential deposit rates in attracting deposit funds.

Following the decrease in the target range for the US federal funds rate in late October 2019, several retail banks lowered their Best Lending Rates by 12.5 basis points. As such, the Best Lending Rates of retail banks currently ranged from 5.00% to 5.50%. For mortgage lending, the average lending rate for new mortgages moved up to around 2.63% in October as major banks raised the prime-based cap for the HIBOR-based mortgages.[45] Amid the lower Best Lending Rates in the market since November, the average mortgage rates declined slightly and closed at 2.53% in January 2020.

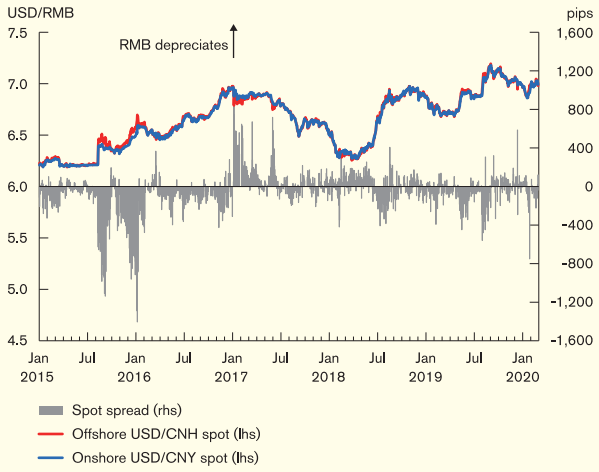
[45] This was reflected through the narrowed spread in calculating the prime-based cap.

In light of evolving risks of the coronavirus posed to US economic activity and in support of achieving the Fed's policy goal, the Fed lowered the target range for the US federal funds rate on 3 March (US time) and 15 March (US time) by a total of 150 basis points to 0 – 0.25%. While the HIBORs usually track their US dollar counterparts in the longer run, short-term HIBORs are affected by local factors that may influence the demand for Hong Kong dollars including, for example, IPO activities in Hong Kong. The reduction in the AB since April 2018 may have led to a higher sensitivity of HIBORs to changes in supply and demand of Hong Kong dollar funding in the local market. However, it does not mean the current level of the AB at HK$54 billion is insufficient for meeting the settlement needs in the interbank market. In fact, Hong Kong's interbank market has been functioning in an orderly manner. In case of short-term liquidity tightness, banks can make use of the HKMA's liquidity facilities.

Offshore renminbi banking business

Against the backdrop of a possible intensification of the US-China trade conflict, the offshore (CNH) and the onshore (CNY) renminbi exchange rates weakened notably in late August and September 2019, with the CNH easing to a decade low of 7.19 against the US dollar on 2 September (Chart 4.10). Amid optimism over the resumption of the trade talks in October, the depreciation trend of the renminbi reversed, with both CNH and CNY strengthening throughout the fourth quarter and once passing 6.9 in mid-January 2020 following the agreement of the "phase one" US-China trade deal. The CNH and CNY, however, faced weakening pressure again since late January amid the coronavirus outbreak. After trading mostly at a discount between May and August 2019, the CNH traded roughly at a premium against the CNY in the latter part of 2019. Despite seeing widened discount briefly in late January 2020, the spread in general stayed moderate by historical standards.

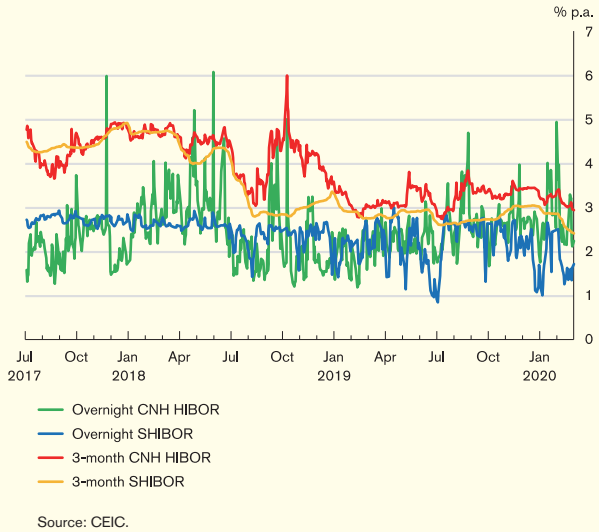
Chart 4.10
CNY and CNH exchange rates



Source: Bloomberg.

Despite fluctuations in the renminbi exchange rate, liquidity conditions in the offshore CNH interbank market remained largely stable. During the review period, the 3-month CNH HIBOR continued to hover around a range of 3 to 4% (Chart 4.11). The overnight CNH HIBOR witnessed brief fluctuations in late August and late November arising from MSCI A-share rebalancing, and in late January 2020 around the Lunar New Year holiday.

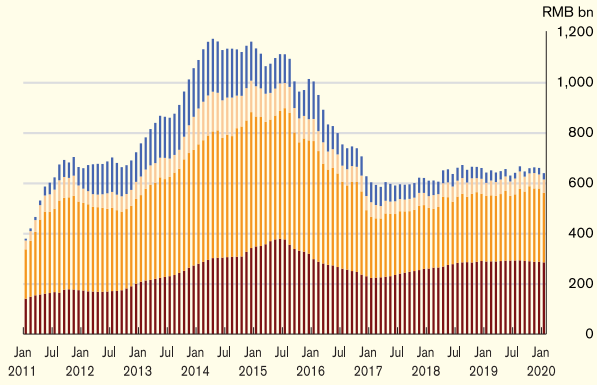
Chart 4.11
The overnight and the three-month CNH HIBOR fixings



Source: CEIC.

Hong Kong's CNH liquidity pool regained some strength after posting a modest decline in the previous review period. The total outstanding amount of renminbi customer deposits and certificates of deposit (CDs) reverted to a modest 1.5% increase in the seven-month period since the end of June, amounting to RMB637.4 billion at the end of January 2020 (Chart 4.12 and Table 4.A). Among the total, renminbi customer deposits grew by 1.4% during this period, mainly led by growth in corporate customer deposits. Meanwhile, with the increased issuance of renminbi CDs in the fourth quarter of 2019, outstanding CDs registered a moderate 5.6% increase after a sharp decline over the previous review period.

Chart 4.12
Renminbi deposits and CDs in Hong Kong



Source: HKMA.

Table 4.A
Offshore renminbi banking statistics

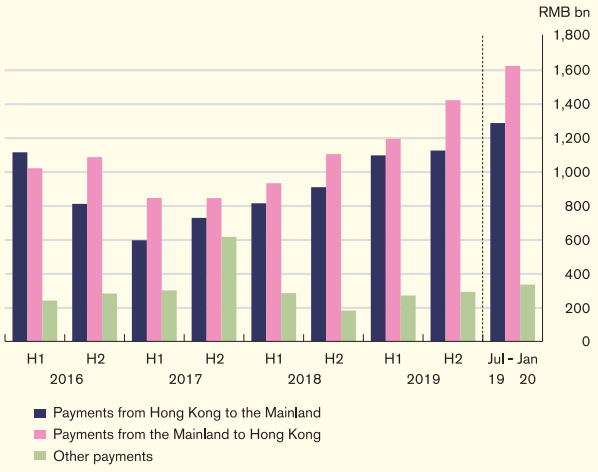
	Dec 2018	Jan 2020
Renminbi deposits & certificates of deposit (CDs) (RMB bn)	657.7	637.4
Of which:		
Renminbi deposits (RMB bn)	615.0	612.5
Share of renminbi deposits in total deposits (%)	5.2	5.0
Renminbi certificates of deposit CDs (RMB bn)	42.7	24.9
Renminbi outstanding loans (RMB bn)	105.6	161.2
Number of participating banks in Hong Kong's renminbi clearing platform	200	203
Amount due to overseas banks (RMB bn)	80.4	84.5
Amount due from overseas banks (RMB bn)	132.8	161.1
	2018	**2019**
Renminbi trade settlement in Hong Kong (RMB bn)	4,206.2	5,376.3
Of which:		
Inward remittances to Hong Kong (RMB bn)	2,027.0	2,604.1
Outward remittances to Mainland China (RMB bn)	1,715.3	2,211.7
Turnover in Hong Kong's RMB RTGS system (Daily average during the period; RMB bn)	1,010.1	1,133.9

Source: HKMA.

Along with the steady growth in Hong Kong's CNH liquidity pool, renminbi bank lending in Hong Kong saw a notable rebound. During the seven-month period since the end of June 2019, the outstanding amount of renminbi bank loans recorded a strong 45.5% increase to RMB161.2 billion at the end of January 2020. Hong Kong's renminbi trade settlement also gathered pace. Transactions handled by banks in Hong Kong rose by 24.6% to RMB3,231.1 billion in the seven-month period since July, mainly driven by inward remittances to Hong Kong (Chart 4.13).

Overall, the renminbi liquidity pool in Hong Kong provided adequate support to a large amount of renminbi payments and financing intermediation activities. For 2019 as a whole, the average daily turnover of the renminbi real time gross settlement (RTGS) system stayed high, picking up from RMB1,010.1 billion in 2018 to RMB1,133.9 billion in 2019.

Chart 4.13
Flows of renminbi trade settlement payments



Source: HKMA.

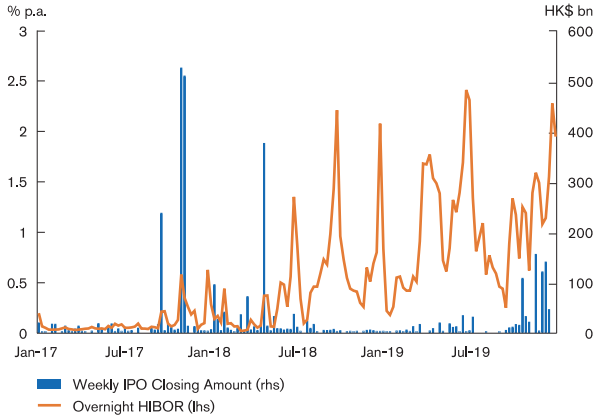
The outlook for the offshore renminbi market in Hong Kong in the period ahead will continue to be influenced by Mainland's macro-financial conditions, the external macroeconomic environment, as well as the progress of the US-China trade negotiations. Nevertheless, Hong Kong's offshore renminbi business is expected to benefit from the ongoing liberalisation of Mainland's capital account, more renminbi assets allocation by international investors, and the deepened regional economic and financial co-operation under the Belt and Road and Guangdong-Hong Kong-Macao Greater Bay Area initiatives.

Box 4
The impact of future initial public offerings on HIBORs

Introduction

As a leading financial centre with a highly developed infrastructure and a global network, Hong Kong is a hub for major offshore fund-raising, especially for IPOs.[46] It is well-known that sizeable IPO subscriptions exert significant pressure on short-term HIBORs, especially near the closing date of subscription. Chart B4.1 shows that some spikes in overnight HIBOR typically coincide with the closing of mega IPOs.[47] What is less known, however, is the extent to which future IPOs – such as those that are at an early application stage – affect longer-tenor interest rates. This box investigates this question against the backdrop of several blockbuster IPOs in recent years that garnered plenty of market attention well before their subscription periods.

Chart B4.1
IPO closing amount and overnight HIBOR



Note: Based on weekly data.
Source: HKMA staff estimates.

Measuring market attention on future IPOs

Future IPOs could affect longer-term HIBORs because market participants may pre-position themselves in anticipation of future large IPO closings by borrowing over the medium term. For example, if banks anticipate a blockbuster IPO in two-and-a-half months' time, they may prudently secure funds with repayment in three months' time, instead of borrowing just before the closing date. Taking into consideration banks' anticipated funding needs and their expectation of future interest rates, it is therefore not uncommon to observe that longer-term HIBORs could rise well before the IPO subscription period.

To measure the market attention on future IPOs, a proxy of "Future IPO News" is constructed using textual analysis by counting some specific keywords appearing in local Chinese news before IPO subscription periods. If a particular IPO receives extensive media coverage and intense attention, it is conceivable that this is a forward looking sign representing a high demand for investing in the company, prompting market participants to prepare funds earlier and driving up longer-term HIBORs.

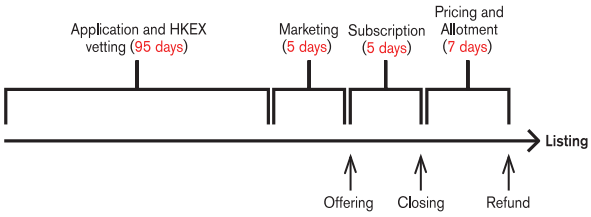
In determining the most relevant keywords for gauging market attention, the keyword "listing application" is chosen to mirror IPO subscriptions over the medium term. The rationale is largely based on the timeline of an ordinary listing process as shown in Chart B4.2. As a regular practice, after a company submits its listing application to the Hong Kong Stock Exchange, the application proof will be uploaded to the HKEX's website, which will be picked up easily by the local media, with the keyword

[46] For instance, Ernst and Young's Global IPO trend report shows that for the whole of 2019, Hong Kong ranked first among major stock exchanges in both the number of IPOs and proceeds.

[47] Since the triggering of the weak-side CU in April 2018, the reduction in the Aggregate Balance from over HK$200 billion a couple of years ago to the current level of HK$54 billion has made the overnight HIBOR more sensitive to changes in the supply and demand of Hong Kong dollar funding, as evidenced by the increased volatility in Chart B4.1.

"listing application" reported in the news.[48 & 49] If the application is successful, the closing date of an IPO subscription is, on average, about 100 calendar days after the publication of the application proof.

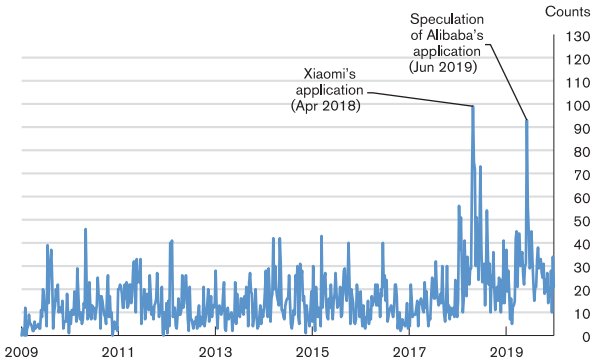
Chart B4.2
Process for listing on Hong Kong Stock Exchange



Note: Days are indicated in average terms.
Sources: HKEX and HKMA staff estimates.

In each of the weeks from January 2009 to December 2019, the number of news counts is tallied and the resulting weekly time series of "Future IPO News" is presented in Chart B4.3. It shows that the news count for "listing applications" gained two spikes, in April 2018 and June 2019. The spike in April 2018 reflected Xiaomi's listing application following a change in the rules by the HKEX to allow companies with a weighted voting right for listing, while the spike in June 2019 reflected speculation about Alibaba's secondary listing in Hong Kong.

Chart B4.3
"Future IPO news", based on the news count for "listing application"



Source: HKMA staff estimates.

Empirical model

A regression model on weekly frequency is constructed to assess how this news-count proxy affects changes in the three-month HIBOR.[50] The model also takes into account other factors that also affect the behaviour of HIBORs, with the major ones discussed below.[51]

- *US interest rate:* This is proxied by LIBORs with the same maturity of HIBORs. Under the LERS, Hong Kong's interest rates should broadly follow their US counterparts. As such, it is expected the US interest rate should have a positive effect on HIBORs.[52]

- *The Aggregate Balance (AB):* This is used to proxy for the interbank liquidity. When interbank liquidity is scarce, there will be upward pressure on HIBORs. As such, the AB is expected to have a negative impact on Hong Kong dollar interest rates.

48 Among the news containing the keyword "listing application", a Boolean search is set to exclude those containing the keywords "Security and Futures Commission", "reverse takeover", and "corruption", etc. The reason is that "listing application" reported in some news may merely be related to regulatory and enforcement issues rather than indicating a genuine IPO application.

49 In some cases, the media may learn the listing application from the market or industries, and therefore report listing applications earlier than the publication of the material.

50 Although there were concerns that the three-month HIBOR could be subject to illiquidity problems, which may exaggerate the economic significance of "Future IPO news", we have replaced the three-month HIBOR with the three-month rate implied by forward points and found that the empirical results remained largely valid.

51 The model is an extension of a similar model used in Leung and Ng (2008) "Impact of IPO activities on the HKD interbank market", *HKMA Research Memorandum* 11/2008.

52 The model also includes an error correction term to govern the long run convergence of HIBORs towards LIBORs. The error correction term is simply the difference between HIBORs and LIBORs of the same maturity with a period lag.

- *Quarter-end effect:* It is also well known that the quarter-end effect exerts funding pressure on HIBORs. As market participants are likely to prepare funds well ahead of the end of the quarter, leads of the quarter-end dummy variables are included in the model.

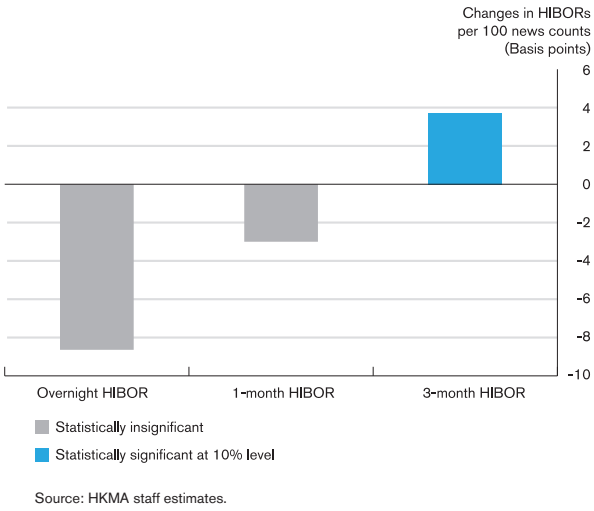
- *"Future IPO news":* This is the news-count proxy for the market attention on future IPOs as discussed above. If market participants pre-position themselves ahead of mega IPOs by borrowing well in advance of the actual listing, this is expected to have a positive effect on HIBORs on the longer end, but not on the shorter end (which is influenced by other shorter-term liquidity demand).

Empirical results and illustrations

To examine the effect of market attention of future IPO news on HIBORs, Chart B4.4 shows the estimated changes in HIBORs of different maturities in response to 100 news counts for "listing application". It shows that the three-month HIBOR is the most responsive to future IPO news. Specifically, if the IPO is covered by the media 100 times, the model predicts that the three-month HIBOR will be increased by 3.7 basis points. On the other hand, "Future IPO News" does not appear to have an effect on other shorter-term HIBORs as the impact on those are statistically insignificant. These results are consistent with the timeline of a typical IPO process as outlined in Chart B4.2.

Given the significant effect of "Future IPO news" on the three-month HIBOR, it is evidence that market participants have pre-positioned themselves in anticipation of future large IPOs closing by borrowing over the medium term. To illustrate how the model can be used to track interest rate movements before and after the IPO activities, two recent blockbuster IPOs (Xiaomi and Alibaba) are used to carry out the attribution analysis on the changes in the three-month HIBOR.

Chart B4.4
Estimated impact of "Future IPO news" on HIBORs

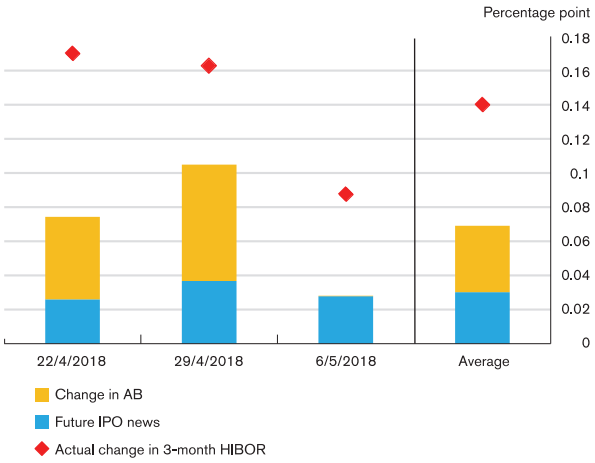


Source: HKMA staff estimates.

The case of Xiaomi: In April 2018, Xiaomi submitted its listing application to the HKEX following HKEX's change of rules to allow companies with weighted voting right for listing. As the first such company to list in Hong Kong after the rule change, Xiaomi received strong market and media attention. This can be seen by the spike in "Future IPO News" shown in Chart B4.3. Compared with the long-run average of around 10 news counts per week, "Future IPO News" apparently surged in April 2018, with most of the news related to Xiaomi's listing.

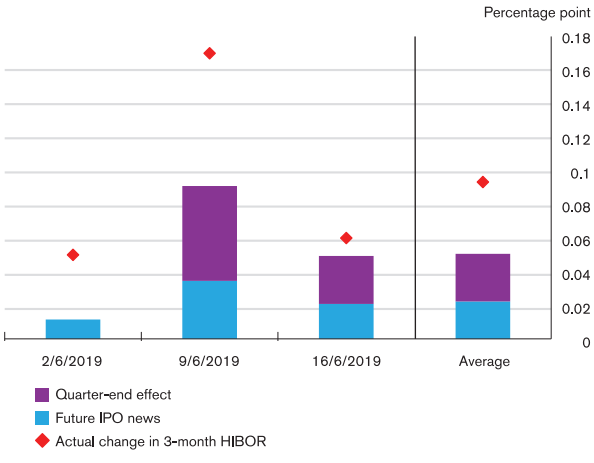
Indeed, the attribution analysis shown in Chart B4.5 suggests that "Future IPO News" (the blue bar) was one of the major drivers for the rise in the three-month HIBOR during that period. It should be noted that other market factors also played a role on the rise. In particular, a reduction in the AB arising from the triggering of the weak-side CU in April 2018 (the orange bar) also exerted upward pressure on HIBORs.

Chart B4.5
Contribution to the change in the three-month HIBOR around the period of Xiaomi's listing application in April 2018



Note: Only significant drivers are shown in the chart.
Source: HKMA staff estimates.

Chart B4.6
Contribution to change in three-month HIBOR with market anticipating Alibaba's listing in June 2019



Note: Only significant drivers are shown in the chart.
Source: HKMA staff estimates.

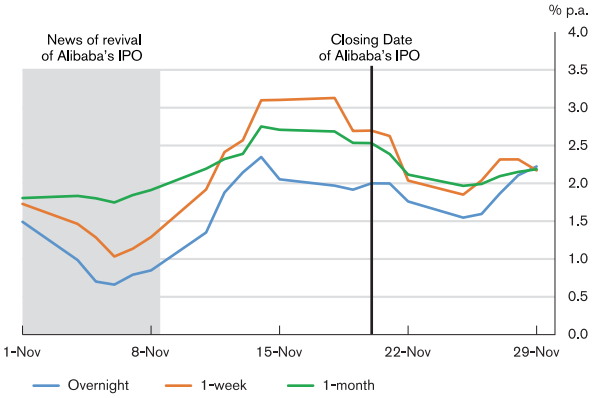
The case of Alibaba: In June 2019, Alibaba reportedly submitted its application for secondary listing in Hong Kong, and was expected to be listed in the second half of 2019. Reflecting its reputation and size as a leading conglomerate in the Mainland technology sector, the market and the media focused on its return to China and anticipated its listing in Hong Kong. Correspondingly, "Future IPO News" as shown in Chart B4.3 also started its upward trend well before the listing rumour in June.

The significant effect of "Future IPO News" on the three-month HIBOR can again be observed in attribution analysis in Chart B4.6. It shows that the news covering Alibaba's potential listing in Hong Kong was one of the major drivers for the rise in the three-month HIBOR (blue bar). As the rumour of Alibaba's listing emerged near the end of June, Chart B4.6 also shows that the half-year-end funding demand was another major contributor (purple bar), as banks needed to prepare funds straddling the half-year end.

Although this box focuses on how market attention on future IPO news affects the medium term HIBOR, it is important to reiterate that sizeable IPOs do significantly affect short-term HIBORs. As Alibaba swiftly relaunched its IPO in November, market participants may not have been so well-prepared in advance as the news of its IPO revival only surfaced during the first week of November.[53] With the IPO closing date on November 20 approaching, demand for short-term funding increased sharply, which led to notable rises in shorter-term HIBORs (Chart B4.7).

[53] In Chart B4.3, "Future IPO news" did not pick up notably in November. This is probably because market participants had anticipated Alibaba's listing application, as well as a lack of interest in other listing applications during that period. A closer look into the news archive shows that most of the keywords at that time were "listing hearing" and "Alibaba's roadshow" as opposed to "listing application", the main keyword that was used to construct "Future IPO News".

Chart B4.7
Overnight, one-week and one-month HIBORs in November 2019



Sources: HKMA and staff estimates.

Concluding remarks

This box constructs a news-count proxy to gauge market attention on future IPOs. Using two recent IPOs as case studies, the empirical model further shows that, in addition to other factors that affect interbank markets, "Future IPO News" also explains a portion of the changes in the three-month HIBOR. This suggests that market participants are proactive in their preparation ahead of future large IPOs. As a result, this box provides some insights into factors affecting medium-term interest rates and how the liquidity management of market participants is evolving.

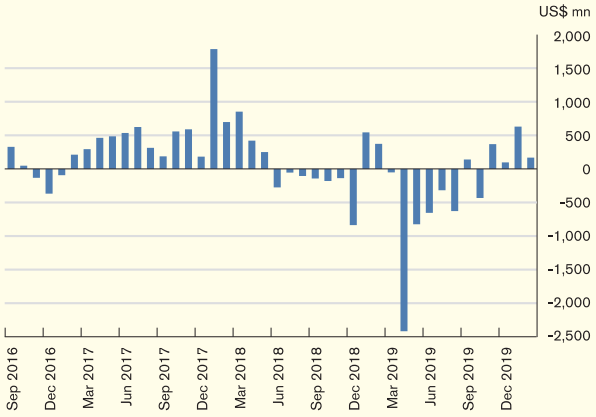
Asset markets

The Hong Kong equity market was sent to a tailspin by the outbreak of the coronavirus after staging a rebound in the last quarter of 2019 against the backdrop of an improved global outlook and reduced US-China trade tensions. The Hong Kong dollar debt market maintained steady growth during a reduction in net outflows, while the offshore renminbi debt market resumed growth in 2019 after three years of contraction. Amid weakened economic activities, the prolonged social incidents and the outbreak, the residential property market has generally softened since mid-2019, albeit showing some fluctuations.

4.3 Equity market

Riding on the back of a global equity rally, the local equity market rebounded significantly after a sharp correction in the summer of 2019, due mainly to two key developments. First, signs suggested that the global economy had avoided a hard landing. Growth stabilised in the final quarter of last year, benefiting from lagged effects of major central bank accommodation (Section 2.1). Although the Mainland economy slowed further, the pace was more manageable than first thought. Second, the rally reflected the much celebrated outcome of the trade negotiations between the US and Mainland China. The two countries successfully secured what could be agreed upon while pushing all contentious issues to the back burner, avoiding a full-blown trade war and hence eliminating the market's worst fear. During the review period, there was much "noise" stemming from the geopolitical front causing sentiment to waver. However, none of it was significant enough to offset the positive developments until the outbreak of the coronavirus occurred towards the end of the review period, wreaking havoc on the global economy. As the virus spread and the risk of a pandemic heightened, global equity markets tumbled and suffered considerable turbulence. As a result, local equities practically had all of its earlier gains erased.

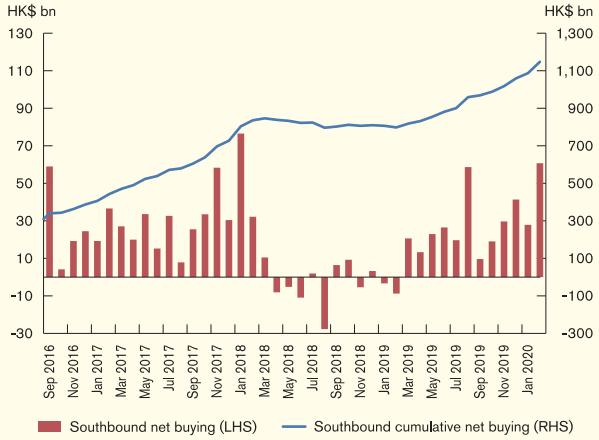
Chart 4.14
Equity market fund flows into Hong Kong



Source: EPFR Global.

Net inflows into Hong Kong crawled back to positive territory towards the end of the review period (Chart 4.14). The last six months also saw continual net southbound buying through the Shanghai-Hong Kong and Shenzhen-Hong Kong Stock Connects. On a cumulative basis, it increased by 43.9% to HK$1,147.6 billion at the end of February (Chart 4.15).

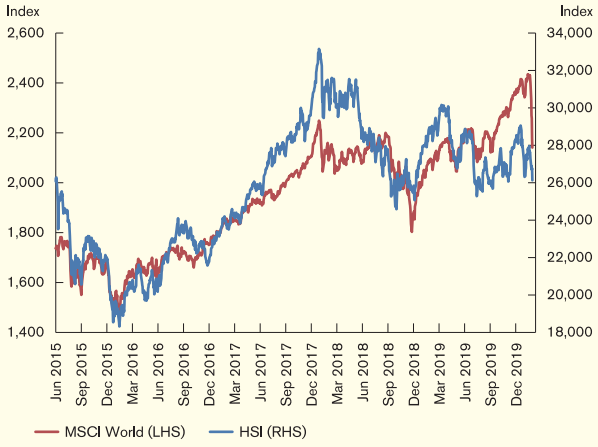
Chart 4.15
Net flows through Stock Connects



Note: The southbound net buying represents a sum of the southbound net buying from the Shanghai-Hong Kong Stock Connect and that of the Shenzhen-Hong Kong Stock Connect.

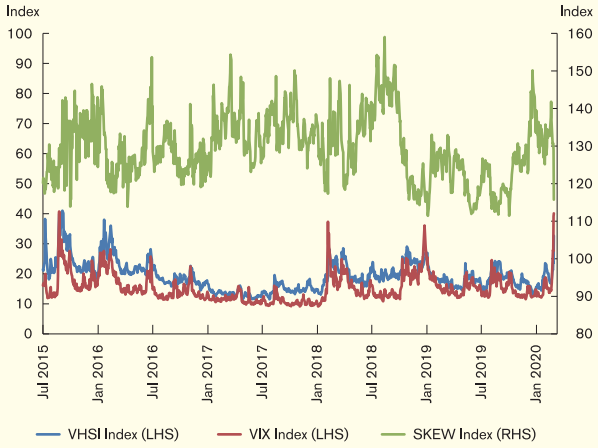
Sources: CEIC, HKEX and HKMA staff estimates.

Chart 4.16
Equity prices and MSCI World Index



Source: Bloomberg.

Chart 4.17
Option-implied volatilities of the HSI and S&P500, and the SKEW index



Source: Bloomberg.

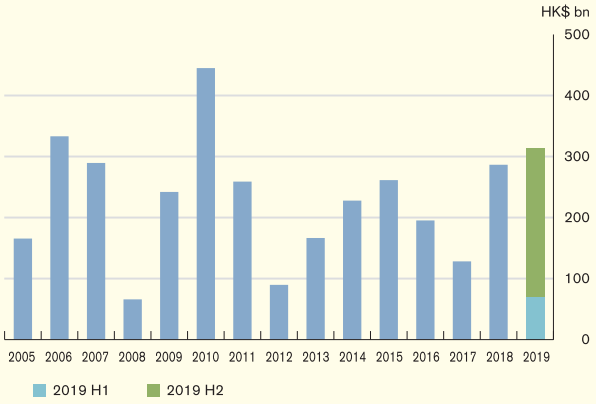
Overall, the local market rose marginally alongside most other major markets. The Hang Seng Index (HSI) and Hang Seng China Enterprises Index, also known as the H-share index, edged up by 1.58% and 2.17% respectively from September 2019 to February 2020, compared with 0.12% registered by the MSCI World Index (Chart 4.16). Option-implied volatilities were steady in most of the review period but elevated significantly amid the outbreak towards the end. The S&P 500-based SKEW index climbed notably at first, reflecting investors' increasing discomfort about the dizzying heights of the US market, thus pushing up the cost of downside protection (Chart 4.17).[54] However, as a large and abrupt market correction occurred at the end of the review period, the index adjusted downwards sharply.

In the primary market, IPOs in the Hong Kong market registered a sustained growth in 2019. There were 183 IPOs, totalling HK$312.9 billion, representing an increase of 9.2%. This kept the Hong Kong Stock Exchange (HKEX) at the top of the world's listing markets for the second consecutive year (Chart 4.18). To a significant extent, the growth was attributed to a major Mainland information technology firm seeking a secondary listing on the Exchange, which was widely seen as a major success facilitated by the listing rules reforms to accommodate dual-class share (DCS) structures. For the rest of the year, Hong Kong is expected to continue to play a

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

leading role in the global IPO market, with DCS structures remaining an important catalyst to lure more companies of this kind.

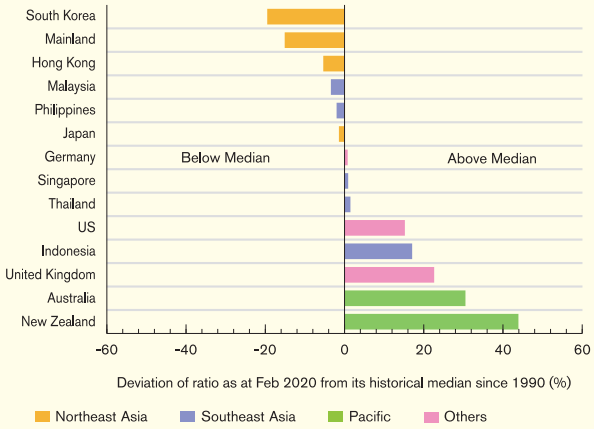
Chart 4.18
The IPO market in Hong Kong



Sources: HKEX.

Looking ahead, uncertainty looms large over the outlook for the local equity market. Given that Mainland enterprises now account for more than two thirds of Hong Kong's market capitalisation, its performance will hinge critically on how well they can cope in a sharply slowing global economy in the face of the coronavirus pandemic. While leading central banks have cut interest rates and stood ready to provide further liquidity support, investors appear to be wary that monetary accommodation might not offer real solutions to many operational difficulties experienced by firms and practical issues faced by consumers. Complicating this picture will be the considerable uncertainties brought by the next round of trade negotiations which are necessarily focused on much tougher and more sensitive issues such as 5G technology, cyber security and state-owned enterprise subsidies. In addition, there are many wild cards internationally, including the US-Iran tensions, the UK-European Union trade relations and the US presidential election. Therefore, while the local market remains attractive in terms of valuation, trading will likely be turbulent in the period ahead (Chart 4.19).

Chart 4.19
Cyclically-adjusted price-earnings ratios of Asia Pacific and other major markets

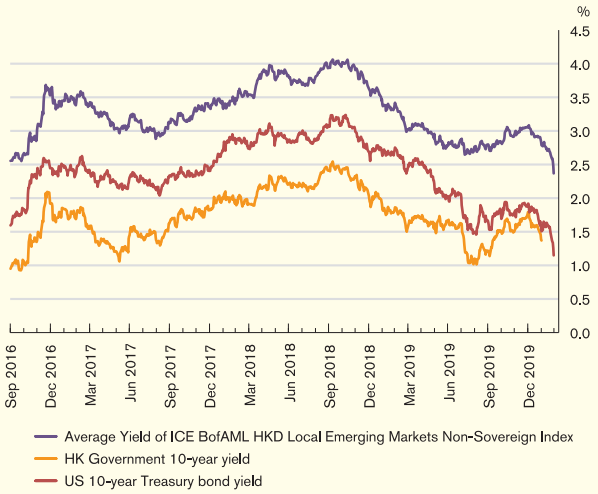


Sources: Bloomberg, CEIC and HKMA staff estimates.

4.4 Debt market

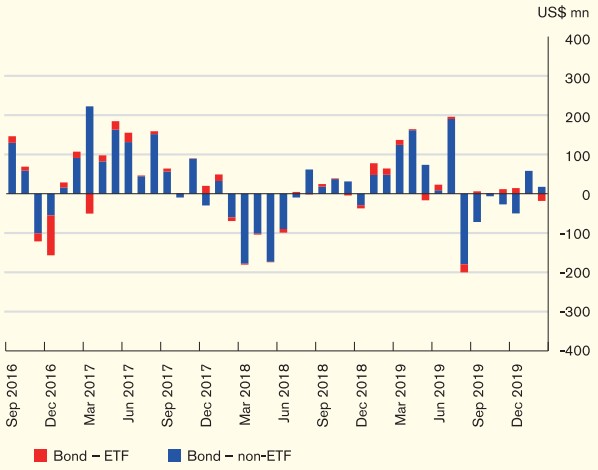
The Hong Kong dollar debt market continued to expand in 2019 on the back of steady growth in issuance, with the yields of both sovereign and non-sovereign bonds rebounding markedly since around last September, before declining rapidly towards the end of the review period in view of increasing risks posed by the coronavirus outbreak to growth. The earlier rebound was in tandem with the increase in US Treasury yields amid growing expectations there was no pressing need for the US Federal Reserve to further ease monetary policy (Chart 4.20). With the negative yield spread of sovereign bonds closing and the positive yield spread of non-sovereign bonds remaining significant, international investors found it increasingly more attractive to return from the sidelines. As a result, there was an improved appetite for Hong Kong dollar debt, which was reflected in the reduced net outflows towards the end of the year (Chart 4.21).

Chart 4.20
Hong Kong dollar sovereign and non-sovereign bond yields and US ten-year Treasury yield



Sources: ICE Data Indices and HKMA.

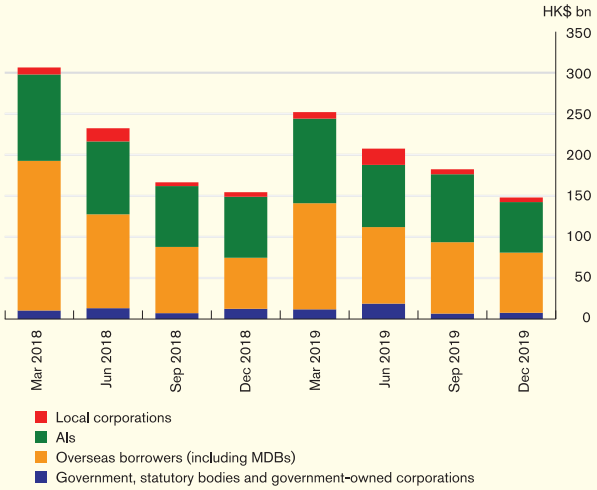
Chart 4.21
Exchange traded fund (ETF) and non-ETF bond fund flows into Hong Kong



Source: EPFR Global.

The new issuance of Hong Kong dollar debt increased by 2.2% to HK$4,184.0 billion in 2019 from the preceding year, mainly driven by a 5.0% increase in the issuance of Exchange Fund papers, which more than offset the decline in debts issued by the domestic private sector and overseas borrowers (Chart 4.22).

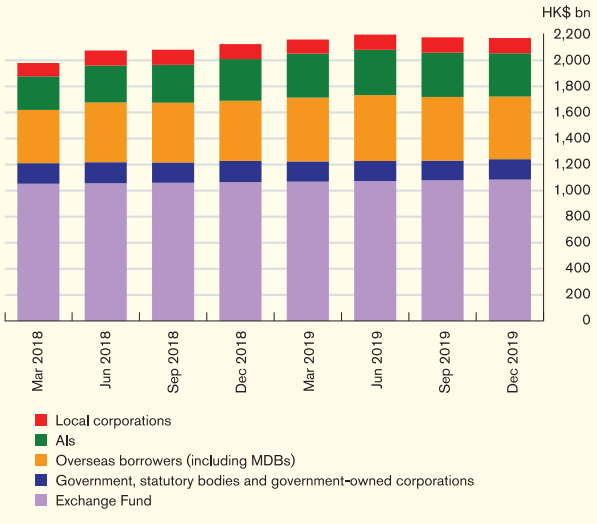
Chart 4.22
New issuance of non-EFBNs Hong Kong dollar debt



Source: HKMA.

As a result, the outstanding amount of Hong Kong dollar debt rose, also by 2.2%, to HK$2,165.9 billion at the end of December (Chart 4.23). The amount was equivalent to 29.1% of HK$M3 or 22.9% of Hong Kong dollar-denominated assets of the banking sector. Within the total, overseas borrowers including multilateral development banks saw their debt outstanding grow by 4.1% from a year ago to HK$479.7 billion. The outstanding debt of the local private sector also rose by 3.4% to HK$448.1 billion, attributable to an increase in the outstanding debt of both AIs and local corporations.

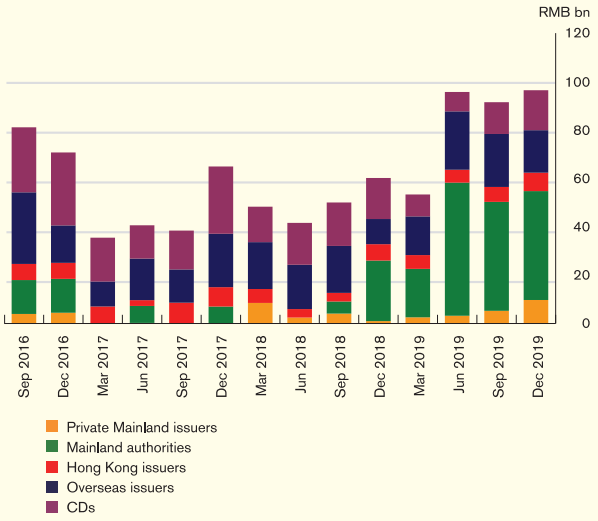
Chart 4.23
Outstanding Hong Kong dollar debt



Source: HKMA.

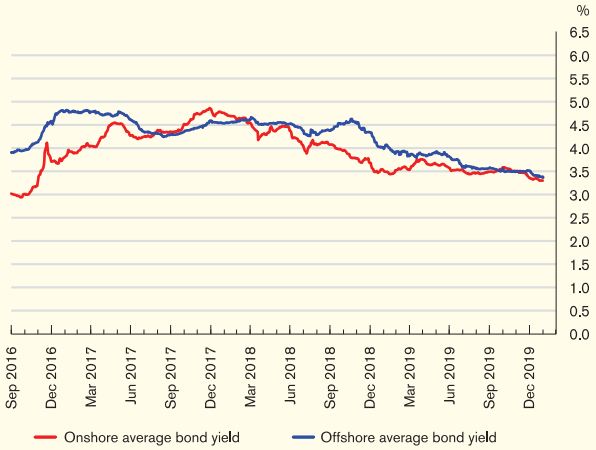
The offshore renminbi debt market in Hong Kong continued to expand. New issuance increased by 68.6% to RMB337 billion in 2019, mainly driven by Mainland authorities (Chart 4.24). The public sector aside, debts issued by private issuers including corporates from Mainland China, Hong Kong and overseas, registered a 21.3% increase to RMB125 billion, more than offsetting the 30.2% decrease in gross certificates of deposit issuances in the market. The increase in new issuance was partly due to a reduction in the funding cost difference between the onshore and offshore markets, as bond yields converged between onshore and offshore during the review period (Chart 4.25).

Chart 4.24
New issuance of offshore renminbi debt in Hong Kong



Sources: Newswires and HKMA staff estimates.

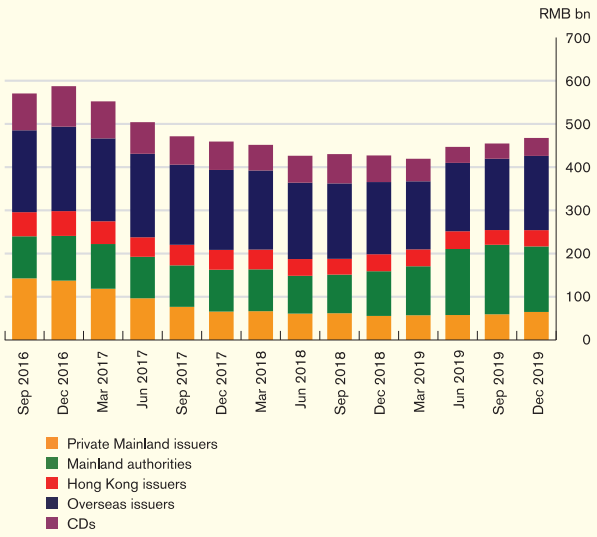
Chart 4.25
Average yields of onshore vs. offshore renminbi bond indices



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

Due to the sharp growth in new issuance, the total outstanding amount of offshore renminbi debt securities recorded a 9.0% increase to RMB468 billion at the end of December 2019, reversing a three-year-long decline (Chart 4.26).

Chart 4.26
Outstanding amount of offshore renminbi debt in Hong Kong



Sources: Newswires and HKMA staff estimates.

The near-term development outlook for the Hong Kong dollar and offshore renminbi debt markets is masked by considerable uncertainties over the coronavirus outbreak and the continuing trade negotiations between the US

and Mainland China. A wide range of economic activities came almost to a standstill on the Mainland as the authorities took strong measures to combat the spread of the virus. It is too early to tell if there will be a speedy economic recovery as the outbreak has now evolved into a pandemic. Incentives to invest are significantly suppressed, despite continued monetary and fiscal accommodation. Looking further ahead, whether a long-term investment project previously put on hold will receive the green light from the phase one trade deal also depends on the sector concerned. Industries that are more protected or highly regulated by the government, especially those considered strategic and technology-related, may be subject to no less uncertainty than before. Against this backdrop, these borrowers and lenders will continue to exercise caution in committing themselves to long-term funding in the capital market. Hence, there will unlikely be smooth sailing for the development of the local debt market in the foreseeable future.

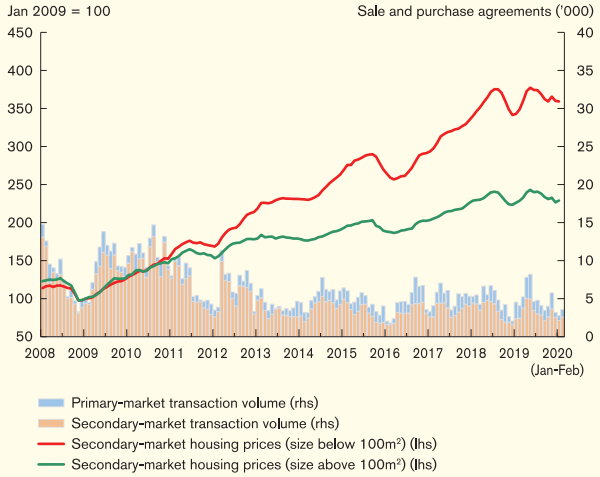
4.5 Property markets

Residential property market

The residential property market has generally softened since mid-2019, albeit showing some fluctuations. Market sentiment was dampened initially by the renewed US-China trade tensions, the local social incidents, weakened domestic economic activities, and later the outbreak of the coronavirus.[55] Compared with the first half of 2019, housing transactions dropped by 27% in the second half, with the average monthly transaction falling to about 4,200 units (Chart 4.27). In early 2020, the holiday effect of the Chinese New Year, together with the coronavirus outbreak, contained housing market activities. However, market data from real estate agencies suggest secondary-market transactions picked up in recent weeks.

Housing prices in the secondary market have also generally softened since June 2019. In particular, prices of large flats (with a saleable area of at least 100m^2) decreased slightly faster than the prices of small and medium-sized flats (with a saleable area of less than 100m^2). Overall, housing prices declined by 3.8% between June and December, but still recorded an increase of 5.4% for the whole of 2019, larger than the rise of 1.9% a year earlier (Chart 4.27). The latest outbreak further weighed on housing prices. The Centa-City Leading Index declined by about 2% in early March 2020 compared with the end of 2019.

Chart 4.27
Residential property prices and transaction volume



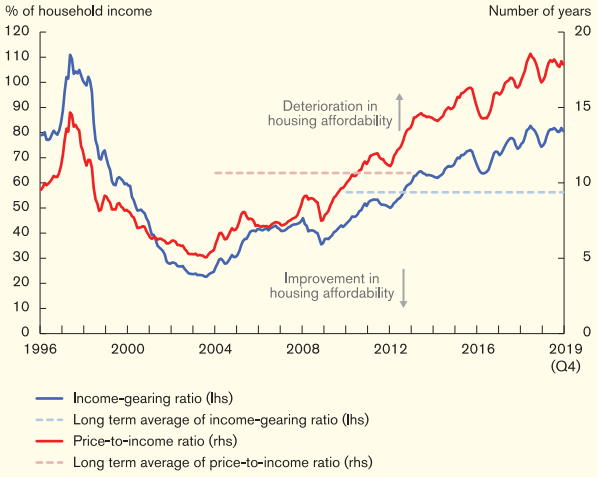
Sources: Rating and Valuation Department (R&VD) and Land Registry.

Despite softer housing prices, housing affordability remained stretched. The housing price-to-income ratio reached 17.9 in the fourth quarter of 2019, compared with the 1997 peak of 14.7. In addition, the income-gearing ratio was 80.9% in the fourth quarter, well above the

[55] That said, market sentiment improved briefly after the amendment to the Mortgage Insurance Programme (MIP) in mid-October. Specifically, the cap on the value of completed residential properties eligible for a mortgage loan was raised under the MIP starting from 16 October 2019. For more details, see the Press Release "Amendments to the Mortgage Insurance Programme" issued by the Hong Kong Mortgage Corporation Limited.

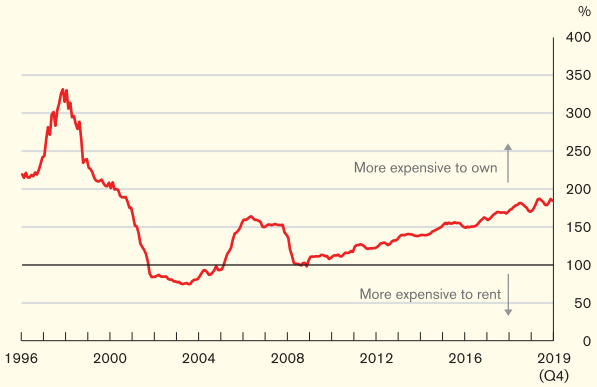
long-term average (Chart 4.28).[56] As housing rentals also fell back from the recent peak in August, the buy-rent gap remained high in the second half of 2019 (Chart 4.29).[57] On the flip side, residential rental yields stayed low at 2.1–2.5%.

Chart 4.28
Indicators of housing affordability



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

Chart 4.29
Buy-rent gap



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

While the housing market saw some downward pressures, the macroprudential measures implemented by the HKMA since 2009 have helped enhance the resilience of the banking sector to property market shocks. The average LTV ratio for new mortgages was 52.6% in January 2020, compared with 64% before the measures were first introduced. The debt-servicing ratio also stayed low at around 36%. In view of the coronavirus outbreak in early 2020, several banks have introduced some relief measures such as principal moratoriums for residential mortgages to relieve the financial difficulties of some borrowers.

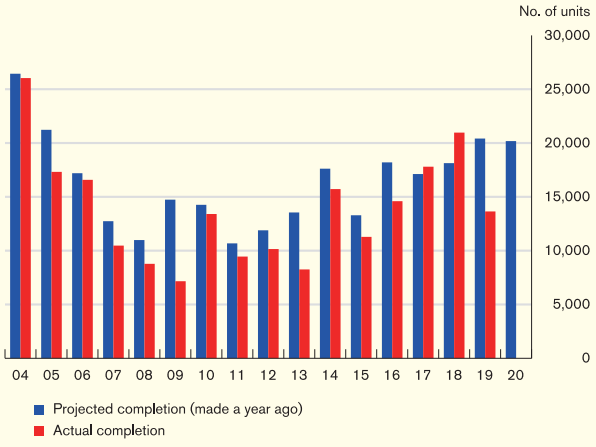
The outlook for the residential property market is subject to a host of uncertainties and risks as discussed in previous chapters. For example, the coronavirus outbreak, coupled with the current economic recession and the rising unemployment rate, will dampen housing demand and new project launches. Some external risk and uncertainty factors, such as the pace of global economic growth and the international financial market volatility, may also affect housing market sentiment. On the other hand, the very low interest rates may provide some support to asset markets, while market activity could rebound when the outbreak fades out, as suggested by the experience of the post–SARS period in 2003. Over the longer term, the outlook for the housing market will depend on the housing supply-demand gap. Although actual completions in 2019 saw a shortfall compared with the projections (Chart 4.30), the Government projects that private housing completions will remain high in forthcoming years.[58]

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

[57] 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.

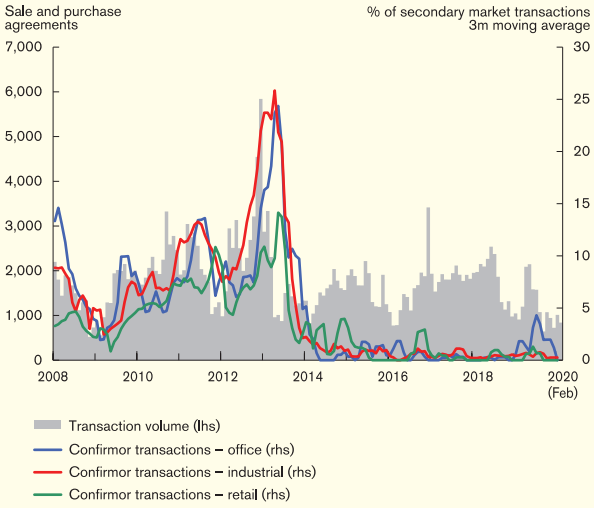
[58] The R&VD forecasts gross completions at around 20,000 units per year in 2020 and 2021, compared with the average of 13,500 units per annum in the past ten years (2010–2019).

Chart 4.30
Projected and actual private flat completion



Sources: Transport and Housing Bureau and R&VD.

Chart 4.31
Transactions in non-residential properties



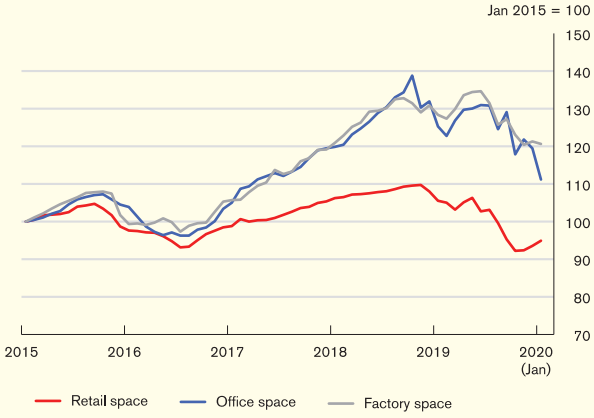
Sources: Land Registry and Centaline Property Agency Limited.

Non-residential property market

In the second half of 2019, the non-residential property market turned more sluggish amid a worsening business environment. Average monthly transactions declined further from 1,098 units in the third quarter to 914 units in the last quarter, hitting a three-year low since the first quarter of 2016 (Chart 4.31). Speculative activities remained quiet as reflected by the low level of confirmor transactions. Prices of non-residential properties were broadly weighed down by adverse economic conditions (Chart 4.32). Rentals also recorded varying degrees of decline (Chart 4.33), particularly those for retail shops which fell by a total of 6.1% since July. This partly reflected some shopping mall owners offering rent cuts to tenants in response to business disruptions in recent months. Rental yields across segments continued to stay at a low range of 2.7 – 3.0% in January 2020.

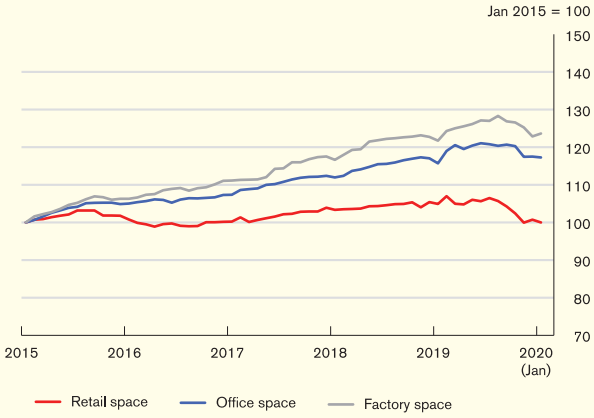
The outlook for the commercial and industrial property markets is challenging in the near term. Should domestic economic activities stay weak, the vacancy rate of commercial units could increase further, exerting downward pressures on prices and rentals. In addition, the retail segment will face stronger headwinds from the coronavirus outbreak and the lacklustre performance of inbound tourism.

Chart 4.32
Non-residential property price indices



Source: R&VD.

Chart 4.33
Non-residential property rental indices



Source: R&VD.

5. Banking sector performance

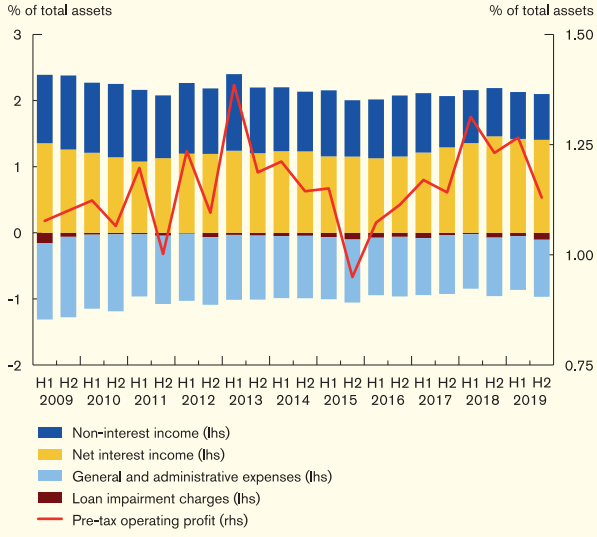
With rising uncertainties in both the global and domestic economic environments, retail banks in Hong Kong registered a slight decrease in their profits in the second half of 2019. That said, capital and liquidity positions of the Hong Kong banking sector remained strong and robust by international standards. Asset quality stayed healthy by historical standards. While loan growth decelerated in the second half of the year, it continued to outpace deposit growth during the review period. As a result, both the average all-currency and Hong Kong dollar loan-to-deposit ratios of all authorized institutions picked up. Nevertheless, the liquidity conditions of the banking system remained sound, underpinned by the stable Aggregate Balance and the broadly stable level of deposits. Looking ahead, the Hong Kong banking sector will continue to be challenged by a number of downside risk factors arising from uncertainties over the extent of the coronavirus outbreak, future US-China trade relations, geopolitical tensions and domestic social incidents. Banks should carefully assess how the possible intensification of these risk factors could impact the asset quality of their loan portfolios particularly when the levels of corporate leverage and household debt-servicing burdens have been rising.

5.1 Profitability and capitalisation

Profitability

The aggregate pre-tax operating profit of retail banks[59] fell moderately by 1.5% in the second half of 2019, compared with the same period in 2018. As a result, the return on assets (ROA) declined slightly to 1.13% in the second half of 2019, compared with 1.23% in the same period in 2018 (Chart 5.1). While the net interest margin (NIM) of retail banks slightly narrowed to 1.63% in the second half compared with 1.67% for the same period in 2018 (Chart 5.2), retail banks continued to register a mild increase in their net interest income during the review period. Nevertheless, profits were constrained by increases in loan impairment charges and operating expenses.

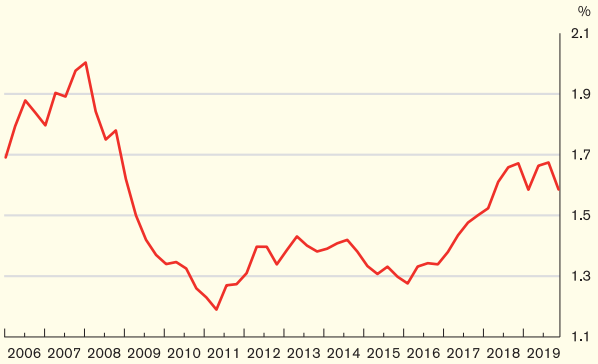
Chart 5.1
Profitability of retail banks



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

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

Chart 5.2
NIM of retail banks

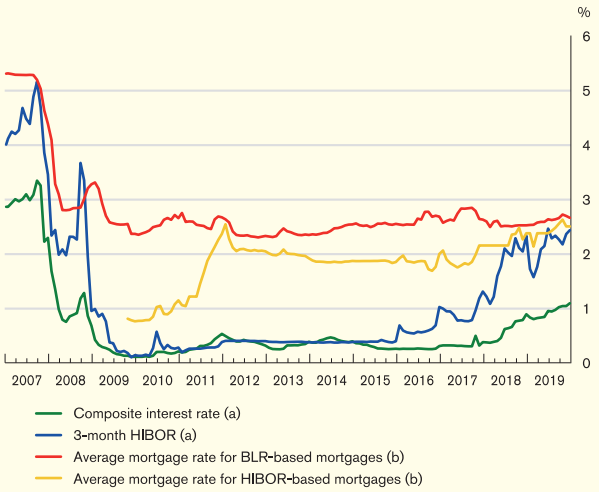


Note: Quarterly annualised figures.
Source: HKMA.

Despite three 25-basis-point cuts in the US Federal Funds Target Rate (FFTR) during the second half of 2019, the Hong Kong dollar wholesale funding market has not seen significant downward pressures so far. Rather, short-term Hong Kong dollar interbank interest rates (HIBOR) have witnessed an upward trend since the start of the fourth quarter of 2019, driven by various domestic factors including seasonal funding needs, heightened liquidity demand for large initial public offerings (IPOs) and tighter interbank liquidity conditions. Longer term HIBORs have remained steady during the review period, with the three-month HIBOR staying at 2.43% at the end of 2019, similar to the level six months ago (blue line in Chart 5.3).

On the retail front, with Hong Kong dollar savings deposit rates still close to zero level, retail banks have limited scope to cut them following US policy rate cuts.[60] On the other hand, banks continued to compete for long-term stable deposit funding during the review period amid tighter Hong Kong dollar liquidity in the banking system[61]. Reflecting the increase in the weighted Hong Kong dollar deposit cost, the composite interest rate (a measure of the average Hong Kong dollar funding costs for retail banks) increased gradually to 1.09% at the end of 2019 from 0.95% six months ago. Nevertheless, it remained relatively low by historical standards (green line in Chart 5.3).[62]

Chart 5.3
Interest rates



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

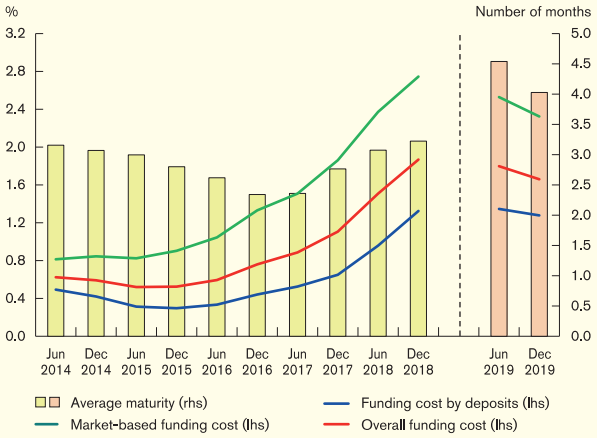
From a broader perspective, with the decrease in the US dollar funding cost among licensed banks more than offsetting the slight rise in its Hong Kong dollar counterpart, the overall Hong Kong dollar and US dollar funding cost for licensed banks in Hong Kong declined slightly by 14 basis point during the second half of 2019 (Chart 5.4). The mild decline in banks' overall funding costs along with relatively high levels of HIBORs, which contributed to the rise in net interest income, have been the supporting factors for banks' profitability during the review period.

60 Historically, retail banks in Hong Kong usually adjusted their savings deposits rates and the corresponding best lending rate (BLR) around the timing of US FFTR rate changes. After the global financial crisis, savings deposit rates had hit an historically low level, nearing the zero bound. Amid nine US rate hikes between late 2015 and 2018, retail banks had only raised the savings deposit rates with BLR once in late-September 2018. Indeed, several retail banks cut their savings deposit rates again after the US rate cut in late-October 2019.

61 This can be seen from the rising trend of the Hong Kong dollar loan-to-deposit ratio (see Chart 5.10).

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

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



1. Since June 2019, licensed banks not exempted from the new local IRRBB framework would report under the new framework, while exempted licensed banks would continue to report under the existing interest rate risk exposure framework. The overall funding cost and the maturity have been calculated as the weighted averages of the respective figures for these two groups of licensed banks. As such, figures from June 2019 onwards are not directly comparable with those of previous periods.

Source: HKMA.

In the period ahead, multiple downside risk factors in both external and domestic environments continue to cloud the outlook for banks' profitability. These factors include uncertainties over the extent of the coronavirus outbreak, future US-China trade relations and heightened geopolitical tensions. An intensification of these risk factors could dampen the already sluggish global growth momentum and reduce demand for bank credit. The low global interest rate environment is also likely to persist in view of a broad-based adoption of accommodative monetary policy stances by major central banks, which could pose downward pressures on banks' NIM going forward.[63]

On the domestic side, the social incidents since mid-2019 have dampened business investments and market confidence. If such incidents persist further in the future or intensify amid the already weakening economic environment, this will worsen the credit demand outlook and asset quality of banks.

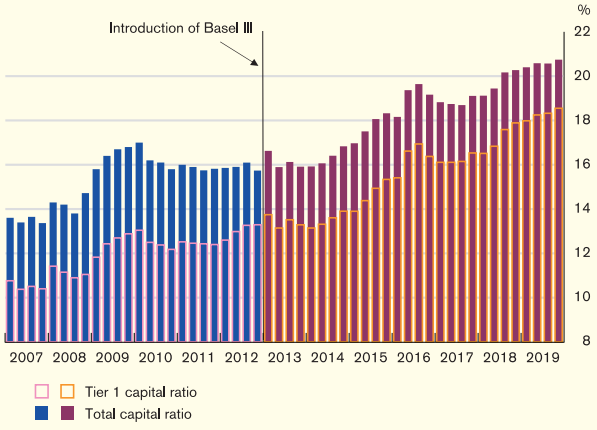
[63] Some major central banks (including the US Federal Reserve and the Bank of England) have cut policy rates and announced supportive measures in March amid the ongoing coronavirus outbreak and heightened volatility in financial markets.

On the overall development of the market, the Hong Kong banking sector is witnessing the launch of virtual banks following the granting of eight licences by the HKMA. To gain market share, these new players may attract customers by offering more convenient products and attractive deposit rates. This could pose upward pressure on the funding costs of incumbent banks. While the short-term impact is likely to be mild in view of the limited business scale of virtual banks, the longer-term impact may depend on how far incumbent banks seek to accelerate their adoption of financial technologies (fintech) in order to stay competitive. As suggested by the results in Box 5, a bank with a higher level of fintech adoption is statistically associated with larger improvements in its cost efficiency and its 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) further picked up to 20.7% at the end of 2019 (Chart 5.5). The Tier 1 capital ratio also edged up to 18.5%, with 16.5% being contributed by Common Equity Tier 1 (CET1) capital.

Chart 5.5
Capitalisation of locally incorporated AIs



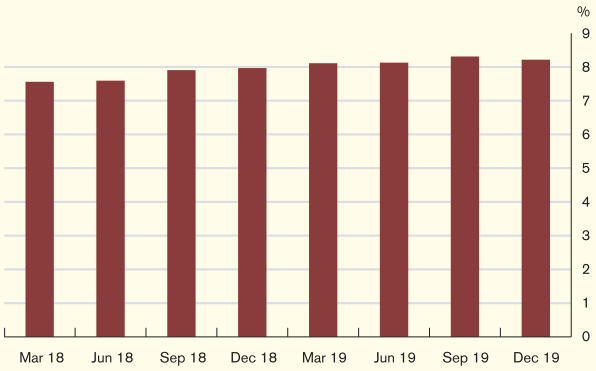
Notes:

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

Source: HKMA.

Alongside the risk-based capital adequacy ratio, there is a Basel III non-risk-based Leverage Ratio (LR) requirement acting as a "back-stop" to restrict the build-up of excessive leverage in the banking sector.[64] The LR of locally incorporated AIs stood at a healthy level of 8.2% at the end of 2019, exceeding the 3% statutory minimum (Chart 5.6).

Chart 5.6
Leverage Ratio of locally incorporated AIs



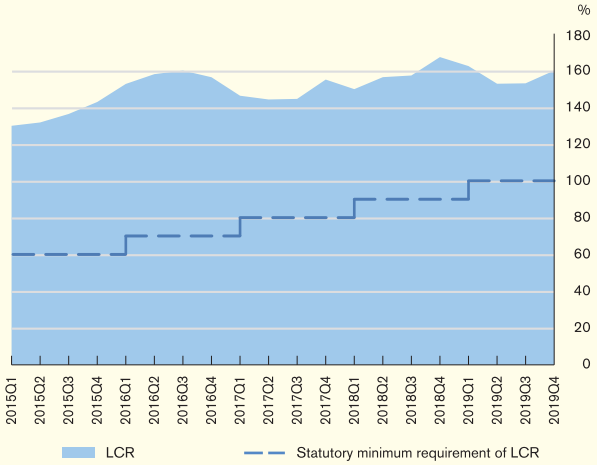
Note: Consolidated basis.
Source: HKMA.

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) [65], remained sound during the review period. The average LCR of category 1 institutions rose to 159.9% in the fourth quarter of 2019 from 152.8% in the second quarter of 2019 (Chart 5.7), which were well above the statutory minimum requirement of 100%. The average Liquidity Maintenance Ratio (LMR) of category 2 institutions also mildly increased to 56.3% in the fourth quarter of 2019 from 54.6% in the second quarter of 2019, also well above the statutory minimum requirement of 25%.

Chart 5.7
Liquidity Coverage Ratio



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

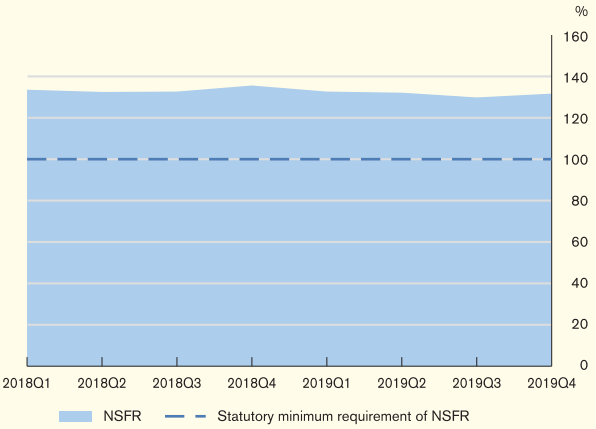
The Net Stable Funding Ratio (NSFR)[66], as part of the Basel III liquidity requirements, indicates a stable funding position of AIs. The average NSFR of category 1 institutions remained at a high level of 131.7% in the fourth quarter of 2019 (Chart 5.8), well above the statutory minimum requirement of 100%. The average Core Funding Ratio (CFR) of category 2A institutions stood at a high level of 134.5%, which also exceeded the statutory minimum requirement of 75% applicable in 2019. The strong liquidity and stable funding positions of AIs suggest the Hong Kong banking sector is well positioned to withstand a variety of liquidity shocks.

64 LR is calculated as the ratio of Tier 1 capital to an exposure measure, where the exposure measure includes both on-balance sheet and off-balance sheet exposures. For details, please refer to the Basel III leverage ratio framework published by the Basel Committee on Banking Supervision (https://www.bis.org/basel_framework/standard/LEV.htm).

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

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

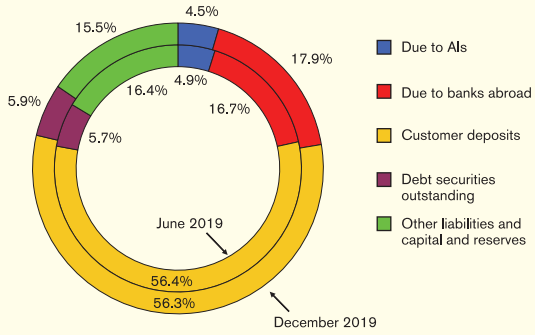
Chart 5.8
Net Stable Funding Ratio



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 2019, the share of customer deposits to all AIs' total liabilities remained largely unchanged at 56.3% from 56.4% six months ago (Chart 5.9).

Chart 5.9
The liability structure of all AIs



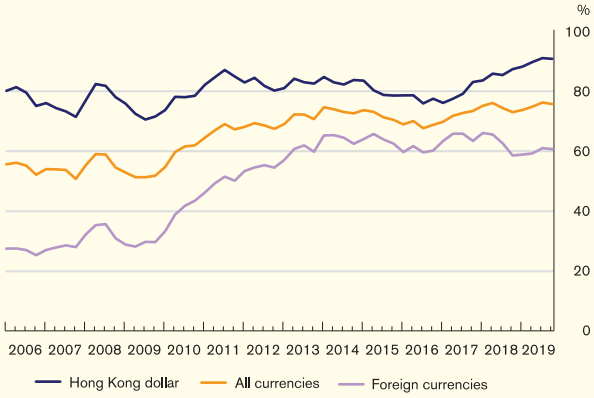
Notes:
1. Figures may not add up to total due to rounding.
2. Figures refer to the percentage of total liabilities (including capital and reserves).
3. Debt securities comprise negotiable certificates of deposit and all other negotiable debt instruments.

Source: HKMA.

The average Hong Kong dollar loan-to-deposit (LTD) ratio of all AIs increased to 90.3% at the end of 2019 from 89.3% at the end of June 2019 (Chart 5.10), driven by a stable level of Hong Kong dollar loans and advances and a slight decline in deposits during the review period.[67] As foreign currency-denominated loans grew faster than deposits, the average foreign currency LTD ratio also increased to 60.4% from 58.9% during the same period. Overall, the average all-currency LTD ratio of all AIs rose to 75.4% at the end of 2019 from 74.5% six months ago.

As is evident from the stable Aggregate Balance since April 2019 and the broadly stable level of deposits, no significant outflow of funds from the Hong Kong dollar or from the banking system was observed during the review period.

Chart 5.10
Average LTD ratios of all AIs



Note: Quarter-end figures.
Source: HKMA.

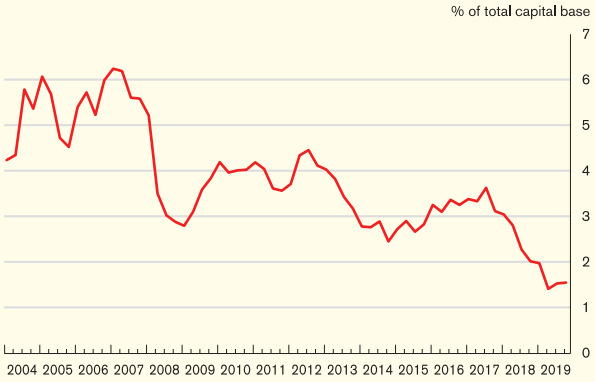
Interest rate risk

The interest rate risk exposure of locally incorporated licensed banks remained relatively low in the fourth quarter of 2019. It is estimated that under a hypothetical shock of an across-the-board 200-basis-point increase in Hong Kong dollar and US dollar interest rates, the economic value of locally incorporated licensed banks' interest rate positions could be subject to a

[67] While the Hong Kong dollar LTD ratio has reached a post-crisis high, the liquidity conditions of the banking system remained sound if one also takes into account AIs' own capital and reserves as a broader measure of funding liquidity. The adjusted Hong Kong dollar LTD (including customer deposits, capital and reserves, qualifying capital instruments and other capital-type instruments as the denominator) was 76.3% as of the end of 2019.

decline equivalent to 1.56% of their total capital base at the end of 2019 (Chart 5.11).[68]

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



Notes:
1. Interest rate shock refers to a 200-basis-point parallel increase in both Hong Kong dollar and US dollar yield curves to institutions' interest rate risk exposure. The two currencies accounted for a majority of interest-rate-sensitive assets, liabilities and off-balance-sheet positions for locally incorporated licensed banks' at the end of 2019.
2. The impact of the interest rate shock refers to its impact on the economic value of the banking and trading book[69], expressed as a percentage of the total capital base of banks.
3. Since June 2019, the interest rate risk exposure has been calculated based on the new local IRRBB framework. As such, the figures from June 2019 and onwards are not strictly comparable with those of previous periods.

Source: HKMA.

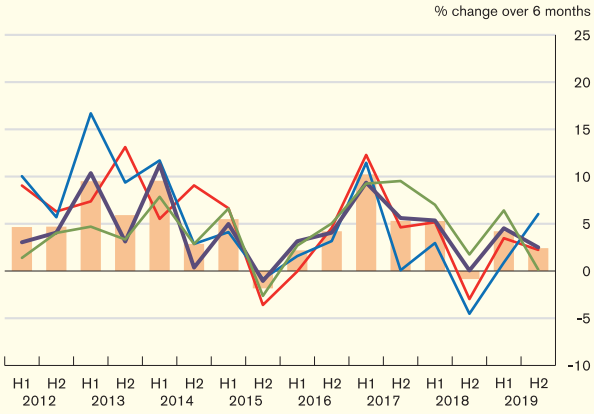
5.3 Credit risk

Overview

After a moderate rebound in the first half of 2019, growth in bank credits receded again in the second half against the backdrop of the lingering US-China trade tensions, the global economic slowdown and the prolonged domestic social incidents.

On a half-yearly basis, the loan growth (as measured by the change in total loans and advances of all AIs) decelerated to 2.4% in the second half of 2019, after increasing moderately by 4.2% in the first half (Chart 5.12). The slower loan growth was driven by lower growth in both domestic loans (comprising loans for use in Hong Kong and trade financing) and loans for use outside Hong Kong during the review period. Growth in domestic loans and loans for use outside Hong Kong decelerated to 2.5% and 2.2% in the second half of 2019, compared with 4.5% and 3.5%, respectively in the preceding six months. Nonetheless, total loan growth for 2019 as a whole still increased moderately to 6.7% compared with 4.4% in 2018.

Chart 5.12
Loan growth



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

Source: HKMA.

Banks' expectation on the outlook for credit demand in the near term becomes more diverse given the increased uncertainties in their operating environments. According to the results of the HKMA Opinion Survey on Credit Condition Outlook in December 2019, the shares of surveyed AIs expecting loan demand to be higher and those expecting loan demand to be lower in the next three months had both

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

[69] 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.

increased to 18% and 14% respectively, from the same 5% in June 2019, while only 68% of the AIs were still expecting loan demand to remain the same (Table 5.A).

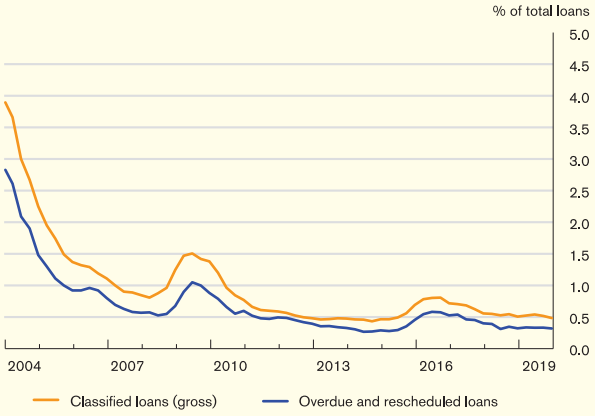
Table 5.A
Expectation of loan demand in the next three months

% of total respondents	Mar-19	Jun-19	Sep-19	Dec-19
Considerably higher	0	0	0	0
Somewhat higher	9	5	14	18
Same	86	91	41	68
Somewhat lower	5	5	45	14
Considerably lower	0	0	0	0
Total	100	100	100	100

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

The asset quality of banks' loan portfolios remained healthy in the second half of 2019. The gross classified loan ratio (CLR) of all AIs stayed unchanged at 0.57% at the end of 2019 comparing with six months ago, while the ratio of overdue and rescheduled loans of all AIs edged down to 0.35% at the end of 2019 from 0.39% at the end of June 2019. For retail banks, the gross CLR and the ratio of overdue and rescheduled loans both edged down to 0.48% and 0.32% respectively (Chart 5.13). Both ratios remained low by historical standards.

Chart 5.13
Asset quality of retail banks



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

Source: HKMA.

Household exposure[70]

The half-yearly growth in household debt decelerated moderately to 5.6% in the second half of 2019 from 6.7% in the first half. Within household debt, growth in personal loans slowed notably, more than offsetting the slightly faster growth in mortgage loans (Table 5.B).

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

	2017		2018		2019	
(%)	H1	H2	H1	H2	H1	H2
Residential mortgages	4.1	3.8	4.2	4.5	4.7	5.3
Personal loans	7.2	12.4	7.5	2.6	11.0	6.1
of which:						
Credit card advances	-7.8	11.0	-5.0	10.6	-3.8	4.1
Loans for other private purposes	11.9	12.7	10.7	0.9	14.5	6.6
Total loans to households	5.0	6.5	5.3	3.9	6.7	5.6

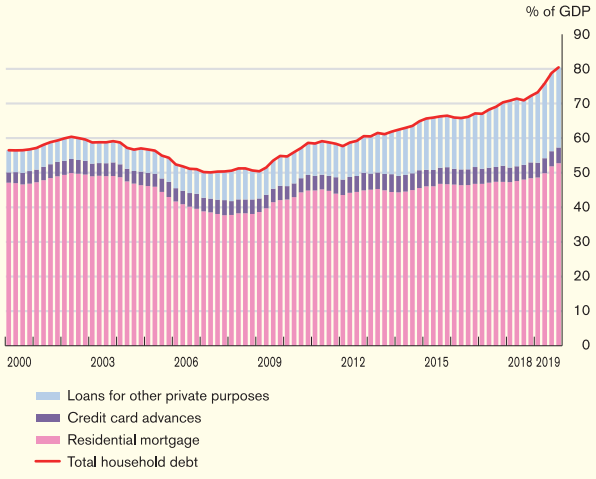
Note: Since December 2018, figures for loans to households have been restated to reflect AIs' reclassification of working capital loans. The half-yearly growth rates for the first half of 2019 and onwards are calculated based on the reclassified loan data, while the historical growth rates until the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

Despite slower growth of household debt in the second half, the household debt-to-GDP ratio rose further to 80.4% in the final quarter of 2019 from 75.8% in the second quarter, as the nominal GDP declined amid the significant contraction of Hong Kong economy in the third quarter (Chart 5.14). It is worth noting that while economic activities could slow down sharply during recessions, it may not be necessary for households to repay their debt within a short period of time. As such, the adjustment of household debt is usually slower than that of GDP during an economic downturn. Thus, a high level of household debt-to-GDP ratio will likely remain in the near term. The future trends of the ratio would depend on future economic development, as well as the corresponding repayment arrangements between banks and households.

[70] 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 2019, the share of household lending in domestic lending was 31.8%.

In recent years, loans for other private purposes have been one of the drivers of the rise in household debt, although they witnessed a slowdown in growth during the second half of 2019. A substantial portion of loans for other private purposes was loans granted to private banking and wealth management customers which were mainly secured by financial assets (including stocks, investment funds and bonds). Through day-to-day supervision, the HKMA noticed that banks have implemented prudent risk management measures on such loans, including imposing a cap on loan-to-value ratios for financial assets pledged as collateral, prompt margin call and forced liquidation mechanisms. The HKMA considered the credit risk of these loans as manageable. That said, the HKMA will continue to closely monitor the credit risk associated with these exposures through supervisory efforts including on-site examinations of AIs' activities.

Chart 5.14
Household debt-to-GDP and its components

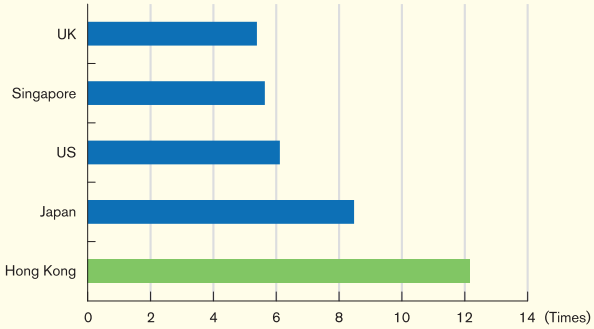


Notes:
1. Only borrowings from AIs are covered.
2. GDP refers to the annualised GDP, which is the sum of the quarterly GDP in the trailing four quarters.
3. Since December 2018, the figure for household debt has been restated to reflect AIs' reclassification of working capital loans.

Source: HKMA.

Besides, although the household debt-to-GDP ratio has been a widely-used indicator in evaluating household financial position, a full assessment requires the additional consideration of the entirety of the household balance sheet, including the level of assets and the composition of assets and liability. In our latest assessment, we find that in Hong Kong, the household net worth-to-liabilities ratio stood at 12.2 times in 2018 (UK: 5 times, Singapore: 6 times, US: 6 times, Japan: 8 times) (Chart 5.15). Also, the safe assets-to-liabilities ratio for Hong Kong's household sector stayed high at 3.04 times in 2018 (US: 1 time; UK: 1 time; Singapore: 1 time, Japan: 3 times) (Chart 5.16). Both ratios are at high levels and also higher than most other developed economies, suggesting that Hong Kong's households, on aggregate, are financially sound and have a strong buffer to cushion potential financial and economic shocks.

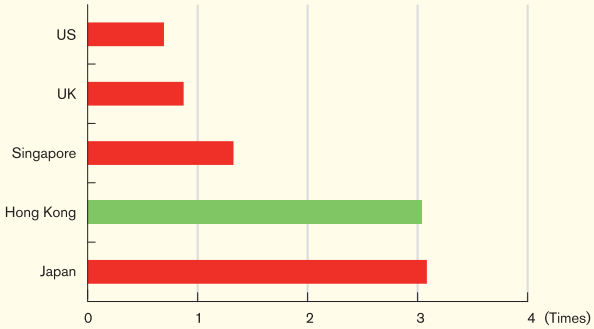
Chart 5.15
Household net worth-to-liabilities ratio for selected economies



Note: Japan figures refer to those at end-2017, while other figures refer to those at end-2018.

Sources: Statistical agencies or central banks of selected economies and HKMA staff estimates.

Chart 5.16
Safe assets-to-liabilities ratio for selected economies

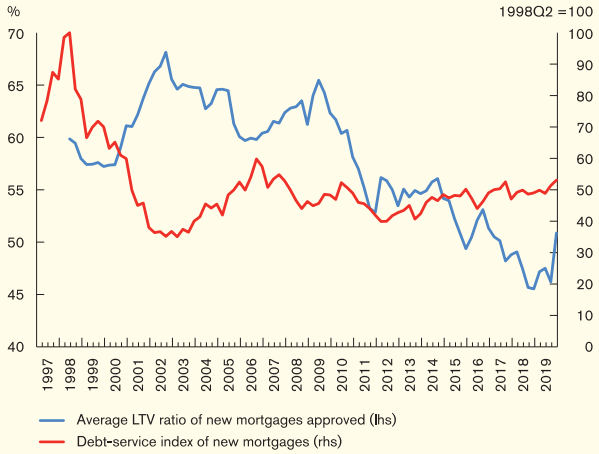


Note: Safe assets comprise deposits, as well as currency if data are available. In the case of Hong Kong, deposits only. Japan figures refer to those at end-2017, while all other reported figures refer to those at end-2018.

Sources: Statistical agencies or central banks of selected economies and HKMA staff estimates.

Banks' mortgage portfolios remained healthy, with the delinquency ratio hovering at a low level of 0.03% in the fourth quarter of 2019. The average loan-to-value (LTV) ratio of new mortgage loans approved first decreased to 46.2% in the third quarter from 47.5% in the second quarter, before it reverted and increased to 50.9% in the last quarter of 2019 (Chart 5.17). The moderate rise in the ratio partly reflected the effect of raising the cap on the value of the properties under the Mortgage Insurance Programme announced in late-October. Nonetheless, the figure was still well below the ratio of 64% in September 2009, just before the implementation of the first round of the HKMA's countercyclical macro-prudential measures.

Chart 5.17
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.

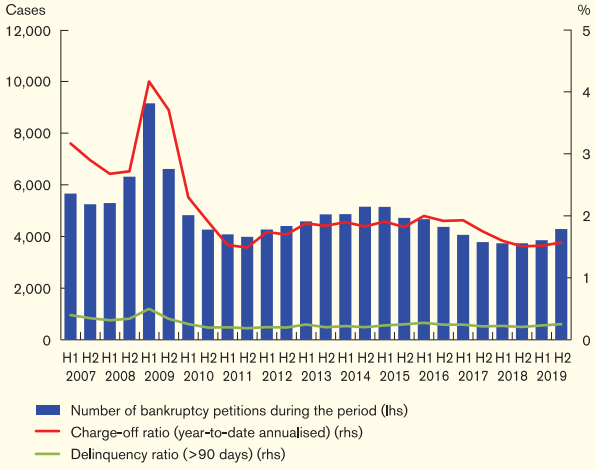
Meanwhile, the debt-service index of new mortgages[71] picked up further to 53.1 in the fourth quarter of 2019 compared with 48.9 in the second quarter (the red line in Chart 5.17).

Despite the three US policy rate cuts during the second half of 2019, the impact on the household debt burden has been limited at the current juncture as domestic interest rates (particularly HIBORs) so far have not followed the trends of their US counterparts due to various domestic factors discussed in the earlier section.

Meanwhile, should Hong Kong's economic conditions deteriorate further along with notable rises in future unemployment rates (see Box (3)), the household debt servicing ability could be significantly weakened through a decline in household income. In particular, a sensitivity test suggests the debt-service index could rise notably to 59.0 from the current level of 53.1 if household income were to decrease by 10%, other things being constant.[72] Therefore, banks should remain alert to the risks associated with a rising level of household debt-servicing burden.

Against the backdrop of a weakening domestic economy, the number of bankruptcy petitions showed signs of increasing, albeit remaining relatively low by historical standards. Nevertheless, the credit risk of unsecured household exposure remained contained during the review period. The annualised credit card charge-off ratio edged up to 1.57% in the second half of 2019 and the delinquency ratio slightly increased to 0.25% at the end of 2019 (Chart 5.18).

Chart 5.18
Charge-off ratio and delinquency ratio for credit card lending and bankruptcy petitions



Sources: Official Receiver's Office and HKMA.

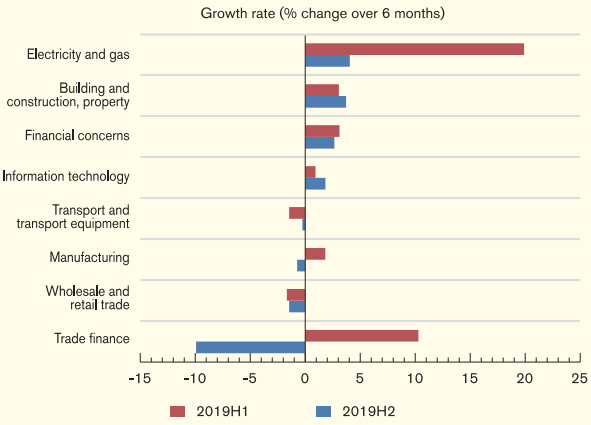
[71] A higher value of the debt-service index indicates there is either a drop in household income, or an increase in interest rates, or an increase in the average mortgage loan amount drawn by households. Historical movements in the index suggest that a sharp rise in the index may lead to a deterioration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

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

Corporate exposure[73]

Growth in domestic corporate loans (including trade finance) decelerated to 1.1% in the second half of 2019, partly reflecting the subdued credit demand amid the lacklustre external and domestic business environment. Analysed by economic sectors, loan growth for major economic sectors either decelerated notably or remained subdued. Partly reflecting the re-escalation of trade tensions since May last year, trade financing declined again in the second half of 2019 after a strong rebound in the first half (Chart 5.19).

Chart 5.19
Growth in domestic corporate loans by selected sectors

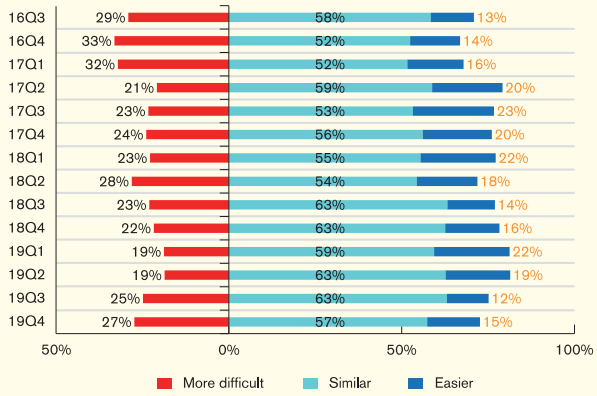


Source: HKMA.

The demand-side survey on small and medium-sized enterprises (SMEs)'credit conditions for the fourth quarter of 2019 shows that SMEs' perception of banks' credit approval stance relative to six months ago continued to worsen slightly compared with previous surveys in 2019 (Chart 5.20). Specifically, 27% of the respondents perceived credit approval as "more difficult" relative to six months ago, up from 25% recorded in the third quarter and further up from 19% recorded in the second quarter. However, this proportion is still lower than the high levels recorded in the second half of 2016 and early 2017. Despite the worsened perception of banks' credit approval stance, fewer respondents reported a tighter stance by banks on their existing credit lines. During the fourth quarter, 14% of the respondents with existing credit lines indicated tighter banks' stance, lower than the 32% recorded in the third quarter (Chart 5.21).

Various relief measures have been introduced to support SMEs and the broader economy. The Hong Kong Mortgage Corporation introduced new relief measures for the 80% Guarantee Product, the 90% Guarantee Product and special 100% Loan Guarantee under the SME Financing Guarantee Scheme in September 2019, December 2019 and February 2020 respectively, to provide additional support to the financing needs of SMEs. The Countercyclical Capital Buffer (CCyB) ratio of banks in Hong Kong was also reduced from 2.5% to 2.0% in mid-October 2019 and lowered further to 1.0% in mid-March 2020, which allows banks to be more supportive to the domestic economy and help mitigate the impact of the economic cycle. Indeed, many banks have also rolled out relief measures to assist SMEs in various sectors in overcoming the impact of the coronavirus outbreak.[74]

Chart 5.20
SMEs' perception of banks' credit approval stance relative to six months ago

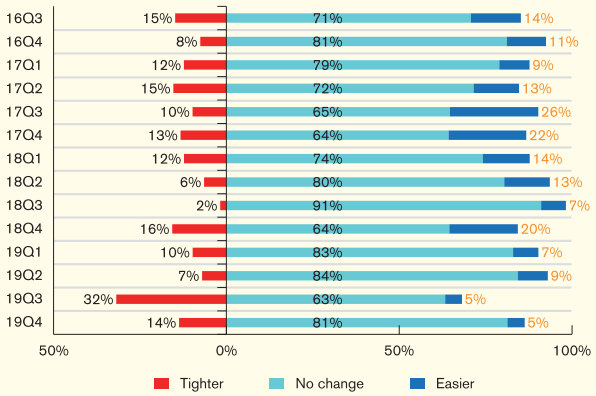


Source: HKMA.

[73] Excluding interbank exposure. At the end of 2019, the share of corporate loans in domestic lending was 68.1%.

[74] For the import and export sector, banks have extended the repayment period of trade financing facilities to align with the prolonged trade cycle as a result of the outbreak and allowed customers to convert trade financing lines into temporary overdraft facilities so that SMEs can manage their cash flow more flexibly. For the transportation sector, banks have offered repayment holidays or principal moratoriums to some affected customers, including taxi and minibus operators, to help them overcome this difficult period.

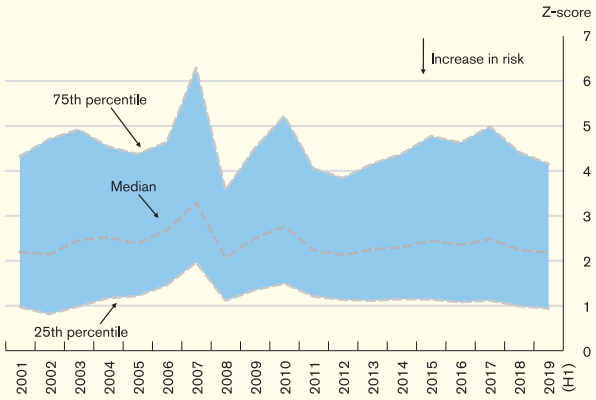
Chart 5.21
SMEs' reported change in banks' stance on existing credit lines



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

Some indicators suggest that the credit risk of banks' corporate exposures have deteriorated slightly amid the weakened global and domestic economic environment. Based on accounting data for all non-financial corporates listed in Hong Kong, the Altman's Z-score (a default risk measure for non-financial corporates) edged down further for both the median and 75th percentile in the first half of 2019, implying a modest deterioration in the financial health of these corporates (Chart 5.22).

Chart 5.22
Altman's Z-score of listed non-financial corporates in Hong Kong

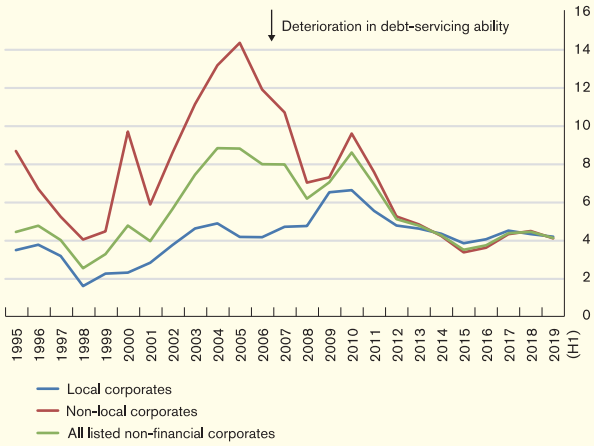


Notes:
1. All non-financial corporates listed on the Hong Kong Stock Exchange are selected.
2. Figures are calculated based on information up to end-February 2020.

Source: HKMA staff calculation based on estimates compiled by Bloomberg.

The slight rise in the default risk for the non-financial corporates listed in Hong Kong is partly due to a mild deterioration in their debt servicing ability, as indicated by a slight decline in the weighted average interest coverage ratio (ICR) (the green line in Chart 5.23). While both local and non-local corporates saw a decline in their ICRs, the drop in the aggregate ICR was mainly driven by non-local corporates (the red line). The weighted average debt-to-equity ratio, a common measure of corporate leverage, remained broadly stable at high levels in the first half of 2019 compared with six months ago (the green line in Chart 5.24).

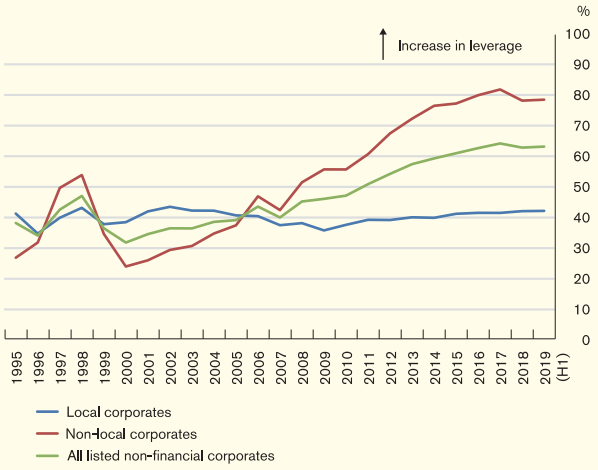
Chart 5.23
Interest coverage ratio of listed non-financial corporates in Hong Kong



Notes:
1. Weighted average figures.
2. The ICR is calculated by the earnings before interest and tax (EBIT) 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-February 2020.
5. Hong Kong Financial Reporting Standard (HKFRS) 16, which became effective in January 2019, requires that firms as lessees to report their original rental expenses under depreciation of right-of-use asset and interest expense on lease liabilities. As such, for 2019 H1, the adjusted EBITs and the total interest expenses will respectively be calculated as EBITs minus interest expense on lease liabilities, and total interest expenses minus interest expense on lease liabilities, for the purpose of comparison with historical figures.

Source: HKMA staff estimates based on data from Bloomberg.

Chart 5.24
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-February 2020.
5. Under HKFRS 16, firms as lessees will also recognise their operating leases with terms more than 12 months on-balance sheet. Specifically, the operating leases will be reported under "lease liability" items. As such, for 2019 H1 the adjusted debts for listed corporates are calculated as total borrowings minus total leases liabilities for the purpose of comparison with historical figures, whenever items for "leases liabilities" are reported.

Source: HKMA staff estimates based on data from Bloomberg.

Looking ahead, although market sentiment and business confidence have tentatively improved following the signing of the "Phase One" trade agreement between the US and Mainland China and a broad-based adoption of accommodative monetary policy among major central banks, the economic outlook is subject to various downside risk factors including the extent of the coronavirus outbreak, the elusive prospect over future US-China trade negotiations, rising geopolitical tensions and domestics social incidents. Should these risks intensify and trigger an abrupt shift in market sentiment, this may lead to an economic downturn and a sharp tightening in financial conditions. This would put the debt servicing ability of corporates to the test, particularly those non-local corporates with high leverage. Therefore, banks are reminded to uphold prudent credit risk management regarding their corporate exposures.

Mainland-related lending and non-bank exposures

The banking sector's total Mainland-related lending decreased slightly by 0.1% to HK$4,564 billion at the end of 2019 (16.8% of total assets), from HK$4,568 billion (17.1% of total assets) at the end of June 2019 (Table 5.C). Trade finance loans declined notably by 14.3% at the end of 2019, compared with six months earlier. Other non-bank exposures increased by 2.6% to HK$1,547 billion (Table 5.D).

Table 5.C
Mainland-related lending

HK$ bn	Mar 2019	Jun 2019	Sep 2019	Dec 2019
Mainland-related loans	4,415	4,568	4,625	4,564
Mainland-related loans excluding trade finance	4,103	4,227	4,296	4,271
Trade finance	312	341	330	292
By type of AIs:				
Overseas incorporated AIs	1,873	1,897	1,923	1,880
Locally incorporated AIs*	1,896	1,920	1,983	1,959
Mainland banking subsidiaries of locally incorporated AIs	646	750	720	725
By type of borrowers:				
Mainland state-owned entities	1,811	1,858	1,906	1,836
Mainland private entities	1,230	1,276	1,286	1,288
Non-Mainland entities	1,375	1,433	1,433	1,440

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 2019	Jun 2019	Sep 2019	Dec 2019
Negotiable debt instruments and other on-balance sheet exposures	1,039	1,069	1,102	1,125
Off-balance sheet exposures	409	439	452	421
Total	**1,448**	**1,508**	**1,554**	**1,547**

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

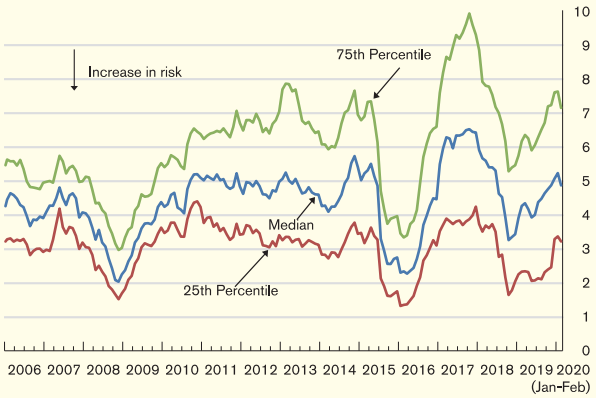
Source: HKMA.

The gross CLR of Mainland-related lending of all AIs[75] increased mildly to 0.75% at the end of 2019 from 0.70% at the end of June 2019. Despite the modest deterioration in asset quality, the associated credit risk should be contained as the ratio remained lower than the recent high of 0.89% in March 2016.

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

However, during the review period, a forward-looking market-based indicator showed a further improvement in the default risk for the Mainland corporate sector. The distance-to-default (DTD) index[76] continued to improve in the second half of 2019 (Chart 5.25), mainly reflecting improved sentiment in the Mainland stock markets as a result of the expectation of reaching the US-China "Phase One" trade deal. However, there have been tentative signs of deterioration in the index since February 2020 due to increased market participants' concerns about the extents of the coronavirus outbreak and its associated negative impact on the financial market and the economy.

Chart 5.25
Distance-to-default index for the Mainland corporate sector



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

In view of the downside risk to the Mainland economy arising from the uncertainties surrounding the next phase of the US-China trade negotiations and the effects of the recent outbreak, banks should stay alert to the credit risk management of their Mainland-related exposures.

Macro stress testing of credit risk[77]

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 5.26 presents the simulated future credit loss rate of retail banks in the fourth quarter of 2021 under four specific macroeconomic shocks[78] using information up to the fourth quarter of 2019.

Taking into account tail risk, banks' credit losses (at the confidence level of 99.9%) under the stress scenarios range from 1.37% (Interest rate shock) to 3.17% (Hong Kong GDP shock, which are significant, but smaller than the estimated loan loss of 4.39% following the Asian financial crisis.

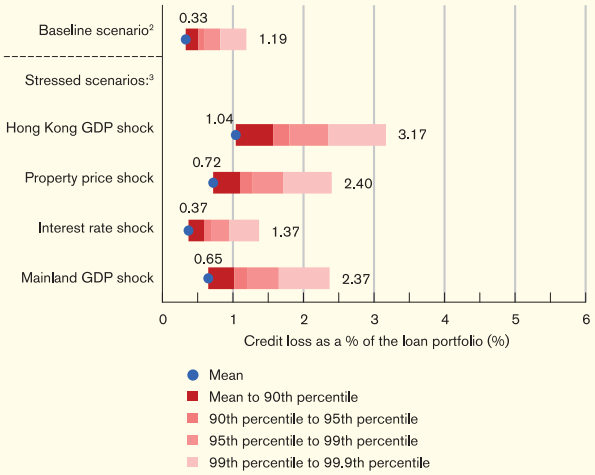
By incorporating the scenario of a potential coronavirus outbreak in Hong Kong into the stress test, real GDP is assumed to contract further with a similar degree of impact on the economy as experienced during the Severe Acute Respiratory Syndrome (SARS) period. Under this scenario, the stressed credit losses would range from the mean of 1.30% to 3.95% at the confidence level of 99.9%. This implies that through its impact on Hong Kong's GDP growth, the coronavirus outbreak would not significantly increase banks' credit losses.

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

[77] 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.

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

Chart 5.26
The mean and value-at-risk statistics of simulated credit loss distributions[1]



Notes:

1. The assessments assume the economic conditions in 2019 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 2.7%, 2.4%, 1.7%, and 1.6% respectively in each of the four consecutive quarters starting from 2020 Q1 to 2020 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 2020 Q1 to 2020 Q4.

   Interest rate shock: A rise in real interest rates (HIBORs) by 300 basis points in the first quarter (i.e. 2020 Q1), followed by no change in the second and third quarters and another rise of 300 basis points in the fourth quarter (i.e. 2020 Q4).

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

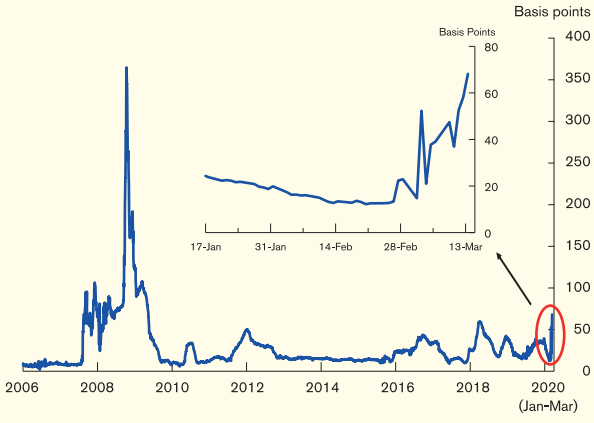
Source: HKMA staff estimates.

5.4 *Systemic risk*

Despite signs of stabilisation in the global economic growth at the beginning of this year following the US-China "Phase One" trade deal and pre-emptive monetary policy easing by major central banks, the global outlook is still subject to various downside risk factors including the uncertainties over the extent of the coronavirus outbreak, the future US-China trade relations, and rising geopolitical tensions. With the highly uncertainties external environment alongside prolonged domestic social incidents, the Hong Kong banking sector will face challenges on various fronts.

The outbreak of coronavirus has heightened the uncertainty over the global economic outlook given its depressing effect on economic activity in the affected economies as well as their trading partners through the global supply chain. In fact, the recent concerns about the rising global cases of the coronavirus infection have triggered a reassessment of global growth prospect by investors that led to a marked deterioration in risk appetite and a surge in risk premia. The risk-off sentiment in financial markets has also caused some tightening in the short-term dollar funding market, with the spread between the three-month US dollar LIBOR and its corresponding overnight index swap (OIS) rate[79] (a common indicator of systemic liquidity risks in the short-term dollar funding market) widening notably since early March 2020 (Chart 5.27). If the global growth prospect turns out to be more severely eroded by the coronavirus outbreak, this could further intensify financial market volatility and result in an acute tightening in financial conditions.

Chart 5.27
Three-month US dollar LIBOR-OIS spreads



Source: Bloomberg.

[79] 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.

Meanwhile, future trade relations between the US and Mainland China remains another key risk factor to watch for. Although the trade tensions softened following the US-China "Phase One" trade agreement, future trade relations between the two economies are highly uncertain as it remains to be seen whether both parties can deliver on the promises and how future deals are negotiated. If the trade dispute between the two economies re-escalates, it would further weigh on the already weakened economic conditions and severely affect corporates' financial conditions, particularly for those that have significant exposures to the two economies.

If these external risks materialise and coincide with intensified social incidents and a wider spread of the coronavirus in Hong Kong, it could lead to a full-blown economic recession in Hong Kong. It would pose more significant challenges to banks' asset quality in view of the rising leverage for both households and corporates in Hong Kong. While the macro stress test results suggest that the banking sector is able to withstand an extreme economic shock, banks are advised to carefully assess the potential impact on their asset quality under this severe adverse scenario.

The geopolitical risk related to Brexit also merits close monitoring. While the UK parliament passed legislation implementing the Withdrawal Agreement Bill, the risk of a no-deal Brexit has not been completely eliminated as the new trade deal concerning the free movement of people, services, and capital between the UK and the EU is yet to be negotiated. It remains uncertain whether the trade negotiations between the UK and European Union (EU) can be completed by the end of the 11-month transition period (i.e. end of 2020). If the negotiations turn sour, it could have a significant implication for global financial stability in view of the unmatched role of the UK banking system in distributing international banking flows. Any abrupt shift in banking flows from the UK banking system could have a spillover effect to Hong Kong as the direct exposure of the Hong Kong banking sector to banks in the UK and the broader euro area is not immaterial.

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.[80]

In setting the CCyB rate, the Monetary Authority considered a series of indicators (Table 5.E), including an "indicative buffer guide" (which is a metric providing a guide for CCyB rates based on the gap between the ratio of credit-to-GDP and its long term trend, and between the ratio of residential property prices to rentals and its long term trend)[81]. The setting of the CCyB for Hong Kong is however not a mechanical exercise and the Monetary Authority will always consider a broad range of reference indicators ("Comprehensive Reference Indicators") in addition to the indicative buffer guide.[82]

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

[81] 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.

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

In light of the worsening economic environment in Hong Kong in the second half of 2019, the Monetary Authority announced on 14 October 2019 a reduction of the CCyB to 2.0% from 2.5% to allow banks to be more supportive to the domestic economy.

For the latest situation, the indicative buffer guide, calculated based on the fourth quarter of 2019 data, signals a CCyB of 1.75% (after rounding down to the nearest multiple of 25 basis points)[83]. The projection based on all available data at the decision date however suggests that the indicative buffer guide would very likely signal a lower CCyB when all relevant data for the first quarter of 2020 become available. In addition, the information drawn from the series of Comprehensive Reference Indicators along with all relevant information available at the time of the decision in March 2020 suggest that the economic environment in Hong Kong has deteriorated further since the novel coronavirus outbreak. Given the latest developments in relation to the spread of novel coronavirus and the expected negative impact on global economic activities, the Monetary Authority considered that it is appropriate to reduce the CCyB further from 2.0% to 1.0% to allow banks to be more supportive to the domestic economy, in particular those sectors and individuals that are expected to experience additional stress due to the outbreak.[84]

The Monetary Authority will continue to closely monitor credit and economic conditions in Hong Kong and the CCyB ratio will be reviewed on a quarterly basis or more frequently.

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

	09-Jul-19	14-Oct-19	29-Jan-20	16-Mar-20
Announced CCyB rate	2.5%	2.0%	2.0%	1.0%
Date effective	09/07/2019	14/10/2019	29/01/2020	16/03/2020
Indicative buffer guide	2.0%	2.5%	0.9%	1.9%
Basel Common Reference Guide	2.2%	2.5%	2.5%	2.5%
Property Buffer Guide	1.5%	2.0%	0.3%	1.2%
Composite CCyB Guide	2.0%	2.5%	0.9%	1.9%
Indicative CCyB Ceiling	None	None	None	None
Primary gap indicators				
Credit/GDP gap	9.1%	11.2%	19.4%	21.2%
Property price/rent gap	6.7%	8.4%	2.9%	5.7%
Primary stress indicators				
3-month HIBOR spread* (percentage points)	0.22%	0.27%	0.37%	0.38%
Quarterly change in classified loan ratio (percentage points)	0.02%	0.02%	-0.02%	-0.03%

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.

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

[84] Further details and the considerations underlying this decision may be found in the Announcement of the CCyB to AIs on 16 March 2020 (https://www.hkma.gov.hk/media/eng/doc/key-functions/banking-stability/ccyb/CCyB_announcement_200316.pdf).

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

	Dec 2018	Sep 2019	Dec 2019
Interest rates			
1-month HIBOR fixing[2] (quarterly average)	1.63	2.03	2.16
3-month HIBOR fixing (quarterly average)	2.16	2.32	2.30
BLR[3] and 1-month HIBOR fixing spread (quarterly average)	3.50	3.10	2.88
BLR and 3-month HIBOR fixing spread (quarterly average)	2.97	2.81	2.74
Composite interest rate[4,5]	0.89	1.02	1.09
		All AIs	
Balance sheet developments[6]			
Total deposits	2.1	-0.1	1.3
Hong Kong dollar	-0.7	-1.0	0.0
Foreign currency	5.2	0.8	2.7
Total loans	0.3	1.7	0.7
Domestic lending[7]	1.3	1.9	0.6
Loans for use outside Hong Kong[8]	-2.1	1.4	0.8
Negotiable instruments			
Negotiable certificates of deposit (NCDs) issued	-6.2	-5.7	7.8
Negotiable debt instruments held (excluding NCDs)	4.2	1.2	-0.4
Asset quality			
As a percentage of total loans[9]			
Pass loans	98.13	98.13	98.10
Special mention loans	1.32	1.32	1.33
Classified loans[10] (gross)	0.55	0.56	0.57
Classified loans (net)[11]	0.26	0.25	0.28
Overdue > 3 months and rescheduled loans	0.36	0.40	0.35
Classified loan ratio (gross) of Mainland related lending[12]	0.55	0.71	0.75
Liquidity ratios (consolidated)			
Liquidity Coverage Ratio — applicable to category 1 institutions (quarterly average)	167.3	153.0	159.9
Liquidity Maintenance Ratio — applicable to category 2 institutions (quarterly average)	54.3	54.5	56.3
Net Stable Funding Ratio — applicable to category 1 institutions	135.6	129.9	131.7
Core Funding Ratio — applicable to category 2A institutions	134.3	132.9	134.5
		Retail banks	
Profitability			
Loan impairment charges as a percentage of average total assets (year-to-date annualised)	0.05	0.06	0.08
Net interest margin (year-to-date annualised)	1.62	1.64	1.63
Cost-to-income ratio (year-to-date)	38.7	38.0	39.5
		Surveyed institutions	
Asset quality			
Delinquency ratio of residential mortgage loans	0.02	0.02	0.03
Credit card lending			
Delinquency ratio	0.21	0.23	0.25
Charge-off ratio — quarterly annualised	1.53	1.76	1.64
— year-to-date annualised	1.51	1.58	1.57
		All locally incorporated AIs	
Capital adequacy (consolidated)			
Common Equity Tier 1 capital ratio	16.0	16.3	16.5
Tier 1 capital ratio	17.9	18.3	18.5
Total capital ratio	20.3	20.6	20.7
Leverage ratio	8.0	8.3	8.2

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

Box 5
The effect of fintech adoption on banks' performance – A preliminary assessment

Introduction

With rapid advancements in financial technologies (fintech[85]) in recent years, financial sectors across the globe have been characterised by an increasing degree of digitalisation and the emergence of various new technological applications and solutions. The Hong Kong banking sector is also vigorously embracing fintech as found in a recent study[86] by the HKMA, with most surveyed incumbent banks taking a pragmatic approach, and making tangible efforts to adopt fintech innovations in their business operations.[87] In addition, the development of virtual banks is expected to promote financial innovation and facilitate financial inclusion in Hong Kong.

Given the vast interest in and growing adoption of fintech by banks, the impact is being increasingly felt across various financial services. However, as banks are still engaged in various forms of digitalisation transformation in different business domains, most surveyed banks consider it premature to evaluate whether their prime objectives for adopting fintech have been met at this stage, albeit there are already early signs of benefits brought by fintech.

This box attempts to gauge the effects of fintech adoption on banks' performance by cross-checking their balance sheet data with their survey responses in relation to their fintech adoption. The aim is to understand whether incumbent banks have so far benefited from adopting fintech innovations in their institutions.

Gauging the impact of fintech adoption on banks' performance

Intuitively, the adoption of fintech and digitalisation transformation should enable banks to improve efficiency, expand the customer base and enhance business opportunity. If so, it should generally be expected that banks which adopt fintech to a greater extent in their business operations will generate a better performance in their operational efficiency and profitability, other things being equal.

As the degree of fintech adoption by banks is difficult to measure from conventional balance sheet data, the responses to the HKMA survey study are used to measure banks' fintech adoption status.[88] Specifically, it is calculated by the share of financial services and operations of a bank that has already applied fintech innovations. By construction, a value of 100% in this indicator for a bank means that it has adopted fintech applications across all of its financial services and operations.

[85] Following Financial Stability Board's practice, fintech is defined as "technologically enabled innovation in financial services that could result in new business models, applications, processes or products with an associated material effect on financial markets and institutions and the provision of financial services".

[86] A survey entitled "Study of the Impact of Fintech Innovations on the Hong Kong Banking Industry" was conducted in July 2019 to collect sector-wide qualitative information from market participants and gather insights into important trends and evolution of fintech development in the Hong Kong banking sector. For details, see Wong and Ho (2020), "The Impact of Fintech Innovations on the Hong Kong Banking Industry", *HKIMR working paper*, forthcoming.

[87] The survey results indicate that incumbent banks are embracing fintech and are progressively applying fintech innovations in virtually all types of financial services, with most respondents (ranging from 70% to 100% of them) either having applied or planning to apply fintech innovations in the various lines of businesses in their institutions.

[88] In total, 45 AIs participated in the survey. A sample of 37 incumbent banks is constructed to cover a broad representation of market players, related to types of banks and business activities. Of the total, 18 are retail banks and the remaining 19 are major foreign bank branches whose parents are either globally systemic important institutions or Mainland banks. The 37 incumbent banks together account for around three quarters of total assets and over 80% of total customer deposits in the Hong Kong banking sector at the end of June 2019. In addition, eight virtual banks, which have recently obtained banking licences are covered by the survey.

To gauge the effects of banks' fintech adoption, the relationships between banks' fintech adoption status and two metrics of bank performance, namely cumulative changes in banks' cost-to-income ratio and ROA over the period from the first quarter of 2017 to the second quarter of 2019 are examined.[89] The former metric is a commonly used indicator to proxy the cost efficiency of banks, while the latter measures banks' profitability. The two indicators are constructed based on the HKMA regulatory database which reflect their Hong Kong office positions.

Charts B5.1 and B5.2 present the scatter plots between banks' fintech adoption status and changes in their cost efficiency and profitability, respectively. Each dot in the charts represents the observation of a specific bank. As virtual banks have not yet commenced full operation and therefore do not have any balance sheet data, they are not included in the analysis. As can be seen in the charts, banks that have already adopted fintech for a wider range of their businesses and operations, generally registered a larger cumulative reduction in their cost-to-income ratio and a bigger rise in ROA.

Chart B5.1
Relationship between banks' cost efficiency and its fintech adoption status

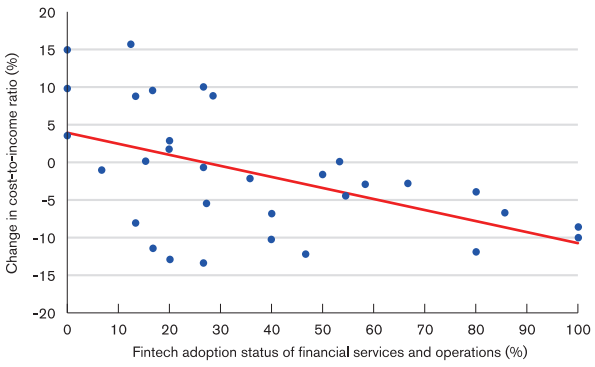
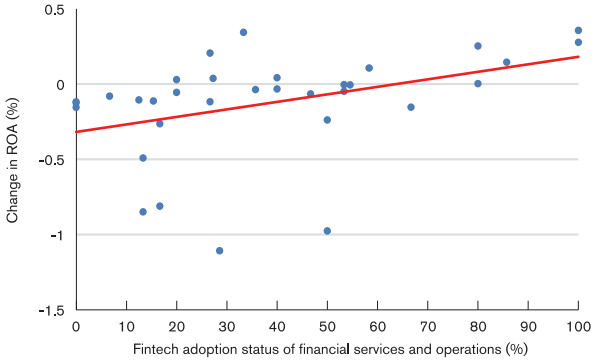


Chart B5.2
Relationship between banks' profitability and its fintech adoption status



In addition, a simple ordinary least squares model is employed by regressing the two performance indicators on banks' fintech adoption status.[90] In this exercise, any impacts that may arise from differences in banks' size (proxied by log assets), business characteristics (proxied by banks' loans-to-assets ratio and deposits-to-assets ratio) and bank group (proxied by a dummy variable which takes a value of one if a bank is a retail bank and zero otherwise) are controlled and separated. The estimation results are reported in Table B5.A.

Table B5.A
Estimated effects of fintech adoption on banks' performance

	(1)	(2)
Dependent variables	Δ Cost-to-income ratio	ΔROA
Fintech adoption status	-0.167***	0.005**
	(0.002)	(0.030)
Log assets	2.652**	0.029
	(0.044)	(0.553)
Deposits-to-assets ratio	-0.218*	-0.005
	(0.052)	(0.374)
Loans-to-assets ratio	0.110	0.005
	(0.418)	(0.419)
Dummy variable for retail bank	5.475	0.113
	(0.146)	(0.645)
Constant	-5.095	-0.476
	(0.481)	(0.103)
Observations	33	33
R^2	0.498	0.199

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

89 Cumulative changes are used as the fuller effect of fintech adoption would likely take time to be reflected. Same analyses with alternative time periods have been conducted and the results are qualitatively similar.

90 To ensure the estimation results are not driven by outliers, the dependent variable is trimmed at the 5th and 95th percentile.

Estimation results show that changes in banks' cost-to-income ratio and ROA are statistically correlated with their fintech adoption status. Specifically, a bank with a higher level of fintech adoption by 10 percentage points is associated with a larger cumulative decline in its cost-to-income ratio by 1.67 percentage points as well as a larger cumulative rise in its ROA by 0.05 percentage point, other things being equal.[91] The magnitude of the effect is also considered to be economically significant given that the mean value of the cumulative change in the cost-to-income ratio and ROA over the sample period are -1.56 and -0.13 percentage points respectively.[92]

Conclusion

While it remains difficult to ascertain the full impact of fintech at this stage, this analysis finds that the adoption of fintech by banks is positively associated with banks' performance in terms of cost efficiency and profitability.[93] As such, banks may be able to stay competitive by proactively leverage fintech innovations in their business, especially with the weakening global economic growth and low-for-longer interest rate environment.

With the continuing process of fintech adoption by banks, new challenges and risks are likely to arise amid the rapidly-evolving development of new technologies. As such, the future operation of virtual banks and fintech firms may bring new changes to the provision of financial services, which may lead to profound changes to banks' business models. Therefore, further researches and closer attention to these issues are highly warranted.

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[91] Caution should be exercised when interpreting the estimated effects as the actual full impact may differ significantly across banks which crucially depends on the specific fintech strategy adopted by individual banks as well as the type of fintech innovations being deployed.

[92] As a reference, the median value of the cumulative change in the cost-to-income ratio and ROA over the sample period are -2.2 and -0.06 percentage points respectively.

[93] UBS (2016), "Global banks: Is Fintech a threat or an opportunity?", also finds a similar conclusion based on a simulation analysis.

Glossary of terms

Aggregate Balance

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

Authorized Institution (AI)

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

Best Lending Rate

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

Certificates of Indebtedness (CIs)

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

Composite Consumer Price Index (CCPI)

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

Composite Interest Rate

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

Convertibility Undertaking (CU)

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

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

Convertibility Zone

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

Exchange Fund Bills and Notes (EFBNs)

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

Monetary Base

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

Money supply

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

Nominal and Real Effective Exchange Rate (NEER and REER)

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

Abbreviations

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

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

GFC	Global financial crisis
G-SIBs	Global systemically important banks
HIBOR	Hong Kong Interbank Offered Rate
HK	Hong Kong
HKD	Hong Kong dollar
HKEx	The Hong Kong Exchanges and Clearing Limited
HKFRS	Hong Kong Financial Reporting Standard
HKMA	Hong Kong Monetary Authority
HKMC	Hong Kong Mortgage Corporation
HKPC	Hong Kong Productivity Council
HK$M3	Hong Kong dollar broad money supply
HSCEI	Hang Seng China Enterprises Index
HSI	Hang Seng Index
HTS	Harmonised Tariff Schedule
ICR	Interest Coverage Ratio
IFC	International Finance Corporation
IMF	International Monetary Fund
ISM	Institute for Supply Management
IPO	Initial Public Offering
IRRBB	Interest rate risk in the banking book
IT	Information technology
JPY	Japanese Yen
LCR	Liquidity Coverage Ratio
LIBOR	London Interbank Offered Rate
LERS	Linked Exchange Rate System
LFPR	Labour force participation rate
LMR	Liquidity Maintenance Ratio
LPR	Loan Prime Rate
lhs	Left-hand side
LR	Leverage Ratio
LTD	Loan-to-deposit
LTV	Loan-to-value
M&A	Mergers and acquisitions
mn	Million
MDBs	Multilateral Development Banks
MIP	Mortgage Insurance Programme

MoF	Ministry of Finance
MRF	Mutual Recognition of Funds
MSCI	Morgan Stanley Capital International
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
NIEs	Newly industrialised economies
NIM	Net interest margin
NPL	Non-performing loan
NSFR	Net Stable Funding Ratio
OAS	Option-adjusted spread
OCI	Other comprehensive income
OECD	Organisation for Economic Co-operation and Development
OIS	Overnight indexed swap
OTC	Over-the-counter
p.a.	Per annum
P2P	Peer-to-peer
PBoC	People's Bank of China
PCE	Personal consumption expenditure
PMI	Purchasing Managers' Index
POE	Privately-owned enterprise
PPI	Producer Price Index
PRC GAAP	Generally accepted accounting principles in China
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 assets
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
SEO	Seasoned equity offering
SHIBOR	Shanghai Interbank Offered Rate
SKEW	Chicago Board Options Exchange Skew Index
SLF	Standing Lending Facility
SMEs	Small and medium-sized enterprises
SOEs	State-owned enterprises
SPM	Supervisory Policy Manual
SSD	Special stamp duty
SSE	Shanghai Stock Exchange
ST	Special treatment
SWIFTs	Society for Worldwide Interbank Financial Telecommunication
S&P	Sale and Purchase Agreements of Building Units
S&P 500	Standard & Poor's 500 Index
th	Thousands
tn	trillion
TLTRO	Targeted Longer-Term Refinancing Operation
TWI	Trade Weighted Index
UK	United Kingdom
US	United States
USD	US dollar
USMCA	United States-Mexico-Canada Agreement
VAR	Vector autoregressive
VBs	Virtual Banks
VHSI	HSI Volatility Index
VIX	Chicago Board Options Exchange Market Volatility Index
WMP	Wealth management product
WTO	World Trade Organisation
yoy	Year-on-year

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

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