HONG KONG MONETARY AUTHORITY
香 港 金 融 管 理 局

HALF-YEARLY MONETARY AND FINANCIAL STABILITY REPORT

September 2021

This Report reviews statistical information between the end of February 2021 and the end of August 2021.

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

The global economy is rebounding from its deep recession, but the recovery has been highly uneven, with major advanced economies (AEs) generally outpacing emerging market economies (EMEs), due mainly to differences in the extent of policy support and vaccine uptake. Such asynchronous global recovery and, by extension, monetary policy could pose risks of a premature tightening in monetary conditions in the EMEs.

The Hong Kong dollar remained in the strong side of the Convertibility Zone and continued to trade in a smooth and orderly manner. With total deposits increasing moderately during the review period, there was no sign of significant outflows from the Hong Kong banking system. Bank credit resumed expansion at a notable pace, while the residential property market has regained some upward momentum since the beginning of the year.

Looking ahead, the pace and strength of economic recovery remain uncertain, hinging on the ongoing pandemic development. This issue, together with uncertainties over the future pace and direction of monetary policy in major economies, lingering China-US geopolitical tensions and their potential impacts on business activities, will continue to pose challenges to the Hong Kong banking sector. Banks should stay vigilant and carefully assess the potential effects of these risk factors on the asset quality of their loan portfolios.

The external environment

During the reporting period, the global economy rebounded more strongly than expected, thanks to sustained policy support, increased vaccination rates and stronger-than-expected pent-up demand. The recovery was, however, highly uneven, with major AEs generally outpacing EMEs due to differences in the extent of policy support and vaccine uptake, the development of the pandemic, as well as structural factors such as the degree of reliance on contact-intensive industries, tourism for example.

Amid the economic reopening, strong pent-up demand and pervasive supply chain bottlenecks unleashed inflationary pressures worldwide, particularly in the US. This raises concerns that, in case US inflation turns out to be more persistent than envisaged, the Federal Reserve (Fed) may tighten monetary policy earlier than expected, resulting in adverse spillover effects to the recovering EMEs. Looking ahead, the global outlook hinges on vaccination progress, future development of the pandemic, and whether policymakers have in place a sound “Pandexit” strategy that can avoid “policy cliffs” while mitigating the adverse side effects of prolonged policy accommodation.

In particular, abundant global liquidity amid the accommodative monetary policies may encourage investors to search for yield, which could undermine financial stability. In fact, there has been rapid growth in risky corporate debt assets, including leveraged loans (LLs) and their securitised products, namely Collateralised Loan Obligations. Box 1 finds that open-ended funds which invest heavily in LLs are subject to high liquidity risk and fire-sale pressure in times of stress, calling for close monitoring and policies to address the vulnerabilities in these funds.

In East Asia[1], the pace of economic recovery was highly uneven in the first half of 2021, reflecting the differences in economic structure and the divergence in vaccination progress across regional economies. Apart from uncertainties arising from the vaccination progress, the region is facing multiple headwinds. First, while the region's recovery has been underpinned by strong demand for its goods exports so far, signs have emerged that the import demand in major economies for goods from the region could soon decelerate. Second, as discussed earlier, the rising US inflationary pressures may carry the risk of a sudden spike in long-term US interest rates that could trigger premature financial tightening in some of the regional economies.

In Mainland China, the economy continued to recover amid a strong rebound in consumption and resilient external demand. That said, the economic recovery remained uneven, as some in-person and small businesses were still affected by prevailing anti-virus measures. In response, the authorities continued to roll out accommodative measures to support sectors that were lagging behind, while also containing potential systemic risks by, for example, limiting the exposure of the banking system to risky borrowers such as highly leveraged property developers.

The first half of 2021 witnessed increased defaults of property developers, in part reflecting their worsening financial positions after years of over-borrowing. Looking forward, the debt sustainability of property developers hinges on the performance of the property market. To monitor property market performance, Box 2 introduces a sentiment index based on a textual analysis of Mainland news reports. The analysis shows that both sentiment and economic fundamentals improved after the containment of COVID-19, contributing to the increase in housing prices in the first half of 2021 (see more details in Box 2).

The domestic economy

Overall economic activities in Hong Kong recovered visibly in the first half of 2021, though a return to pre-recession levels has yet to be achieved. Year on year, real gross domestic product (GDP) grew by over 7% in the first and second quarters. On a sequential basis, real GDP also expanded notably by 5.5% in the first quarter, before moderating somewhat in the second quarter against the high base of comparison. The economic rebound was driven by strong merchandise export performance and improving domestic demand. However, the recovery was uneven as social-distancing requirements and travel restrictions continued to weigh on certain economic segments.

Economic recovery is expected to continue for the rest of 2021. In particular, private consumption is set to strengthen further, thanks to improving labour market conditions, the progress of the vaccinations and a boost from the Government's Consumption Voucher Scheme. Better economic prospects may also stimulate investment spending. Externally, the improved global economic conditions should continue to support Hong Kong's export growth in the near term, but inbound tourism is likely to take time to recover. The Government and private-sector analysts have revised upwards their forecasts of

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

real GDP growth for 2021 to 5.5–6.5% and 6.4% respectively. This positive economic outlook is subject to a number of risks and uncertainties as discussed above, especially those stemming from the pandemic (e.g. the Delta variant), China-US tensions and the Fed's monetary policy outlook.

The labour market saw some improvement in recent months. The seasonally adjusted unemployment rate declined from a recent high of 7.2% in February to 4.7% in August, along with rising vacancies as evidenced by the number of online job advertisements. Looking ahead, pressures on the labour market should ease further with the continued revival in overall economic activities, although some sectors will still face challenges given the uneven recovery.

Local inflationary pressures edged up recently but remained mild. On a year-on-year comparison, the underlying composite consumer price index declined by 0.2% in the first quarter, and increased slightly by 0.3% in the second quarter and 1.2% in August[2]. Inflation momentum, as measured by the annualised three-month-on-three-month underlying inflation rate, also picked up but remained at a moderate level, due in part to limited upward pressure on housing rentals. Looking ahead, while local inflation will likely pick up further in the near term alongside the economic recovery, overall price pressures should stay mild for 2021 as a whole due to the feed-through of earlier consolidation in fresh-letting residential rentals and restrained local labour costs. The Government projects the underlying and headline inflation rates for 2021 to be 1% and 1.6% respectively, while the latest market consensus forecasts the year's headline inflation rate will hit 1.8%.

Monetary conditions and capital flows

Overall, the Hong Kong dollar remained in the strong side of the Convertibility Zone and continued to trade in a smooth and orderly manner. Due partly to weaker buying interest from the southbound Stock Connects, and partly to the repatriation of initial public offering (IPO) proceeds, the Hong Kong dollar softened slightly against the US dollar in March and early April. The Hong Kong dollar then firmed again in the second quarter, due to the resumption of the southbound inflows and corporates' needs to pay dividends. Stepping into July, the Hong Kong dollar saw some softening due to risk-off sentiment in the local equity market. Nevertheless, the robust IPO pipeline provided support to the Hong Kong dollar.

Hong Kong's interbank market continued to trade in a smooth and orderly manner. With ample interbank liquidity, Hong Kong Interbank Offered Rates remained soft during the review period. Because of low funding costs, the average lending rate for new mortgages dropped to 1.48% in July. The Best Lending Rates of major retail banks remained stable at between 5.00% and 5.50%.

With total deposits increasing moderately during the review period, there was no sign of significant outflows from the Hong Kong banking system. Looking ahead, uncertainties related to the Fed's monetary policy, lingering China-US tensions, the pace of economic recovery along with the development of the COVID-19 pandemic, as well as the equity-market activities may heighten volatility in fund flows. Nonetheless, Hong Kong is able to withstand the volatility, given its ample foreign reserves and robust banking system.

The offshore renminbi banking business witnessed steady growth. The offshore renminbi (CNH) liquidity pool expanded further, with the total outstanding amount of renminbi customer

[2] The headline inflation rate was 1.2% and 0.8% in the first and second quarters respectively, higher than the underlying inflation rate. This was attributable to the effect of the Government's one-off relief measures, such as a reduction in subsidies for electricity charges.

deposits and certificates of deposit rising to RMB854.7 billion at the end of July. Meanwhile, renminbi lending and renminbi trade settlement continued to pick up, and the average turnover of the renminbi Real Time Gross Settlement system stayed high at RMB1,531.2 billion during the first seven months. Going forward, Hong Kong's offshore renminbi business is expected to benefit from ongoing liberalisation of Mainland's capital account through the multiple Connect schemes, international investors' rising demand for renminbi assets, as well as deepening regional economic and financial cooperation under the Belt and Road and the Guangdong-Hong Kong-Macao Greater Bay Area initiatives.

Asset market

Major equity markets continued to rally, with the MSCI World Index hitting an all-time high of 3,147 points on 30 August, on the back of accommodative monetary policies and stimuli from fiscal measures, significant progress in the pace of COVID-19 vaccination, as well as upbeat corporate earnings in major economies. Hong Kong's equity market, on the other hand, remained subdued due to sharp declines in tech stocks in the HSI constituents and investors' concerns about the potential impact of virus mutations on the recovery of the global economy. Meanwhile, the blockbuster listings of Mainland enterprises propelled Hong Kong's primary market to its strongest-ever first half-year in terms of IPO proceeds.

Supported by steady issuances, both the Hong Kong dollar and CNH debt markets continued to expand in the first half of 2021. The expansion of the CNH debt market was broadly driven by increased issuance by Hong Kong issuers, private Mainland issuers and overseas issuers. Global bond yields rose at the beginning of 2021 on concerns about rising inflationary pressure, and then consolidated in the second quarter due to rising uncertainties about the sustainability of economic recovery in the US and other developed economies. Rising yields in March dampened investor appetite on bonds, triggering a net outflow of bond funds in the month. Bond fund inflows to Hong Kong picked up again in June after two months of consolidation but registered an outflow in July. Overall, the net bond fund inflows to Hong Kong were moderate in the first seven months of 2021.

Looking ahead, both the local equity and debt markets would remain susceptible to various global uncertainties, including the development of the pandemic, especially on how the rapid spread of the Delta variant may affect the sustainability of global economic recovery. Meanwhile, the outlook on inflation and interest rates and the uncertainties about the pace of the Fed's tapering moves in its asset purchases, as well as the ongoing China-US tensions, are likely to affect market sentiment in both the equity and debt markets.

The residential property market has regained some upward momentum since the start of this year, underpinned by better economic prospects, improving market sentiment and mortgage interest rates that are still low. In particular, transactions in the secondary market climbed to a nine-year high in the second quarter. Secondary-market housing prices also resumed growth, rising by 4.3% in January–July to just below the historical peak in May 2019. More recent market data indicated that housing prices climbed further in August.

The residential property market outlook is subject to a number of uncertainties and risks mentioned in the previous sections. On the one hand, renewed deterioration in the pandemic situation (due perhaps to a fifth wave of local infections caused by virus mutations) could weigh on housing market sentiment. On the other hand, the current ultra-low interest rates are expected to support asset prices. Over the longer term, the outlook for the housing market will depend on the supply-demand gap. The

Government projects that private housing supply will remain high in the upcoming years[3].

The non-residential property market saw some signs of recovery along with the revival in economic activities. In particular, transactions and prices generally picked up from low levels seen over the past few years. Box 3 studies developments in the non-residential property market using transactional big data and discusses the implications on financial stability. Looking forward, the performance of the non-residential property market will depend on the pandemic developments, as well as the domestic and external economic environments. In particular, the rising vaccination rate, further relaxation in social-distancing measures, eventual border reopening, as well as continued expansion in domestic consumption and external trade would help the commercial and industrial property markets recover further. That said, the emergence of mutant strains and the uncertainties surrounding the Fed's monetary policy and the China-US relations may cloud the non-residential property market outlook.

Banking sector performance

Despite visible economic recovery in the first half of 2021, retail banks registered thinner profits as their net interest margins narrowed further amid the low interest rate environment. The aggregate pre-tax operating profits of retail banks fell by 19.8% in the first half of 2021, compared with the same period in 2020. The fall in profits was mainly driven by a decrease in net interest income, which more than offset the impact of an increase in non-interest income and a notable decrease in loan impairment charges. As a result, the return on assets fell to 0.69% in the first half of 2021 compared with 0.94% in the same period of 2020.

Notwithstanding the fall in profits, the Hong Kong banking sector remained robust and resilient. In particular, the asset quality of the banking sector was stable in the first half of 2021, with classified loan ratios staying low by both historical and international standards.

Capital and liquidity positions of the banking sector also remained robust, providing strong buffers for banks to withstand shocks. The consolidated total capital ratio of locally incorporated authorized institutions (AIs) stood at a high level of 19.8% at the end of the second quarter of 2021. Regarding the liquidity positions, the average Liquidity Coverage Ratio of category 1 institutions and the average Liquidity Maintenance Ratio of category 2 institutions also maintained at high levels of 154.0% and 58.1% respectively in the second quarter of 2021. In addition, the latest ratios under the Net Stable Funding Ratio requirement stayed at levels well exceeding their statutory minimum requirements.

Bank credit resumed expansion at a notable pace in the first half of 2021, mainly driven by the improved domestic economic environment, coupled with a tangible increase in IPO-related loans straddled at the end of June. On a half-yearly basis, total loans and advances of all AIs increased markedly by 7.2% in the first half of 2021, after declining by 1.8% in the second half of 2020. Excluding IPO-related loans, total loans and advances expanded by 4.4% during the review period. Loan growth was mainly driven by growth in domestic lending (comprising loans for use in Hong Kong and trade financing), while loans for use outside Hong Kong increased mildly in the review period.

Climate change is one of the major emerging risks to financial stability. For instance, a disorderly transition to a low-carbon economy could have a destabilising effect on the financial system. Box 4, based on a sample of syndicated loans in Asia Pacific, finds that banks in the region have started to price-in climate transition

[3] According to Government projections, more than 18,000 private residential flats will be completed on average annually in the 2021–2025 period, higher than the annual average of the previous five years.

risk for loans to emission-intensive sectors since the Paris Agreement, suggesting that banks have begun to incorporate climate risk considerations in their existing risk management framework.

Nevertheless, in view of the highly challenging task in managing climate risks given their distinctive nature and data gaps, banks should keep abreast of the latest developments on climate risk management practices when considering their own risk management approach. In this regard, the HKMA has actively engaged with the banking industry to facilitate AIs' inclusion of climate risk management practices in their operations.

Looking ahead, the pace and strength of economic recovery remain uncertain as it will hinge on how the pandemic unfolds further. This, together with uncertainties over the future pace and direction of monetary policy in the major economies, lingering China-US geopolitical tensions and their potential impacts on business activities, will continue to pose challenges to the Hong Kong banking sector. In view of rising indebtedness in the household and corporate sectors, banks should remain vigilant and carefully assess the potential effects of these risk factors on the asset quality of their loan portfolios.

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

Thanks to a rising vaccine uptake, sustained policy support and a gradual adaptation to "pandemic life", the global economic recovery has so far surpassed expectations. Yet, the pace of recovery is deeply uneven, with EMEs generally lagging behind AEs. Strong pent-up demand and pervasive supply chain bottlenecks have fuelled inflationary pressure, particularly in the US, raising concerns about a premature tightening of global financial conditions. Going forward, the global outlook hinges on factors such as vaccination progress and the future development of the pandemic, as well as whether a sound "Pandexit" strategy will be in place to mitigate economic scarring while rebuilding policy buffers as soon as practicable.

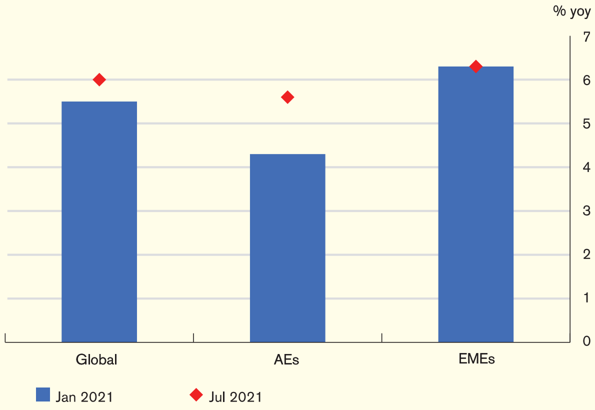
In East Asia, while some economies have recovered at a faster pace on the back of goods exports, economic conditions remain weak, especially in those economies with slower vaccination progress and more dependence on tourism. A premature global financial tightening would risk derailing the recovery of the economies that are lagging behind or dealing with notable growth in US dollar debt.

In Mainland China, the economy continued to improve steadily in the first half of 2021 but the recovery was uneven, with some in-person and small businesses still lagging behind. Accordingly, the government kept up its support of the real economy with accommodative measures while containing potential systemic risks by, for example, limiting banks' exposure to vulnerable borrowers such as highly leveraged property developers.

2.1 External environment

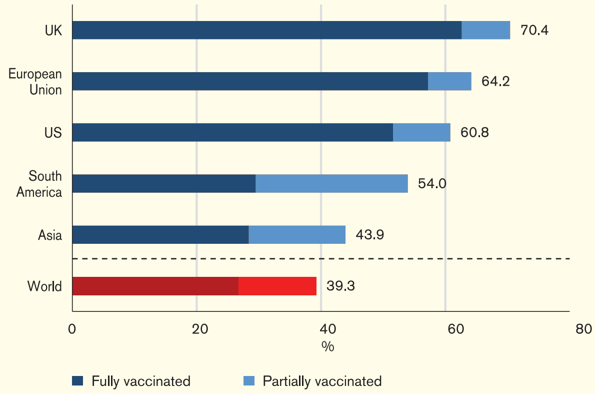
Against the stark backdrop of the COVID-19 pandemic, the global economic recovery has been remarkably strong – thanks to climbing vaccination rates, sustained policy support and a gradual adaptation to "pandemic life", such as the rising popularity of e-commerce and remote working, which allow households and firms to better cope with disruptive restriction measures. Reflecting the solid growth outturns among major AEs in the first half of 2021, the International Monetary Fund (IMF) in July maintained its full-year projection of global gross domestic product (GDP) growth at 6.0%, same as in April and upgraded from its previous forecast of 5.5% in January (Chart 2.1).

Chart 2.1
IMF's 2021 real GDP growth projections



Source: IMF.

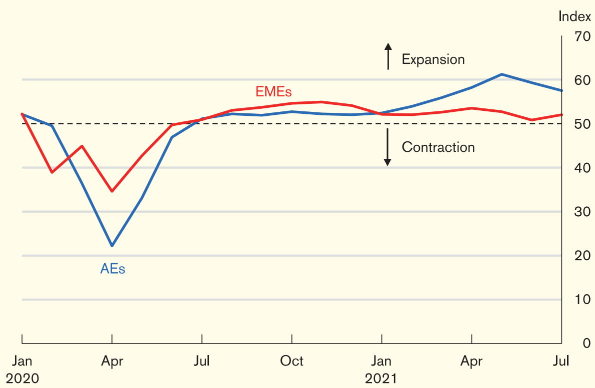
Chart 2.3
Share of vaccinated population in selected economies



Note: Data as of 29 August 2021.
Source: Our World in Data.

However, the recovery has been highly uneven across economies, owing to variations in the extent of policy support, the vaccine coverage and the pandemic development, as well as structural factors such as the degree of reliance on hard-hit sectors including tourism and hospitality. Among AEs, the US rebounded faster than its counterparts in Europe, due in part to its swift economic reopening and generous stimulus packages. In contrast, EMEs have generally been lagging behind (Chart 2.2), as reopening was hampered by the relatively slow vaccine rollouts (Chart 2.3), and also because of their more limited policy space.

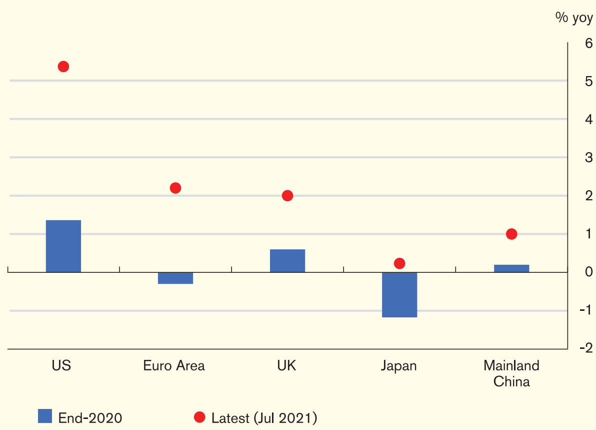
Chart 2.2
Composite Purchasing Managers' Index (PMI) in AEs and EMEs



Source: CEIC.

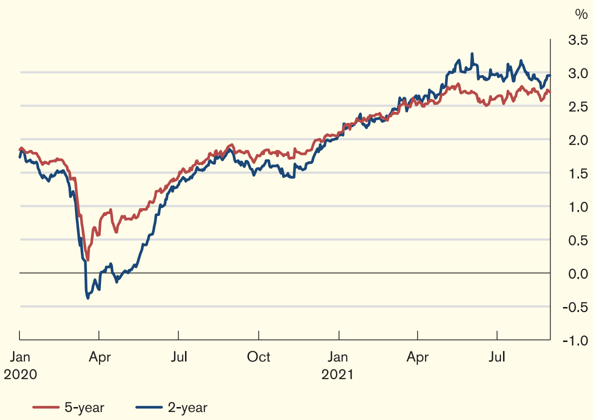
As the global economy reopened, strong pent-up demand and pervasive supply chain bottlenecks stemming from the pandemic, such as global shortages in semiconductors and logistics capacity, resulted in a heightened supply-demand imbalance, leading to a global build-up of inflationary pressure (Chart 2.4). This build-up of price pressures has been particularly acute in the US, where generous fiscal transfers contributed to increases in both disposable personal income and labour shortage. Against this backdrop, market-based US inflation expectations went up notably, especially for the nearer term (Chart 2.5).

Chart 2.4
Headline consumer price inflation rate in selected major economies



Source: CEIC.

Chart 2.5
Market-based US inflation expectations

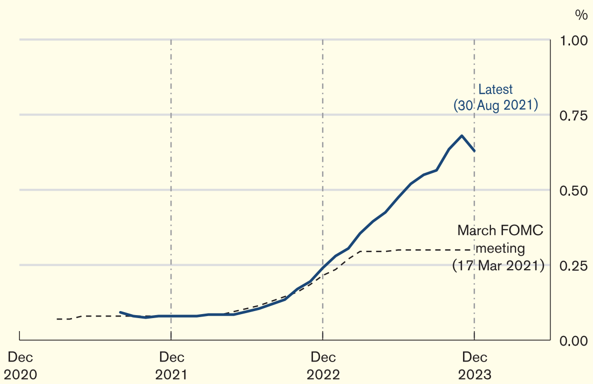


Note: This chart plots the two-year and five-year inflation swap rates, which serve as proxies for market expectations of the average annual US inflation rates over the next two and five years respectively.

Source: Datastream.

While the Fed has suggested more than once that the inflationary pressures are likely to be transitory, repeated upside surprises in US inflation in recent months prompted the market to bring forward the timing of the Fed's first rate hike and to expect a steeper Fed funds rate path in the future (Chart 2.6). These developments, together with a revelation from the minutes of the June Federal Open Market Committee meeting that Fed officials had begun discussion on scaling back the quantitative easing programme, raised concerns about a tighter monetary policy ahead.

Chart 2.6
Implied interest rates from federal funds futures



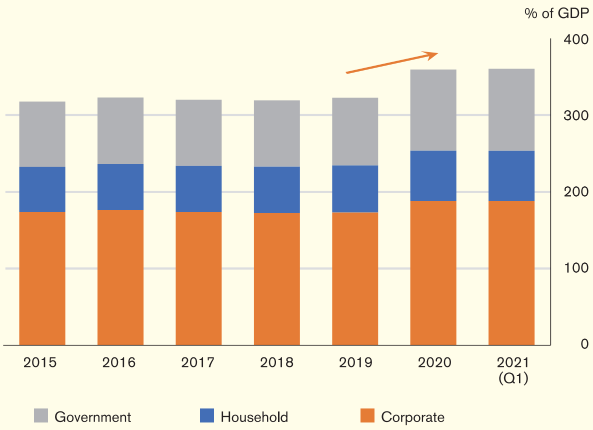
Source: Datastream.

Going forward, if US inflation turns out to be more persistent than expected, for instance, due to sustained price pressures in consumption categories that respond strongly to reopening or a larger-than-expected pass-through of rising housing prices to the rental component of inflation, this could challenge the markets' expectations of "low for even longer", raising the risks of disruptive financial market repricing and a premature tightening of global financial conditions. Under this scenario, many EMEs could be vulnerable to renewed growth slowdowns and capital outflows, given their tepid recovery and limited room for policy manoeuvre.

Uncertainties over the future development of the pandemic pose another wild card to the near-term global outlook. Should major economies need to reimpose containment measures due to the spread of more infectious strains of COVID-19 such as the Delta variant, or because of a lack of herd immunity given lacklustre vaccination rates, the nascent global economic recovery could risk being derailed.

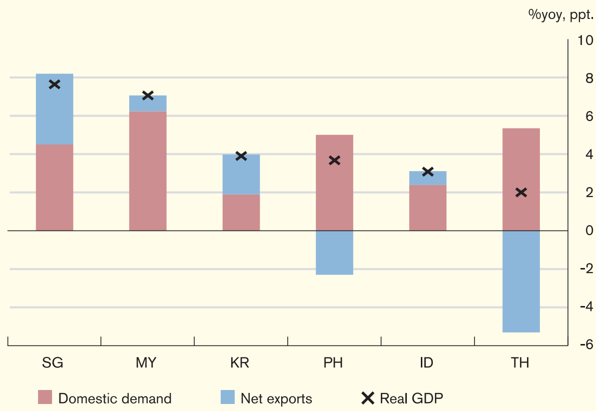
Further down the road, the path to a full recovery hinges on whether policymakers can develop sound "Pandexit" strategies that, on one hand, promote the healing of economic scars left by the pandemic (e.g. reduced labour force participation) and avoid a "cliff effect" by not withdrawing support measures prematurely, while replenishing policy buffers as soon as practicable on the other hand. However, the latter is easier said than done, as surging global debt levels could complicate policymakers' efforts in normalising monetary policy (Chart 2.7).

Chart 2.7
Global debt to GDP ratio



Source: Institute of International Finance.

Chart 2.8
East Asia: GDP growth in the first half of 2021



Note: Statistical discrepancies are not shown in the chart. So the contribution by domestic demand and net exports are not adding up to the real GDP growth in some economies.

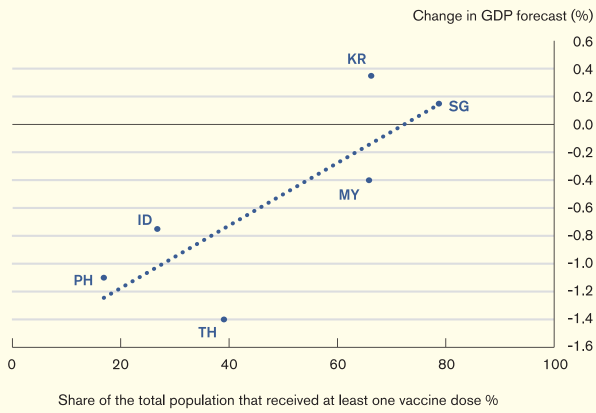
Sources: CEIC and HKMA staff calculations.

Yet, prolonging the status quo of extraordinarily accommodative policies risks undermining financial stability by encouraging excessive risk-taking. As a case in point, investors' search for yield amid the abundant global liquidity has led to the rapid growth of risky corporate debt assets, including leveraged loans (LLs) and their securitised products, namely Collateralised Loan Obligations (CLOs). Investment funds are the second largest holder of these assets after banks, giving rise to financial stability concerns about the liquidity risk of open-ended funds and the spillover risk to banks. Box 1 finds that open-ended funds which invest heavily in LLs are subject to high liquidity risk and fire-sale pressure in times of stress, calling for close monitoring and policies to address the vulnerabilities in these funds.

In East Asia, the pace of economic recovery was highly uneven in the first half of 2021, largely reflecting differences in both the economic structure and pace of vaccination across regional economies. For instance, South Korea, which is the world's key electronics manufacturer and exporter, has rebounded notably along with strong global demand for tech products. In contrast, tourism-dependent economies such as Thailand continue to struggle with the global tourism standstill (Chart 2.8).

The recovery of some Southeast Asian economies was also dragged by their slow pace of vaccination (Chart 2.9). While Asian economies with higher vaccination rates, such as South Korea and Singapore, have contained the new waves of COVID-19 outbreaks better since the second quarter of 2021, economies with less vaccinated populations, such as Indonesia and the Philippines, have seen a surge in infections and high death rates.

Chart 2.9
East Asia: Change in GDP forecast and vaccination rate

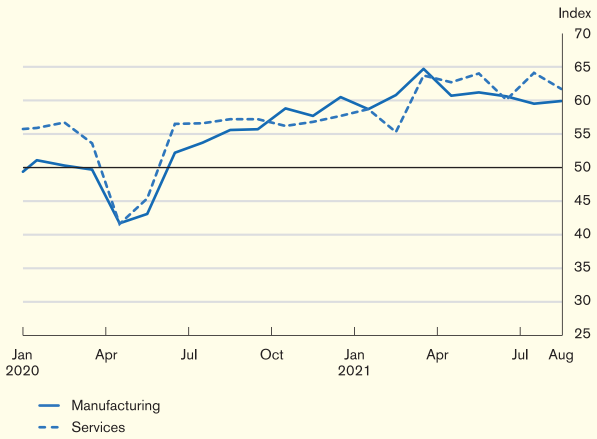


Note: The chart gives the change in 2021 and 2022 average GDP forecasts from March to August 2021. Latest vaccination data are as of mid-September, except PH (15/8).

Sources: Consensus Forecasts, Our World in Data and HKMA staff calculations.

Apart from the uncertainties arising from the vaccination progress, Asia is also facing multiple headwinds. First, while the region's recovery has been underpinned so far by strong demand for goods exports, such as tech and medical products, there are signs that such demand may decelerate going forward. In particular, the better readings of the service PMI of the US compared with its manufacturing PMI (Chart 2.10) suggest that the growth momentum of the world's largest economy would gradually shift to less trade-intensive service sectors alongside the reopening, which may lead to lower demand for goods from Asia.

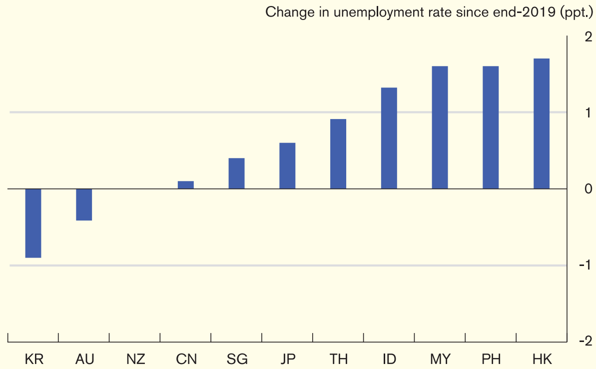
Chart 2.10
PMIs of the US



Source: Institute for Supply Management.

Second, the rising US inflationary pressures may carry a risk of a sudden spike in long-term US interest rates and trigger premature financial tightening in some regional economies. In particular, any rise in the US interest rate could induce capital outflows from Asia, with the possibility of triggering an asset market correction, currency depreciation and increased borrowing costs. While some regional economies such as South Korea might be more prepared for tightening as their real GDPs and unemployment rates have already or nearly returned to pre-pandemic levels (Chart 2.11), many other Asian economies are still struggling, and any premature tightening could derail their nascent economic recovery. A rise in the US interest rate will also be a threat to those economies that are facing significant increases in US dollar debt and strong inflation in housing prices.

Chart 2.11
Asia-Pacific: Latest unemployment rate vs. rate in end-2019



Note: The latest observation is February figure for ID. Q2 for MY, NZ, SG and TH. July for AU, HK, JP, and PH. August for CN and KR.
Sources: CEIC and HKMA staff estimates.

Box 1
An assessment on the vulnerabilities of open-ended funds to leveraged loans

Introduction[4]

Leveraged loans (LLs), which are illiquid and carry significant default risks, have grown rapidly alongside their securitised products (i.e. Collateralised Loan Obligations, CLOs) in recent years[5]. The rapid growth of these assets could have significant financial stability implications.

In particular, investment funds are the second largest holder of LLs and CLOs after banks, according to the Financial Stability Board (FSB)[6]. The lower credit quality and thin liquidity of LLs may subject open-ended funds with exposure to these assets to high liquidity risk, as the funds are committed to meeting investors' redemptions promptly, such as on a daily basis, but selling their LLs or CLOs to honour the redemptions would take a much longer time due to the lack of liquidity in these assets.

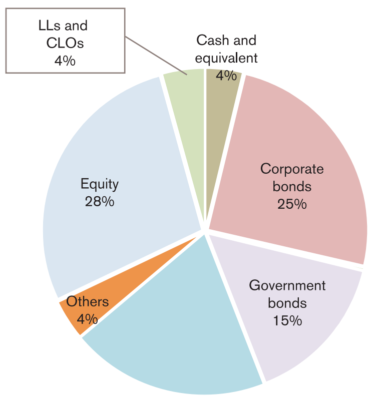
More importantly, the high liquidity risk of these open-ended funds could force a fire-sale of their LL or CLO holdings in times of stress, triggering a downward spiral in their prices and sharp fund outflows. This may cause financial stability concerns as the risk could spill over to the global banking sector (which holds the lion's share of these assets) through common holdings of the assets.

Against this backdrop, this box assesses open-ended funds' exposure to LLs and CLOs and their liquidity risk. We also identify factors that may amplify the liquidity risk. Based on the assessment, we draw potential policy implications for financial stability.

How far are open-ended funds exposed to LLs and CLOs?[7]

Using detailed fund portfolio data from 6,148 open-ended funds around the world that invest in LLs or CLOs, we find that the aggregate exposure to LLs and CLOs remained limited at 4% of their total assets at the end of 2019 (Chart B1.1).

Chart B1.1
Open-ended funds' investments in LLs and CLOs



Notes:
(1) The pie chart depicts the aggregate portfolio compositions of open-ended funds that invest in LLs or CLOs.
(2) Positions at the end of 2019.
Sources: Morningstar[8] and HKMA staff estimates.

4 Wu, Wong and Fong (2021), "An Assessment on the Vulnerabilities of Open-Ended Funds to Leveraged Loans", *HKMA Research Memorandum*, 2021/07.

5 LLs refer broadly to bank loans that are issued to corporate borrowers with high leverage or lower credit quality. Given the high default risk of such loans, banks may reduce their exposure by selling some of their LLs to other banks and financial institutions, which may further securitise the loans in the form of CLOs and sell them to investors.

6 FSB (2019), "Vulnerabilities associated with leveraged loans and collateralised loan obligations".

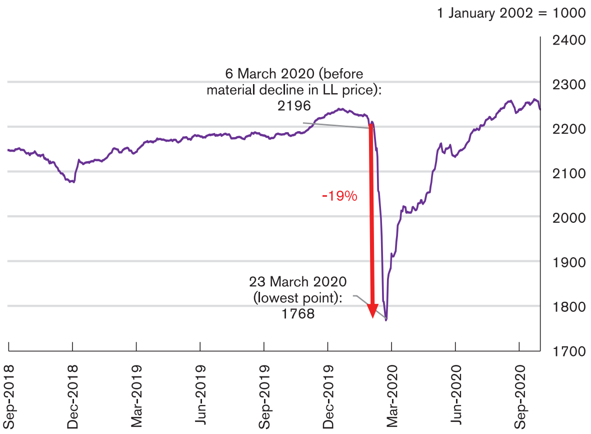
7 Unless otherwise specified, the figures reported in this section refer to positions at the end of 2019.

8 Morningstar's data providers do not guarantee the accuracy, completeness or timeliness of any information provided by them and shall have no liability for their use.

However, the exposure to LLs is highly concentrated in a few open-ended funds. Just 2%, or 107, of the 6,148 funds invested more than half of their portfolios in LLs, and are referred to as "LL funds". Despite their small number, the LL funds held more than half of investments in LLs by open-ended funds.

Importantly, these LL funds are highly susceptible to large outflows, which could affect the resilience of the LL market. In fact, during the March 2020 episode[9], these funds sold US$14 billion of LLs, accounting for 11% of transactions in the secondary LL market and contributing to the sharp drop of 19% in LL prices during the episode (Chart B1.2). The price fall could pose challenges to the wider financial sector. For example, banks may suffer a significant mark-to-market loss due to their exposure to LLs.

Chart B1.2
Decline in LL prices during the March 2020 episode



Note: The price of LLs is represented by the S&P Global Leveraged Loan Index.
Source: Bloomberg.

By comparison, the exposure of open-ended funds to CLOs may not pose material risks to financial stability, for two reasons. First, while a few open-ended funds were found to invest heavily in CLOs (i.e. more than 50% of their assets), their total investments in CLOs were small at US$0.5 billion[10], suggesting that a CLO sell-off by these funds may not have a material systemic impact. Second, around 80% of CLO tranches held by open-ended funds were rated A or better, indicating that the chances of losses due to defaults in the underlying LLs may be very small[11].

These findings, taken together, show that although the aggregate exposures of open-ended funds to LLs and CLOs remained limited, fire sales by a small number of LL funds could affect the resilience of the LL market and cause financial stability concerns. In view of this, the remaining part of this box will focus on LL funds to better understand their risks.

How significant is the liquidity risk of LL funds?

We find considerable liquidity risk in LL funds. During the March 2020 episode, these funds experienced notably larger outflows of 12.6% (of total net assets) as the price of LLs fell sharply (Chart B1.3). The outflows from LL funds were larger than those holding other risky assets, such as high-yield (HY) bond funds (6.5%).

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[9] The March 2020 episode refers to the incident where global financial market faced severe liquidity issues, brought about by the COVID-19 pandemic. See FSB (2020) "Holistic Review of the March Market Turmoil" for a comprehensive review of the incident.

[10] As a comparison, the outstanding size of CLOs in the US and Europe at the end of 2019 was US$762 billion.

[11] The rating of a CLO tranche refers to the order in which the holders receive income generated by and incur losses from the underlying LLs. Tranches with a rating of A or above are the safest among all the tranche classes, as they are the first to receive income from LLs and the last to bear losses. It should be noted that the rating of a CLO tranche does not imply what credit ratings the underlying LLs have.

Chart B1.3
Outflows from open-ended funds during the March 2020 episode

Notes:
(1) Flows of open-ended funds are measured by the monthly percentage change in total net assets, net of returns.
(2) The groups of open-ended funds presented are based on classification by source.
(3) Positive (negative) value denotes net fund inflows (outflows).
Source: EPFR.

Our empirical analysis shows further that, even after controlling for fund performance, the liquidity risk of LL funds is high compared with HY bond funds. During times of stress, defined as periods where the VIX index is higher than the 90th percentile of the sample, a one percentage point (ppt) drop in the funds' returns would lead to an outflow of 1.5 ppts from LL funds, much higher than the estimate of 0.7 ppts for HY bond funds.

The large outflows from LL funds in times of stress may reflect investors' concerns about potential dilution of the funds' values due to the high liquidation cost of illiquid LLs. In anticipation of this risk, investors of LL funds may take first-mover advantage and redeem their investments ahead of others to avoid material losses. Thus, the large outflows, together with the illiquidity of LLs, could result in significant liquidity risk in LL funds.

What factors may amplify the liquidity risk of LL funds?

We find two factors that amplify the liquidity risk of LL funds. First, the funds' holding of LLs is highly pro-cyclical, meaning that a decline in LL prices would accelerate the funds' selling of their LLs in times of fund outflows[12]. The sell-off could weigh on the already declining LL prices, pushing down these prices further and resulting in a downward spiral of LL prices.

Second, the LL funds in our study are found to be highly interconnected, because there is a significant overlapping of their holdings of LLs. Through these common holdings, LL funds display a strong co-movement in fund returns in times of stress, resulting in large outflows overall[13]. This implies that a shock to LLs could quickly spread through LL funds and expose a wider group of such funds to liquidity risk.

We also assess whether the leverage of LL funds is a significant factor which amplifies their liquidity risk, and find that most of the funds employed little leverage, making it unlikely as a significant factor in amplifying the risk.

Conclusion and implications

The March 2020 episode demonstrates that fire-sales of LLs by a small number of LL funds could generate a downward spiral in LL prices and sharp fund outflows, causing financial stability concerns about the liquidity risk of LL funds and the spillover risk to other financial institutions, particularly banks, through common holdings of LLs.

[12] Our empirical estimation shows that, in times of LL fund outflows, a fall of one ppt in LL returns would lead to a significant reduction of five ppts in their LL holdings.

[13] Empirically, for any one particular LL fund, outflows of one ppt from its highly correlated peers (in terms of fund returns) would be associated with outflows of 0.8 ppts from this LL fund.

Our empirical analysis shows that the fire-sales may stem mainly from the liquidity risk of LL funds, which is estimated to be higher than that of HY bond funds. We further find that LL funds' holding of LLs is highly pro-cyclical and there is a significant amount of common holdings of LLs, which could amplify their liquidity risk.

Looking ahead, given the rising issuance of LLs and investors' continued search for yield amid abundant global liquidity, open-ended funds' exposure to LLs could increase further. These developments call for close monitoring and policies to address the risks identified by this study. In this regard, our findings have two policy implications:

1. It is important to bridge the data gaps to monitor the common LL holdings of banks and non-bank financial institutions, as the identification of common exposures plays a key role in assessing potential spillover risks.

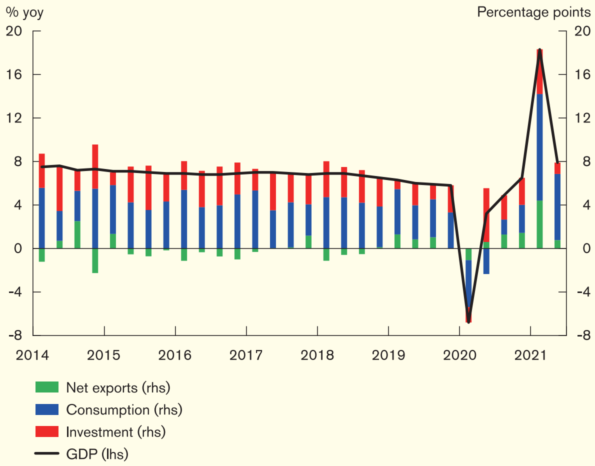
2. Given the large liquidity risk facing LL funds and potential spillovers to the financial system, policies to strengthen LL funds' liquidity management, such as by lowering the dealing frequency and requiring a higher buffer of liquid assets, may help address the root cause of the vulnerabilities, while additional limits on leverage may be less effective.

2.2 Mainland China

Real sector

The economy continued to recover, with the year-on-year growth of real GDP picking up sharply in the first quarter of 2021, in part due to the base effect, before moderating in the second quarter as the base effect faded. Altogether, the economy grew by 12.7% year on year in the first half of 2021, underpinned by a strong rebound in consumption and resilient external demand (Chart 2.12).

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



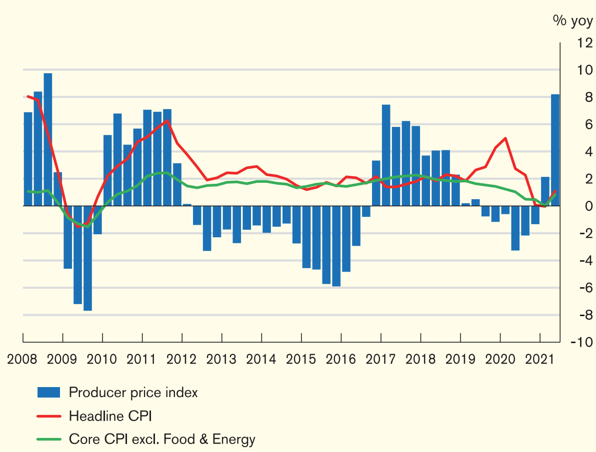
Sources: CEIC, National Bureau of Statistics and HKMA staff estimates.

Looking forward, the economic outlook will hinge on the pace of vaccination and the effectiveness of vaccines against mutant strains. Domestically, the pace of economic recovery remained uneven, with some in-person and small businesses still being affected by the anti-virus measures in place. In particular, scattered outbreaks of the Delta variant in some southern provinces have disrupted local economic activities. Externally, global demand may face uncertainties arising from the renewed outbreaks.

In view of the uncertainties surrounding the economic outlook, the People's Bank of China (PBoC) on 9 July announced the lowering of the required reserve ratio (RRR) by 50 basis points to help lessen the financing costs of the real economy, especially small businesses, amid rising upstream prices. Meanwhile, the government strove to deepen structural reforms and to keep systemic risks in check, including by containing the exposure of the financial system to vulnerable borrowers such as highly leveraged property developers. The latest consensus forecasts expect the Mainland economy to expand by 8.4% in 2021.

Inflationary pressure increased during the review period, in part driven by the ongoing recovery but also due to supply chain disruptions amid new waves of COVID-19 outbreaks. In particular, producer price inflation picked up to 8.8% year on year in June 2021 from 4.4% in March. Headline consumer price inflation and core inflation also rose in tandem but remained low at around 1% at the end of the second quarter (Chart 2.13). Going forward, upward pressure on upstream prices is likely to stay if the recovery continues and the impact of the pandemic on the supply chain lingers. That said, as services become increasingly important in the consumption bundle of households, with service inflation remaining subdued, the pass-through of high producer price inflation to consumer price inflation, especially core inflation, would be limited.

Chart 2.13
Mainland China: Consumer price and producer price inflation

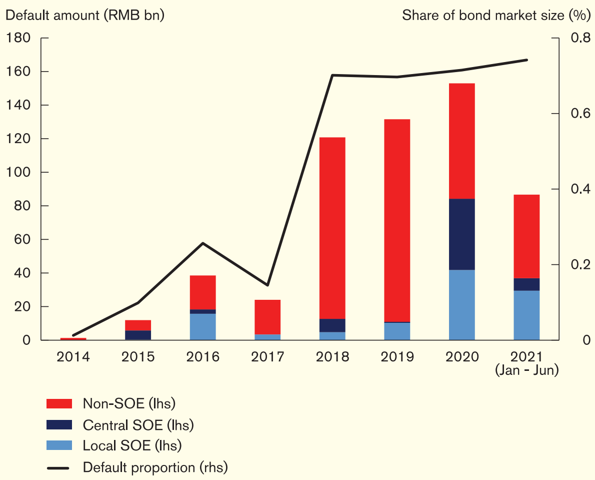


Sources: CEIC and HKMA staff estimates.

Asset and credit markets

The onshore corporate bond default rate increased slightly to 0.74% in the first half of 2021 from 0.71% in 2020, mainly reflecting the deteriorated repayment ability of bond issuers (Chart 2.14). A breakdown of the defaulted bonds shows that property developers contributed nearly one-third of the total amount of defaults in the first half of 2021, as the repayment ability of these defaulted property developers weakened after rapid expansion and over-borrowing during the decade-long property market boom (see Chart 2.15).

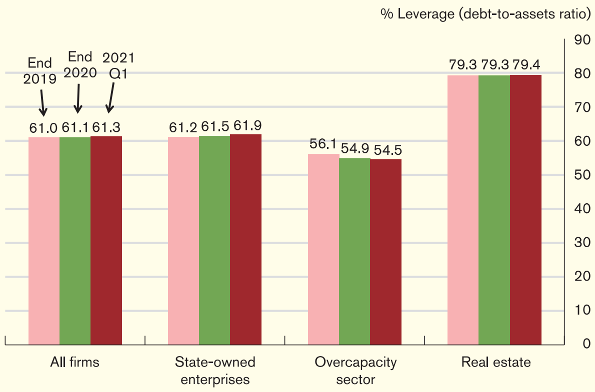
Chart 2.14
Mainland China: Corporate bond default size and proportion in the onshore market



Note: Repeated defaults of the same bond are counted only once. An annualised default proportion is shown for Jan-Jun 2021, assuming a constant default rate in the rest of the year.

Sources: Wind and HKMA staff estimates.

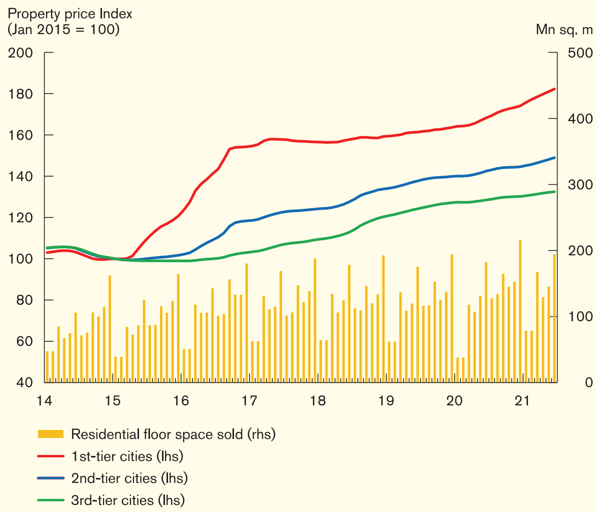
Chart 2.15
Mainland China: Corporate leverage of state-owned enterprises, firms in overcapacity sectors and real estate companies



Sources: Bloomberg and HKMA staff estimates.

Going forward, the debt sustainability of property developers hinges greatly on property market performance[14]. Property market conditions remained buoyant in the first half of 2021, with housing prices further increasing by 4.7% and 2.4% respectively in first-tier and second-tier cities (Chart 2.16). Housing oversupply, which plagued third-tier cities a few years ago, also remained largely in check in the first half, partly due to robust sales amid bullish market sentiment[15]. Box 2 introduces a property market sentiment index based on a textual analysis of Mainland news reports. The analysis shows that both sentiment and economic fundamentals improved after the containment of COVID-19, contributing to the increase in housing prices in the first half (see more details in Box 2).

Chart 2.16
Mainland China: Residential prices by tier of city and floor space sold



Sources: CEIC and HKMA staff estimates.

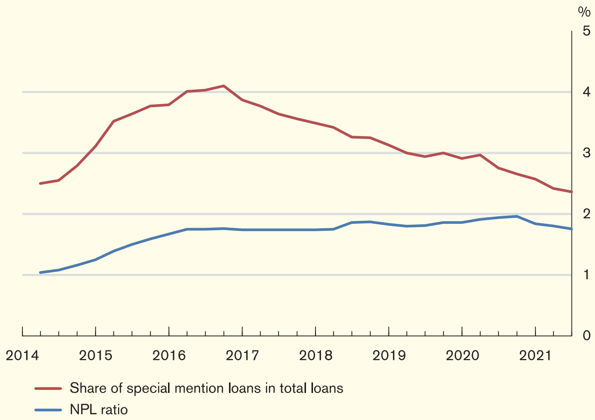
14 One reason is that the most important funding source for developers, that is, proceeds from "presales" of properties, is sensitive to buyers' sentiment. In fact, amid the property boom in the past decade, the share of presales in the total funding sources of an average Mainland property developer increased to 35% in 2020 from 26% in 2010, while the share of bank and non-bank loans declined to 14% from 17% during the same period.

15 As of June 2021, the inventory-to-sales ratio in third-tier cities stood at around 14 months, much lower than the peak of 31 months in early 2015.

To promote healthy and stable development of the property market, the authorities reiterated that "houses are for living in, not for speculation" at the Politburo meeting in April 2021. The meeting also called for increasing the supply of affordable rental housing and joint-ownership housing as well as preventing speculation on residences within school districts. In view of the important role of the property market in financial stability, tightening measures such as the "three red lines" of property developers and the limits of bank's exposure to real estate-related lending remained in place during the review period[16].

Overall risk in the banking sector remained moderate. With prudent lending practices, the banking system registered a decline in the non-performing loan (NPL) ratio to 1.8% in the second quarter of 2021 from the 10-year high of 2% in the third quarter of 2020. In tandem with the drop, the share of special mention loans in total bank loans also decreased slightly to 2.4% from 2.7% over the same period (Chart 2.17)[17].

Chart 2.17
Mainland China: NPL ratio and special mention loan ratio



Source: CEIC.

Among banks, the NPL ratio of systemically important banks such as state-owned commercial banks declined slightly to 1.45% in the second quarter of 2021 from above 1.5% in the second half of 2020. The NPL ratio of smaller banks such as rural commercial banks remained at a relative high level of 3.6% (Chart 2.18), in part reflecting the deterioration of the repayment ability of smaller corporate borrowers amid recent economic headwinds. Sizeable NPL disposals to some extent helped relieve asset-quality pressure facing smaller banks[18], but at the cost of lowered capital adequacy ratios. To replenish capital, smaller banks further accelerated their issuances of perpetual and tier-2 capital bonds in the first half of 2021.

Chart 2.18
Mainland China: NPL ratio by bank type

Source: CEIC.

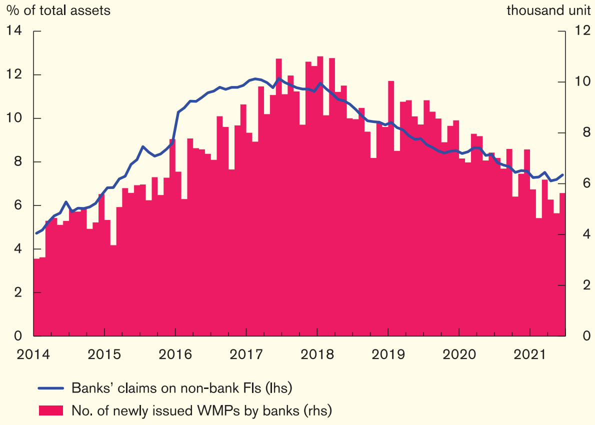
During the review period, informal lending remained subdued amid government efforts to contain financial risks. Banks' claims on non-bank financial institutions (FIs) as a share of total banking-sector assets continued to decline in the first half of 2021 to 7.4% from 8.3% a year ago. Banks also issued fewer wealth management products (WMPs) (Chart 2.19).

16 The "three red lines" refer to the regulations of the financing and debt levels of property developers, including (1) liability-to-asset ratio (excluding advance receipts) of less than 70%, (2) net debt-to-equity ratio of less than 100% and (3) cash-to-short-term debt ratio of more than 100%.

17 In addition, the provision coverage ratio increased slightly to 190% in the second quarter of 2021, well above the regulatory requirement and helping protect banks against future losses.

18 According to the China Banking and Insurance Regulatory Commission, Mainland commercial banks' disposal of NPLs amounting to RMB482.7 billion in the first quarter of 2021, higher than in the same period in 2020.

Chart 2.19
Mainland China: Share of banks' claims on non-bank FIs in total bank assets and No. of newly issued WMPs

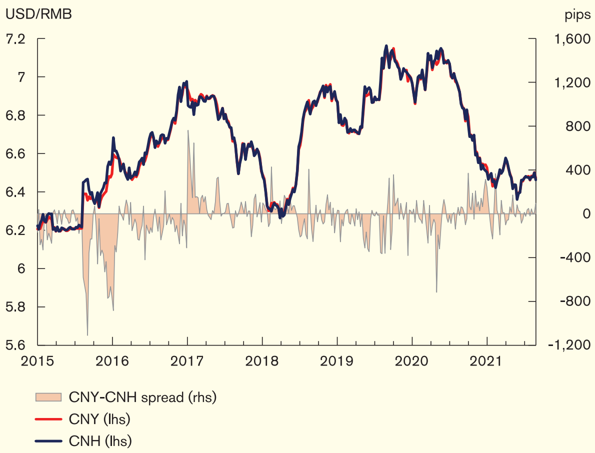


Source: Wind.

Exchange rate and cross-border capital flows

The onshore renminbi (CNY) exhibited two-way movements in the first half of 2021 (Chart 2.20). The renminbi appreciated in the first five months of 2021 amid strong inflows of funds. In response, the PBoC announced the raising of the foreign exchange RRR from 5% to 7% on 31 May 2021. Since June, the renminbi has depreciated as the US dollar strengthened amid uncertainties surrounding the Fed's monetary policy outlook. The offshore renminbi (CNH) tracked closely the CNY in the review period.

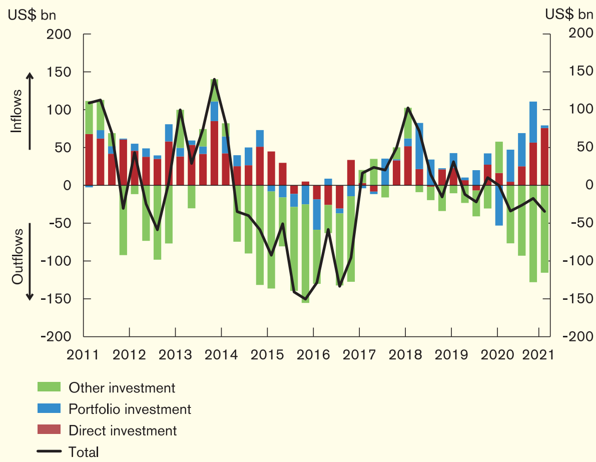
Chart 2.20
Mainland China: CNY and CNH exchange rates against the US dollar



Sources: Bloomberg and HKMA staff estimates.

During the review period, capital flow pressures remained largely subdued, with foreign exchange reserves on the whole staying stable above US$3 trillion. The latest balance of payments statistics pointed to mild net cross-border capital outflows. In particular, net direct investment inflows were strong in the review period, underpinned by effective virus controls and a fast economic recovery. Net portfolio investment inflows shrank in the first quarter of 2021 amid the narrowing of China-US government bond yield differentials. In comparison, other investment continued to register strong net outflows, mainly reflecting increased holdings of foreign deposits by residents as well as more lending to non-residents (Chart 2.21).

Chart 2.21
Mainland China: Net cross-border capital flows by type of flow



Sources: CEIC, State Administration of Foreign Exchange and HKMA staff estimates.

Looking ahead, cross-border capital flows are likely to stay volatile. On one hand, uncertainties surrounding the development of the pandemic and the China-US tensions remain in the near term, which may affect market sentiment. On the other hand, the ongoing economic recovery and further opening up of the Mainland financial markets may continue to attract more foreign investment.

Monetary and fiscal policy

On the monetary policy front, the PBoC announced the cutting of the RRR by 50 basis points effective from 15 July, freeing up long-term liquidity by around RMB1 trillion to support the real economy, especially small firms, in the face of rising commodity prices. The PBoC reiterated that it would maintain the prudent policy stance and continue to focus on policy effectiveness and support for small and micro firms.

On the fiscal front, while the policy stance remained supportive, more attention was given to the quality, effectiveness and sustainability of policy. As COVID-19 was brought under control effectively and the economy gradually recovered, the government's fiscal position improved with increases in tax revenue. In particular, tax revenue in the first half of 2021 expanded by 22.5% year on year, compared with a contraction of 2.3% in 2020. As a result, the 12-month cumulative gap between expenditure and revenue in the government's general public budget and government-managed funds decreased significantly to 5.0% of GDP in June 2021 from 8.6% at end-2020 (Chart 2.22).

Chart 2.22
Mainland China: Difference between public expenditure and public revenue

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

Amid reduced needs for economic stimulus, the amount of newly issued local government general bonds and special bonds also decreased to about RMB1.5 trillion in the first half of 2021 from about RMB2.8 trillion in the same period in 2020. Accordingly, outstanding local government debt rose at a slower pace, of 14% year on year to RMB27.6 trillion at the end of June 2021, compared with a 20% increase in 2020. As the local government debt-to-GDP ratio was staying at a relatively low level of around 27%, the overall risk of local government debt remained manageable. That said, some local governments with relatively weaker economic fundamentals may face refinancing pressures.

Box 2
A news-based property market sentiment index for Mainland China

Introduction

Mainland's housing prices have grown notably in the past decade. While the bullish residential market has been partly underpinned by strong economic fundamentals and continued urbanisation, international experience suggests that sentiment, or "animal spirits" as John Maynard Keynes put it, could also have been a key driver of the boom[19]. However, sentiment is not observable in practice and therefore little is known about how it interacts with housing prices in Mainland China. In this study, we compile a property market sentiment index based on a textual analysis of Mainland news reports and assess the influence of sentiment on Mainland housing prices by estimating a vector autoregression (VAR) model.

Constructing the sentiment index

The property market sentiment index is constructed using a lexicon-based approach similar to Wong et al. (2021)[20]. We first define a list of keywords capturing positive or negative sentiment (Table B2.1), then count the number of these words appearing in all Mainland's newspapers that are collected by the Wisers Information Portal.

Table B2.1
A list of keywords used in the textual analysis

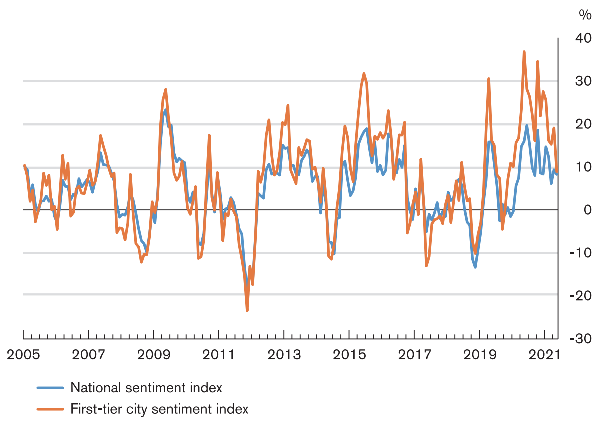
Category	Keywords
Housing market news	樓市　房地產　新房　一手房　二手房　售樓處
Positive	轉暖　緊俏　升溫　回暖　上揚　偏熱　水漲船高　推熱　備受青睞　火熱　回溫上行　復蘇　回升　陽春　恢復　火爆　利好　追捧　表現不俗　熱火朝天　旺盛　預定一空　活躍　熱銷　樂觀　強勁　爭購　排起長隊　追捧　熱烈
Negative	頹勢　鬆動　下調　連跌　史上最嚴　下滑　跳水　大跌　低迷　萎縮　見頂　滯銷　停工　下行 不景氣　驟減　寒冬　乏力　低谷　停滯　冷清　慘淡　欠佳　黯淡　擔憂　乏人問津

The sentiment index for month t can then be constructed as

$$S_t = \frac{\text{No. of positive words}_t - \text{No. of negative words}_t}{\text{No. of total words related to housing market news}_t}$$

where a positive (negative) S_t indicates overall positive (negative) sentiment. Using this methodology, we construct two indices, one for the whole country and the other for first-tier cities where housing prices increased the most[21] (Chart B2.1). While the two resulting indices track each other closely, the property market sentiment index for first-tier cities is found to lead the national sentiment index, according to the Granger causality test[22].

Chart B2.1
Property market sentiment indices



Sources: Wisers and HKMA staff estimates.

Both sentiment indices exhibit similar cyclical patterns and move closely with housing prices (Chart B2.2). The Granger causality test suggests that both indices lead changes in housing prices, especially in the first-tier cities.

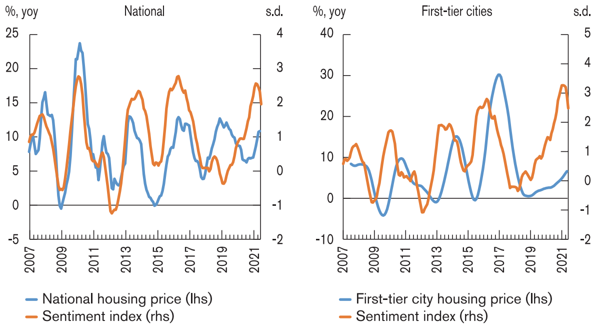
19 For example, see Shiller (2009) and Kindleberger (2011).

20 See also Soo (2018) and Gao and Zhao (2018).

21 First-tier cities include Beijing, Shanghai, Guangzhou and Shenzhen.

22 The Granger causality test is conducted for the period from January 2005 to May 2021, with a lag of three months. The results suggest that sentiment in first-tier cities helps predict national property market sentiment on a 5% significance level.

Chart B2.2
Sentiment indices and housing prices, national and first-tier cities



Note: The sentiment index and housing price series are smoothed by taking a 12-month moving average to facilitate a better comparison. The sentiment index is also standardised.

Sources: CEIC, Wisers and HKMA staff estimates.

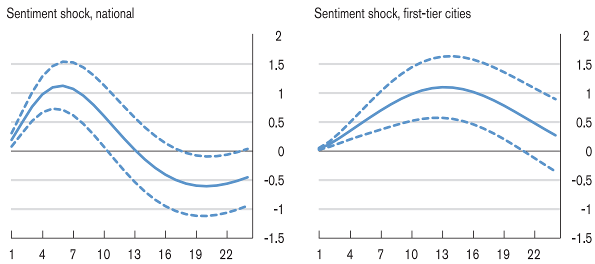
Assessing the influence of market sentiment on housing prices using a VAR model

To better understand the relationship between sentiment and housing prices in Mainland China, we estimate a VAR model which includes the growth of housing prices, the property market sentiment index and three other variables that are deemed to affect housing market performance, such as population growth, per capita GDP growth and aggregate financing growth. Our sample period stretches from October 2007 to May 2021[23].

The VAR is recursively identified in the order of population growth, per capita GDP growth, aggregate financing growth, sentiment, and the growth of housing prices, with population growth being set as the most exogenous variable while housing price growth would respond to all shocks instantaneously.

Chart B2.3 shows the impulse response function (IRF) of housing price growth to a positive sentiment shock. As expected, a positive sentiment shock would raise housing prices, though the impact would set in more slowly but is more persistent in first-tier cities than on the national level. Variance decomposition shows that while sentiment in general accounts for about 40% of the variance in national housing prices at an 18-month horizon, the influence of sentiment is more important in the medium term than in the short term for first-tier cities, echoing the greater persistence of sentiment shocks observed in the IRF.

Chart B2.3
IRF of housing price growth to sentiment shocks

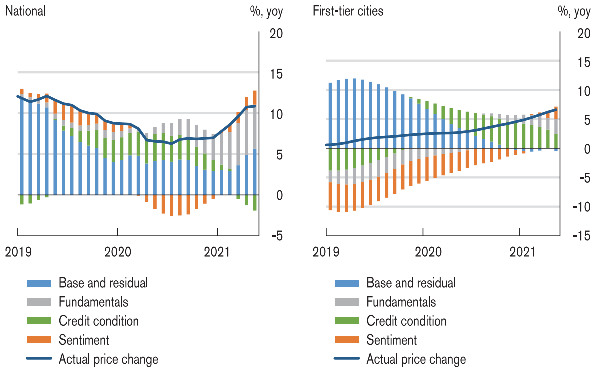


Note: Dashed lines represent the +/− 2 standard error confidence bands.

Chart B2.4 shows housing price movements from January 2019 to May 2021, as well as the key underlying shocks that contributed to the price changes over the period. At the national level, sentiment affected the growth of housing prices in 2019 positively but soon became a drag in 2020 amid the COVID-19 outbreak. The impact of sentiment became positive again at the start of 2021 after the virus was largely brought under control. In the first-tier cities, the impact of sentiment on the growth of housing prices turned positive in 2021, after being negative in 2019 and 2020 amid the rollout of tightening measures for the property markets in these cities.

23 All variables are expressed in the year-on-year form except for the property market sentiment indices, which are expressed in levels. Since the unit root test shows that aggregate financing growth is non-stationary, we apply the HP filter to extract its cyclical component. For macroeconomic fundamental variables at the first-tier city level, we apply a dynamic factor model to extract the common factors of all four first-tier cities. The lag length is set at 2 for the national model and 4 for the first-tier city model, according to the Schwarz information criterion.

Chart B2.4
Historical decomposition of housing prices, national and first-tier cities



Note: Per capita GDP and population are collectively referred to as fundamentals. "Base and residual" refers to the model projection of housing price growth in the absence of the three types of shocks specified in the charts.

As for other factors, fundamentals exerted increasingly positive impacts in 2021 at both the national and first-tier city levels amid the continued economic recovery. In comparison, liquidity conditions contributed positively to the growth of housing prices, especially in 2020 amid monetary easing in response to COVID-19. Such impact however weakened in first-tier cities in 2021 while turning negative at the national level as interest rates gradually normalised.

Concluding remarks

This box introduces property market sentiment indices at the national and first-tier city levels respectively for Mainland China based on a textual analysis of its news reports. The sentiment indices contain useful information for predicting housing price movements, and the leading effect is especially notable for first-tier cities. Our analysis also shows that sentiment is an important driver of volatilities in housing prices. In this sense, policies aiming at anchoring expectations and managing sentiment may help rein in runaway housing prices.

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3. Domestic economy

Hong Kong's economy recovered visibly in the first half of 2021, driven by strong merchandise exports and improving domestic demand. Thanks in part to progress in the vaccinations and a boost from the Government's Consumption Voucher Scheme, economic recovery is expected to continue in the second half of the year, with the outlook subject to some risks and uncertainties such as the Delta variant and China-US tensions. The unemployment rate declined notably in recent months and is likely to ease further alongside the economic recovery. Local inflationary pressures will likely edge up in the near term but should remain mild for 2021 as a whole, partly due to limited upward pressure on housing rentals.

3.1 Real activities

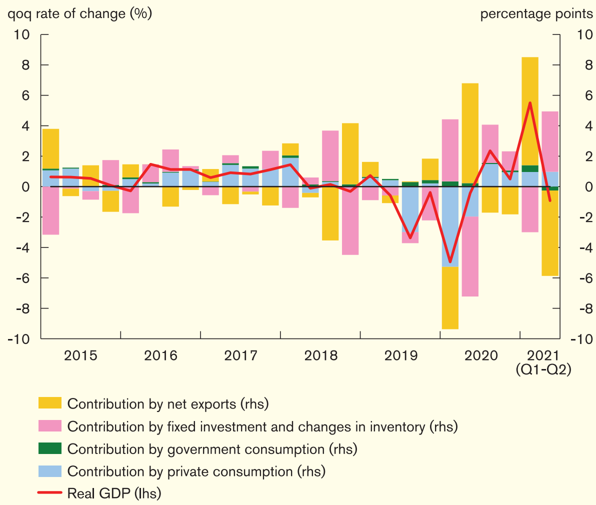
Overall economic activities recovered visibly in the first half of 2021, even though they remained below pre-recession levels. Real gross domestic product (GDP) grew by 8.0% and 7.6% year on year in the first and second quarters respectively, after six consecutive quarters of contraction (Table 3.A). However, the recovery was uneven as social-distancing requirements and travel restrictions continued to weigh on certain economic segments.

Table 3.A
Real GDP growth

		Year-on-year growth rate (%)	Seasonally adjusted quarter-on-quarter growth rate (%)
2020	Q1	-9.1	-5.0
	Q2	-9.0	-0.4
	Q3	-3.6	2.4
	Q4	-2.8	0.5
2021	Q1	8.0	5.5
	Q2	7.6	-0.9

Source: C&SD.

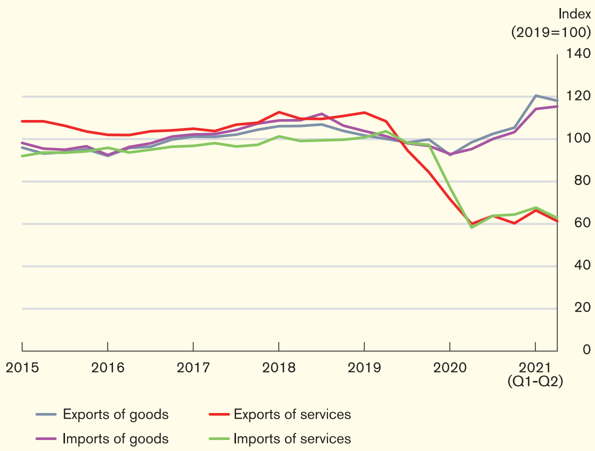
Chart 3.1
Real GDP growth and contribution by major expenditure component



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

On a quarter-on-quarter basis, real GDP grew notably by 5.5% in the first quarter, before moderating somewhat in the second quarter against the high base of comparison (Table 3.A and Chart 3.1). Domestically, growth in private consumption accelerated during the first half of the year along with a decreasing unemployment rate and improving consumer confidence[24]. Overall investment spending also rebounded amid recovering business sentiment[25]. Externally, Hong Kong's trade in goods exhibited strong growth alongside the global economic recovery while the service trade remained lacklustre, partly because border restrictions continued to restrain tourism (Chart 3.2)[26]. Overall, net trade contributed positively to GDP growth in the first quarter, but weighed on GDP in the second quarter as imports increased at an even faster pace than exports.

Chart 3.2
Export and import volume



Note: The data is seasonally adjusted.
Source: C&SD.

Economic recovery is expected to continue for the rest of 2021. In particular, private consumption is set to strengthen further, thanks to improving labour market conditions, the vaccination progress[27] and a boost from the Government's Consumption Voucher Scheme[28]. Better economic prospects may also increase capital expenditure as well as building and construction activities. Externally, the improved global economic conditions should continue to support Hong Kong's export growth in the near term, but inbound tourism is likely to take time to recover. The Government and private-sector analysts have revised upwards their forecasts of Hong Kong's real GDP growth for 2021 to 5.5–6.5% and 6.4% respectively. This positive economic outlook is subject to a number of risks and uncertainties as discussed in the previous chapters, especially those factors stemming from the pandemic (e.g. the Delta variant), China-US tensions and the Fed's monetary policy outlook.

3.2 Labour market conditions

The labour market saw some improvement in the past few months. The seasonally adjusted unemployment rate declined from a recent high of 7.2% in February to 4.7% in August (Chart 3.3), and the decline was broad-based across most economic sectors[29]. In tandem with the drop, more vacancies have become available, as suggested by the number of online job advertisements, and total employment has shown signs of bottoming out. Looking ahead, pressures on the labour market should ease further with the continued revival in overall economic activities, although some sectors will still face challenges, given the uneven recovery.

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[24] The Consumer Confidence Index compiled by the City University of Hong Kong rose from 62.4 in the first quarter to 65.7 in the second quarter.

[25] The Purchasing Managers' Index returned to the expansionary zone in February 2021 and rose to 53.3 in August, the highest level since February 2014. The Standard Chartered Hong Kong SME Leading Business Index also increased for three consecutive quarters, reaching 46.6 in the third quarter of 2021, a three-year high since the third quarter of 2018.

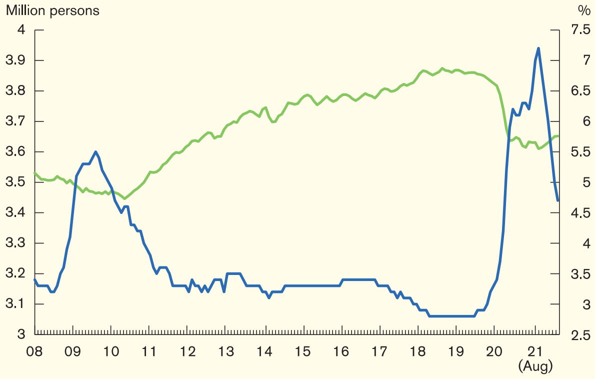
[26] During the first half of 2021, tourist arrivals totalled about 34,000, down from 53,000 in the second half of 2020.

[27] After rolling out the vaccination programme in February, the Government launched the "Early Vaccination for All" campaign in May and worked with various sectors to encourage vaccine take-up. As of end-August, over 60% of the eligible population (aged 12 or above) have received at least one dose.

[28] The Government has begun the distribution of the HK$5,000 electronic consumption vouchers in two or three disbursements in August. According to the Financial Secretary, this measure is expected to boost consumption and increase real GDP growth by 0.7 percentage points in total.

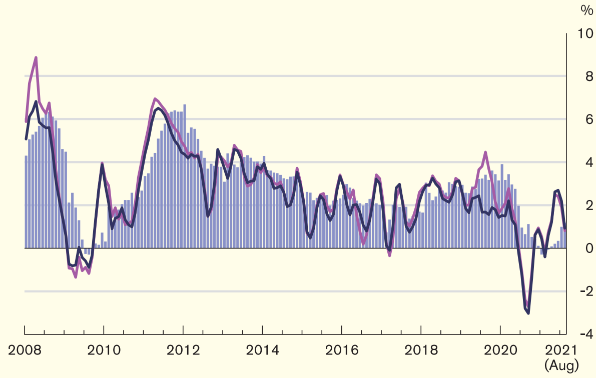
[29] For example, the unemployment rate of the food and beverage services sector fell notably to 8.6% in August, and that of the construction sector to 7.4%. The underemployment rate also declined to 2.2% in the same month.

Chart 3.3
Labour market conditions



Source: C&SD.

Chart 3.4
Different measures of consumer price inflation

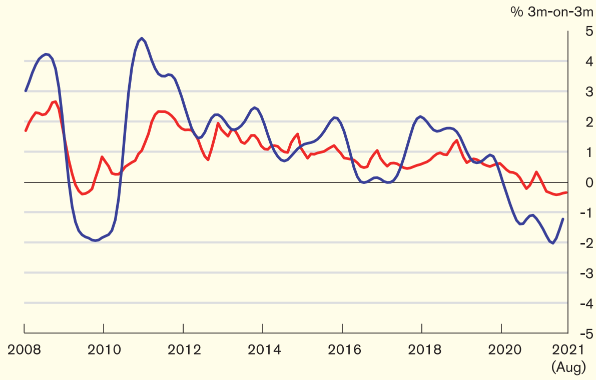


Sources: C&SD and HKMA staff estimates.

3.3 *Inflation*

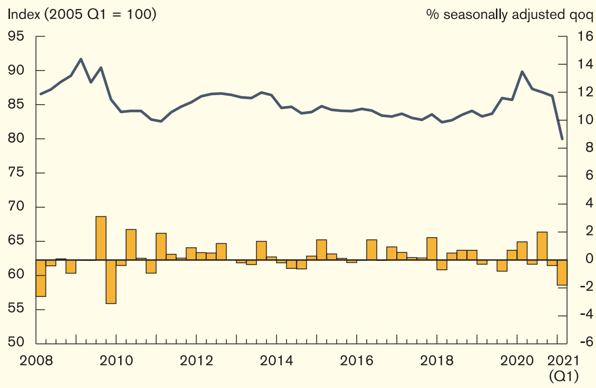
Local inflationary pressures remained mild, although they have edged up recently. On a year-on-year comparison, the underlying composite consumer price index (CCPI) declined by 0.2% in the first quarter, but increased slightly by 0.3% in the second quarter and 1.2% in August (Chart 3.4)[30]. Inflation momentum, as measured by the annualised three-month-on-three-month underlying inflation rate, also picked up in recent months. In particular, prices of meals out, takeaway food, clothing, footwear and some miscellaneous services saw faster increases as the local COVID-19 situation stabilised and consumption demand was revived. By contrast, the housing rental component of the CCPI continued to decline, thereby constraining the overall inflation momentum (Chart 3.5). Real unit labour costs also moderated in the first quarter as the payroll per person declined in real terms (Chart 3.6).

Chart 3.5
CCPI rental component and market rental



Sources: C&SD and Rating and Valuation Department (R&VD).

Chart 3.6
Unit labour cost



Sources: C&SD and HKMA staff estimates.

30 The headline inflation rate was 1.2% and 0.8% in the first and second quarters respectively, higher than the underlying inflation rate because of the effects of the Government's one-off relief measures, such as a reduction in subsidies for electricity charges.

Looking ahead, while local inflation will likely pick up further in the near term alongside the economic recovery, overall price pressures should stay mild for 2021 as a whole due to the feed-through of earlier consolidation in fresh-letting residential rentals and restrained local labour costs. The Government projects the underlying and headline inflation rates for 2021 to be 1% and 1.6% respectively, while the latest market consensus forecasts the headline inflation rate for the year will hit 1.8%.

4. Monetary and financial conditions

The Hong Kong dollar remained in the strong side of the Convertibility Zone during the review period, despite seeing some softening in July due to risk-off sentiment in the local equity market. With abundant Hong Kong dollar liquidity, Hong Kong Interbank Offered Rates (HIBORs) remained soft. Overall, the Hong Kong dollar exchange and money markets continued to trade in a smooth and orderly manner. Looking ahead, volatilities in fund flows could increase amid uncertainties arising from US monetary policy, lingering China-US tensions, the pace of economic recovery along with the development of the COVID-19 pandemic, as well as the equity-market activities. Nonetheless, Hong Kong is able to withstand the volatilities, given its ample foreign reserves and robust banking system.

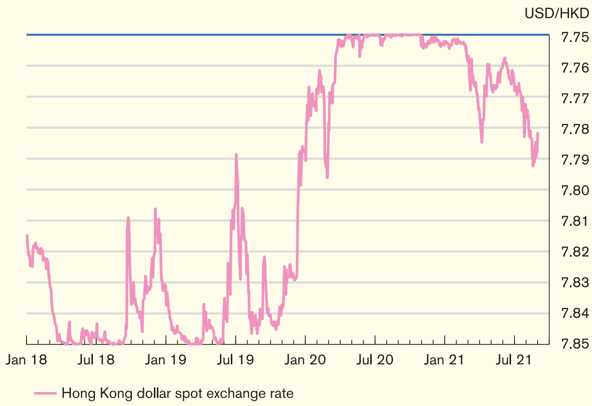
4.1 Exchange rate and capital flows

Overall, the Hong Kong dollar remained in the strong side of the Convertibility Zone and continued to trade in a smooth and orderly manner. The Hong Kong dollar softened slightly against the US dollar in March and early April (Chart 4.1), due partly to weaker buying interest from the southbound Stock Connects (Chart 4.2), and partly to the repatriation of initial public offering (IPO) proceeds by some newly listed companies after a series of fund-raising activities in 2020 and early 2021 (Chart 4.3). The Hong Kong dollar then firmed again in the second quarter, due to the resumption of southbound inflows and corporates' needs to pay dividends.

Stepping into July, the Hong Kong dollar saw some softening due to risk-off sentiment in the local equity market. In particular, the southbound Stock Connects saw the largest monthly net outflows in July[31]. Nonetheless, the robust IPO pipeline provided support to the Hong Kong dollar[32].

With total deposits increasing moderately during the review period, there was no sign of significant outflows from the Hong Kong banking system[33]. Meanwhile, the latest Balance of Payment statistics showed that non-residents' direct investment inflows into Hong Kong continued in the first half of 2021.

Chart 4.1
Hong Kong dollar exchange rate



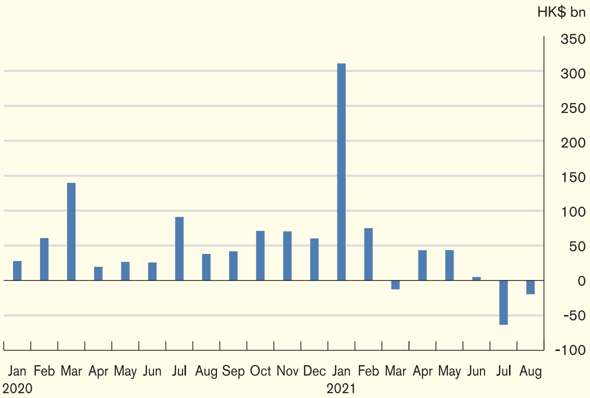
Source: HKMA.

[31] The total net southbound outflow was around HK$63.5 billion in July.

[32] Data from Hong Kong Exchanges and Clearing (HKEX) shows 213 active applications for listing in Hong Kong as at 31 August 2021. Nine of the companies have received listing approval, while the applications of 204 companies were still being processed.

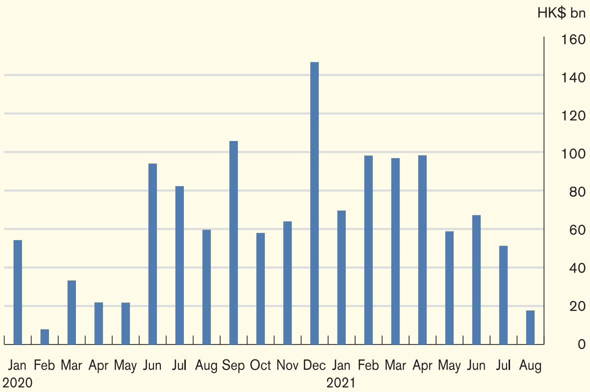
[33] For a detailed analysis of Hong Kong's deposit growth, see section 4.2.

Chart 4.2
Net buying flows through southbound Stock Connects



Sources: CEIC and HKMA staff estimates.

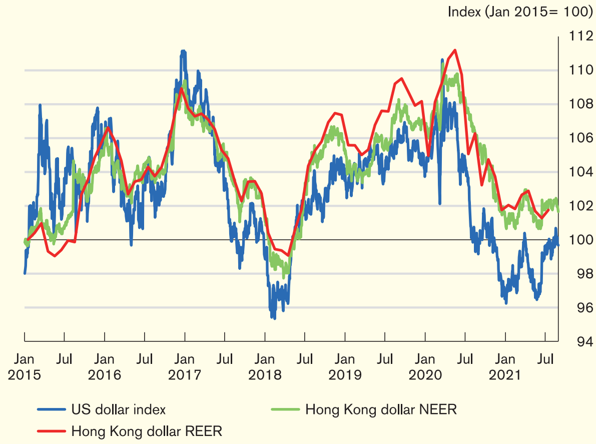
Chart 4.3
Equity funds raised in HKEX



Source: HKEX.

Following the appreciation of the US dollar against major currencies, the Hong Kong dollar nominal effective exchange rate index (NEER) picked up during the review period (Chart 4.4). The Hong Kong dollar real effective exchange rate index (REER) generally tracked the movement of the NEER, as the small inflation differential between Hong Kong and its trading partners had only a limited impact on the REER.

Chart 4.4
NEER and REER



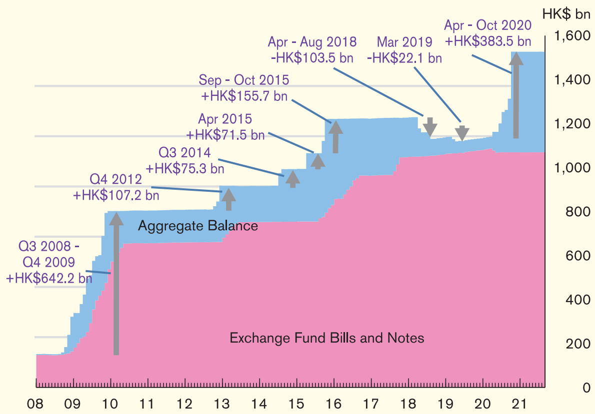
Note: The REER is seasonally adjusted and available only on a monthly basis.
Sources: CEIC, C&SD and HKMA staff estimates.

Looking ahead, uncertainties related to the US Federal Reserve (Fed)'s monetary policy, lingering China-US tensions, the pace of economic recovery along with the development of the COVID-19 pandemic, as well as the equity-market activities may heighten volatility in fund flows. Specifically, the stronger-than-expected US inflation outturns, if persistent, may induce a repricing of the US monetary policy outlook. Any sharp rise in US Treasury yields together with associated volatilities in global financial markets may complicate fund flow movements around the globe. Nevertheless, given its ample foreign reserves and robust banking system, Hong Kong is able to withstand the volatilities in fund flows without compromising its financial stability.

4.2 Monetary environment and interest rates

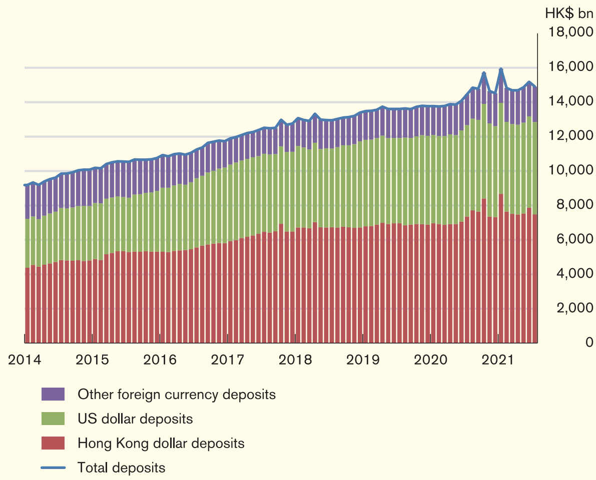
Hong Kong's monetary environment remained accommodative during the review period. As the Convertibility Undertakings were not triggered, the Aggregate Balance (AB) was largely unchanged in the first eight months of 2021 (Chart 4.5).[34] Overall, the Monetary Base edged up by 0.8% in the first eight months, mainly driven by an increase in Certificates of Indebtedness (CIs). The broader monetary aggregates also witnessed a moderate increase. Excluding deposits created from IPO loans, the Hong Kong dollar broad money (HK$M3) and the Hong Kong dollar deposits grew moderately by 2.0% and 2.3% respectively during the first seven months (Chart 4.6).

Chart 4.5
The AB and EFBNs



Source: HKMA.

Chart 4.6
Deposits with Authorized Institutions (AIs) by currency



Source: HKMA.

Foreign currency deposits also grew moderately, by 3.1%, in the first seven months, within which US dollar deposits reverted to a 1.3% increase following a modest decline in the preceding review period (Chart 4.6). Other foreign currency deposits continued to pick up strongly, by 7.9%, underpinned by the rise in renminbi deposits.

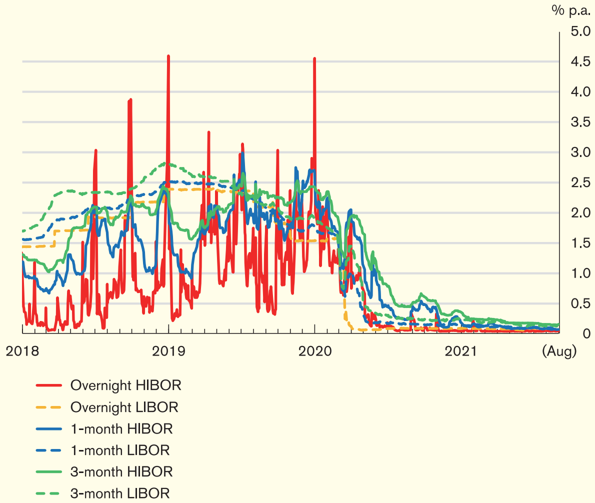
Excluding deposits created from IPO loans, total deposits increased moderately by 2.7% during the first seven months of 2021. It should be noted that monthly monetary statistics are subject to volatility due to a wide range of transient factors, such as seasonal and IPO-related funding demand as well as business and investment-related activities. Caution is required when interpreting the statistics.

With abundant liquidity in the banking system, HIBORs remained largely stable at low levels during the review period (Chart 4.7). The impact of IPOs remained limited as HIBORs of various tenors did not witness large fluctuations. As a result of low funding costs, the average lending rate for new mortgages dropped further to 1.48% in July. On the other hand, the Best Lending Rates of major retail banks stayed unchanged at between 5.00% and 5.50% during the review period.

---

34 On 25 August, the HKMA announced a plan to increase the issuance size of 91-day Exchange Fund Bills by HK$5 billion in each of the eight regular tenders on 7, 14, 21 and 28 September and 5, 12, 19 and 26 October 2021. If all the planned increases are executed, the outstanding Exchange Fund Bills and Notes (EFBNs) will increase by HK$40 billion and the AB will decline correspondingly by the same amount. The increase in the supply of Exchange Fund Bills is consistent with Currency Board principles, since the additional issuance simply represents a change in the composition of the Monetary Base with a shift from the AB to EFBNs. The Monetary Base remains fully backed by foreign exchange reserves.

Chart 4.7
Hong Kong dollar and US dollar interbank interest rates



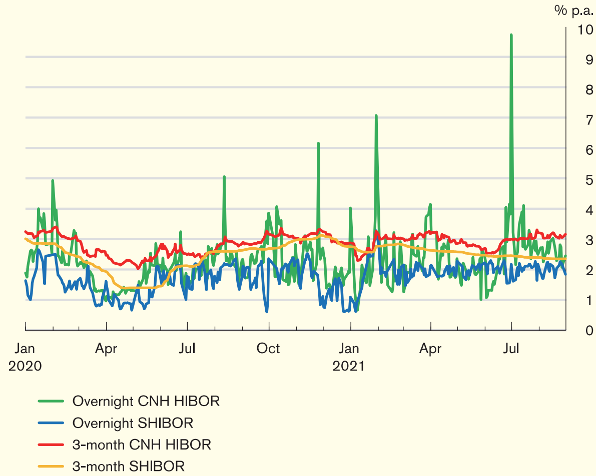
Sources: CEIC and HKMA.

Overall, Hong Kong's interbank market continued to trade in a smooth and orderly manner. The abundant liquidity in the banking system should provide a sizeable cushion in the event of large-scale capital market activities or financial market turbulence.

Offshore renminbi banking business

The functioning of the offshore renminbi (CNH) interbank market was normal in the review period[35], with the overnight CNH HIBORs moving within a range of around 1% to 3% between April and early June (Chart 4.8). The overnight interbank rate witnessed noticeable fluctuations in late June, driven by seasonal liquidity demand near the half-year end. On the other hand, the three-month CNH HIBORs remained relatively steady, hovering around 3% throughout the review period.

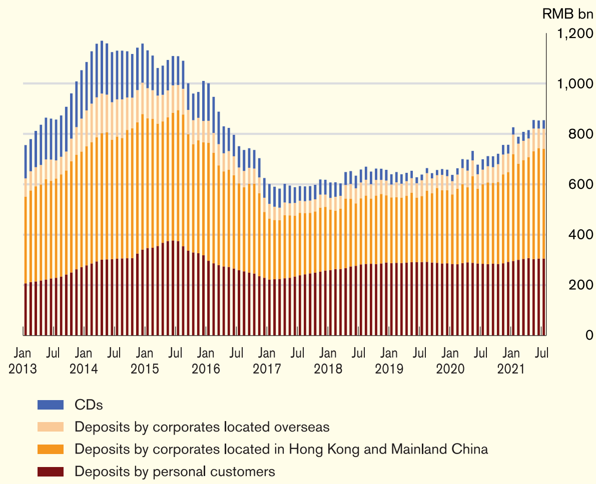
Chart 4.8
Overnight and three-month CNH HIBOR fixings



Source: CEIC.

Hong Kong's CNH liquidity pool further expanded. For the first seven months as a whole, total outstanding renminbi customer deposits and certificates of deposit (CDs) grew by 12.9% to RMB854.7 billion (Chart 4.9 and Table 4.A). Within the total, renminbi customer deposits picked up by 13.7%, more than offsetting the 4.4% decline in the outstanding amount of CDs. The growth in renminbi customer deposits was led by corporate customers' deposits.

Chart 4.9
Renminbi deposits and CDs in Hong Kong



Source: HKMA.

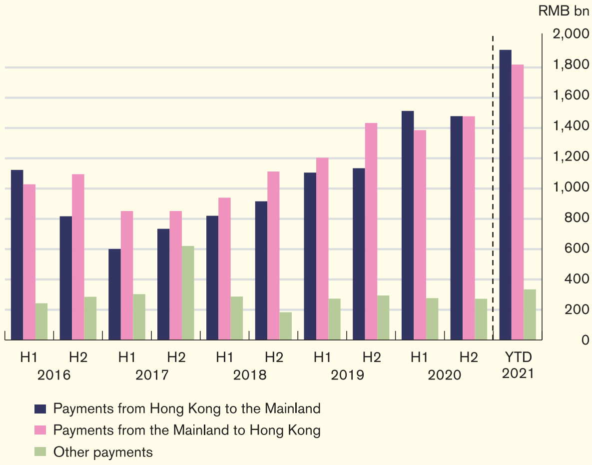
35 See Chapter 2.2 for the development of offshore and onshore renminbi exchange rates.

Table 4.A
Offshore renminbi banking statistics

	Dec 2020	Jul 2021
Renminbi deposits & CDs (RMB bn)	757.2	854.7
Of which:		
Renminbi deposits (RMB bn)	721.6	820.8
Share of renminbi deposits in total deposits (%)	5.9	6.6
Renminbi CDs (RMB bn)	35.5	33.9
Renminbi outstanding loans (RMB bn)	152.1	186.6
Number of participating banks in Hong Kong's renminbi clearing platform	206	207
Amount due to overseas banks (RMB bn)	99.4	136.7
Amount due from overseas banks (RMB bn)	97.3	119.9
	Jan – Jul 2021	
Renminbi trade settlement in Hong Kong (RMB bn)	4,020.0	
Of which:		
Inward remittances to Hong Kong (RMB bn)	1,796.9	
Outward remittances to Mainland China (RMB bn)	1,893.0	
Turnover in Hong Kong's RMB real time gross settlement (RTGS) system (Daily average during the period; RMB bn)	1,531.2	

Source: HKMA.

Chart 4.10
Flows of renminbi trade settlement payments



Source: HKMA.

Other renminbi business continued to gather strength. Outstanding renminbi loans rose by 22.6% to RMB186.6 billion in the first seven months of 2021. Hong Kong's renminbi trade settlement also continued to pick up. Transactions handled by banks in Hong Kong amounted to RMB4,020.0 billion during the first seven months (Chart 4.10), up 7.9% compared with RMB3,724.4 billion during the same period last year. The growth in trade settlement transactions was mainly driven by an increase in inward remittances to Hong Kong. The renminbi liquidity pool in Hong Kong continued to support a large amount of renminbi payments and financing transactions. During the first seven months, the average daily turnover of the renminbi RTGS system stayed high at RMB1,531.2 billion, compared with RMB1,201.1 billion in the same period in 2020.

Going forward, Hong Kong's offshore renminbi business is expected to benefit from the ongoing liberalisation of Mainland's capital account through the multiple Connect schemes, international investors' rising demand for renminbi assets, as well as deepening regional economic and financial cooperation under the Belt and Road and the Guangdong-Hong Kong-Macao Greater Bay Area initiatives.

Asset markets

In contrast to the continued rally in major equity markets, the Hong Kong stock market remained subdued, affected mainly by sharp declines in tech stocks and worries about virus mutations. Meanwhile, the Hong Kong dollar and offshore renminbi debt markets expanded steadily in the first half of 2021. Amid positive property market sentiment and better economic prospects, both the residential and non-residential property markets regained some upward momentum.

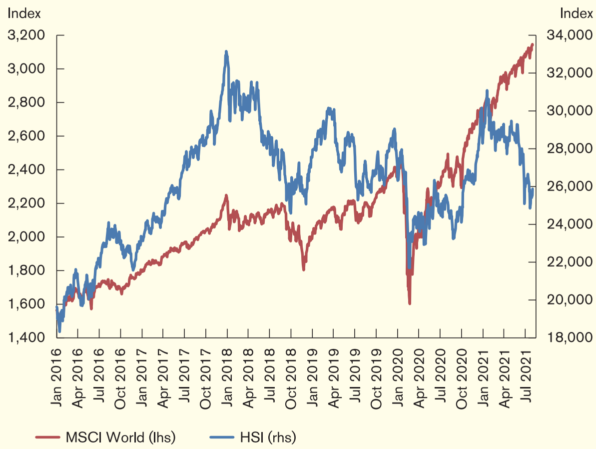
4.3 Equity market

During the review period, major equity markets continued to rally, with the MSCI World Index hitting an all-time high of 3,147 points on 30 August (Chart 4.11). Other than the support of accommodative monetary policy and stimuli from fiscal measures, a pick-up in the pace of rolling out COVID-19 vaccinations, together with upbeat quarterly corporate earnings reported in major economies, contributed to the rally.

In contrast to the continued rally in the major equity markets, the Hong Kong equity market remained subdued, with optimism tempered by worries of virus mutations and sharp declines in tech stocks. The Hang Seng Index (HSI) retreated from a year-high of over 31,000 points in mid-February, hovered between 28,000 and 30,000 points in the second quarter and then declined steadily to around 26,000 points towards the end of the review period. The underperformance of the HSI relative to the major markets was partly due to sharp corrections in some tech stocks in the HSI constituents.

Overall, the local market declined by 10.7% from end-February to August 2021, while the MSCI World Index gained 15.2% in the same period (Chart 4.11). Option-implied volatilities have been declining steadily, despite a few occasional short-lived jumps, and stayed below pre-pandemic levels at the end of the review period. Meanwhile, the SKEW Index has remained high, reflecting investors' worries about the possibility of an overdue correction from the fresh highs of major equity markets and their consequential willingness to pay more to hedge themselves against crashes (Chart 4.12)[36].

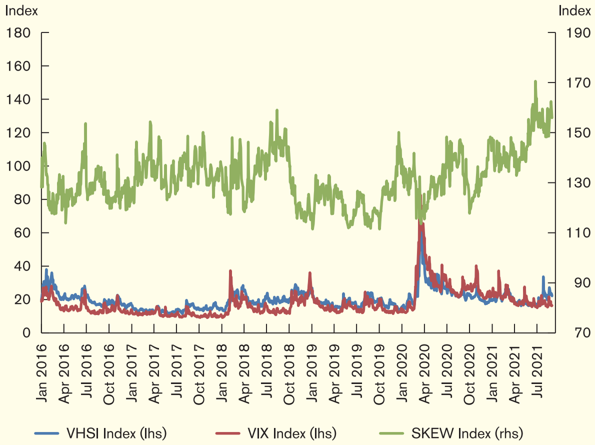
Chart 4.11
HSI and MSCI World Indexes



Sources: Bloomberg and Reuters.

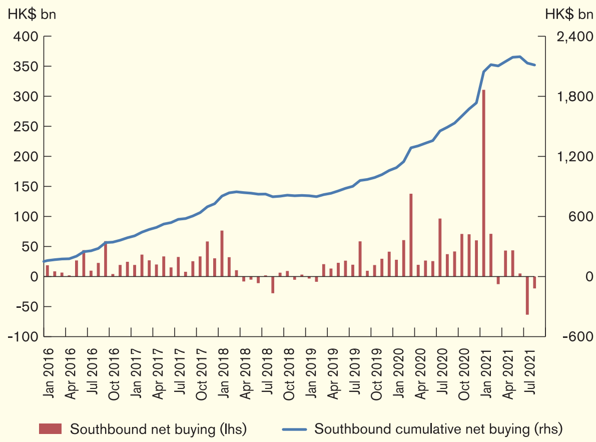
36 The SKEW Index is calculated by the Chicago Board Options Exchange from the prices of the S&P 500 out-of-the-money options. A SKEW value of 100 means that the probability of outlier negative returns on a 30-day horizon is negligible. As the SKEW rises above 100, the left tail of the S&P500 returns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

Chart 4.12
Option-implied volatilities of the HSI and S&P500, and the SKEW index



Sources: Bloomberg and Reuters.

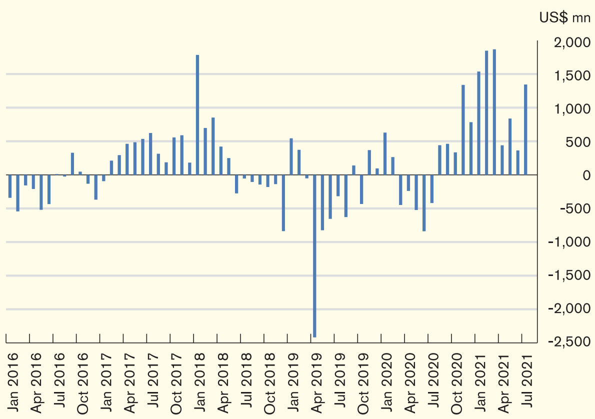
Chart 4.14
Net flows through Stock Connect



Note: Southbound net buying is the sum of such buying on the Shanghai-Hong Kong Stock Connect and the Shenzhen-Hong Kong Stock Connect.
Sources: CEIC, HKEX and HKMA staff estimates.

Net inflows to the Hong Kong stock market hit a recent peak of US$1,868.7 million in March, but declined sharply to a monthly average of US$547.5 million in the second quarter before rebounding to US$1,344.3 million in July (Chart 4.13). Net buying through the southbound Stock Connects continued in the second quarter after its record-breaking level of HK$310.6 billion in January. In July and August, however, the southbound Stock Connects registered an outflow of HK$83.3 billion. Over the review period, the cumulative net buying amount decreased by 0.2% to HK$2,111.6 billion (Chart 4.14).

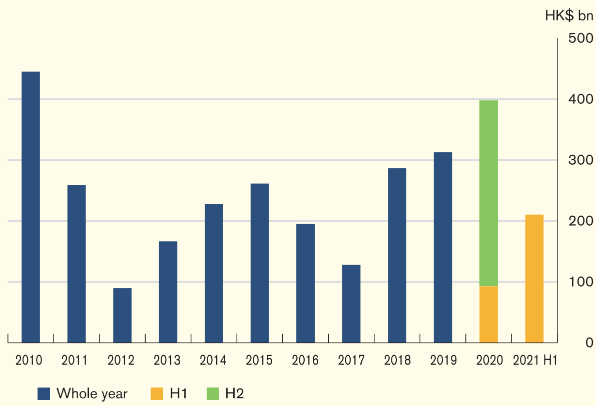
Chart 4.13
Equity market fund flows into Hong Kong



Source: EPFR Global.

Hong Kong's primary market saw its strongest-ever first half in terms of funds raised in 2021 amid a global boom in listings. There were 46 IPOs raising a total of HK$210.4 billion (Chart 4.15), a year-on-year increase of 126.7% compared with the same period last year. In the first half of 2021, the HKEX ranked third among global IPO rankings in terms of the funds raised, after NASDAQ and the New York Stock Exchange. The surging amount of new-share financing was mainly attributable to the blockbuster listings of Mainland enterprises. Six sizeable Mainland tech and logistics company listings raised a total of HK$139.6 billion, representing two-thirds of the total funds raised during the first half.

Chart 4.15
IPO market in Hong Kong



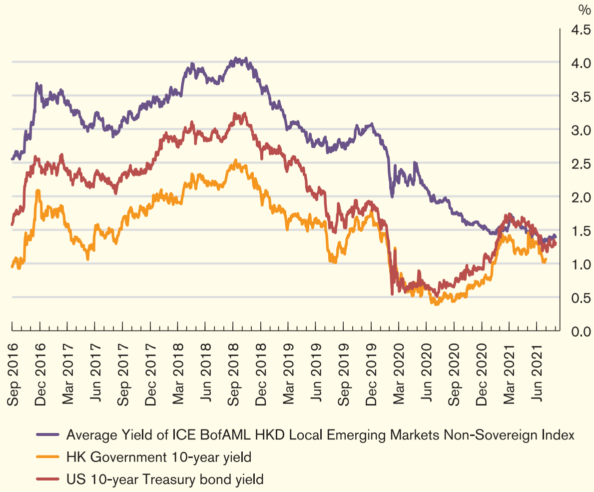
Source: HKEX.

The near-term outlook for the local equity market remains uncertain. In terms of the IPO market, the "homecoming" of US-listed Mainland companies would continue to lift the city's capital market. However, market sentiment in the second half may be weighed down by the performance of recent IPO stocks, as 20 out of the 46 companies newly listed in the first half slumped in their trading debuts. Prospects for the secondary stock market are also mixed. On the one hand, the loosening monetary policy in Mainland China and economic recovery will support investors' risk appetite. On the other hand, a number of potential headwinds remain that could increase market volatility in the near term, including the progression of COVID-19 and infections caused by its variants, the increasing concerns about the sustainability of the economic expansion, the outlook on inflation and interest rates, and the ongoing China-US tensions.

4.4 Debt market

On the back of steady growth in issuances, the Hong Kong dollar debt market continued to expand in the first half of 2021. At the beginning of the review period, market participants were concerned that the unprecedented stimulus and stronger growth might trigger inflationary pressure, leading the 10-year US Treasury yield to rise to a high of 1.7% at the end of March. Since then, the Treasury yield has consolidated as uncertainties about the sustainability of economic recovery in the US and other developed countries mount amid a resurgence in COVID-19 infections due to the more contagious Delta variant. In tandem with the movements of US Treasury yields, the yield of the Hong Kong dollar 10-year sovereign bond climbed in the first quarter and has then consolidated since April (Chart 4.16).

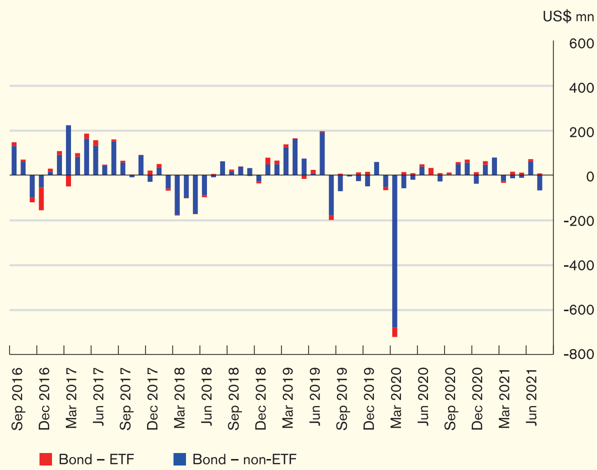
Chart 4.16
Hong Kong dollar sovereign and non-sovereign bond yields and 10-year US Treasury yield



Sources: ICE Data Indices and HKMA.

The rising yields in March dampened investor appetite for bonds, triggering a net outflow of bond funds in the month (Chart 4.17). Flows of bond funds into Hong Kong picked up in June after two months of consolidation but registered an outflow in July, which was mainly driven by a surge in the outflow of non-exchange traded fund (non-ETF) bond funds. Overall, Hong Kong recorded moderate bond fund inflows in the first seven months of 2021.

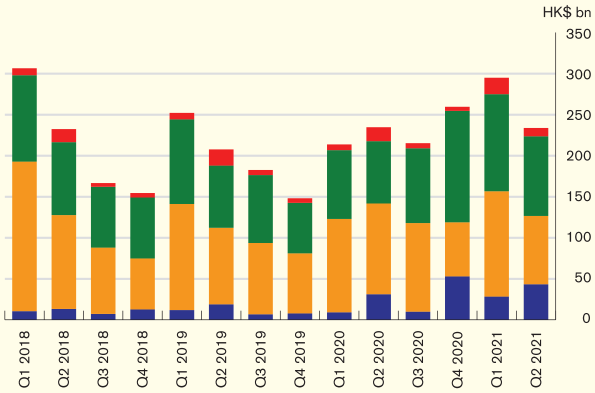
Chart 4.17
Flows of ETF and non-ETF bond funds into Hong Kong



Source: EPFR Global.

The total issuance of Hong Kong dollar debt in the first half of 2021 increased by 3.1% compared with the same period last year to HK$2,170.5 billion, despite a mild reduction of 0.9% in the issuance of EFBNs. The increase was driven mainly by a 77.9% increase in non-EFBN issuances by the government sector and a 34.8% increase by AIs (Chart 4.18).

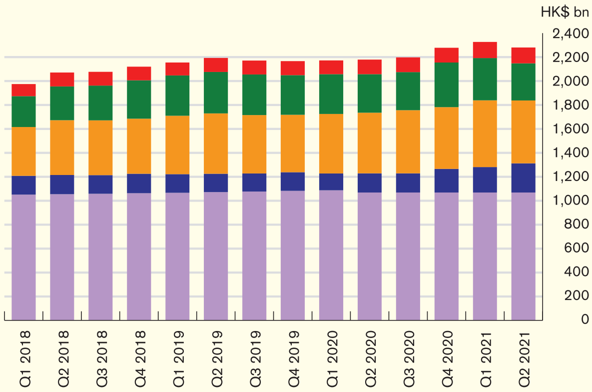
Chart 4.18
New issuances of non-EFBN Hong Kong dollar debt



Source: HKMA.

Outstanding Hong Kong dollar debt expanded by 4.6% year on year to HK$2,279.6 billion at the end of June (Chart 4.19). The amount was equivalent to 26.9% of HK$M3, and to 22.5% of the Hong Kong dollar-denominated assets of the banking sector. Within the government sector, outstanding non-EFBN debt increased sharply by 51.6% year on year to HK$243.3 billion, while outstanding EFBN debt edged up by 0.1% to HK$1,068.4 billion.

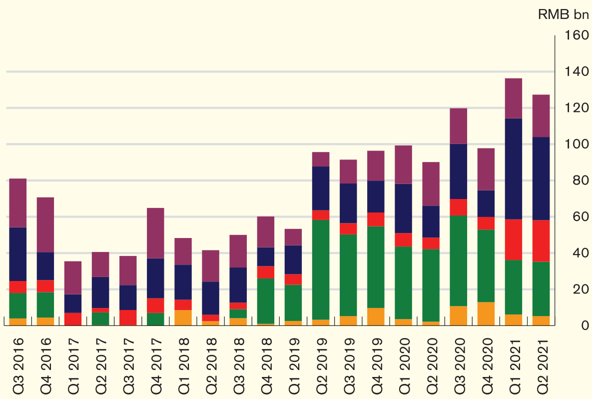
Chart 4.19
Outstanding Hong Kong dollar debt by issuer



Source: HKMA.

The CNH debt market in Hong Kong saw a notable expansion in the first half. New issuances jumped by 39.2% compared with the same period last year to RMB263.6 billion. This sharp rise was mainly driven by an increase of 230.9% in issuances by Hong Kong issuers, together with an increase of 123.0% in issuances by private Mainland issuers and overseas issuers. Meanwhile, the issuances of Mainland authorities decreased by 25.0% year on year to RMB60.0 billion (Chart 4.20).

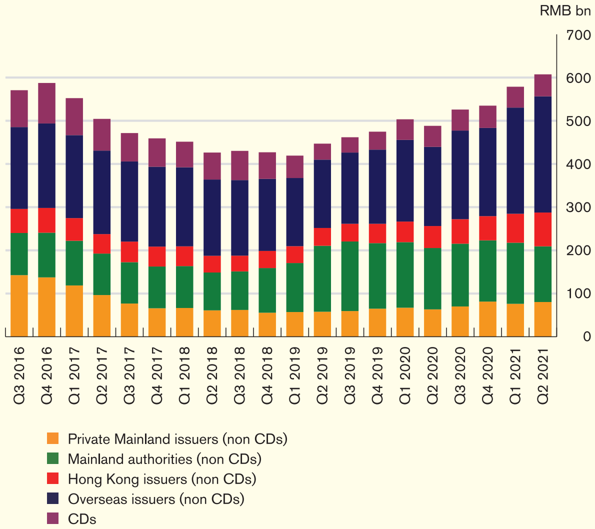
Chart 4.20
New issuances of CNH debt securities in Hong Kong



Sources: Newswires and HKMA staff estimates.

Due to the rapid growth in new issuances, total outstanding CNH debt securities recorded a 24.4% year-on-year increase to RMB607.2 billion at the end of June (Chart 4.21).

Chart 4.21
Outstanding CNH debt in Hong Kong

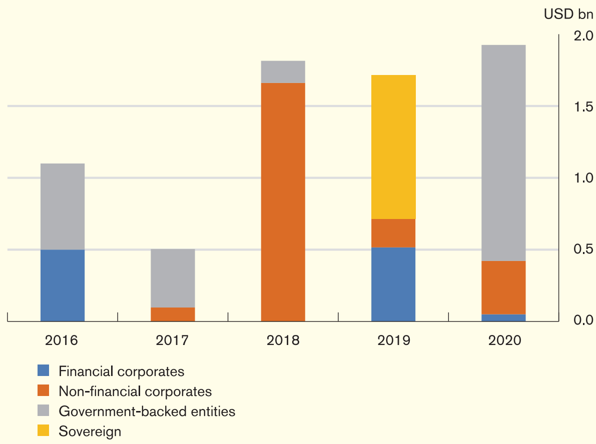


Sources: Newswires and HKMA staff estimates.

Near-term prospects for the Hong Kong dollar and CNH debt markets remain unclear. Uncertainties surrounding the pace of global economic recovery, the development of the pandemic under the rapid spread of the Delta variant, the monetary policies of Mainland China and the US, and the outlook of the renminbi exchange rate could affect market sentiment on the CNH debt market.

Recently, green finance has been an important driver in local bond market development. Over the past few years, Hong Kong issuers have gradually offered more green bonds. The increase was driven mainly by non-financial corporates and government-backed entities (Chart 4.22). Hong Kong's efficient financial market infrastructures and supportive policy initiatives are expected to continue to boost its debt market as a key financing platform for green projects in the region.

Chart 4.22
New issuances of green bonds by Hong Kong issuers



Sources: Climate Bonds Initiative and HKMA.

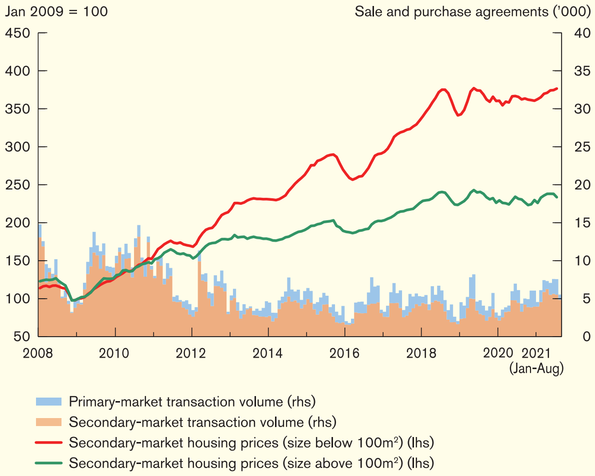
4.5 Property markets

Residential property market

The residential property market has regained some upward momentum since the start of this year (Chart 4.23), underpinned by better economic prospects, improving market sentiment and mortgage interest rates that are still low. The average monthly transaction volume bounced up by 23% to 6,657 units in January–August, compared with an average of 5,434 units in the second half of last year. In particular, transactions in the secondary market climbed to a nine-year high in the second quarter, and many new property launches recorded brisk sales.

Secondary-market housing prices also resumed growth, rising by 4.3% in January–July to just below the historical peak in May 2019. Prices of small and medium-sized flats (with saleable area of less than 100m^2) increased at a faster pace than the prices of large flats (with saleable area of at least 100m^2). More recent market data indicated that housing prices climbed further in August.

Chart 4.23
Residential property prices and transaction volumes



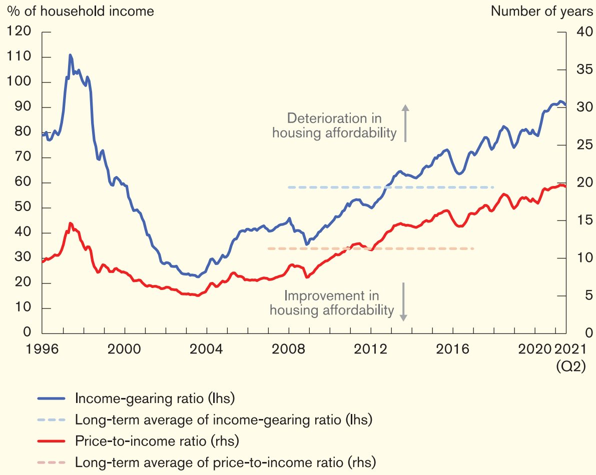
Sources: R&VD and Land Registry.

Housing affordability became more stretched, reflecting higher housing prices but weak growth in household income. The housing price-to-income ratio climbed to 19.6 in the second quarter of 2021, compared with the peak value of 14.6 in 1997. The income-gearing ratio reached a high of 91.8%, well above the long-term average (Chart 4.24)[37]. Alongside positive market sentiment and a decline in the unemployment rate, housing rentals picked up by 1.6% in the first seven months, albeit still 10.3% below the peak reached in August 2019 (Chart 4.25). As the cumulative rise in housing prices was larger than the pick-up in rentals, the positive buy-rent gap[38] enlarged further in January–June. In tandem with the widening of the gap, residential rental yields remained low at 1.9–2.3% in July.

[37] The price-to-income ratio measures the average price of a typical 50m² flat relative to the median income of households living in private housing. Alternately, the income-gearing ratio compares mortgage payment for a typical 50m² flat (under a 20-year mortgage scheme with a 70% loan-to-value ratio (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 under HKMA prudential measures.

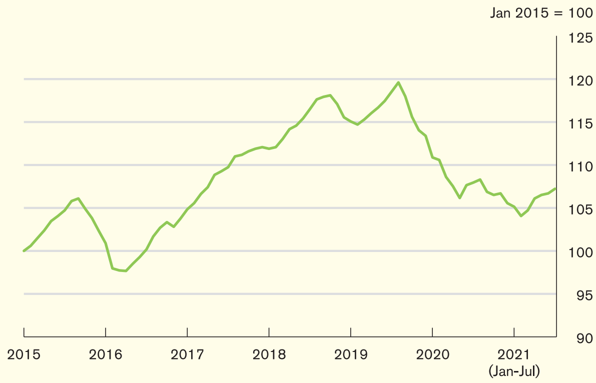
[38] The buy-rent gap estimates the cost of owner-occupied housing under a 20-year mortgage scheme with a 70% LTV ratio relative to rentals.

Chart 4.24
Indicators of housing affordability



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

Chart 4.25
Housing rentals



Source: R&VD.

Despite stretched housing affordability, the macro-prudential measures implemented by the HKMA since 2009 helped contain household leverage and safeguard banks' resilience. The average LTV ratio for new mortgages was 56% in July 2021, below the 64% before the measures were first introduced, while the debt-servicing ratio also stayed low at around 37% in January–July.

The residential property market outlook is subject to a number of uncertainties and risks as discussed in previous chapters. On the one hand, renewed deterioration in the pandemic situation (due perhaps to a fifth wave of local infections caused by virus mutations) could weigh on housing market sentiment. On the other hand, the current ultra-low interest rates are expected to support asset prices. Over the longer term, the outlook for the housing market will depend on the supply-demand gap. The Government projects that private housing supply will remain high in the upcoming years[39].

Non-residential property market

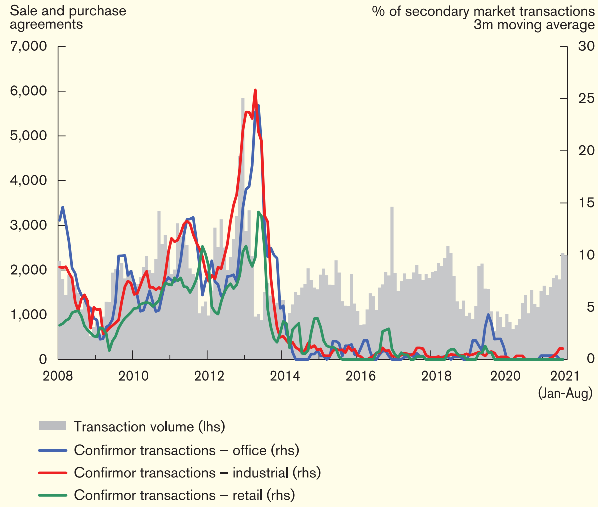
The non-residential property market saw some signs of recovery along with the revival in economic activities. Average monthly transactions picked up in the first eight months, while speculative activities stayed inactive (Chart 4.26). While prices of office space flattened recently, prices of retail premises and flatted factory space went up by 7.3% and 8.7% respectively between January and July, though still below their respective peaks in 2018 or 2019 (Chart 4.27). In the leasing market, rentals of industrial properties recorded a notable increase amid strong growth in Hong Kong's merchandise trade[40], while rentals of office and retail shop spaces remained soft, partly because of vacancy rates that stayed at a high level (Chart 4.28). Meanwhile, rental yields across segments stayed low at 2.5–2.9% in July. Box 3 studies developments in the non-residential property market using transactional big data and discusses the financial stability implications.

Looking forward, the performance of the non-residential property market will depend on the pandemic developments, as well as the domestic and external economic environments. In particular, the rising vaccination rate, further relaxation in social-distancing measures, eventual border reopening, as well as continued expansion in domestic consumption and external trade would help the commercial and industrial property markets recover further. That said, the emergence of mutant strains and the uncertainties surrounding the Fed's monetary policy path and the China-US relations may cloud the non-residential property market outlook.

[39] According to Government projections, more than 18,000 private residential flats will be completed on average annually in 2021–2025, higher than the annual average of the previous five years.

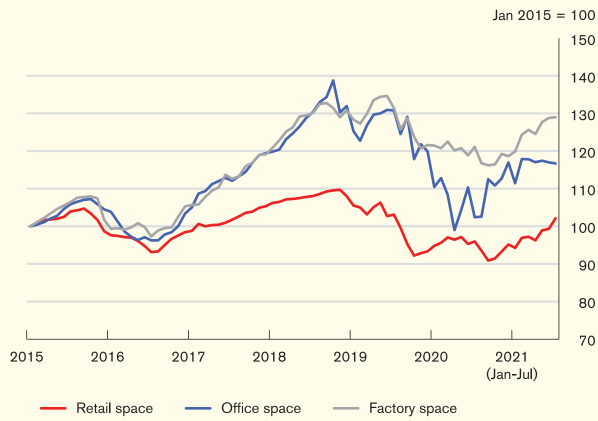
[40] Market reports suggest that the strong growth in Hong Kong's merchandise trade and the associated supply chain bottlenecks may have raised the leasing demand for warehouses.

Chart 4.26
Transactions in non-residential properties



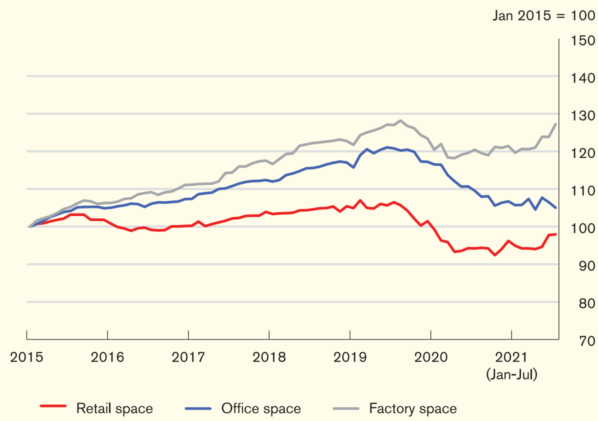
Sources: Land Registry and Centaline Property Agency Limited.

Chart 4.27
Non-residential property price indices



Source: R&VD.

Chart 4.28
Non-residential property rental indices



Source: R&VD.

Box 3
Monitoring Hong Kong's non-residential property market with transactional big data

Introduction

The non-residential property market in Hong Kong has experienced a major correction since 2018, despite recent signs of recovery. As only high-level aggregate data are available, an in-depth assessment of non-residential property market is not feasible, making it difficult to assess implications to financial stability[41]. In this regard, this Box explores the big data of property transactions to better monitor the market developments and examine the related financial stability implications.

Use of transaction records

We collected over 200,000 non-residential property transaction records between 2008 and early 2021 from the Land Registry[42]. A typical transaction record consists of several documents, including an agreement for sale and purchase, an assignment and a mortgage deed. By utilising information in these different types of instruments, we are able to assemble a granular dataset which enables us to do analyses that were not feasible before. In particular, we can (i) obtain a breakdown of the transaction data by type, (ii) study the price (i.e. consideration value) distribution of transactions for each segment, and (iii) monitor the usage of mortgage (but not the loan amount) that originated from banks or non-bank financial companies. These statistics are either incomplete or unavailable in official data publications. In what follows, we discuss some key observations from our preliminary analysis of this rich dataset.

Monitoring developments in the non-residential property market

<u>Transaction volumes and values by segment</u>

Official statistics from the Land Registry provide only the aggregated non-residential property transaction volume and value, which cover very diverse types of property transactions, including (i) offices, (ii) retail premises, (iii) industrial buildings, and (iv) car parking spaces. With the new data, we can now identify both transactions and prices of all the four major segments in the non-residential property market[43]. We find that standalone car parking spaces have become a key contributor to total non-residential property transactions (Chart B3.1). Indeed, their share of the total transaction volume has broadly increased to 50–60% in recent years, although they constituted merely 10% of the total transaction value (Chart B3.2)[44].

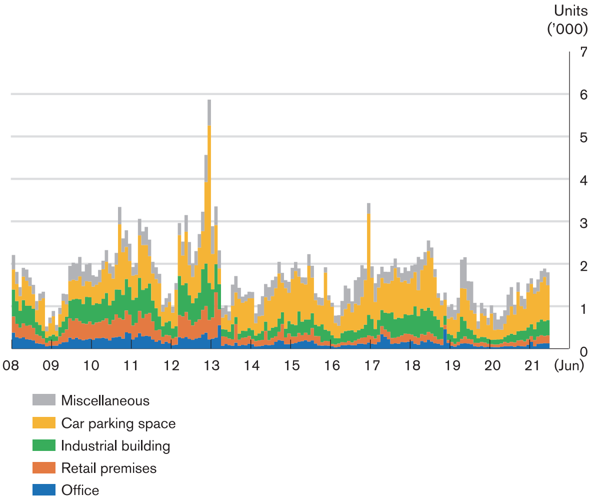
[41] In general, the COVID-19 pandemic has more severe implications for the commercial real estate sector due to social-distancing measures and other post-pandemic behavioural changes, such as remote working. The potential impacts to financial stability have received international attention. For example, see "Chapter 3: Commercial Real Estate: Financial Stability Risks During the COVID-19 Crisis and Beyond", *IMF Global Financial Stability Report*, April 2021.

[42] In Hong Kong, the Land Registry maintains a public land register that records registered instruments. The register contains ownership particulars for each property and the incumbrances registered against it, such as mortgages and court orders. Property transactions via company share transfers are excluded from the Land Registry records. In practice, we collect our transactional data through the Economic Property Research Centre (EPRC), a property market information provider that consolidates records from the Land Registry into a well-structured format.

[43] In this analysis, industrial buildings comprise flatted factory spaces and "industrial/office" properties, whereas R&VD data include only the former.

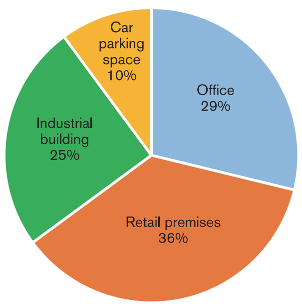
[44] Miscellaneous property transactions are excluded in calculating the percentage share.

Chart B3.1
Non-residential property transaction volumes by segment



Note: Miscellaneous transactions include external walls, corridors, storage, stairs, lots and other unclassified properties.
Sources: Land Registry, EPRC and HKMA staff estimates.

Chart B3.2
Non-residential property transaction values by segment during January 2008–June 2021

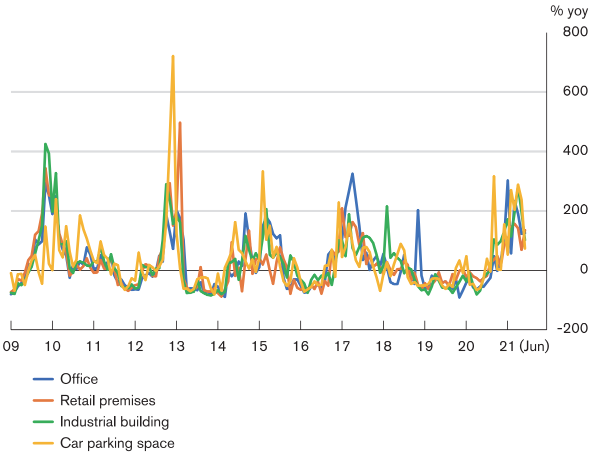


Note: Miscellaneous property transactions are excluded in calculating the percentage share.
Sources: Land Registry, EPRC and HKMA staff estimates.

<u>Synchronisation across segments</u>

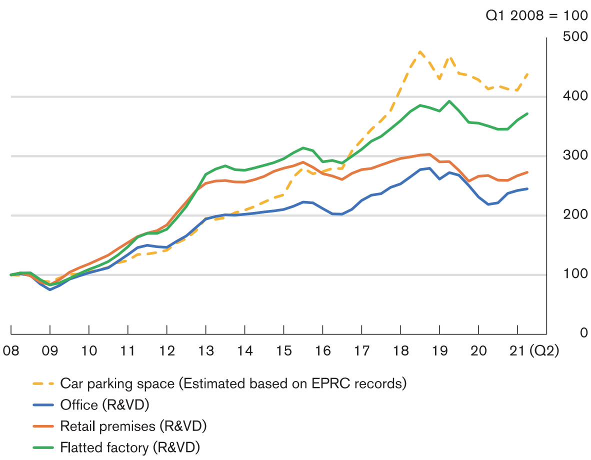
Notwithstanding their diverse nature, non-residential properties exhibited broadly synchronised cycles across all major segments, in terms of both transactions (Charts B3.3) and prices (Chart B3.4). Indeed, while no official price index exists for standalone car parking spaces in Hong Kong, our own estimates[45] suggest that their prices share broadly similar trends and cyclical patterns with other non-residential property prices (Chart B3.4), which have eased since 2018 alongside the China-US tensions and the pandemic.

Chart B3.3
Year-on-year growth in non-residential property transaction volume by segment



Sources: Land Registry, EPRC and HKMA staff estimates.

Chart B3.4
Non-residential property price indices by segment



Sources: R&VD, EPRC and HKMA staff estimates.

<u>Price distribution of transactions</u>

Prices and transactions in the non-residential property market saw some signs of recovery in the first half of 2021 amid the economic recovery. Our granular data reveals that, compared with the second half of 2020, increased transactions in the office and industrial

[45] We estimate a price index for second-hand standalone car parking spaces by running a hedonic regression based on consideration values from the transactional data, controlling for the districts and types of car parking spaces, such as those for motorcycles or lorries.

segments were concentrated in properties of higher value, while the price distribution in the retail segment was little changed (Chart B3.5). Meanwhile, middle-value car parking spaces were the main driver behind the brisk rise of transactions in this segment.

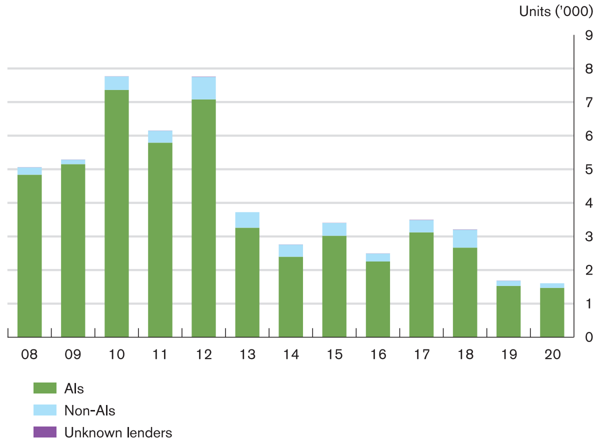
Chart B3.5
Distribution of consideration values by segment

Note: The y-axis refers to the percentage share of transaction volume in each market segment.
Sources: Land Registry, EPRC and HKMA staff estimates.

Mortgage

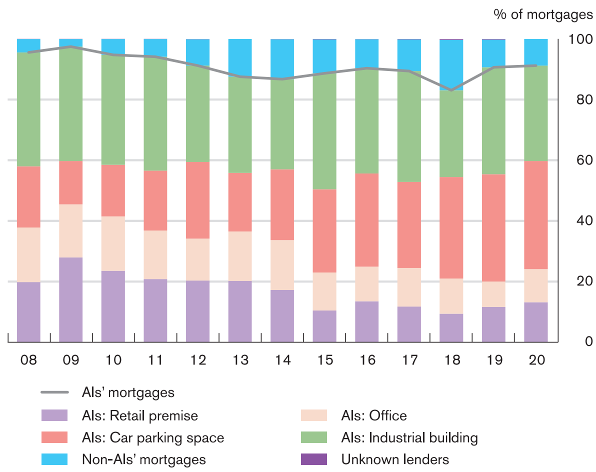
On the mortgage front, we can now get a glimpse of the presence of non-banks in the non-residential property market. Unsurprisingly, non-bank financial institutions (FIs) also engaged in non-residential mortgage lending in addition to residential mortgage loans (Chart 3.6)[46]. That said, the market share of non-bank FIs remained small in volume terms (Chart B3.7). On the flip side, non-residential mortgage loans still came mostly from Authorized Institutions (AIs) and have seen a larger proportion of car parking spaces over time.

Chart B3.6
Number of mortgage loans granted for financing non-residential property purchases



Sources: Land Registry, EPRC and HKMA staff estimates.

Chart B3.7
Share of mortgage loans granted by lender type and segment



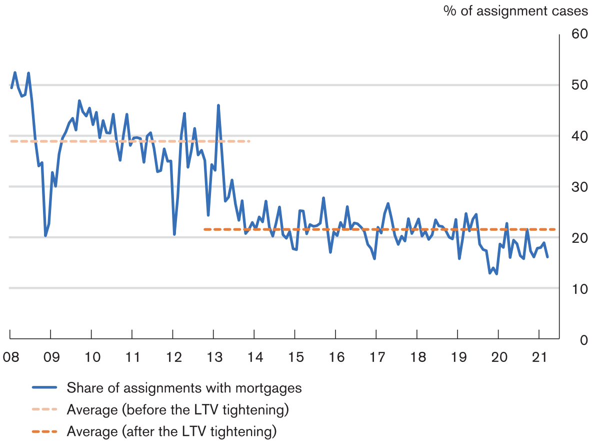
Sources: Land Registry, EPRC and HKMA staff estimates.

[46] For simplicity, we count only the first mortgage loans granted for financing property transactions and exclude all subsequent remortgages.

Financial stability implications

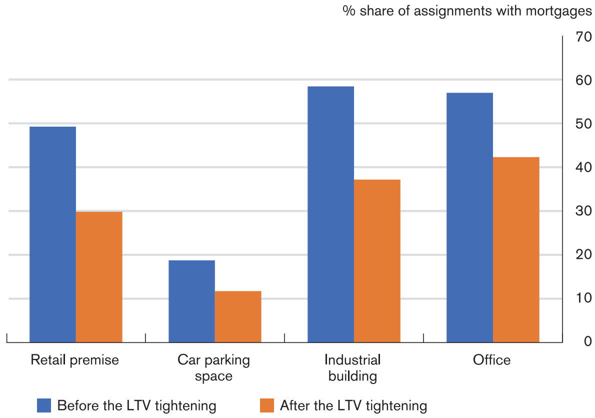
Besides enhanced surveillance, our new data can also shed light on financial stability. Our preliminary analysis suggests that the weakness in the non-residential property market would not pose significant risks to domestic banking stability[47]. First, bank exposures have already been limited by the previous loan-to-value (LTV) cap tightening in 2013, as indicated by a notable decrease in mortgage usage since that year to around only 20% of total assignment cases (Chart B3.8). In February 2013, the HKMA introduced the sixth round of macro-prudential measures amid exuberant developments in the property markets. In particular, the LTV caps for all kinds of commercial and industrial properties were lowered by 10 percentage points. Second, the impact of the LTV tightening (i.e. the macro-prudential measures) was broad-based across all major segments (Chart B3.9)[48]. Third, the latest available data suggests that recent mortgage usage is still low (Chart B3.8).

Chart B3.8
Share of non-residential properties with mortgages in terms of assignment cases



Sources: Land Registry, EPRC and HKMA staff estimates.

Chart B3.9
Share of non-residential properties with mortgages by segment



Note: Before the LTV tightening: 1 January 2008 to 22 February 2013; after the LTV tightening: 23 February 2013 to 19 August 2020.
Sources: Land Registry, EPRC and HKMA staff estimates.

Concluding remarks

Using transaction-level data, this box studies developments in the non-residential property market. We find that the big data on non-residential property market offers new insights for surveillance and financial stability analysis. We can now identify both the prices and transactions of all the four major segments, including standalone car parking spaces, which were broadly synchronised with one another, and can drill down into the details of price distribution. Non-bank FIs also engaged in non-residential mortgage lending in addition to residential mortgage loans, but their market share remained small. Our analysis suggests the weakness in the non-residential property market would not pose significant risks to banking stability, as bank exposures have already been limited by the previous LTV cap tightening in 2013, that is, through the sixth round of macro-prudential measures, and the latest available data suggests mortgage usage is still low.

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[47] In particular, the prices of offices and retail premises fell by at most 29% and 17% respectively between 2018 and 2020. Meanwhile, the gross classified loan ratio of all AIs picked up just marginally from 0.55% to 0.90%.

[48] It is interesting to note that the reduction of mortgage usage to buy car parking spaces was comparatively smaller than those in other segments. This is probably because the lump-sum value of car parking spaces is usually much lower compared with other types of non-residential properties. In any case, the buyers of car parking spaces were less reliant on mortgage financing in general.

5. Banking sector performance

Despite the visible economic recovery in the first half of 2021, retail banks registered thinner profits amid the low interest rate environment. Nonetheless, the Hong Kong banking sector remained resilient, underpinned by robust capital and liquidity positions. Asset quality remained stable and sound by historical and international standards. Bank credit also resumed growth during the review period, thereby providing support for the economy to recover. Looking ahead, the pace and strength of economic recovery could be clouded by the ongoing pandemic developments. This, together with uncertainties over the future pace and direction of monetary policy in major economies, the lingering China-US geopolitical tensions and their ensuing impacts on business activities, will pose challenges to the Hong Kong banking sector. In view of rising indebtedness in the household and corporate sectors, banks should remain vigilant and carefully assess the potential effects of these risk factors on the asset quality of their loan portfolios.

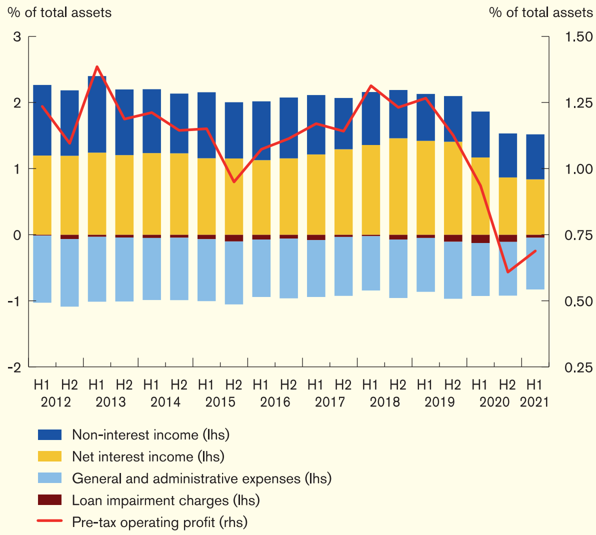
5.1 Profitability and capitalisation

Profitability

The aggregate pre-tax operating profit of retail banks[49] declined by 19.8% in the first half of 2021, compared with the same period in 2020. As a result, the return on assets also fell to 0.69% in the first half of 2021, compared with 0.94% in the same period in 2020 (Chart 5.1).

The fall in profit was mainly attributed to a reduction in net interest income, as the net interest margin (NIM) of retail banks narrowed to 0.98% in the first half of 2021 (Chart 5.2), compared with 1.37% in the same period last year. The decrease in net interest income more than offset an increase in non-interest income and a notable reduction in loan impairment charges during the same period.

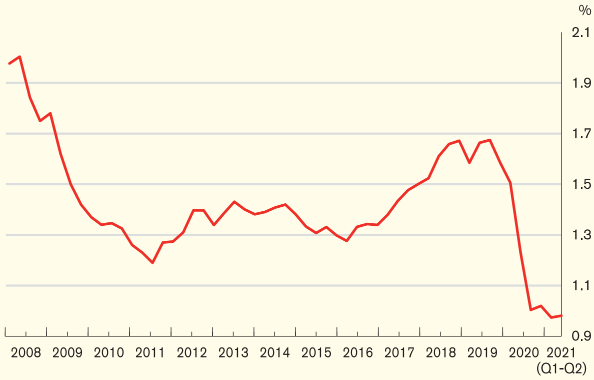
Chart 5.1
Profitability of retail banks



Note: Annualised semi-annual figures.
Source: HKMA.

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

Chart 5.2
NIM of retail banks

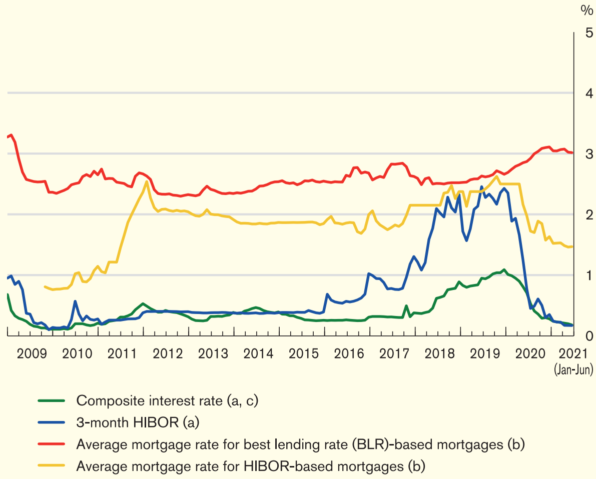


Note: Annualised quarterly figures.
Source: HKMA.

Underpinned by ample Hong Kong dollar liquidity, Hong Kong interbank interest rates softened further in the first half of 2021. Specifically, the three-month Hong Kong Interbank Offered Rate (HIBOR) saw a mild reduction of 18 basis points during the first half to 0.17% at the end of June 2021 (blue line in Chart 5.3).

Hong Kong dollar retail deposit rates also decreased in the review period, as some major retail banks[50] lowered their Hong Kong time-deposit rates. Reflecting both lower interbank funding costs and retail funding costs, the average Hong Kong dollar funding costs for retail banks, as measured by the composite interest rate, decreased further to 0.18% at the end of June 2021 from 0.28% six months ago.

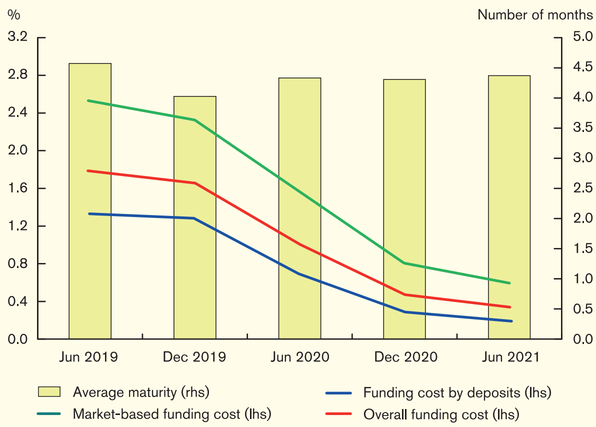
Chart 5.3
Interest rates



Notes:
(a) End-of-period figures.
(b) Period-average figures for newly approved loans.
(c) 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, figures from June 2019 onwards are not strictly comparable with those of previous months.
Sources: HKMA and staff estimates.

More broadly, the overall Hong Kong dollar and US dollar funding costs for licensed banks in Hong Kong also declined slightly by 14 basis points during the first half of 2021 (red line in Chart 5.4).

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



Note: Since June 2019, licensed banks not exempted from the new local IRRBB framework report under the new framework, while exempted licensed banks 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.

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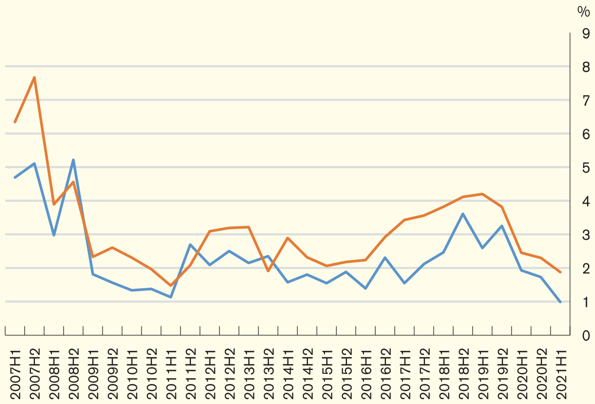
50 Although several virtual banks began operations in 2020 and offered competitive deposit rates to customers, their business scale remained small in the first half of 2021.

The more significant drop in banks' NIMs compared with funding costs during the review period suggests that the unprecedented loosening of monetary policy by major central banks in response to the COVID-19 pandemic has suppressed the yields of banks' earning assets significantly. Consistent with the above, the average lending rates of corporate loans have declined noticeably since the beginning of 2020, as seen in the syndicated loan market in Hong Kong (Chart 5.5).

Chart 5.5
Average lending rates of syndicated loans



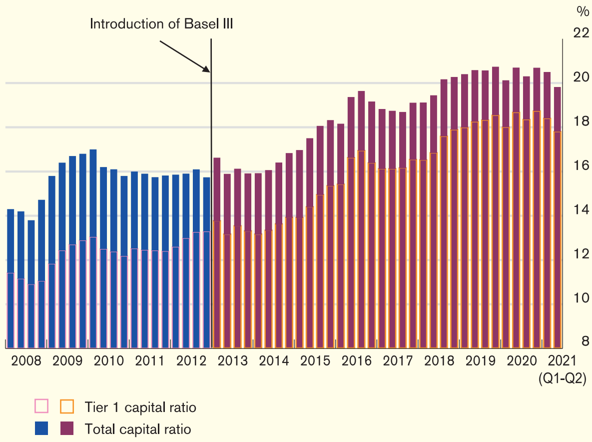
Note: The average lending rate of syndicated loans is weighted by the loan amounts and the lending rate of loans refers to sum of spread and the corresponding reference rate.
Source: HKMA staff estimates based on data from LoanConnector.

The near-term outlook for banks' profitability may remain challenging in part because the global low interest rate environment may continue to suppress their NIMs. In addition, uncertainties surrounding the global pandemic and the lingering China-US geopolitical tensions could dampen business confidence and threaten the current pace of global economic recovery. These risk factors, if intensified, could affect banks' asset quality adversely, weighing on their profitability.

Capitalisation

Capitalisation of the Hong Kong banking sector continued to be strong and well above minimum international standards. The consolidated total capital ratio of locally incorporated authorized institutions (AIs) stood at a high level of 19.8% at the end of June 2021 (Chart 5.6), well above the international minimum requirement of 8%. The Tier 1 capital ratio was 17.8% in the same period, with 15.9% being contributed by Common Equity Tier 1 (CET1) capital. In addition, the non-risk-based Leverage Ratio[51] (LR) of locally incorporated AIs stood at a healthy level of 7.9% at the end of June 2021, exceeding the statutory minimum of 3%.

Chart 5.6
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.

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)[52], remained sound during the review period. The average LCR of category 1 institutions remain at a similar level of 154.0% in

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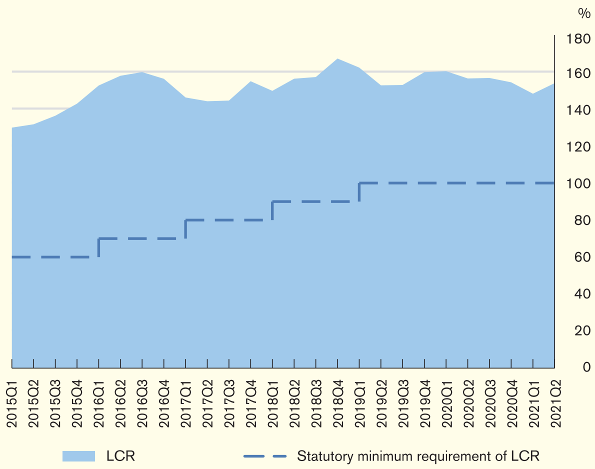
51 The Basel III non-risk-based LR requirement acts as a "backstop" to restrict the build-up of excessive leverage in the banking sector. For details, see Banking (Capital) Rules (Cap. 155L).

52 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*".

the second quarter of 2021 (Chart 5.7), staying well above the statutory minimum requirement of 100%. The average Liquidity Maintenance Ratio (LMR) of category 2 institutions was 58.1% during the same period, also well above the statutory minimum requirement of 25%.

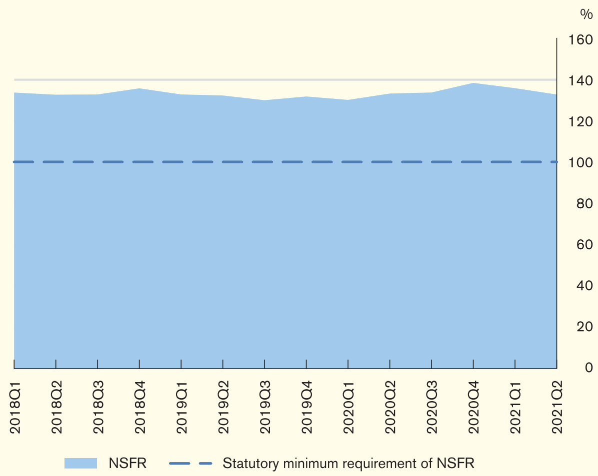
Chart 5.7
Liquidity Coverage Ratio



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

The latest ratios of the Net Stable Funding Ratio (NSFR)[53] requirement also indicated a stable funding position of AIs. The average NSFR of category 1 institutions remained at a high level of 132.6% in the second quarter of 2021 (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 142.7%, which also exceeded the statutory minimum requirement of 75%. The strong liquidity and stable funding positions of AIs suggest the Hong Kong banking sector should be well positioned to withstand liquidity shocks.

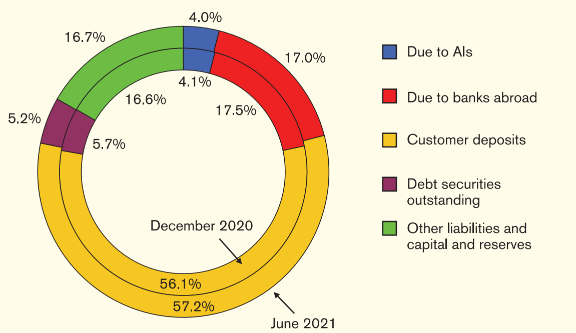
Chart 5.8
Net Stable Funding Ratio



Note: Consolidated basis.
Source: HKMA.

Customer deposits continued to be the primary funding source for AIs, underpinning a stable funding structure in the banking system. At the end of June 2021, the share of customer deposits to all AIs' total liabilities increased to 57.2%, from 56.1% six months ago (Chart 5.9).

Chart 5.9
The liability structure of all AIs



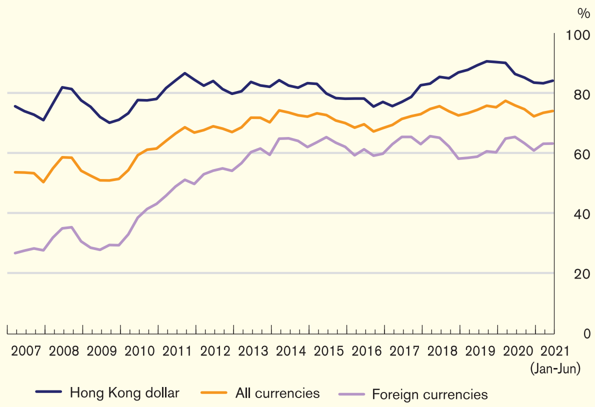
Notes:
1. Figures may not add up to total due to rounding.
2. Figures refer to the percentage of total liabilities, including capital and reserves.
3. Debt securities comprise negotiable certificates of deposit and all other negotiable debt instruments.
Source: HKMA.

Due to faster growth in loans and advances than in deposits for both the Hong Kong dollar and foreign currencies, the average Hong Kong dollar loan-to-deposit (LTD) ratio and foreign currency LTD ratio of all AIs increased to 84.2% and 63.3% at the end of June 2021, compared with 83.5%

[53] The Basel III NSFR requires banks to maintain a stable funding profile in relation to the composition of their assets and off-balance-sheet activities. 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. For details, see Banking (Liquidity) Rules (Cap. 155Q).

and 61.0% at the end of 2020 (Chart 5.10). Overall, the average all-currency LTD ratio of all AIs rose to 74.1% at the end of June 2021 from 72.3% six months ago.

Chart 5.10
Average loan-to-deposit ratios of all AIs

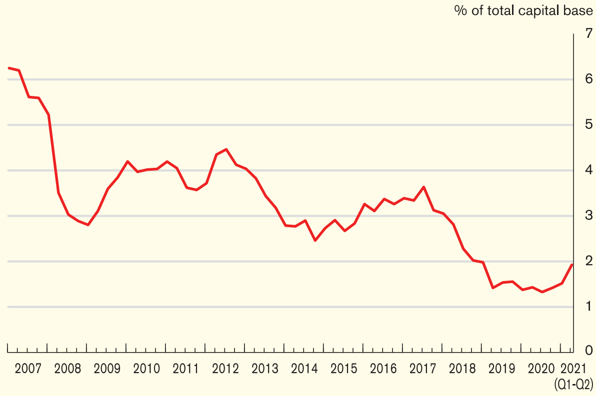


Note: End-of-quarter figures.
Source: HKMA.

Interest rate risk

The interest rate risk exposure of locally incorporated licensed banks remained relatively low in the second quarter of 2021. 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 is estimated to decline to the extent equivalent to 1.93% of their total capital base at the end of June 2021 (Chart 5.11)[54].

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



Notes:
1. Interest rate shock refers to a 200-basis-point parallel increase in both Hong Kong dollar and US dollar yield curves to institutions' interest rate risk exposure. The two currencies accounted for a majority of interest-rate-sensitive assets, liabilities and off-balance-sheet positions for locally incorporated licensed banks at the end of June 2021.
2. The impact of the interest rate shock refers to its impact on the economic value of the banking and trading book[55], 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 for June 2019 onwards are not strictly comparable with those of previous periods.

Source: HKMA.

5.3 Credit risk

Overview

Bank credit recorded a notable expansion in the first half, driven mainly by the improved domestic economic conditions, coupled with an increase in initial public offering (IPO)-related loans straddled at the end of June 2021. The asset quality of banks' loan portfolios also remained sound and stable during the review period.

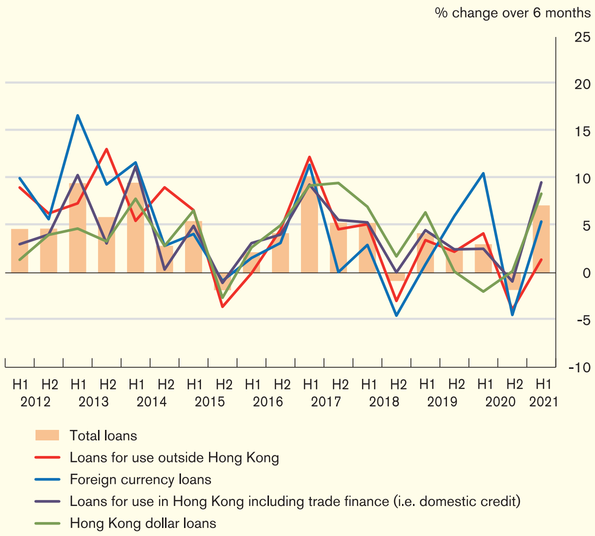
On a half-yearly basis, the total loans and advances of all AIs increased notably by 7.2% in the first half of 2021, after declining by 1.8% in the second half of 2020 (Chart 5.12). Excluding the IPO-related loans straddled at the end of June, total loans and advances rose by 4.4% during the same period. Total loan growth

[54] 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.

[55] 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.

(excluding IPO-related loans) was largely driven by growth in domestic loans (comprising loans for use in Hong Kong and trade financing), which grew by 5.6%[56], while loans for use outside Hong Kong increased by 1.8% during the same period.

Chart 5.12
Loan growth



Note: Since December 2018, figures for loans for use in or outside of 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.

The credit demand outlook is likely to remain stable in the near term. According to the results of the HKMA Opinion Survey on Credit Condition Outlook in June 2021, the share of surveyed AIs expecting loan demand to remain the same in the following three months increased to 67% from 50% six months ago, while the share expecting loan demand to be lower for the same period decreased to 3%. (Table 5.A).

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

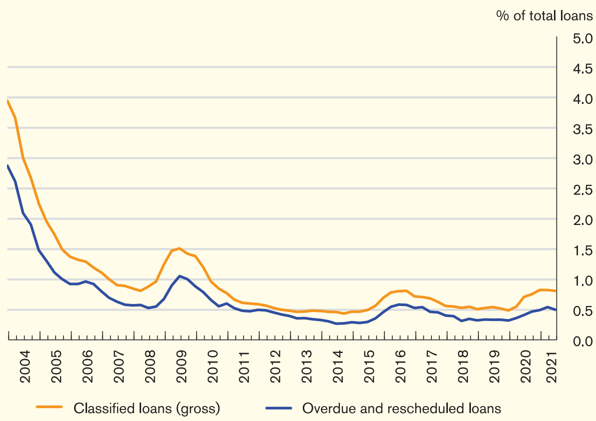
% of total respondents	Sep-20	Dec-20	Mar-21	Jun-21
Considerably higher	0	3	7	7
Somewhat higher	33	33	30	23
Same	43	50	57	67
Somewhat lower	23	13	7	3
Considerably lower	0	0	0	0
Total	100	100	100	100

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

Source: HKMA.

The asset quality of banks' loan portfolios was stable in the first half of 2021. The gross classified loan ratio (CLR) of all AIs edged down to 0.86% at the end of June 2021 from 0.9% six months ago, while the ratio of overdue and rescheduled loans of all AIs rose slightly to 0.58% in the same period from 0.57% at the end of December 2020. For retail banks, the gross CLR decreased slightly to 0.81% compared with six months ago, while the ratio of overdue and rescheduled loans rose slightly to 0.50% (Chart 5.13). On the whole, these ratios have stayed low by both historical and international 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 were 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.

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56 Domestic loans would have increased by 9.4% in the first half of 2021 if IPO-related loans were included.

Household exposure[57]

Household debt grew by 4.4% in the first half of 2021, slightly faster than the 3.9% in the second half of 2020, but slower than the growth in 2019 (Table 5.B). A breakdown of the data shows that the growth of personal loans accelerated from 2.2% in the second half of 2020 to 5.3% in the first half of 2021, while the growth of residential mortgage loans slowed from 4.7% to 4.0%.

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

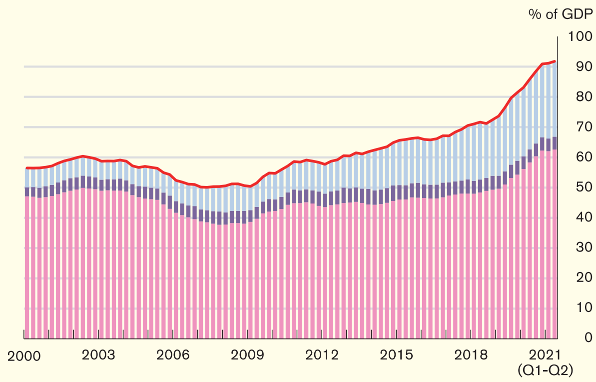
	2018		2019		2020		2021
(%)	H1	H2	H1	H2	H1	H2	H1
Residential mortgages	4.5	2.8	4.7	5.5	3.5	4.7	4.0
Personal loans	7.3	5.1	11.2	5.9	-2.4	2.2	5.3
of which:							
Credit card advances	-5.0	10.6	-3.8	4.1	-9.0	0.0	-0.4
Loans for other private purposes	10.5	3.9	14.9	6.2	-1.1	2.6	6.4
Total loans to households	5.4	3.5	6.8	5.6	1.5	3.9	4.4

Notes:
1. 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.
2. The data series of loans to households from 2017 have been revised due to categorisation issues with the data submitted by AIs earlier.

Source: HKMA.

Compared with the second half of 2020, the household debt-to-GDP ratio edged up slightly by 0.8 percentage points to 91.8% in the first half of 2021 (Chart 5.14). The increase was contributed by the growth in household debt (+4.0 percentage points), which was almost offset by the rebound in the nominal GDP (-3.2 percentage points).

Chart 5.14
Household debt-to-GDP and its components



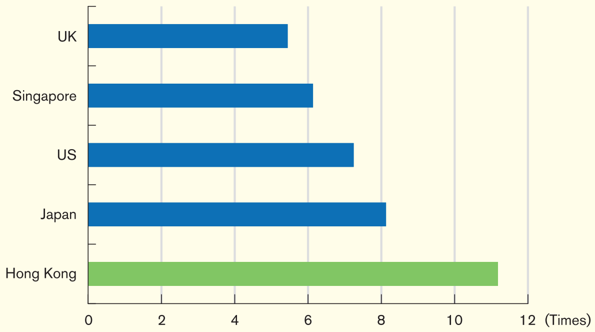
Notes:
1. Only borrowings from AIs are covered.
2. GDP refers to the annualised GDP, which is the sum of the quarterly GDP in the trailing four quarters.
3. Since December 2018, the figure for household debt has been restated to reflect AIs' reclassification of working capital loans.
4. The data series of loans to households from 2017 have been revised due to categorisation issues with the data submitted by AIs earlier.

Source: HKMA.

Although the household debt-to-GDP ratio is a widely used indicator in evaluating households' financial position, a full assessment requires considering the entire household balance sheet as well, including the level of assets and the composition of assets and liabilities. In this regard, both the net worth-to-liabilities ratio and the safe assets-to-liabilities ratio of Hong Kong's household sector remained high at 11.2 times and 2.88 times respectively in 2019 (Charts 5.15 and 5.16), which are much higher than those of most other developed economies. This suggests that Hong Kong's households, on aggregate, are financially sound and have strong buffers to cushion potential financial and economic shocks.

[57] Loans to households constitute lending to professional and private individuals, excluding lending for other business purposes. Mortgages account for a major proportion of household loans, while the remainder consists of mainly loans to private banking and wealth management customers secured by financial assets, credit card advances and unsecured personal loans. At the end of June, household lending made up 31.6% of domestic lending.

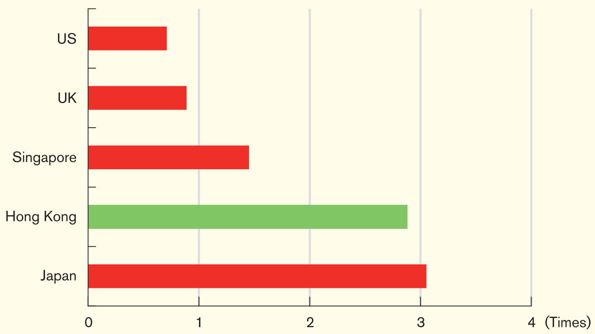
Chart 5.15
Household net worth-to-liabilities ratio for selected economies



Note: Figures as at end-2018 for Japan figures; figures as at end-2019 for other economies.

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

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



Note: Safe assets comprise deposits, as well as currencies if data is available. In the case of Hong Kong, safe assets refer to deposits only. Japan figures are from end-2018, while all other reported figures are from end-2019.

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

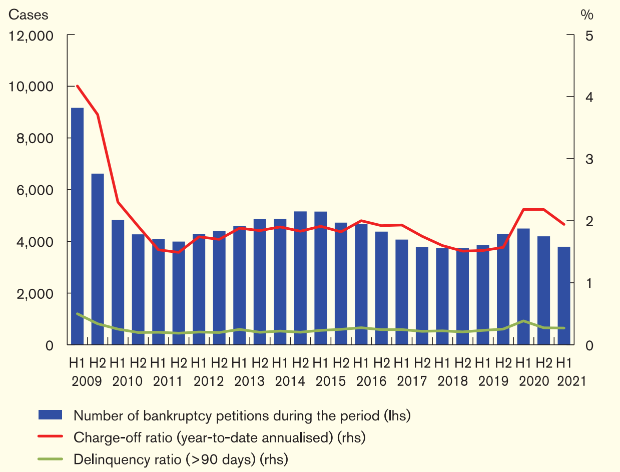
Given the prudent risk management and sound credit quality of these loans, the HKMA considers the associated credit risk as manageable. More than 90% of the household debt were collateralised loans, mainly residential mortgages and wealth management advances secured by financial assets.

Regarding residential mortgages, following several rounds of countercyclical macro-prudential measures introduced by the HKMA since 2009, the average LTV ratio and average debt-servicing ratio of newly approved mortgage loans have been staying at healthy levels. For personal loans to wealth management customers secured by financial assets, the HKMA requires banks to adopt prudent and effective credit risk management measures on this type of business. Such measures include imposing a cap on LTV ratios for financial assets pledged as collateral, issuing prompt margin calls and adopting forced liquidation mechanisms.

Besides, the HKMA also requires banks to conduct prudent operations on credit card advance and unsecured personal loan businesses. In reviewing credit applications, banks should understand borrowers' credit and financial conditions and carefully assess their repayment ability. As for post-lending, banks should implement effective monitoring that includes regular assessment of the asset quality of the loan portfolios. The HKMA will continue to monitor changes in banks' loan quality closely.

On unsecured household exposure, the associated credit risk remained contained during the review period. The number of bankruptcy petitions presented decreased in the first half of 2021 compared with six months ago (Chart 5.17). The year-to-date annualised credit card charge-off ratio decreased from 2.18% in the fourth quarter of 2020 to 1.94% in the second quarter of 2021, while the delinquency ratio hovered at 0.27% in the same period, similar to the preceding two-quarter position.

Chart 5.17
Charge-off ratio and delinquency ratio for credit card lending and bankruptcy petitions

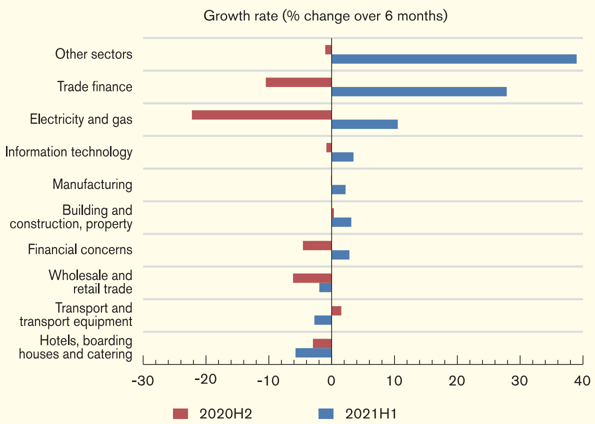


Sources: Official Receiver's Office and HKMA.

Corporate exposure[58]

As the economic conditions improved, domestic corporate loans (excluding IPO-related loans straddled at end-June) grew notably by 6.2%[59] in the first half of 2021 (Chart 5.18). Analysed by economic sectors, trade financing loans grew significantly by 27.9% in the first half of 2021, partly reflecting the strong merchandise export performance in Hong Kong alongside the global economic recovery. However, loan growth in sectors that were hard hit by the pandemic, including the wholesale and retail, accommodation services and transport sectors, remained sluggish.

Chart 5.18
Growth in domestic corporate loans by selected sector

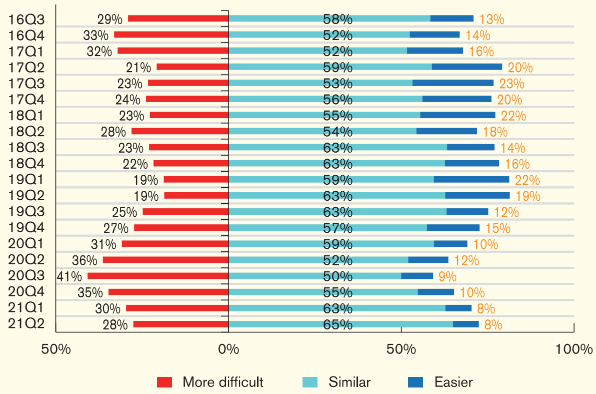


Source: HKMA.

A demand-side survey on the credit conditions of small and medium-sized enterprises (SMEs) showed that SME's perception improved further in the second quarter of 2021, with 28% of the respondents perceiving credit approval as "more difficult" relative to six months ago, down from 30% in the previous quarter (Chart 5.19). Of the respondents with existing credit lines, 3% indicated a tighter stance by banks, compared with 7% found in the first quarter (Chart 5.20).

To continue the support to SMEs, the HKMA extended the Pre-approved Principal Payment Holiday Scheme (PPPHS) to April 2022. By the end of July 2021, a total of over 74,000 cases of credit relief have been granted to corporate customers under the PPPHS and other initiatives rolled out by banks amid the pandemic, involving an aggregate amount of HK$860 billion. Compared with the participation rate of 16% when the PPPHS was first launched in May last year, the participation rate further dropped to 2.4% in July 2021, indicating SMEs' needs for relief measures might have declined along with the economic recovery in Hong Kong. In addition, the Hong Kong Mortgage Corporation Limited extended the application period of the Special 100% Loan Guarantee to 30 June 2022. As at end-July, over 40,000 applications involving more than HK$65 billion in loans had been approved under the 100% Guarantee Product. With the overarching objective of maintaining banking stability, the HKMA will from time to time review the case for further extension of the various measures[60].

Chart 5.19
SMEs' perception of banks' credit approval stance relative to six months ago



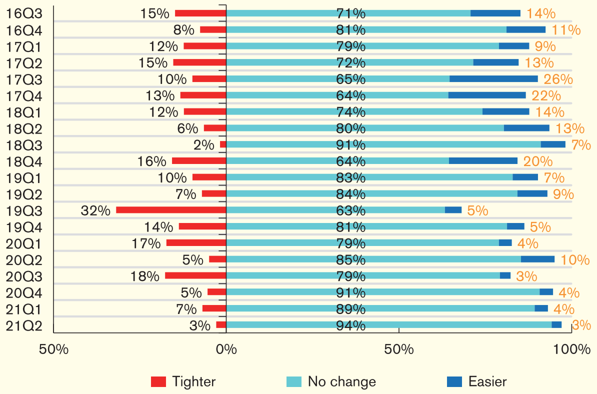
Note: Excluding respondents who answered "no idea/don't know".
Source: HKMA.

[58] Excluding interbank exposure. At the end of June 2021, the share of corporate loans in domestic lending was 68.3%.

[59] If IPO loans straddled at the end of June 2021 were included, domestic corporate loans would have grown by 11.9% in the first half of 2021.

[60] The Government announced further enhancements to the support measures under the SME Financing Guarantee Scheme (SFGS) on 21 September. The maximum duration of principal moratorium for the 80% Guarantee Product, the 90% Guarantee Product and the Special 100% Loan Guarantee under the SFGS will be extended from 18 months to 24 months, and the application period for principal moratorium will also be extended to end-June 2022.

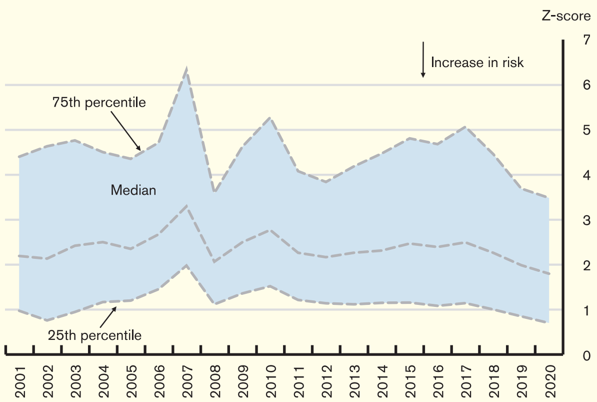
Chart 5.20
SMEs' reported change in banks' stance on existing credit lines



Note: The data covers only respondents with existing credit lines.
Source: HKMA.

An assessment based on the latest accounting data of all non-financial corporates listed in Hong Kong shows that the financial health of listed corporates deteriorated slightly in 2020 as the negative impacts arising from the pandemic continued to weigh on corporates' fundamentals. The Altman's Z-score (a default risk measure for non-financial corporates) declined across-the-board during 2020, reflecting a broad-based weakening in the financial health of these corporates (Chart 5.21).

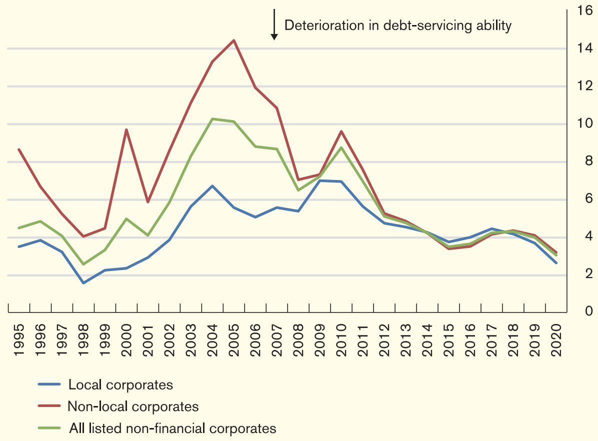
Chart 5.21
Altman's Z-score of listed non-financial corporates in Hong Kong



Notes:
1. All non-financial corporates listed on the Hong Kong Stock Exchange are selected.
2. Figures are calculated based on information up to end-August 2021.
Source: HKMA staff calculations based on estimates compiled by Bloomberg.

Consistent with the decrease in the Altman's Z-score, the debt-servicing ability of non-financial corporates listed in Hong Kong deteriorated during the same period. The weighted average interest coverage ratios for both local and non-local firms fell (the blue and red lines in Chart 5.22) due mainly to general decline in corporate earnings amid the pandemic.

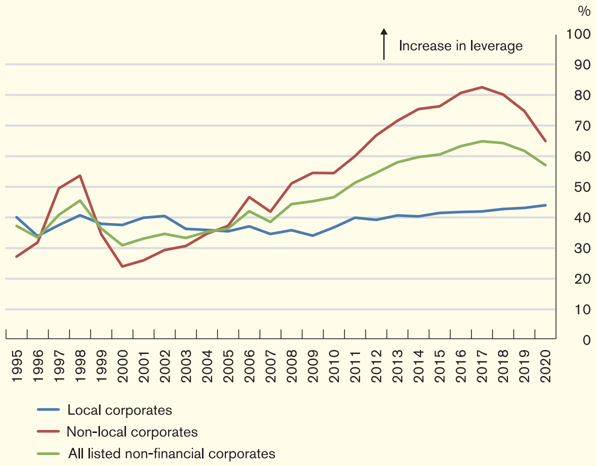
Chart 5.22
Interest coverage ratio of listed non-financial corporates in Hong Kong



Notes:
1. Weighted average figures.
2. The ICR is calculated by dividing the earnings before interest and tax (EBIT) by total interest expenses. A lower value indicates deterioration of debt servicing ability.
3. All non-financial corporates listed on the Hong Kong Stock Exchange are selected. Local and non-local corporates refer to listed firms that are domiciled in and outside Hong Kong, respectively.
4. Figures are calculated based on information up to end-August 2021.
Source: HKMA staff estimates based on data from Bloomberg.

Nevertheless, corporate leverage, measured by the weighted average debt-to-equity ratio, decreased moderately in 2020 for listed non-financial corporates in Hong Kong (the green line in Chart 5.23), driven by continued deleverage of non-local corporates (the red line in Chart 5.22). While the average leverage for local corporates increased mildly (the blue line in Chart 5.23), the current level may not cause immediate systemic concerns.

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



Notes:

1. Weighted average figures.
2. The leverage ratio is defined as the ratio of debt to equity. A higher value indicates higher leverage.
3. All non-financial corporates listed on the Hong Kong Stock Exchange are selected. Local and non-local corporates refer to listed firms that are domiciled in and outside Hong Kong, respectively.
4. Figures are calculated based on information up to end-August 2021.

Source: HKMA staff estimates based on data from Bloomberg.

It should be noted that due to a time lag in the availability of accounting data, the above assessment does not capture the positive effects of improved economic conditions in the first half of 2021 on corporates' fundamentals. There were some signs that the recent improvement in economic conditions and the policy effect of relief measures had reduced corporate default risk. In particular, the number of petitions presented for the compulsory winding-up of companies decreased from 255 cases in the second half of 2020 to 236 cases in the first half of 2021.

Mainland-related lending and non-bank exposures

The banking sector's total Mainland-related lending increased by 7.3% to HK$4,881 billion (16.3% of total assets) at the end of June 2021, from HK$4,548 billion (15.6% of total assets) at the end of 2020 (Table 5.C). Other non-bank exposures increased by 8.1% to HK$1,971 billion (Table 5.D).

Table 5.C
Mainland-related lending

HK$ bn	Sep 2020	Dec 2020	Mar 2021	Jun 2021
Mainland-related loans	4,827	4,548	4,747	4,881
Mainland-related loans excluding trade finance	4,523	4,287	4,435	4,501
Trade finance	304	261	312	380
By type of AIs:				
Overseas incorporated AIs	1,882	1,733	1,776	1,769
Locally incorporated AIs*	2,208	2,043	2,157	2,262
Mainland banking subsidiaries of locally incorporated AIs	737	772	814	850
By type of borrowers:				
Mainland state-owned entities	1,978	1,804	1,959	1,980
Mainland private entities	1,371	1,312	1,440	1,509
Non-Mainland entities	1,478	1,432	1,348	1,392

Notes:

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

Source: HKMA.

Table 5.D
Other non-bank exposures

HK$ bn	Sep 2020	Dec 2020	Mar 2021	Jun 2021
Negotiable debt instruments and other on-balance sheet exposures	1,232	1,350	1,368	1,461
Off-balance sheet exposures	434	473	492	510
Total	**1,666**	**1,823**	**1,860**	**1,971**

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

Source: HKMA.

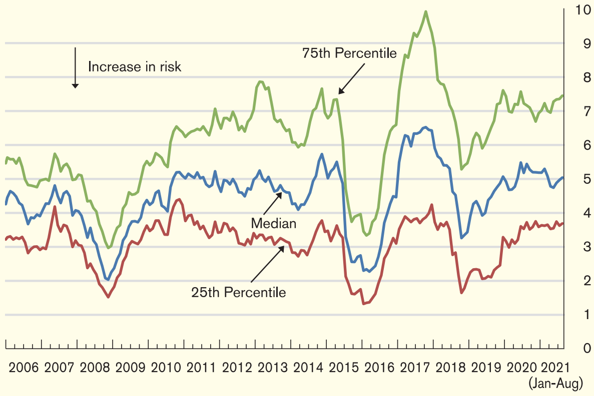
Largely reflecting the notable recovery in the Mainland economy, the gross CLR of Mainland-related lending of all AIs[61] decreased to 0.84% at the end of June 2021 from 0.96% at the end of 2020.

Consistently, the distance-to-default (DTD) index[62] (a forward-looking market-based indicator) continued to suggest a stabilisation in the default risk of the Mainland corporate sector. More specifically, the 75th and 25th percentiles of the DTD index hovered at levels similar to six months ago (Chart 5.24).

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

[62] 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.

Chart 5.24
Distance-to-default index for the Mainland corporate sector



Note: The 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.

Nevertheless, in view of potential economic headwinds facing the Mainland economy arising from the uncertainties over the pandemic development, given the outbreak of the Delta variant in some provinces, and the lingering China-US geopolitical tensions, banks should stay attentive to the credit risk management of their Mainland-related exposures.

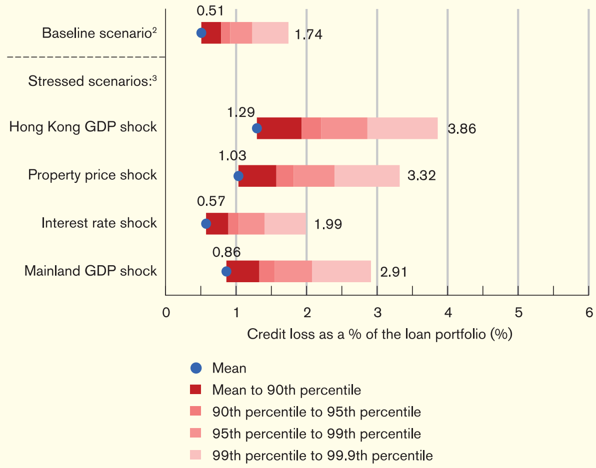
Macro stress testing of credit risk[63]

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 severe macroeconomic shocks similar to those experienced during the Asian financial crisis. Chart 5.25 presents a simulated future credit loss rate of retail banks in the second quarter of 2023 under four specific macroeconomic shocks[64] using information up to the second quarter of 2021.

In the stressed scenarios, the expected average credit losses two years after different macroeconomic shocks are estimated to be moderate, ranging from 0.57% (Interest rate shock) to 1.29% (Hong Kong GDP shock).

Taking into account tail risk, banks' credit losses (at the confidence level of 99.9%) under the stress scenarios range from 1.99% (Interest rate shock) to 3.86% (Hong Kong GDP shock), which are significant, but smaller than the estimated loan loss of 4.39% following the Asian financial crisis.

Chart 5.25
The mean and value-at-risk statistics of simulated credit loss distributions[1]



Notes:
1. The assessments assume the economic conditions in 2021 Q2 as the current environment. The Monte Carlo simulation method is adopted to generate the credit loss distribution for each scenario.
2. Baseline scenario: no shock throughout the two-year period.
3. Stressed scenarios:
   Hong Kong GDP shock: reductions in Hong Kong's real GDP by 2.7%, 2.4%, 1.7% and 1.6% respectively in each of the four consecutive quarters starting from 2021 Q3 to 2022 Q2.
   Property price shock: Reductions in Hong Kong's real property prices by an average of 12% in each of the four consecutive quarters starting from 2021 Q3 to 2022 Q2.
   Interest rate shock: A rise in real interest rates (HIBORs) by 300 basis points in the first quarter (i.e. 2021 Q3), followed by no changes in the second and third quarters, and another rise of 300 basis points in the fourth quarter (i.e. 2022 Q2).
   Mainland GDP shock: An average year-on-year real GDP growth rate of 2% for the four consecutive quarters starting from 2021 Q3.

Source: HKMA staff estimates.

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[63] 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 estimates from previous reports.

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

5.4 Systemic risk

Reflecting improved economic conditions and the policy effect of relief measures, systemic risks in the Hong Kong banking sector remained contained during the review period.

However, the global economic recovery is subject to uncertainties, particularly those arising from the development of the pandemic, the pace and direction of monetary policies in major economies, and geopolitical risks. Downside risks to the global economy may pose challenges to banks in managing the credit risks of their loan portfolios.

Specifically, concerns have been rising about the resurgence of the pandemic, given the widespread transmission of the Delta variant. Any retightening of containment measures in response to a resurgence of the pandemic could delay the recovery for many corporates. Importantly, given that many corporates may have thinner financial buffers than before, their resilience to a prolonged pandemic may be called into question. Banks should therefore continue to uphold their credit risk management and assess the potential impacts of the ongoing pandemic developments on the financial fundamentals of their corporate borrowers.

Uncertainty over the future pace and direction of monetary policy is another key risk factor to watch for. If the global inflation, particularly in the US, turns out to be more persistent than expected, the monetary policy stance could be tightened earlier than expected. This could put the credit risk of banks' loan portfolios under the test, particularly in view of the weakening debt-repayment ability of corporates and households amid the prolonged pandemic.

Geopolitical risks, especially those related to the China-US tensions, still merit close attention. Any escalation in tensions between the world's two largest economies could adversely affect business environments, and thus the Hong Kong banking sector.

That said, the robust capital and liquidity positions of the Hong Kong banking sector should provide strong buffers against the downside risks.

From the perspective of a longer horizon, climate change is a major emerging risk to financial stability. For instance, a disorderly transition to a low-carbon economy could have a destabilising effect on the financial system. Box 4, which explores a sample of syndicated loans in Asia Pacific, finds that banks in the region have started to price in climate transition risk for loans to emission-intensive sectors since the Paris Agreement, suggesting that banks have begun to incorporate climate risk considerations into their existing risk management framework.

Nonetheless, in view of the highly challenging task in managing climate risks given their distinctive nature[65] and data gaps, banks should keep abreast of the latest developments on climate risk management practices when considering their own risk management approach. In this regard, the HKMA actively engages with the banking industry to facilitate AIs' inclusion of climate risk management practices into their operations.

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. This buffer can be deployed in times of a downturn, allowing banks

[65] Climate risks (which include physical and transition risks), are the products of multiple interacting forces (e.g. natural, technological and societal), and are thus inherently uncertain and prone to changes. In addition, compared to the traditional risk types, climate risks are more susceptible to non-linearity and fat-tailed distributions.

to continue providing credit to support the real economy. The latest applicable jurisdictional CCyB ratio for Hong Kong, announced on 5 August 2021, was 1.0%[66].

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)[67]. 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[68].

For the latest situation, the indicative buffer guide, calculated based on the first-quarter data of 2021, signals a CCyB of 2.50%. The projection, based on all available data at the decision date, suggests the indicative buffer guide is likely to signal a lower CCyB when all relevant data for the second quarter of 2021 becomes available.

Nevertheless, information drawn from the series of Comprehensive Reference Indicators, along with all relevant information available at the time of the decision in August 2021, suggests that there have been some signs of economic recovery in Hong Kong, but uncertainties about the global pandemic situation have remained. The Monetary Authority therefore considered that it is appropriate to keep the CCyB unchanged at 1.0% and continue to monitor the situation for a few more quarters.

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

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

	28-Jan-21	17-May-21	5-Aug-21
Announced CCyB rate	1.0%	1.0%	1.0%
Date effective	28/1/2021	17/5/2021	5/8/2021
Indicative buffer guide	2.5%	2.3%	2.5%
Basel Common Reference Guide	2.5%	2.5%	2.5%
Property Buffer Guide	2.2%	1.8%	2.5%
Composite CCyB Guide	2.5%	2.3%	2.5%
Indicative CCyB Ceiling	None	None	None
Primary gap indicators			
Credit/GDP gap	24.1%	23.9%	13.8%
Property price/rent gap	9.0%	7.8%	10.3%
Primary stress indicators			
3-month HIBOR spread* (percentage points)	0.21%	0.18%	0.15%
Quarterly change in classified loan ratio (percentage points)	0.04%	0.07%	0.00%

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.

66 For details, see the Announcement of the CCyB to AIs on 5 Aug 2021 (https://www.hkma.gov.hk/eng/key-functions/banking/banking-legislation-policies-and-standards-implementation/countercyclical-capital-buffer-ccyb/).

67 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.

68 These include measures of bank, corporate and household leverage; debt servicing capacity; profitability and funding conditions within the banking sector and macroeconomic imbalances.

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

	Jun 2020	Mar 2021	Jun 2021
Interest rates			
1-month HIBOR fixing[2] (quarterly average)	1.02	0.14	0.09
3-month HIBOR fixing (quarterly average)	1.35	0.24	0.18
BLR[3] and 1-month HIBOR fixing spread (quarterly average)	3.98	4.86	4.91
BLR and 3-month HIBOR fixing spread (quarterly average)	3.65	4.76	4.82
Composite interest rate[4]	0.71	0.22	0.18
		All AIs	
Balance sheet developments[5]			
Total deposits	2.2	1.2	3.4
Hong Kong dollar	2.7	2.7	4.8
Foreign currency	1.8	-0.4	2.0
Total loans	0.2	2.8	4.3
Domestic lending[6]	-0.8	3.6	5.7
Loans for use outside Hong Kong[7]	2.5	0.9	0.8
Negotiable instruments			
Negotiable certificates of deposit (NCDs) issued	-0.7	-8.0	-4.5
Negotiable debt instruments held (excluding NCDs)	5.2	-0.8	2.5
Asset quality			
As a percentage of total loans[8]			
Pass loans	97.47	97.50	97.67
Special mention loans	1.74	1.60	1.47
Classified loans[9] (gross)	0.79	0.89	0.86
Classified loans (net)[10]	0.43	0.50	0.47
Overdue > 3 months and rescheduled loans	0.49	0.61	0.58
Classified loan ratio (gross) of Mainland related lending[11]	0.94	0.88	0.84
Liquidity ratios (consolidated)			
Liquidity Coverage Ratio — applicable to category 1 institutions (quarterly average)	156.5	148.2	154.0
Liquidity Maintenance Ratio — applicable to category 2 institutions (quarterly average)	57.0	56.9	58.1
Net Stable Funding Ratio — applicable to category 1 institutions	133.1	135.7	132.6
Core Funding Ratio — applicable to category 2A institutions	138.1	142.3	142.7
		Retail banks	
Profitability			
Loan impairment charges as a percentage of average total assets (year-to-date annualised)	0.13	0.03	0.05
Net interest margin (year-to-date annualised)	1.37	0.97	0.98
Cost-to-income ratio (year-to-date)	42.0	49.6	51.9
		Surveyed institutions	
Asset quality			
Delinquency ratio of residential mortgage loans	0.04	0.04	0.04
Credit card lending			
Delinquency ratio	0.39	0.28	0.27
Charge-off ratio — quarterly annualised	2.82	2.08	1.87
— year-to-date annualised	2.18	2.08	1.94
		All locally incorporated AIs	
Capital adequacy (consolidated)			
Common Equity Tier 1 capital ratio	16.6	16.4	15.9
Tier 1 capital ratio	18.7	18.4	17.8
Total capital ratio	20.7	20.5	19.8
Leverage ratio	8.2	8.1	7.9

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-rate-sensitive liabilities, which include deposits from customers, amounts due to banks, negotiable certificates of deposit and other debt instruments, and all other liabilities that do not involve any formal payment of interest but the values of which are sensitive to interest rate movements (such as Hong Kong dollar non-interest bearing demand deposits) on the books of banks. Further details can be found on the HKMA website.
5. Quarterly change.
6. Loans for use in Hong Kong plus trade finance.
7. Including "others" (i.e. unallocated).
8. Figures are related to all AIs' Hong Kong offices, as well as locally incorporated AIs' overseas branches and major overseas subsidiaries.
9. Classified loans are those loans graded as "substandard", "doubtful" or "loss".
10. Net of specific provisions/individual impairment allowances.
11. Figures are related to all AIs' Hong Kong offices, as well as locally incorporated AIs' Mainland branches and subsidiaries.

Box 4
Effect of climate-related risk on the pricing of bank loans: Evidence from syndicated loan markets in Asia Pacific

Introduction

Climate change has been receiving increasing attention in recent years. Policymakers worldwide have shown strong commitment to tackle climate change. Most notably, over 190 countries ratified the 2015 Paris Agreement, under which countries aim to reach the global peak of greenhouse gas (GHG) emissions as soon as possible to achieve a climate-neutral world by mid-century. The transition towards a low-carbon economy is likely to have large financial implications for a wide range of industries, as their future business operations could be significantly affected by changes in climate policy and climate-related technology.

The transition towards a low-carbon economy could also have strong implications for banks. For example, governments could adopt carbon pricing to incentivise corporates to reduce GHG emissions. This could cause the future cash flows and valuation of banks' corporate borrowers, particularly for those from the largest-emitting sectors, to fall significantly, which could in turn affect the credit risks of banks' loan portfolios. It is thus important to assess how far banks have taken the associated climate-related risks, particularly transition risks[69], into their lending considerations.

Against this background, this box sheds light on the issue by assessing whether banks in Asia Pacific have taken the associated transition risks into their loan pricing.[70]

Data

To study the loan pricing of transition risk, this study compiles a novel dataset by combining multiple data sources to construct a sample of syndicated loans originated in the Asia Pacific market, with the corresponding financial and environmental characteristics of the borrowers and lenders being matched. The data sources are described briefly below:

a. Syndicated loan and balance sheet data

Our analysis covers a sample of syndicated loans that were syndicated in major Asia Pacific markets (i.e. where the majority of funds were sourced to finance the loan) over the period 2010 to March 2021. The loan-level information was obtained from the *Thomson Reuters LPC DealScan* database. In addition, the financial characteristics of the borrowers and lenders are obtained from *S&P Capital IQ*, and further merged with the data of syndicated loans.

b. Carbon emission data

We gauge firms' exposure to the transition risk by their carbon emissions[71]. The carbon emission data of the corporates is obtained from *S&P Trucost*. The data available in Trucost are consistent with standards set out by the GHG Protocol[72]. Three types of carbon emission data of a corporate are available – namely scopes 1 to 3 emissions. Generally speaking, scope 1 emissions are direct emissions generated during fuel combustion activities by a firm, while scope 2 emissions are indirect emissions relating to the purchase of energy. Scope 3 emissions

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69 Transition risk is a financial risk which can result from the process of adjustment towards a lower-carbon economy prompted by, for example, changes in climate policy, technological changes or a change in market sentiment.

70 For details, see Ho and Wong (2021) "Effect of climate-related risk on the pricing of bank loans: Evidence from syndicated loan markets in Asia Pacific", *HKMA Research Memorandum* 06/2021.

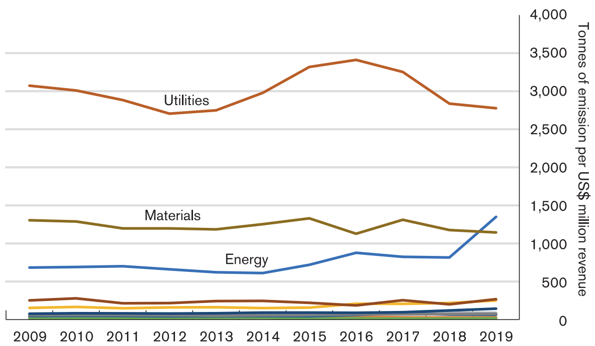
71 Given that carbon dioxide constitutes a major part of total GHG emissions, we are using the term "carbon emissions" interchangeably with "GHG emissions" in this box.

72 GHG Protocol, a partnership between World Resources Institute and the World Business Council for Sustainable Development, establishes comprehensive global standardized frameworks to measure and manage GHG emissions from private and public sector operations, value chains and mitigation actions.

comprise all other indirect emissions that occur in the company's value chain. As firms' scope 3 emissions are prone to double-counting, our analysis thus disregards firms' scope 3 emissions. To further ensure the comparability of carbon emissions across firms, the level of carbon emissions of a firm is scaled by its revenue (also referred to carbon emission intensity).

Chart B4.1 presents the average emission intensity of firms across economic sectors over time. As shown, utilities, materials and energy sectors are the largest emitting sectors (denoted as emission-intensive sectors hereafter). This observation leads us to investigate whether loan pricing of transition risk could be different for borrowers from the emission-intensive sectors versus those in other sectors, as the transition risk for the former may be much higher than the latter.

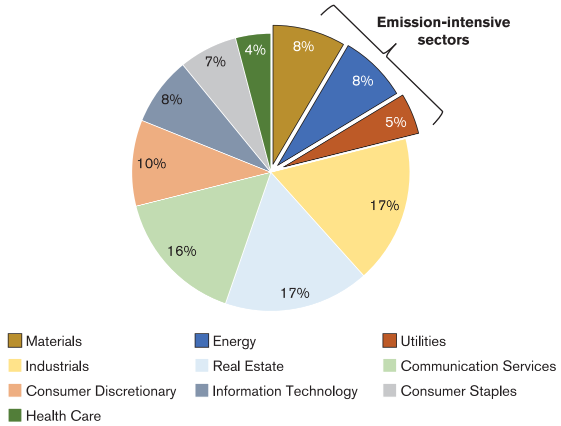
Chart B4.1
Average scopes 1 and 2 carbon emission intensity across economic sectors



Note: Figures are calculated as the simple average of firms' scopes 1 and 2 carbon emission intensity (measured by tons of CO_2e to revenues in millions of US dollars) by Global Industry Classification Standard economic sector. Other sectors include communication services, consumer discretionary, consumer staples, financials, health care, industrials, information technology and real estates.
Source: HKMA staff calculations based on S&P Trucost data.

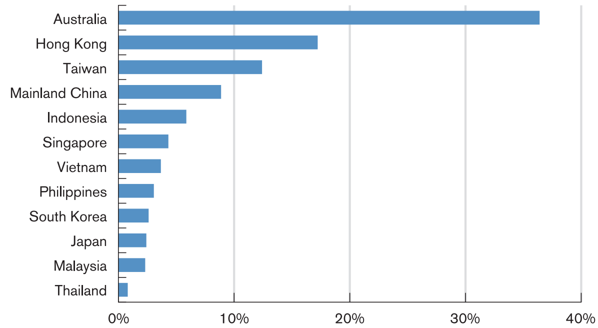
Our final sample consists of 2,842 loans for estimation, which span over 704 unique borrowing firms and 157 unique banking corporations. As seen in Chart B4.2, lending to borrowers from emission-intensive sectors accounted for a tangible share (21%) of the total amount of sampled syndicated loans over the sample period. These loans were mostly syndicated in Australia, Hong Kong and Taiwan markets (Chart B4.3).

Chart B4.2
Distribution of sampled loans by sector



Source: HKMA staff calculations based on data from S&P Capital IQ and S&P Trucost.

Chart B4.3
Share of loan amounts to borrowers from emission-intensive sectors by market of syndication



Note: The chart displays the share of loan amount to emission-intensive sectors by market of syndication. Market of syndication is defined as the place where the majority of funds are raised to finance the syndicated loans.
Source: HKMA staff calculations based on data from S&P Capital IQ and S&P Trucost.

Empirical analysis and baseline findings

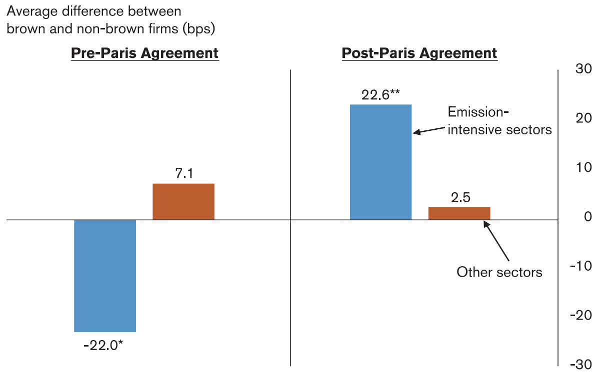
To assess whether banks would impose a risk premium on loans to firms with a higher emission intensity, we compare the loan spread charged to a highly emitting firm with an otherwise similar firm in the same industry but with a lower emission intensity, after controlling for other relevant loan-level, borrower and lender characteristics. Specifically, the following regression model is employed:

$$y_{i,t} = \alpha + f_{i,t} + \beta_1 High_{CO2_{i,t-1}} + \beta_2 High_{CO2_{i,t-1}} * Paris_t + \mu Paris_t + \delta' Z_{i,t} + \gamma' X_{i,t-1} + \varepsilon_{i,t} \quad (1)$$

The dependent variable ($y_{i,t}$) is the lending spread over reference rates in basis points (bps) for loan i issued in year t. $High_{CO2_{i,t-1}}$ is a dummy variable which takes a value of one if the borrower's emission intensity is higher than its industry average at year t-1. We classify this group of borrowers as "brown" firms. $Z_{i,t}$ are vectors of the loan-level, while $X_{i,t\text{-}1}$ are borrower and lender control variables.[73] We also include a vector of fixed effects ($f_{i,t}$) over various dimensions to control for unobserved differences in the cost of bank loans.[74] The coefficient on $High_{CO2_{i,t-1}}$ is our parameter of interest which captures the additional loan spread imposed on a "brown" borrower relative to its industry-peers. To further assess whether banks have started to price in the transition risk since the Paris Agreement in December 2015, the regression included a time dummy variable $Paris_t$ (i.e. equals one if loans were issued in or after 2016, and is zero otherwise) and its associated interaction term with $High_{CO2_{i,t-1}}$.

The estimation results are presented in Chart B4.4.[75] The bars in the chart represent the estimated difference in loan spread charged to a brown borrower relative to its non-brown counterparts, after accounting for all relevant control variables. As mentioned earlier, the regression model is run separately on firms from emission-intensive sectors, (i.e. blue bars) and those from other sectors (orange bars).

Chart B4.4
Estimated differences in loan spreads between brown and non-brown firms



Notes
1. Each bar shows the estimated average loan rate charged on brown firms minus the estimated average loan rate charged on non-brown firms in the same sector.
2. **, * denote statistical significance at 5 and 10% respectively.

Source: HKMA staff calculations.

Our results suggest a large difference in the loan pricings of transition risk across the two groups of borrowers. For loans extended to borrowers in emission-intensive sectors (blue bars in the chart), banks appear to underprice the transition risk for loans that originated before the Paris Agreement, as brown firms are found to borrow at a cheaper term relative to their counterparts in the estimation. However, probably reflecting increased global awareness of climate-related risk since the Paris Agreement, banks have on average charged a higher lending rate to brown firms by 23 bps, as compared to that of non-brown firms in the post-Paris Agreement period.[76] Importantly, the additional loan premium is not only statistically significant but also economically meaningful. Given the average loan spread over the reference rate in our sample is 166 bps, the estimated impact is equivalent to a 14% rise in the average loan spread. We also find that the environmental attitude of banks matters in determining the extent of the transition risk premium for loans to brown firms. Based on results from a separate regression

[73] Loan-level control variables include logarithms of loan size, loan maturity, the number of lead arrangers in the syndicate, and dummies for the existence of financial covenants or being secured by collateral. Borrower control variables include the borrower's return on assets, the debt-to-asset ratio, logarithm of the borrower's total assets, and state-owned-enterprise dummy. Lender control variables include the average profitability, Tier-1 capital ratio and asset size of the lead arranger consortium.

[74] These, among others, include borrower's country, sector, loan currency and time fixed effects.

[75] The estimation results are based on firms' scope 1 emission intensity. The results are also quantitatively robust and similar if firms' scopes 1 and 2 emission intensity is considered. For details, see the HKMA Research Memorandum version.

[76] Apart from pricing in transition risk by banks, lower credit supply to brown firms due to exclusion policy (e.g. exit thermal coal financing) of some banks may also contribute to a higher lending rate to brown firms. Data limitations, however, preclude an analysis of the relative contributions of these two factors.

specification[77], a "green" bank[78] would charge an additional loan spread of around 9 bps compared with other banks, on the same brown firm in the post-Paris Agreement period.

By contrast, for loans extended to firms in other sectors (orange bars in the chart), there is no statistically significant difference in the loan spread with respect to firms' carbon emission intensity, both in the pre- and post-Paris Agreement periods. A plausible explanation is that, given these firms in general have relatively low level of emission intensity (see chart B4.1), the associated transition risk may be less significant, such that banks may not take the carbon emission intensity of these firms as an important determinant in their loan pricing considerations.

Conclusion

Our analysis suggests that banks in the region have started to price-in transition risks for loans to emission-intensive sectors since the Paris Agreement [79], probably reflecting their increased awareness of the climate-related risks of corporate borrowers that are more subject to the transition risk. Importantly, the findings may suggest that banks in the region started to incorporate climate risk considerations into their existing risk management framework.

Nonetheless, managing climate risks would remain one key challenge for banks due to the different natures from traditional risk types[80] and data gaps. Banks therefore should keep abreast of latest developments on climate risk management practices when considering their own risk management approach. In this regard, the HKMA has actively engaged with the banking industry to facilitate AIs' inclusions of climate risk management practices into their operations.[81]

77 A modified model of equation (1) is conducted by including a time-varying bank-level dummy variable ("Green Bank $_{b,t}$"), which takes a value of one if the bank is classified as a green bank at time t and zero otherwise to capture the additional impact of the bank's green attitude on loan spreads.

78 Green banks are defined as members of the United Nations Environment Programme Finance Initiative and regularly self-disclosing GHG footprints at the same time.

79 Ehlers et al., (2021) found similar conclusion by studying the global syndicated loan market.

80 Compared to the traditional risk types, climate risks are more susceptible to non-linearity and fat-tailed distributions.

81 The HKMA has been actively pushing ahead with its initiatives to address climate-related issues and promote green and sustainable banking. For instance, the HKMA published the White Paper on Green and Sustainable Banking in June 2020, which set out its initial thoughts on supervisory expectations for the management of climate risks. In addition, the HKMA issued a circular in July 2020 to share with banks a range of practices of management of climate risks adopted by the more advanced banks. The intention of the circular is to inspire rather than prescribe how banks should develop their approach to the management of climate risks. Furthermore, the HKMA has invited some banks to participate in a pilot climate stress testing exercise with a view to assessing the climate resilience of the banking sector as a whole. For details, see https://www.hkma.gov.hk/eng/key-functions/banking/banking-regulatory-and-supervisory-regime/green-and-sustainable-banking/.

Glossary of terms

Aggregate Balance
The sum of balances in the clearing accounts and reserve accounts kept with the central bank. In Hong Kong, this refers to the sum of the balances in the clearing accounts kept with the HKMA. The Aggregate Balance 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-rate-sensitive liabilities, which include deposits from customers, amounts due to banks, negotiable certificates of deposit and other debt instruments, and all other liabilities that do not involve any formal payment of interest but the values of which are sensitive to interest rate movements (such as Hong Kong dollar non-interest bearing demand deposits) on the books of banks. Data from retail banks, which account for the majority of the Hong Kong dollar 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 of the Linked Rate of 7.80. 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 sum of the balances of the clearing accounts kept with the HKMA (the Aggregate Balance), 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
7dma	Seven-day moving average
AC	All-Country
AB	Aggregate Balance
AEF	Anti-Epidemic Fund
AEs	Advanced economies
APP	Asset Purchase Programmes
AIs	Authorized institutions
BIS	Bank for International Settlements
bn	Billion
BLR	Best lending rate
bps	basis points
CAR	Capital Adequacy Ratio
CCPI	Composite Consumer Price Index
CCyB	Countercyclical capital buffer
CDs	Certificates of deposits
CET1	Common equity tier-one
CFR	Core Funding Ratio
CIs	Certificates of Indebtedness
CLDs	Collateralised Loan Obligations
CLR	Classified Loan Ratio
CMU	Central Moneymarkets Unit
CNH	Offshore renminbi in Hong Kong
CNY	Onshore renminbi
COVAX	COVID-19 Vaccine Global Access
COVID-19	Coronavirus Disease 2019
C&SD	Census and Statistics Department
CPI	Consumer Price Index
CU	Convertibility Undertaking

DI	Direct investment
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
EM	Emerging-market
EMEs	Emerging Market Economies
EPRC	Economic Property Research Centre
EPS	Earnings per share
ETFs	Exchange traded funds
EU	European Union
EUR	Euro
Fed	Federal Reserve
FI	Financial Institution
FOMC	Federal Open Market Committee
FX	Foreign exchange
GBP	British Pound Sterling
GDP	Gross Domestic Product
GHG	Greenhouse gas
GICS	Global Industry Classification Standard
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
HY	High-yield
ICR	Interest Coverage Ratio

IFC	International Finance Corporation
IIF	Institute of International Finance
IMF	International Monetary Fund
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
lhs	Left-hand side
LLs	leveraged loans
LMR	Liquidity Maintenance Ratio
LR	Leverage Ratio
LTD	Loan-to-deposit
LTV	Loan-to-value
mn	Million
MDBs	Multilateral Development Banks
MRF	Mutual Recognition of Funds
MSCI	Morgan Stanley Capital International
NASDAQ	National Association of Securities Dealers Automated Quotations
NBER	National Bureau of Economic Research
NBS	National Bureau of Statistics
NCD	Negotiable certificate of deposit
NEER	Nominal effective exchange rate
NFCs	Non-financial corporates
NIM	Net interest margin
NPL	Non-performing loan
NSFR	Net Stable Funding Ratio
NY	New York
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
PD	Probability of default
PE	Price-to-Earnings
PMI	Purchasing Managers' Index
PPPHS	Pre-approved Principal Payment Holiday Scheme
ppt	percentage point
qoq	Quarter-on-quarter
qoqa	Quarter-on-quarter annualised
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
SDR	Special Drawing Rights
SFGS	SME Financing Guarantee Scheme
SHIBOR	Shanghai Interbank Offered Rate
SKEW	Chicago Board Options Exchange Skew Index
SMEs	Small and medium-sized enterprises
SOEs	State-owned enterprises
SPM	Supervisory Policy Manual
SWIFTs	Society for Worldwide Interbank Financial Telecommunication
S&P 500	Standard & Poor's 500 Index
th	Thousands
tn	trillion
TNA	Total net assets
TWI	Trade Weighted Index
UK	United Kingdom
US	United States
USD	US dollar
VAR	Vector Autoregression

VHSI	HSI Volatility Index
VIX	Chicago Board Options Exchange Market Volatility Index
WEO	World Economic Outlook
wk	Week
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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