HONG KONG MONETARY AUTHORITY
香港金融管理局

HALF-YEARLY MONETARY AND FINANCIAL STABILITY REPORT

March 2021

This Report reviews statistical information between the end of August 2020 and the end of February 2021.

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

The rollout of COVID-19 vaccines has raised hopes of economies reopening and brightened the global growth outlook. Together with sustained fiscal and monetary easing, financial markets rallied to new heights. Nevertheless, the global outlook remains clouded by uncertainties and the recovery is likely to be uneven. Over the medium term, the disconnect between financial markets and the real economy, as well as the elevated indebtedness and the economic scarring brought by the pandemic, will be a challenge to policymakers down the road.

The Hong Kong foreign exchange and money markets continued to operate in a smooth and orderly manner during the review period. The Hong Kong dollar traded close to the strong-side Convertibility Undertaking, driven mainly by equity-related demand. There was also no sign of significant cross-border outflows from the Hong Kong banking system as total deposits increased. In part reflecting lower demand for credit amid weaker economic activities due to the resurgence of virus outbreaks, total loans declined modestly in the second half, albeit recording a mild expansion for 2020 as a whole. Meanwhile, the residential property market broadly held up.

Looking ahead, uncertainty in the pace of economic recovery together with lingering geopolitical risks will continue to pose challenges to the Hong Kong banking sector. Banks should remain vigilant to the implications of these downside risk factors for their asset quality, particularly in view of the weakening ability of corporates and households to repay debt amid the pandemic.

The external environment

After a rebound in the third quarter of 2020 along with various economies reopening, global growth has slowed again since the fourth quarter amid resurging COVID-19 infections. Nonetheless, breakthroughs in vaccine development in late 2020 raised hopes that the pandemic would eventually be brought to an end, thereby allowing the return of normalcy and faster global growth ahead. Coupled with sustained fiscal and monetary easing, global financial markets rallied to new heights in early 2021, albeit with signs of disconnecting from the real economy.

Against this background, the global outlook remains clouded by elevated uncertainties. It remains to be seen whether COVID-19 vaccines can be made widely available. At the same time, potential upside surprises to inflation due to supply-side bottlenecks and earlier aggressive easing measures might require central banks to reduce monetary accommodation sooner than expected, upending financial markets' expectations of a "low for even longer" monetary policy. In the longer term, policymakers will have to assess the costs and benefits of extending relief measures, and contend with a multitude of economic legacies created by the pandemic,

including elevated global indebtedness and economic scarring.

In East Asia[1], growth of gross domestic product (GDP) improved in the second half of 2020, supported by revived demand for its exports. Portfolio inflows into the region resumed along with a return of searching-for-yield activities amid risk-on sentiment. Despite these positive developments, the region still has to face lingering uncertainties from the pandemic. First, in the global race to procure vaccines, less-developed economies in the region may lag behind advanced economies in achieving population immunity, leading to a delay in the recovery of their tourism and service sectors. Second, downside surprises in the availability, reach or efficacy of vaccines, coupled with a deterioration of government finance in the region, could turn market sentiment and trigger capital flow reversals.

In Mainland China, the economy recovered at a faster pace in the second half of 2020 compared with the first half, along with a gradual normalisation of consumption activities. For 2020 as a whole, the Mainland economy grew by 2.3% and was the only major economy in the world registering positive growth. Looking forward, the economic outlook depends much on the development of the pandemic and the China-US tensions. The latest consensus forecasts expect the Mainland economy to expand by 8.4% in 2021. After months of depreciation in early 2020, the renminbi strengthened in the rest of the year amid faster economic recovery, the weakening US dollar, and strong bond inflows into the economy. A closer examination showed that fundamental factors rather than market sentiment played an important role in driving renminbi exchange rate volatility amid the COVID-19 outbreak (see more details in Box 1).

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

The domestic economy

Hong Kong's economy saw some improvement in the second half of 2020, although real GDP remained well below pre-pandemic levels. With domestic demand edging up and exports of goods expanding further, seasonally adjusted real GDP has picked up sequentially since the third quarter, ending successive declines in the preceding five quarters. Year on year, the contraction in real GDP also narrowed visibly from 9% in the first half of 2020 to about 3% in the second half. However, for 2020 as a whole, real GDP declined by a record rate of 6.1%, marking an unprecedented consecutive annual decline following the 1.2% contraction in 2019. The latest sectoral GDP data also indicated that consumption and tourism-related sectors continued to contract more steeply than the overall economy amid the pandemic.

In response to the lingering pandemic, the Government launched two additional rounds of the Anti-Epidemic Fund (i.e. AEF 3.0 and 4.0) in the latter part of 2020 to assist industries and people affected by the pandemic and enhance Hong Kong's anti-epidemic capabilities. More recently, the Government also announced additional countercyclical fiscal measures in the 2021/22 Budget to revive the economy, including a one-off provision of electronic consumption vouchers worth HK$5,000 and a Special 100% Loan Guarantee for unemployed individuals. Together with the Banking Sector SME Lending Coordination Mechanism, the HKMA announced in March 2021 the extension of the Pre-approved Principal Payment Holiday Scheme (PPPHS) to October 2021, and repayment deferment for trade facilities under the PPPHS. These extensions are expected to help ease cash-flow difficulties faced by some corporate customers.

The local economy is expected to see positive growth for 2021 as a whole in the hope of COVID-19 vaccination normalising economic activities, but the strength and pace of recovery is subject to a host of uncertainties, especially

those surrounding the pandemic situation and vaccine rollout and efficacy. In particular, as vaccines take time to be widely adopted, the local economy still faces considerable challenges in the early part of 2021. Externally, the Mainland economy is anticipated to strengthen further and render support to Hong Kong's export of goods and services, but the pace of recovery in other major economies will hinge on the success of their mass vaccination campaigns. The Government forecasts real GDP growth for 2021 in the range of 3.5–5.5%. Growth estimates by international organisations and private-sector analysts average 4.4%.

The labour market continued to deteriorate in the second half of 2020 and in early 2021. The unemployment rate climbed further to a 17-year high of 7.2% in February 2021, while the underemployment rate rose to a post-SARS high of 4.0%. In response to the deteriorating labour market conditions, the Government launched the Employment Support Scheme (ESS) under AEF 2.0 to provide time-limited (i.e. June–November 2020) wage subsidies for employers to retain employees. After the ESS ended, other targeted measures, such as one-off subsidies, were provided under AEF 3.0 and 4.0 to further support hard-hit sectors. In the near term, the labour market is expected to remain under pressure given the lacklustre economic conditions. Box 2 sheds light on the potential impacts of Hong Kong's inbound tourism boom and bust on the local labour market.

Local inflationary pressures continued to subside in the eight months leading up to February 2021. Year on year, the underlying consumer price inflation rate decelerated notably to 0.3% and 0.2% in the third and fourth quarters of 2020 respectively, and even declined to -0.5% in January and -0.1% in February 2021[2]. Inflation momentum, as measured by the annualised three-month-on-three-month underlying inflation rate, also stayed mild in recent months, albeit with some fluctuations. Local inflationary pressures will likely remain subdued in the near term as global and local economic conditions are still challenging. In particular, the feed-through of an earlier decline in fresh-letting residential rentals will continue to restrain local inflation. Market consensus forecasts that the headline inflation rate for 2021 will be at a moderate level of 1.4%, while the Government projects the underlying and headline inflation rates to be 1% and 1.6% respectively in 2021.

Monetary conditions and capital flows

The Hong Kong dollar traded close to the strong-side Convertibility Undertaking (CU), driven mainly by equity-related demand arising from vibrant initial public offering (IPO) activities and the southbound Stock Connects. With equity fund-raising activities staying strong in the first two months of 2021, the Hong Kong dollar has remained firm. During the review period, the strong-side CU was triggered 47 times in September and October 2020 with inflows of HK$263.3 billion into the Hong Kong dollar. For 2020 as a whole, the strong-side CU was triggered 85 times, with accumulated inflows of HK$383.5 billion. Overall, the Hong Kong dollar continued to trade in a smooth and orderly manner.

From a geographical perspective, there was also no sign of significant cross-border outflows from the Hong Kong banking system as total deposits increased during the review period. While the uncertainties related to the development of the pandemic, pace of economic recovery and lingering China-US tensions may heighten fund-flow volatility, Hong Kong is able to withstand such volatility given its ample foreign reserves and robust banking system.

[2] Inclusive of the effects of the Government's relevant one-off relief measures, the year-on-year headline inflation rate also turned negative between July and December 2020.

Along with the expansion of the Aggregate Balance due to the triggering of the strong-side CU, Hong Kong dollar interbank interest rates generally stayed at very low levels. The composite interest rate, which measures the average Hong Kong dollar funding cost of retail banks, dropped further from 0.71% at the end of June 2020 to 0.23% at end-February 2021. As a result of lower funding costs, the average lending rate for new mortgages also decreased from 2.02% in June to 1.56% in January. 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.

Along with the strengthening onshore renminbi (CNY), the offshore counterpart (CNH) has appreciated against the US dollar since late May 2020. In most of the review period, the CNH traded at a premium over the CNY, with the premium averaging at around 100 pips during the fourth quarter, which was moderate by historical standards. Hong Kong's CNH liquidity pool continued to grow during the second half of 2020, with the total outstanding amount of renminbi customer deposits and certificates of deposit picking up to RMB826.3 billion at the end of January 2021. As for other renminbi businesses, Hong Kong's renminbi bank lending declined while renminbi trade settlement increased, and average daily turnover of the renminbi Real Time Gross Settlement system stayed high at RMB1,191.5 billion for 2020 as a whole. With efficient financial infrastructure and multiple access channels for cross-border portfolio investment vis-à-vis the Mainland, Hong Kong's offshore renminbi business is expected to benefit from ongoing liberalisation of Mainland's capital account, increasing demand for renminbi assets from international investors, and deepening regional economic and financial cooperation under the Belt and Road and the Guangdong-Hong Kong-Macao Greater Bay Area initiatives.

Asset market

On the back of rising global equity prices and strong buying flows from Mainland investors via the southbound Stock Connects, the local stock market rebounded after a sharp correction at the beginning of the review period. Global equity markets rose, supported by unprecedented monetary easing measures in major economies, optimism that positive vaccine developments might speed up the recovery of economic activities, as well as a reduction in some geopolitical uncertainties. Against this backdrop, the Hang Seng Index recouped its earlier losses in 2020 and recorded a 15.1% gain over the review period after hitting a fresh new high of over 31,000 points in 32 months in mid-February 2021.

Supported by steady issuances, both the Hong Kong dollar and offshore renminbi debt markets continued to expand in the second half of 2020. Bond fund flows to the local market rebounded after a sharp net outflow in the first half as unprecedented stimulus measures around the world quickly restored confidence. Despite the modest rebounds, global bond yields including those of Hong Kong were still hovering around their historical low levels.

Looking ahead, considerable uncertainties remain in both local equity and debt markets. In particular, the path of global economic recovery from the pandemic is still highly uncertain, hinging on the pace and efficacy of vaccine rollouts. Meanwhile, the development of the China-US relationship, especially in terms of lingering concerns about continued US policy restrictions by the new administration on investment in some Mainland entities, is likely to weigh on market sentiment in both the equity and debt markets in the foreseeable future.

In the medium term, local debt market development is expected to be boosted by a number of policy initiatives in the Government Bond Programme, particularly on green finance.

In January 2021, the Government announced the successful offering of US$2.5 billion of green bonds. The positive market response is in line with the market trend that environmental, social and governance (ESG) factors are playing an increasing role in investment. Relatedly, the HKMA's recent research findings (Box 3) suggest that the ESG disclosures of firms could effectively reduce uncertainties in stock valuations due to ESG-related risks.

Despite new waves of local COVID-19 infections, the residential property market broadly held up. In the second half of 2020, transaction activities were partly boosted by new launches after the third wave of local infections faded, while flat prices had consolidated only slightly since mid-2020. For 2020 as a whole, housing transactions and prices were broadly similar to those in 2019. Stepping into early 2021, market activities remained robust. Meanwhile, housing affordability became more stretched mainly due to a decline in household income.

The residential property market outlook is subject to a number of the uncertainties and risks discussed above. On the one hand, the high unemployment rate and the fall in household income will weigh on housing demand. On the other hand, prolonged ultra-low interest rates are expected to provide support for asset prices. Over the longer term, the outlook for the housing market will depend on the supply-demand gap. Actual completions reached 20,900 units in 2020, the second highest in the recent decade, and the Government projects that private housing supply will remain high in the upcoming years.

The non-residential property market remained generally weak. Overall transactions were at a record low for the year as a whole, although transactions picked up in late 2020. Prices and rentals of non-residential properties also remained soft during the second half.

The non-residential property market may continue to face headwinds in the near term, as economic activities will take time to recover even with the new vaccines. In particular, prices and rentals of office space and retail premises may remain under pressure given higher vacancies. Over the longer term, some post-pandemic behavioural changes may have long-lasting effects on the commercial property market. For example, the rise of remote working may reduce demand for office space in the future.

In view of slackening market demand over the past two years, the Government considered it appropriate to abolish the Doubled Ad Valorem Stamp Duty (DSD) for non-residential property as a demand management measure, effective on 26 November 2020. The abolition of DSD could facilitate the selling of non-residential property by companies that are encountering financial difficulties or liquidity needs due to the economic downturn. Earlier in August 2020, the HKMA adjusted countercyclical macroprudential measures on non-residential property, raising the applicable LTV ratio caps for mortgage loans on non-residential property by 10 percentage points. The HKMA will continue to monitor developments closely and introduce appropriate measures in response to changes in the property market cycle to safeguard banking stability.

Banking sector performance

Against the backdrop of the prolonged domestic recession amid the COVID-19 pandemic and low interest rate environment, retail banks' profits declined further in the second half of 2020. Pre-tax operating profits fell by 38.5% in the second half compared with the same period in 2019. The reduction in profits was driven mainly by a significant decrease in net interest income, which more than offset the mild increase in non-interest income. Reflecting these declines, the return on assets fell to 0.62% in the second half of 2020 compared with 1.13% in the same period of 2019.

As the debt repayment ability of corporates and households were adversely affected by the prolonged pandemic, the classified loan ratio of all authorized institutions (AIs) increased modestly, but there were signs of a slower pace of deterioration during the second half of 2020. Asset quality remained sound by historical and international standards.

The robust capital and liquidity positions of the banking sector continue to provide strong buffers for banks to withstand shocks. The consolidated total capital ratio of locally incorporated AIs stood at a high level of 20.7% at the end of the fourth quarter of 2020. On liquidity positions, the average Liquidity Coverage Ratio of category 1 institutions and the average Liquidity Maintenance Ratio of category 2 institutions were also maintained at the high levels of 155.1% and 57.9% respectively in the last quarter of 2020. In addition, the latest ratios under the Net Stable Funding Ratio requirement stayed at levels well exceeding their statutory minimum requirements.

Liquidity conditions of the Hong Kong banking sector also improved in the review period. As total deposits increased and loans declined, the average all-currency loan-to-deposit ratio of all AIs decreased moderately to 72.3% at the end of 2020 from 76.0% six months ago.

In part reflecting lower demand for credit amid weaker economic activities due to the resurgence of COVID-19 outbreaks, bank credit contracted modestly in the second half, albeit recording a mild expansion for 2020 as a whole. On a half-yearly basis, growth in total loans and advances of all AIs declined by 1.8% in the second half of 2020, after increasing by 3.0% in the first half. The decline was driven by a slight decrease of 0.9% in domestic loans (comprising loans for use in Hong Kong and trade financing) and a 3.9% reduction in loans for use outside Hong Kong during the same period.

Leverage for firms listed in Hong Kong has been rising since the global financial crisis in 2008, driven mainly by non-local corporates listed in Hong Kong, particularly Mainland firms. Box 4 provides a comprehensive assessment which finds that rising investment activities amid the low interest rate environment are a key driver for the rising leverage of Mainland firms listed in Hong Kong. Importantly, compared to local firms, Mainland firms' investment on average is found to be more responsive to productive investment opportunities and their return on equity also improved more in the "low-for-long" interest rate environment.

Looking ahead, although the rollout of vaccines may raise hopes of containing the pandemic and reopening economic activities globally, the pace of economic recovery remains uncertain. This, together with lingering geopolitical risks, will continue to pose challenges to the Hong Kong banking sector. Banks should remain vigilant to the implications of these downside risk factors for asset quality, particularly in view of the weakening ability of corporates and households to repay debt amid the pandemic.

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

Breakthroughs in vaccine development raised hopes of an eventual eradication of the COVID-19 pandemic and faster global growth ahead. Coupled with expectations of "low for even longer" global monetary policy, financial markets rallied to new heights in early 2021 as investors looked past resurging infections in late 2020. Yet, such a disconnect between lofty financial market expectations and the still-challenging macroeconomic conditions could render asset prices prone to volatility, should there be disappointment over the strength of the recovery or a faster-than-expected withdrawal of policy support (such as due to positive inflation surprises). Further down the road, policymakers will have to face the difficult decision of when to withdraw policy support and address a multitude of pandemic-induced legacies, including elevated indebtedness and economic scarring.

In East Asia, lingering uncertainties over the pandemic will continue to cloud recovery of the region, where the less-developed emerging market economies might face greater challenges in procuring and distributing vaccines. Any disappointment in vaccination plans could potentially swing the current optimism and destabilise fund inflows and financial markets.

In Mainland China, the economy recovered at a faster pace in the second half of 2020 along with a gradual normalisation of consumption activities. Looking forward, the growth outlook remains uncertain, depending much on the development of the pandemic and the China-US tensions. Accordingly, the government announced maintaining a supportive policy stance while highlighting the importance of keeping systemic risks in check.

2.1 External environment

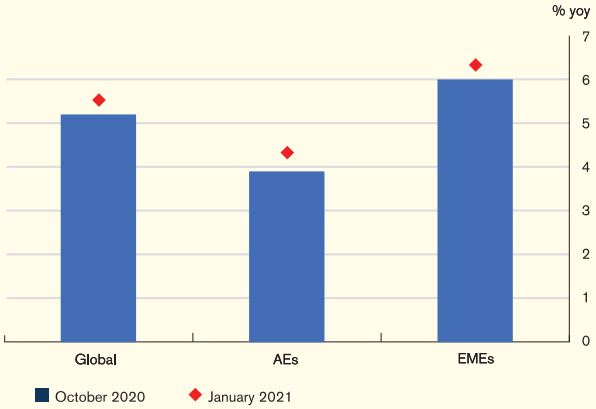
Real gross domestic product (GDP) growth outturns in major economies mostly surprised on the upside in the third quarter of 2020, thanks to a release of pent-up demand amid economic reopening. However, global growth momentum has tapered again since the fourth quarter, as the resurgence in COVID-19 infections prompted governments worldwide to reinstate lockdown and social distancing measures. Adding to the gravity of the situation, variants of the virus with greater transmissibility were detected in late 2020 and have subsequently spread around the world.

That said, breakthroughs in vaccine development and multiple vaccine approvals in late 2020 raised hopes that the pandemic would eventually be brought to an end, thereby allowing the return to normalcy and faster global growth further down the road. Another tailwind aiding the global recovery comes from sustained policy stimulus, including major central banks' commitment to "low for even longer" monetary policy amid subdued inflation[3], and continued

[3] Notable examples include the US Federal Reserve(Fed)'s adoption of an average inflation targeting framework in August 2020 that allows inflation to exceed 2% moderately for some time, the Fed's revised forward guidance in December committing to maintain asset purchases until "substantial further progress" has been made towards employment and inflation goals, and the expansion of quantitative easing programmes in the second half of 2020 by other major central banks, such as the Bank of England, the Reserve Bank of Australia and the European Central Bank (ECB).

fiscal accommodation in major advanced economies, notably the fiscal stimulus packages passed by the US Congress in December 2020 and March 2021. Accordingly, the International Monetary Fund (IMF) in January 2021 revised upwards its projections of 2021 global GDP growth to 5.5%, 0.3 percentage points above the forecast made in October 2020 (Chart 2.1).

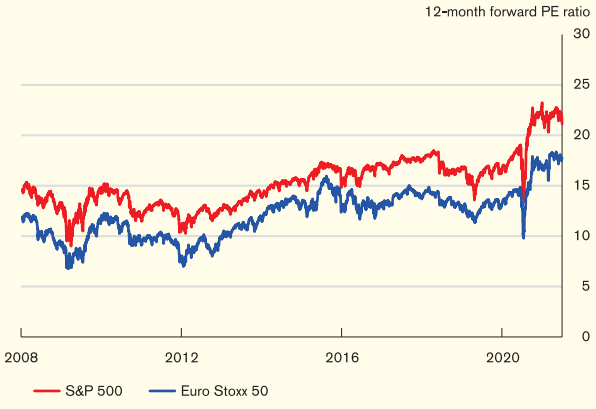
Chart 2.1
IMF's real GDP growth projections, January 2021 vs. October 2020



Source: IMF.

Against this backdrop, market optimism strengthened, as reflected by strong gains in the share prices of cyclical industries that typically benefit from economic recovery, catapulting global equity prices and valuations to new highs as of early 2021 (Chart 2.2).

Chart 2.2
12-month forward price-to-earnings (PE) ratios of major equity indices

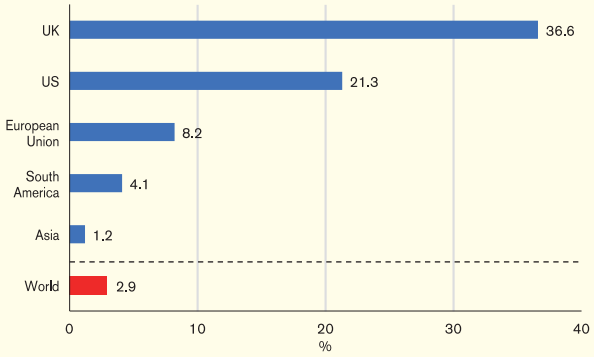


Source: Bloomberg.

However, the juxtaposition of buoyant financial markets and the still-challenging macroeconomic situation suggests an apparent disconnect, which could point to future asset market volatility amid a number of risks.

First, the prospect of prevailing over the pandemic depends on the availability of vaccines, which remains to be seen. As of mid-March 2021, the overall global inoculation rate remains low (Chart 2.3), and this problem may be more acute in lower-income emerging market economies due to limited availability, despite global efforts (such as COVAX) to support more equitable distribution of vaccines. Should there be disappointments in the control of the pandemic, authorities may need to extend social distancing and other restrictive measures, dampening the prospect of a global recovery.

Chart 2.3
Share of population having received at least one dose of COVID-19 vaccine in selected economies (as of 15 March 2021)

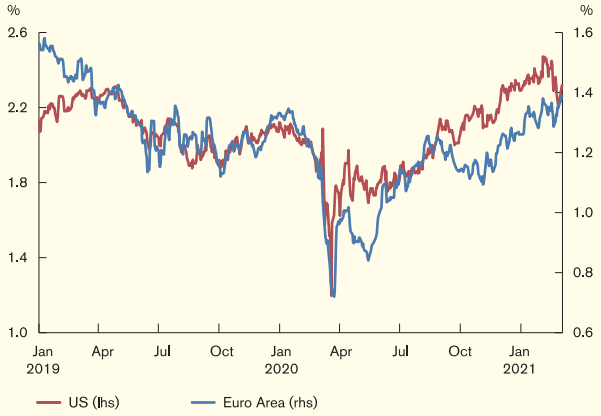


Source: Our World in Data.

Second, the financial market rally is predicated on sustained monetary and fiscal policy support, particularly the "low-for-even-longer" monetary policy. However, there is a risk that support measures may be withdrawn faster than expected. For example, the combination of supply-side bottlenecks, robust money and liquidity growth, and aggressive fiscal easing has already driven up inflation expectations in the US and Europe (Chart 2.4). A stronger-than-expected surge in future inflation might require central banks to reduce monetary accommodation,

while market volatility may increase in response to any sharper-than-expected rise in inflation data.

Chart 2.4
Five-year, five-year forward inflation-linked swap rates in US and Euro Area



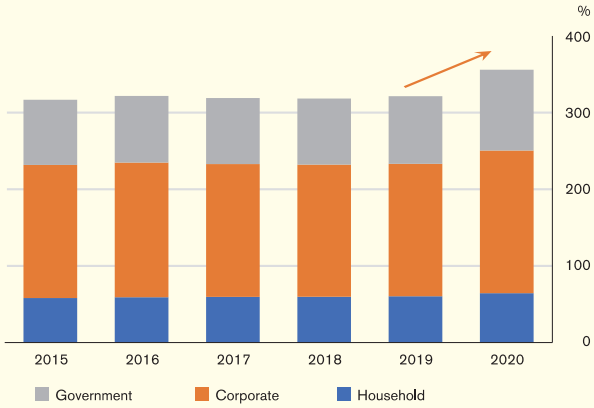
Source: Datastream.

Third, there are also significant uncertainties surrounding the future China-US relationship. The China-US decoupling tides, especially on the financial and technological fronts, have worsened since the outbreak of the pandemic and may not be reversed under the administration of US President Joe Biden, given rising bipartisan hawkishness in the US concerning Mainland China. Any unexpected re-escalation of China-US tensions could trigger financial market volatility ahead.

Further down the road, policymakers will need to face the difficult questions of whether and when to exit from their anti-pandemic support measures. While a premature exit risks undermining the economic recovery by triggering a "cliff effect", these support measures are costly in the long run, both in terms of the resulting fiscal burden, and in delaying the necessary resource reallocation in the post-COVID world, such as prolonging the survival of "zombie firms" whose business models are no longer viable, but nonetheless continue to receive government support.

Moreover, policymakers have to contend with a number of legacies created by the pandemic. For one, global debt rose substantially in 2020 (Chart 2.5) as corporate revenues fell and government expenditure skyrocketed. While this may not be an imminent problem due to the very low global interest rates, sustained debt buildup in the public and private sectors could raise concerns over fiscal sustainability and financial stability.

Chart 2.5
Global debt to GDP ratio



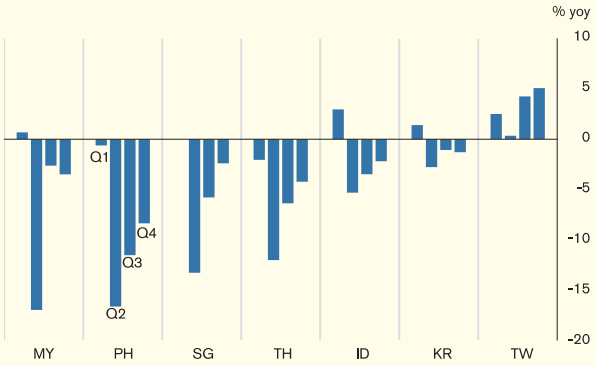
Source: Institute of International Finance.

Another legacy relates to the possibility of long-term economic damage, or scarring, caused by the pandemic. For instance, elevated uncertainties may induce lower investments by corporates, while workers facing a prolonged unemployment spell may become permanently detached from the labour market, leading to significant wastage of human capital.

In East Asia[4], real GDP growth improved in the second half of 2020 after plunging in the second quarter (Chart 2.6). Renewed demand for the region's exports, especially in electronics and technological equipment, has been the key driver behind the recovery. Meanwhile, the worst-hit service sectors (e.g. tourism and consumer services, which rely on face-to-face contact) continued to struggle.

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

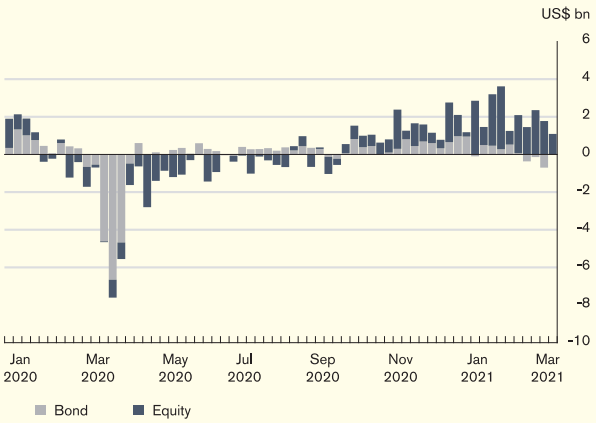
Chart 2.6
East Asia: Real GDP growth in 2020



Sources: CEIC and HKMA staff calculations.

Despite uncertainties surrounding the economic recovery, portfolio inflows have resumed. The region has attracted more bond fund inflows since the second half of 2020 on the back of the improved sentiment and higher bond yields relative to bonds issued by advanced economies (Chart 2.7). Equity inflows also surged in the last quarter of 2020 amid the increasing signs of economic recovery and the rollout of vaccine production plans. The portfolio inflows have accordingly lifted the region's currencies, with the Bloomberg JP Morgan Asia Dollar index having rebounded by about 10% since the trough recorded in March last year.

Chart 2.7
East Asia: Portfolio fund flows



Source: EPFR.

The region continues to face lingering uncertainties over the pandemic. First, although the rollout of vaccines brings hope to the region's hard-hit service sectors and economies, global competition for the early batches of vaccines would elevate costs, and vaccine distribution would also be a great challenge to the region's logistic and public health capabilities. Accordingly, less-developed economies in the region may achieve population immunity later than the advanced economies. Such uneven vaccination across economies could prolong border closures and delay the recovery of tourism-related sectors.

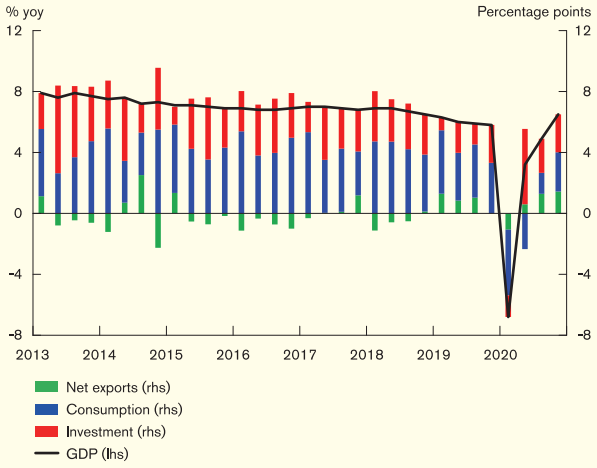
Second, as the investor optimism is largely supported by the rollout of vaccines, the current rally in fund inflows and financial asset prices could come to an end if vaccination progress or efficacy falls significantly below expectations. An abrupt contraction of fund inflows could trigger another bout of market turmoil.

2.2 *Mainland China*

Real sector

Recovery of the Mainland economy picked up in the second half of 2020 as consumption rebounded along with the successful control of COVID-19 domestically, while export growth was supported by strong demand for products related to COVID-19, such as medical gear and technological devices (Chart 2.8). Taking 2020 as a whole, the Mainland economy managed to register a positive GDP growth of 2.3% despite unprecedented challenges brought by COVID-19.

Chart 2.8
Mainland China: Contribution to GDP growth by demand component



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

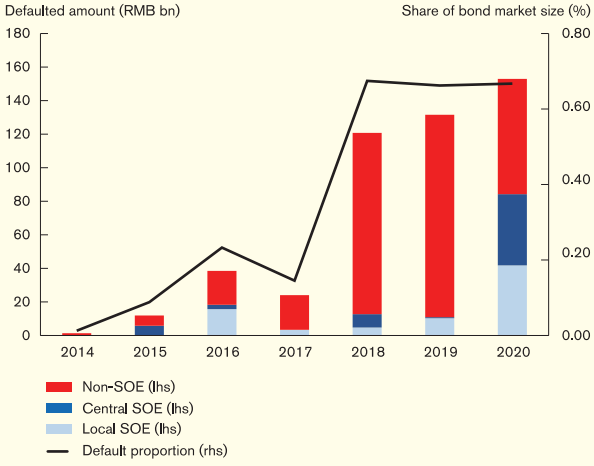
Looking forward, the latest consensus forecasts expect the Mainland economy to expand notably by 8.4% in 2021, with private consumption likely to be a major driver of economic growth. Nevertheless, the path of recovery will continue to hinge partly on the development of the pandemic. Domestically, despite normalisation in industrial production, the service sector may remain subject to disruption, particularly following a renewed outbreak in northern provinces. Externally, while exports recovered in the second half of 2020, global demand still faces uncertainties arising from new outbreaks in most advanced economies. Meanwhile, the China-US tensions may not recede very soon, even though the adverse impacts of China-US decoupling on economic recovery may be partly offset by greater integration with other economies following the recent signing of the Regional Comprehensive Economic Partnership and the conclusion of talks on the European Union-China Comprehensive Agreement on Investment.

In view of the uncertainties surrounding the economic outlook, the government announced at the Central Economic Work Conference in December 2020 that there would be no drastic changes in the existing policy stance to support growth in 2021. The government also highlighted the importance of keeping systemic risks in check, such as maintaining the stability of macro leverages and the sustainability of local government debt. Meanwhile, the latest Government Work Report set the growth target for 2021 at above 6%. Over the longer term, the government would pursue priorities including technological self-reliance and dual circulation under the 14th Five-Year Plan, in order to achieve per capita GDP that is on a par with moderately developed economies by 2035.

Asset and credit markets

The COVID-19 outbreak seems to have limited impact on the repayment ability of Mainland corporate bond issuers, as the overall bond default rate remained low in the second half of 2020. That said, the total amount of defaulted bonds increased in 2020, during which bond defaults by state-owned enterprises (SOEs) grew visibly (Chart 2.9). While such increased SOE defaults reflected mainly the government's determination to break the "implicit guarantee" associated with SOEs and facilitate better risk-pricing of the market, the limited fiscal space of some local governments, especially those in less-developed regions, may have also played a role.

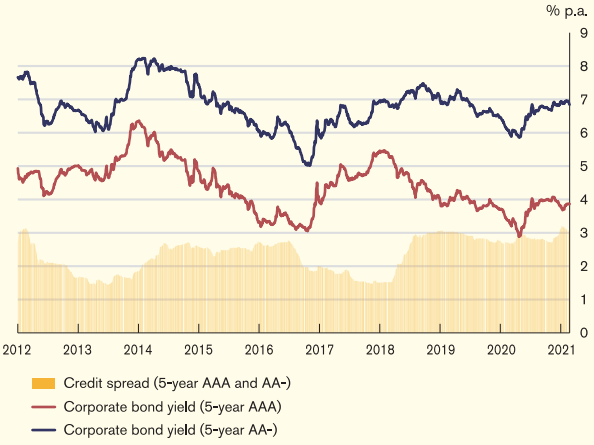
Chart 2.9
Mainland China: Onshore bond default size and proportion



Note: Repeated defaults of the same bond are counted only once.
Sources: Wind and HKMA staff estimates.

The funding costs facing corporate issuers, especially riskier ones, increased in the second half of 2020. While continued interest rate normalisation amid the ongoing economic recovery contributed in part to the rising funding costs of lower-rated issuers, credit spreads also widened notably in the wake of some corporate defaults in the last quarter of 2020 (Chart 2.10).

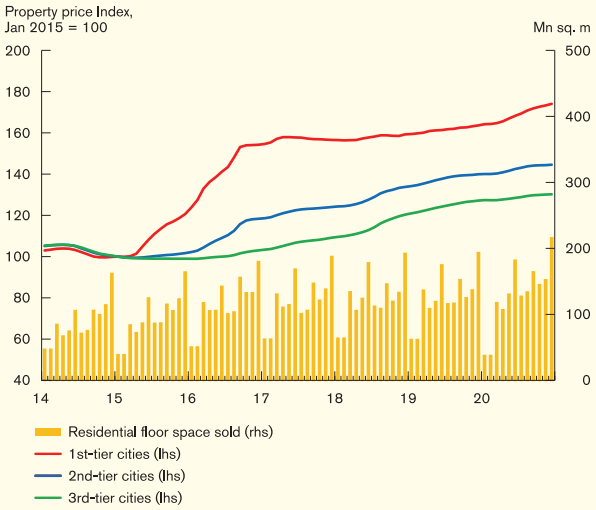
Chart 2.10
Mainland China: Five-year corporate bond yields



Sources: Wind and HKMA staff estimates.

In the property market, housing prices continued to rise in the second half of 2020, especially in first-tier cities. By comparison, housing prices increased at a much slower pace in lower-tier cities (Chart 2.11). Housing oversupply, which had plagued third-tier cities a few years ago, remained largely in check in 2020, partly due to robust sales amid bullish market sentiment. At the end of 2020, the inventory-to-sales ratio in third-tier cities stood at around 13 months, much lower than the peak of 31 months in early 2015.

Chart 2.11
Mainland China: Residential prices by tier of city and floor space sold

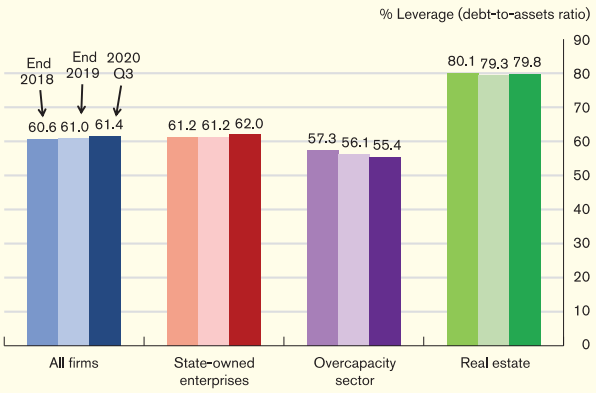


Sources: CEIC and HKMA staff estimates.

To promote healthy and stable development of the property market, the authorities reiterated that "houses are for living in, not for speculation" at the 2020 Central Economic Work Conference. In view of the important role of the property market in financial stability, the government tightened borrowing criteria for property developers (i.e. three red lines) in a bid to reduce leverage in the real estate sector. The authorities also limited the banking system's exposure to both property developers and home buyers. It is expected that highly leveraged developers will become less aggressive in bidding for land and may need to adjust their property selling prices downwards in order to boost sales and cash flow.

Listed-firm data analysis suggests that, while the leverage of the real estate sector remained high, the leverage of less efficient borrowers, such as firms in overcapacity sectors, further declined in the first three quarters of 2020 (Chart 2.12).

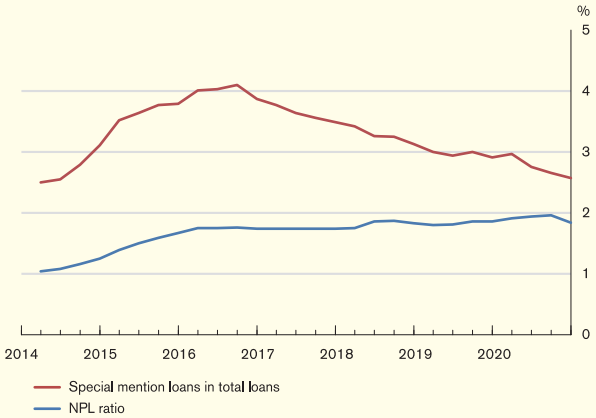
Chart 2.12
Mainland China: Corporate leverage of SOEs, firms in overcapacity sectors and real estate companies



Sources: Bloomberg and HKMA staff estimates.

During the review period, overall risk in the Mainland banking sector remained moderate. With prudent lending practices, the non-performing loan (NPL) ratio in the banking system stayed below 2%, declining slightly to 1.84% at the end of 2020 from 1.86% at the end of 2019. In addition, the share of special mention loans in total bank loans also decreased slightly to 2.6% during the same period (Chart 2.13).

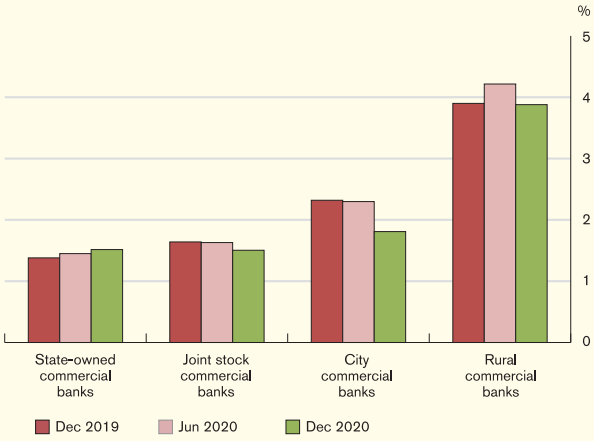
Chart 2.13
Mainland China: NPL ratio and special mention loan ratio



Source: CEIC.

That said, the asset quality of smaller banks seems to be under some pressure, in part reflecting the deterioration in the repayment ability of smaller corporate borrowers amid economic headwinds. In particular, the NPL ratio of rural commercial banks stayed at a relatively high level of nearly 4% in 2020 (Chart 2.14). Sizeable NPL disposals[5] to some extent helped relieve the asset quality pressure facing smaller banks, but at the cost of lower capital adequacy ratios. To replenish capital, the issuance of perpetual bonds and tier-2 capital bonds by smaller Mainland banks accelerated in 2020.

Chart 2.14
Mainland China: NPL ratio by bank type

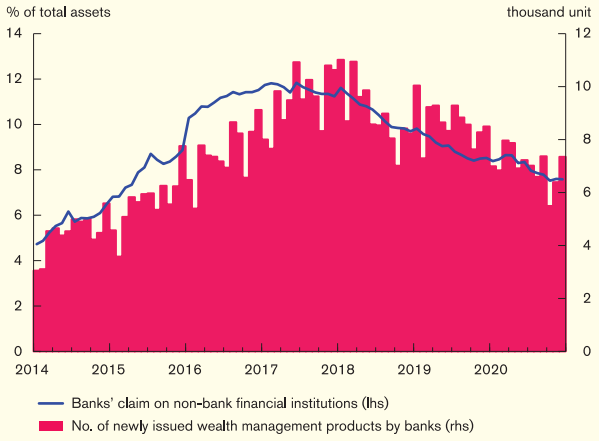


Source: CEIC.

During the review period, informal lending remained subdued amid government efforts to contain financial risks. Banks' claims on non-bank financial institutions as a share of total banking-sector assets declined further to 7.6% in the second half of 2020 from 8.5% a year ago. Banks also issued fewer wealth management products (WMPs) (Chart 2.15).

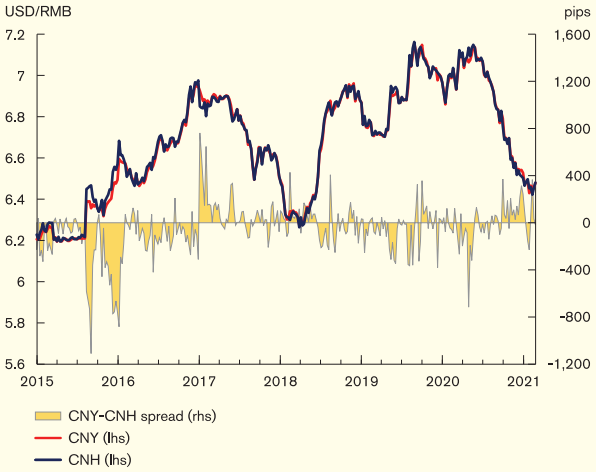
[5] According to the China Banking and Insurance Regulatory Commission, NPL disposals by Mainland commercial banks amounted to RMB1.7 trillion in the first three quarters of 2020, which were about RMB0.3 trillion more than in the same period of 2019.

Chart 2.15
Mainland China: Share of banks' claim on non-bank financial institutions in total bank assets and newly issued WMPs



Source: Wind.

Chart 2.16
Mainland China: Onshore and offshore renminbi exchange rates against the US dollar



Sources: Bloomberg and HKMA staff estimates.

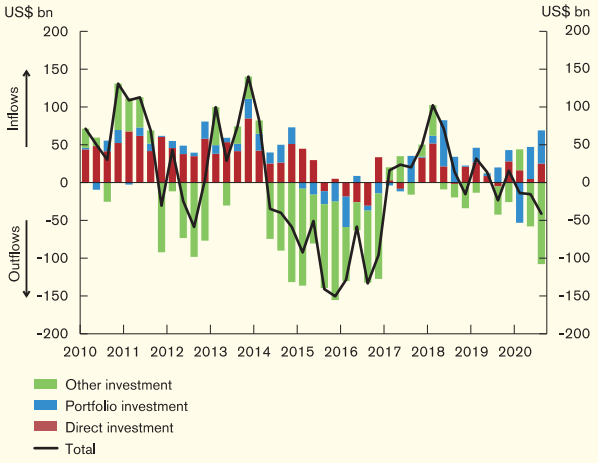
Exchange rate and cross-border capital flows

After months of depreciation, the onshore renminbi (CNY) rebounded and rallied in the second half of 2020 amid a faster economic recovery, a weakening US dollar and the relatively high yields of Chinese sovereign bonds (Chart 2.16). The offshore renminbi (CNH) was traded stronger than the CNY alongside the renminbi appreciation towards the end of the review period. With the foreign exchange market stabilising, the counter-cyclical factor and the foreign exchange forward reserve requirement were phased out. The Bloomberg consensus forecast for the renminbi exchange rate against the US dollar for the second quarter of 2021 was revised to 6.45 on 3 March 2021 from 7.04 in June 2020.

The volatility of renminbi exchange rates has always been a policy focus. Box 1 studies the drivers of renminbi exchange rate volatility in recent years and shows that, unlike the China-US trade tension episodes, fundamental factors such as domestic supply shocks and global shocks, rather than market sentiment, played a more important role in driving renminbi exchange rate volatility amid the COVID-19 outbreak (see more details in Box 1).

During the review period, capital outflow pressures remained largely subdued, with foreign exchange reserves staying largely stable above US$3 trillion. The latest balance of payments statistics suggested while there were net outflows in the third quarter of 2020 due to increased holdings of foreign currency and deposits by residents as well as more lending to non-residents, both direct investment and portfolio investment registered robust net inflows along with strong bond inflows amid the inclusion of Mainland China in major bond indices, such as the Bloomberg Barclays Global Aggregate Index (Chart 2.17).

Chart 2.17
Mainland China: Net cross-border capital flows by type of flow



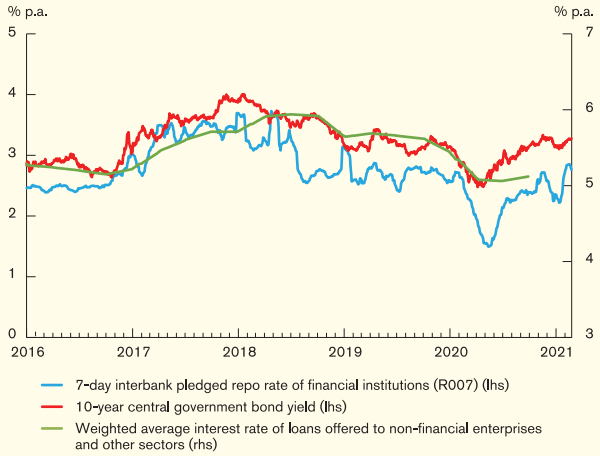
Sources: CEIC, State Administration of Foreign Exchange and HKMA staff estimates.

Looking ahead, cross-border capital flows are likely to stay volatile. On the one hand, there are still uncertainties in the development of the pandemic and the China-US tensions in the near term, which may affect market sentiment. On the other hand, the ongoing economic recovery and the further opening up of the Mainland financial markets may continue to attract more foreign investment. In fact, Bond and Stock Connect data from the Hong Kong Stock Exchange pointed to significant net northbound inflows into the Mainland markets towards the end of 2020.

Monetary and fiscal policy

On the monetary policy front, the People's Bank of China (PBoC) maintained a prudent monetary policy stance with targeted measures to lower financing costs for the real sector. As a result, while the weighted average bank lending rate for the non-financial sector increased slightly in the third quarter of 2020 amid interest rate normalisation as reflected by the rise in the interbank repo rate (Chart 2.18), the average bank lending rate facing micro-sized firms declined by 0.82 percentage points from the previous year to 5.88% in 2020.

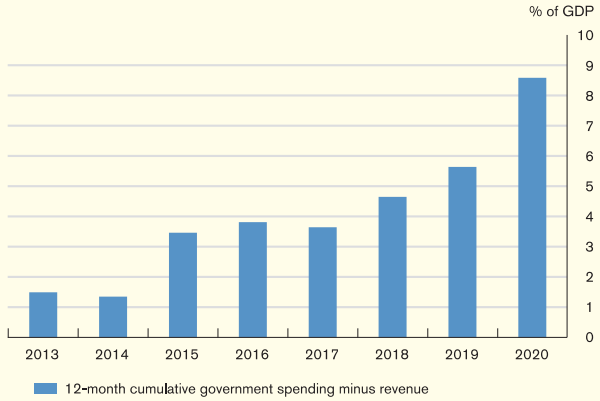
Chart 2.18
Mainland China: Major market interest rates



Sources: CEIC, PBoC and HKMA staff estimates.

On fiscal policy, the government continued to adopt a proactive stance. Reflecting the economic impact of the COVID-19 outbreak and the government's efforts to reduce fees and the tax burden on the real sector, the 12-month cumulative gap between expenditure and revenue in the government's general public budget and government-managed funds widened further to 8.6% of GDP in 2020 after rising to 5.6% in 2019 (Chart 2.19).

Chart 2.19
Mainland China: Difference between public spending and public revenue

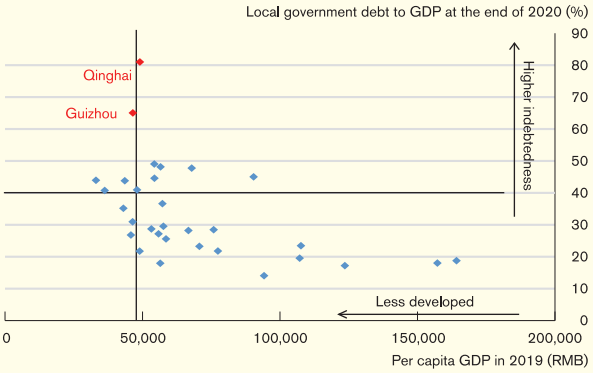


Sources: CEIC, Ministry of Finance and HKMA staff estimates.

To finance government spending, especially on infrastructure projects, local governments accelerated bond issuance in 2020. In particular, newly issued local government general bonds and special bonds amounted to about RMB4.6 trillion in 2020, compared with about RMB3.0 trillion in 2019. Amid the accelerated bond issuance, outstanding local government debt rose by 20% year on year to RMB26 trillion at the end of 2020, compared with a 15% increase in 2019.

Despite the rapid increase in local government bond issuance, the overall risk of local government debt remains manageable as the local government debt-to-GDP ratio stayed at a relatively low level of around 26% at the end of 2020. That said, some local governments with relatively higher debt-to-GDP ratios and weaker economic fundamentals may face refinancing pressures (Chart 2.20) amid new property market regulations and the associated uncertainties in land sales revenue.

Chart 2.20
Mainland China: Local government debt-to-GDP ratio and per capita GDP by province



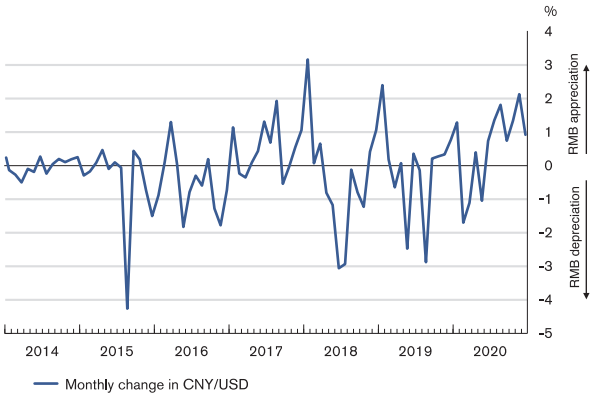
Sources: Wind and HKMA staff estimates.

Box 1
Understanding renminbi exchange rate volatility

Introduction

The volatility of the CNY/USD exchange rate has increased notably since the 2015 renminbi exchange rate reform (Chart B1.1). Increased ebbs and flows in the renminbi exchange rate have raised some concerns about the potential impact of the currency's gyrations on the economy and financial stability, particularly if it is prone to sentiment-driven depreciation in periods of market stress. This Box attempts to identify the cause of renminbi exchange rate volatility, by decomposing renminbi exchange market pressure (EMP) using a structural vector autoregressive (SVAR) model[6].

Chart B1.1
CNY/USD exchange rate volatility



Sources: CEIC and HKMA staff calculations.

Methodology and Data

The SVAR model allows us to identify mutually independent structural shocks. The structural form of a general VAR(p) model can be written as:

$$\boldsymbol{A}\boldsymbol{y}_t = \boldsymbol{\beta}_0 + \boldsymbol{\beta}_1\boldsymbol{y}_{t-1} + \cdots + \boldsymbol{\beta}_p\boldsymbol{y}_{t-p} + \boldsymbol{u}_t,$$

where $\boldsymbol{u}_t$ is a vector of unobservable structural shocks which can be obtained through a set of theory-based identification restrictions.

Similar to Forbes et al. (2018), our SVAR model identifies six types of shocks: (1) domestic supply shocks (e.g. changes in productivity); (2) domestic demand shocks (e.g. fiscal stimulus); (3) monetary shocks (e.g. changes in policy rates); (4) sentiment shocks; (5) global persistent shocks (e.g. global productivity shocks); and (6) global transitory shocks (e.g. fluctuations in foreign stock markets). These shocks are widely considered by researchers as important drivers of exchange rate fluctuation, and are broad enough to be useful to policy analysis.

The variables used in the SVAR are presented in Table B1.1 and the related identification restrictions are largely in line with Forbes et al. (2018), with some modifications[7]. For instance, we assume both positive sentiment shocks and positive domestic supply shocks would lead to an appreciation of the currency[8].

Table B1.1
Variables and data sources

Variable category	Variable name	Unit	Data sources
Domestic output	Mainland China purchasing manager index	%, MoM	NBS
Domestic price	Mainland China consumer price index	%, MoM	NBS
Interest rate	Seven-day repo rate	1st diff, ppts, MoM	NIFC
Exchange rate	EMP	%, MoM	CFETS and staff calculations
Domestic export	Mainland China export quantity	%, YoY[9]	China Customs
Foreign price	US export price	%, MoM	BLS

6 See a discussion of the EMP in Patnaik et al (2017), and Goldberg and Krogstrup (2019). The specific definition of EMP used in this study is presented in the next section.

7 The main difference is that we allow domestic supply and demand shocks to affect foreign prices in the short run since Mainland China is a large economy, unlike in Forbes et al. (2018), which looks at a small open economy. The algorithms for imposing the restrictions are based on Binning (2013).

8 A positive supply shock is viewed as a sign of significant economic improvement and is therefore assumed to lead to currency appreciation. For the other four shocks, we prefer to let the data decide how the exchange rate will respond. Nevertheless, our ex-ante expectation is that positive demand shocks and monetary tightening will strengthen the exchange rate.

9 While the year-on-year form is common for exports, our results are robust to the month-on-month form (seasonality adjusted).

As the renminbi is not free floating, we focus on the renminbi EMP rather than the nominal exchange rate to take into account the fact that part of the market pressure facing the currency is reflected in changes in Mainland foreign reserves. The renminbi EMP is constructed as follows:

$$EMP_t = \omega_e \Delta e_t + \omega_R \frac{\Delta R_t}{M1_t},$$

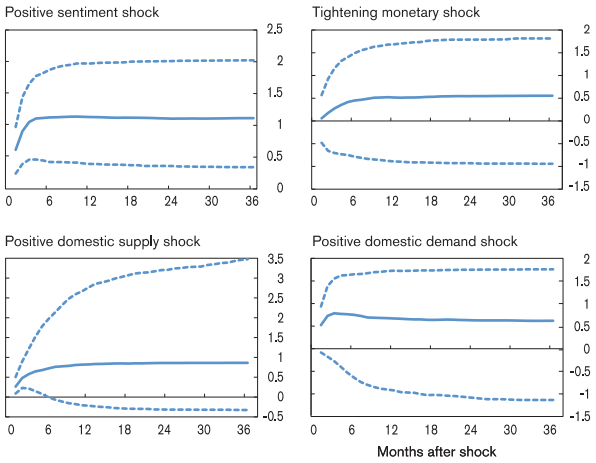
where Δe_t is the monthly change of the CNY/USD nominal exchange rate and $\frac{\Delta R_t}{M1_t}$ is the monthly change in official reserves (excluding FX valuation effects[10]) scaled by narrow money supply. An increase in the value of the EMP means an increase in appreciation pressure on the renminbi. Following common practice in the literature, the weightings ω_e and ω_R in this study are assumed to be equal, but the results are robust to alternative weightings[11].

Empirical results and policy implications

We first examine how the renminbi EMP would respond to structural shocks and whether the responses align with our expectations through impulse response functions (IRF).

Chart B1.2 presents the main IRF results. In particular, while the renminbi EMP responds most rapidly and strongly to sentiment shocks, the effects also die out quickly (i.e. the cumulative impulse response flattens out). The response of the EMP to tightening monetary shocks tends to be positive on average. The response of the EMP to supply shocks is weaker than to demand shocks in the short run, but the effect lasts longer. Global shocks in general are found to have limited impact on the EMP (for simplicity, the charts are not shown)[12].

Chart B1.2
Cumulative impulse responses of the renminbi EMP to structural shocks



Note: Median impulse responses are represented by solid lines. Confidence bands at the 68% threshold are represented by dashed lines.

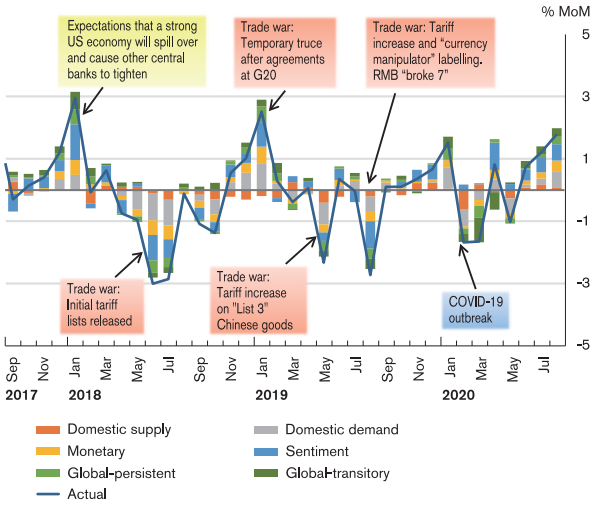
A historical decomposition of renminbi EMP volatility is presented in Chart B1.3. It can be seen that movements of the renminbi EMP tend to be dominated by different types of shocks in different periods. One important observation is that the key drivers of the recent depreciation episode amid the COVID-19 outbreak are quite different from previous negative episodes, such as the trade-war depreciation episode in August 2019. In particular, while sentiment seemed to have been the dominant factor driving the renminbi weaker in the trade-war episode, negative domestic and global shocks seemed to have played a more important role in the first half of 2020, likely due to strict virus containment measures domestically and subsequent outbreaks globally. Overall, sentiment held up relatively well throughout 2020, following the quick containment of COVID-19 in Mainland China after the first outbreak.

[10] The valuation effect captures changes in the book value (in US dollars) of foreign reserves due to changes in foreign exchange rates.

[11] As a robustness check, we choose alternative weights so that the two components will have equal volatility (similar to Kaminsky and Reinhart (1999)) across (1) the whole sample and (2) in each year.

[12] Confidence bands tend to be wide for some impulse responses, especially shocks with few ex-ante identification restrictions. For example, the two types of global shocks have the widest confidence bands, likely due to few identification restrictions. Nevertheless, focusing on the 68% confidence bands, the interpretations for sentiment and supply shocks are quite robust.

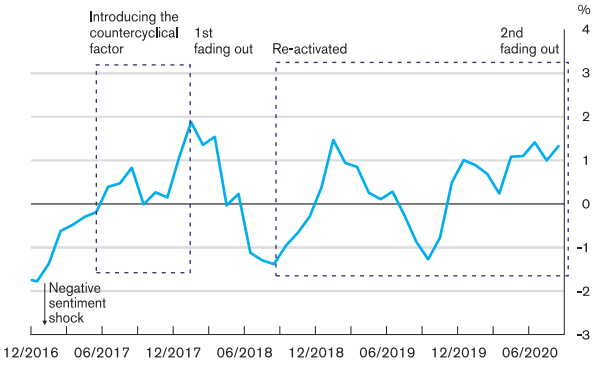
Chart B1.3
Historical decomposition of renminbi EMP volatility



Note: The chart depicts the contributions of the six shocks to monthly changes in the renminbi EMP. The results shown are the average of 1,000 historical decompositions obtained from the SVAR estimation.

As shown in Chart B1.4, our analysis also suggests that the activation of the countercyclical factor in the CNY fixing formation mechanism by the PBoC helped stabilise market sentiment. This is in line with the PBoC's assessment, which stated that the countercyclical factor counteracted the pro-cyclicality of market sentiment and alleviated the "herding effect" in the foreign exchange market, thereby promoting market rationality[13].

Chart B1.4
Sentiment shocks and the PBoC countercyclical factor



Concluding remarks

This Box studies how different shocks may affect renminbi exchange market volatility. Our results showed that, while negative sentiment shocks were the key driver during depreciation episodes in 2018 and 2019 related to the trade war, fundamental factors such as negative supply shocks and negative global shocks played important roles during depreciation episodes related to COVID-19. In any case, past experience suggested that the countercyclical factor would help counter pro-cyclical market sentiment, thereby limiting the potential impact on financial stability.

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[13] See *China Monetary Policy Report*, Second Quarter 2017.

3. Domestic economy

Although real gross domestic product remained notably below pre-pandemic levels, the economy saw some sequential improvement in the second half of 2020, with domestic demand picking up and exports of goods expanding further. In the hope of COVID-19 vaccination normalising economic activities, the economy is expected to resume growth for 2021 as a whole following the steepest ever contraction in 2020. That said, the strength and pace of recovery is subject to a host of uncertainties, especially those surrounding the pandemic situation and vaccine rollout and efficacy. In particular, as widespread vaccination takes time, the local economy still faces considerable challenges in the early part of 2021. As such, the labour market will continue to be under stress in the near term while local inflationary pressures are expected to stay muted.

3.1 Real activities

Hong Kong's economy saw some improvement in the second half of 2020 (Table 3.A), although economic activities remained well below pre-pandemic levels. Year on year, contraction in real gross domestic product (GDP) narrowed to 3.6% in the third quarter and further to 3.0% in the fourth quarter. That said, for 2020 as a whole, real GDP declined by a record rate of 6.1%, marking an unprecedented consecutive annual decline following the 1.2% contraction in 2019. The latest sectoral GDP data also indicated that almost all major economic sectors recorded a year-on-year decline in activities in recent quarters, with consumption and tourism-related sectors seeing much steeper contractions than the overall economy.

Table 3.A
Real GDP growth

		Year-on-year growth rate (%)	Seasonally adjusted quarter-on-quarter growth rate (%)
2019	Q1	0.7	0.8
	Q2	0.4	-0.3
	Q3	-2.8	-3.0
	Q4	-3.0	-0.4
2020	Q1	-9.1	-5.6
	Q2	-9.0	-0.1
	Q3	-3.6	2.7
	Q4	-3.0	0.2

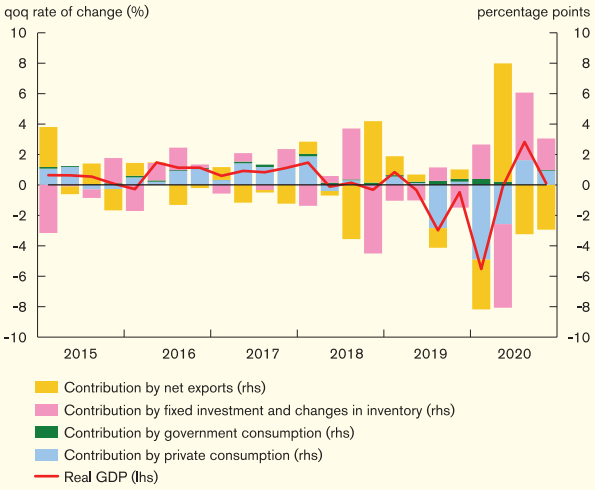
Source: C&SD.

On a quarter-on-quarter basis, real GDP has also picked up since the third quarter of 2020, arresting successive declines in the preceding five quarters (Table 3.A and Chart 3.1). Domestically, private consumption resumed positive growth in the third and fourth quarters but consumer sentiment remained weak amid recurring social distancing measures during the third and fourth waves of local infections[14]. Overall investment spending also grew in the second half of the year during a short-lived boost in business

[14] The Consumer Confidence Index compiled by the City University of Hong Kong edged down to 57.4 in the third quarter, marking the third lowest point on record, and remained low at 64.1 in the fourth quarter.

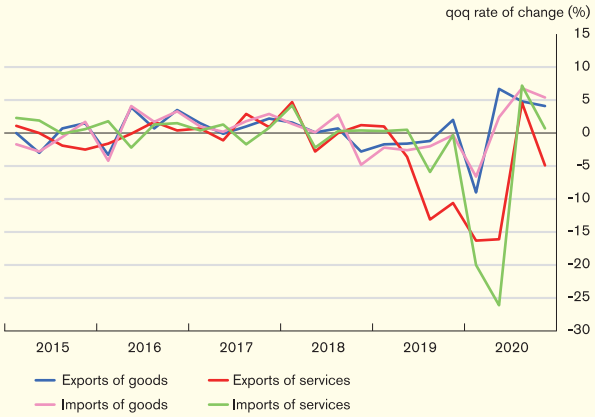
sentiment[15]. Partly driven by strengthened performance in exports, particularly to Mainland China, Hong Kong's merchandise trade expanded further (Chart 3.2). With global tourism still languishing, the service trade remained generally weak. Overall, net trade contributed negatively to GDP in the second half of the year, partly because merchandise exports picked up more slowly than imports.

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.

Chart 3.2
Exports and imports in real terms



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

[15] The Purchasing Managers' Index had remained in the contractionary zone (below 50) since April 2018, but it rose to 50.1 in November 2020 as the third wave of local infections stabilised, before dipping back to 43.5 in December 2020 due to the fourth wave of infections.

In response to the lingering pandemic, the Government launched two additional rounds of the Anti-Epidemic Fund (i.e. AEF 3.0 and 4.0) between September and December 2020, totaling HK$30.4 billion, to assist industries and people affected by the epidemic and help enhance Hong Kong's anti-epidemic capabilities[16]. More recently, the Government also announced additional countercyclical fiscal measures in the 2021/22 Budget to revive the economy, including a one-off provision of electronic consumption vouchers worth HK$5,000 and a Special 100% Loan Guarantee for unemployed individuals[17]. Together with the Banking Sector SME Lending Coordination Mechanism, the HKMA announced in March 2021 the extension of the Pre-approved Principal Payment Holiday Scheme (PPPHS) to October 2021, and repayment deferment for trade facilities under the PPPHS. These extensions are expected to help ease cash-flow difficulties faced by some corporate customers.

Hong Kong's economy is expected to see positive growth for 2021 as a whole in the hope of COVID-19 vaccination normalising economic activities, but the strength and pace of recovery is subject to a host of uncertainties, especially those surrounding the pandemic situation and vaccine rollout and efficacy. In particular, as vaccines take time to be widely adopted, the local economy still faces considerable challenges in the early part of 2021. Externally, the Mainland economy is anticipated to strengthen further and render support to Hong Kong's exports of goods and services, but the pace of recovery in other major economies will hinge on the success of their mass vaccination campaigns, which would in turn affect Hong Kong's goods

[16] Measures include the procurement of vaccines and one-off subsidies to businesses and individuals in sectors most hard-hit by business closure rules related to COVID-19, such as cinemas, beauty parlours as well as sports and recreational sites.

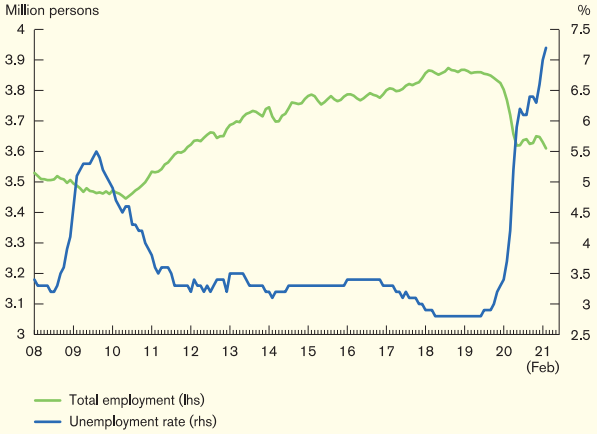
[17] Other one-off relief measures include the reduction of salaries tax and profits tax by 100% (subject to a ceiling), a subsidy of HK$1,000 for each residential electricity account, rates concession for domestic and non-domestic properties, as well as the creation of temporary jobs under the Job Creation Scheme.

trade and inbound tourism. The Government forecasts real GDP growth for the whole of 2021 in the range of 3.5–5.5%. Growth estimates by international organisations and private-sector analysts average 4.4%.

3.2 Labour market conditions

The labour market deteriorated further in the second half of 2020 and in early 2021. The seasonally adjusted unemployment rate climbed to a 17-year high of 7.2% in February 2021 (Chart 3.3)[18]. The underemployment rate also rose to a post-SARS high of 4.0%. While total employment stabilised somewhat at a low level after a period of decline (Chart 3.3), official data showed that the number of vacancies continued to plunge. Labour earnings, as measured by the nominal index of payroll per person engaged, saw decelerated growth of 2.0% in the third quarter of 2020, the slowest in nearly 11 years. In response to the deteriorating labour market conditions, the Government launched the Employment Support Scheme (ESS) under the second round of the AEF to provide time-limited (i.e. June–November 2020) wage subsidies for employers to retain employees[19]. After the ESS ended, other targeted measures, such as one-off subsidies, were provided under AEF 3.0 and 4.0 to further support hard-hit sectors. In the near term, the labour market is expected to remain under pressure given the lacklustre economic conditions. Box 2 sheds light on the potential impacts of Hong Kong's inbound tourism boom and bust on the local labour market.

Chart 3.3
Labour market conditions



Source: C&SD.

3.3 Inflation

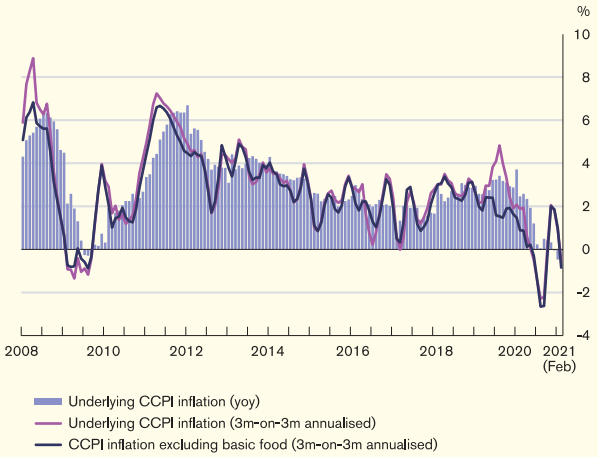
Local inflationary pressures continued to subside in the eight months leading up to February 2021. Year on year, the underlying consumer price inflation rate decelerated notably to 0.3% and 0.2% in the third and fourth quarters of 2020 respectively, and even declined to -0.5% in January and -0.1% in February 2021 (Chart 3.4)[20]. Inflation momentum, as measured by the annualised three-month-on-three-month underlying inflation rate, also stayed mild in recent months, albeit with some fluctuations. Specifically, price pressures on basic foodstuff receded, and the cost of non-home-cooked meals went down visibly as more restaurants provided discounts for takeaways when dine-in capacities were restrained. Prices of other tradable items, such as durable goods, stayed tame. For services, the rental component of the Composite Consumer Price Index (CCPI) remained soft along with consolidating private housing rentals (Chart 3.5). Labour cost pressures also eased in recent quarters (Chart 3.6).

[18] In particular, the unemployment rates of retail, accommodation, and food and beverage services soared to 9.3%, 10.1% and 15.2% respectively in September 2020, the highest since the SARS episode in 2003. Partly reflecting Cathay Pacific Airways' substantial layoffs, the unemployment rate of the transport sector also surged to 6.2% in October 2020 and further to 6.9% in January and February 2021, the highest in 17 years.

[19] The wage subsidies provided to eligible employers under the ESS covered 50% of the actual wage paid to each regular employee in a specified month, with a wage cap of HK$18,000 per month (i.e. the maximum subsidy per employee is HK$9,000 per month). The wage subsidies are disbursed in two tranches for paying the wages of employees from June to November 2020. Employers participating in the ESS are required to undertake that they will not implement redundancies during the subsidy period and will spend all the wages subsidies on paying wages to their employees.

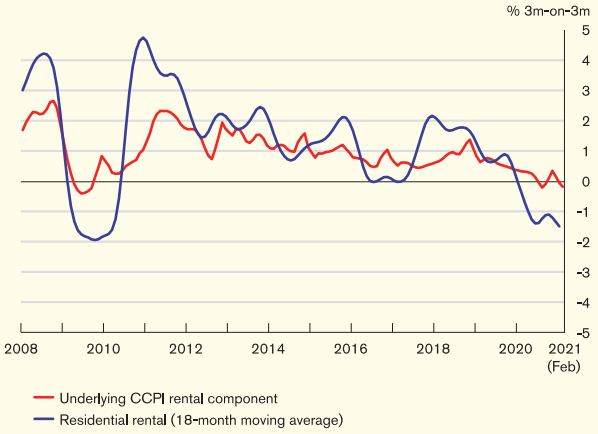
[20] Inclusive of the effects of the Government's relevant one-off relief measures, the year-on-year headline inflation rate also turned negative between July and December 2020.

Chart 3.4
Different measures of consumer price inflation



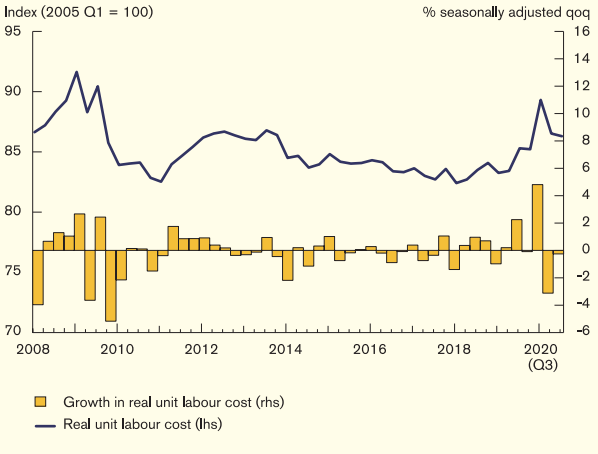
Sources: C&SD and HKMA staff estimates.

Chart 3.5
CCPI rental component and market rental



Sources: C&SD and R&VD.

Chart 3.6
Unit labour cost



Sources: C&SD and HKMA staff estimates.

Local inflationary pressures are likely to remain subdued in the near term as global and local economic conditions are still challenging. In particular, the feed-through of an earlier decline in fresh-letting residential rentals will continue to restrain local inflation. Market consensus forecasts that the headline inflation rate for 2021 will be at a moderate level of 1.4%, and the Government projects the underlying inflation rate to be 1% and the headline inflation rate to be 1.6% in 2021.

Box 2
Labour market impacts of Hong Kong's inbound tourism boom and bust

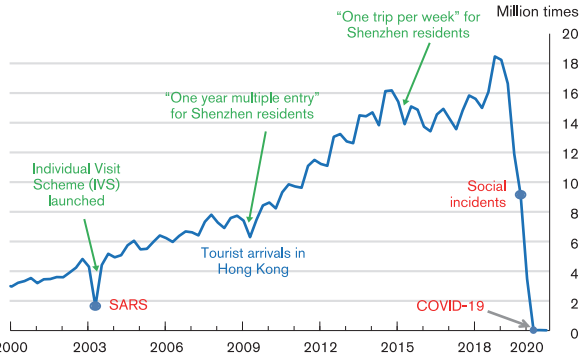
Introduction

Amid the COVID-19 pandemic, Hong Kong's inbound tourism has quickly turned into a bust and there are concerns over the scarring effect of this crisis on subsequent labour market recovery. With this in mind, Box 2 provides empirical evidence on the impact of an inbound tourism boom on the Hong Kong labour market to shed light on the potential implications of the current tourism bust.

Inbound tourism over the years

Since 2000, inbound tourism has undergone drastic boom and bust cycles (Chart B2.1). Specifically, tourist arrivals moderated during the 2003 SARS epidemic, before experiencing a boom in the following years after the introduction of the Individual Visit Scheme (IVS) in July 2003. Under the initial IVS, Mainland residents could apply for an exit endorsement to visit Hong Kong in their individual capacity for up to seven days each time, and for one or two visits per year[21]. A major extension of the IVS took effect in April 2009, allowing eligible permanent residents from Shenzhen to visit Hong Kong multiple times on a single one-year multi-entry IVS Endorsement document known as the M-permit[22]. Since then, the number of Mainland tourists has increased substantially. Boosted by new cross-boundary infrastructures with Mainland China, inbound tourist arrivals reached an all-time high in late 2018 and early 2019[23]. Later, the local social incidents halved the number of visitor arrivals in the second part of 2019, followed by the pandemic, which has virtually brought inbound tourism to a standstill since the end of January 2020.

Chart B2.1
Tourist arrivals and relevant policies



Note: Tourist arrivals are quarterly figures.
Sources: C&SD and Hong Kong Tourism Board.

Labour market impact of inbound tourism boom

In this section, we explore the impact of inbound tourism on employment and income using the IVS-induced tourism boom as a case study. We consider the IVS launch in 2003 as an as-good-as-random economic shock since it was plausibly exogenous in its timing, and impossible to anticipate by the local population. The main data source is individual-level data from Hong Kong Population Censuses and By-censuses. Specifically, we use 5% samples from the 1996, 2001, 2006, 2011 and 2016 censuses or by-census. We also define the tourism-related sectors to include the food, retail, hotel and transport industries[24].

[21] Previously, Mainland residents could only travel to Hong Kong through business visas or organised group tours.

[22] Note also that in April 2015, the M-permit was replaced by the "one trip per week" Individual Visit Endorsement as Hong Kong encountered problems with its receiving capacity and parallel trading activities.

[23] The Guangzhou-Shenzhen-Hong Kong Express Rail Link commenced operation on 23 September 2018 and the Hong Kong-Zhuhai-Macao Bridge opened on 24 October 2018.

[24] Since a separate tourism sector is not available in the census data classification, we use the entire food, retail, hotel and transport industries as a proxy. That said, the use of the tourism-related sectors is reasonable as these sectors have been greatly buoyed by the inbound tourism boom over the past two decades.

(i) Impact on employment

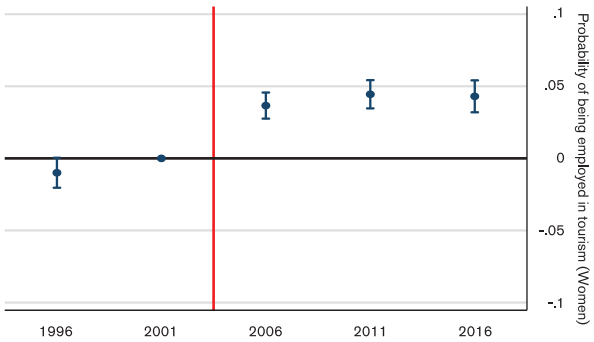
We begin the analysis with a difference-in-differences (DID) framework[25] by comparing the employment outcomes of young workers (aged 20–40) in the treatment group with older workers (aged 41–65) in the comparison group, before and after the launch of the IVS. We assign younger cohorts to the "treatment" group because they are still in the early part of their careers and have more flexibility to make significant changes to their jobs in response to the exogenous rise in inbound tourism[26]. As the labour market effects of the IVS-induced tourism boom can vary over time, we supplement our DID approach with an event study design, which allows us to identify time-varying treatment effects.

Our empirical findings suggest that relative to older cohorts, young workers, especially female and those with secondary school education, are more likely to be employed in the tourism-related sectors after the IVS launch. In particular, the effect on young females is especially prominent and persistent, staying close to five percentage points (in terms of the average difference in employment probability relative to older cohorts) from 2006 onwards (Chart B2.2).

(ii) Impact on income from main employment

We also use a similar methodology to compare the income of people employed in the tourism-related sectors (treatment) with those employed in non-tourism-related sectors (comparison). Our estimation results reveal that people employed in the tourism-related sectors experience higher income growth compared with those employed in non-tourism-related sectors after the IVS launch. Moreover, female and less-educated workers in the tourism-related sectors saw larger and increasing growth in labour income (3–20 percentage points) compared with their peers in other sectors (Chart B2.3).

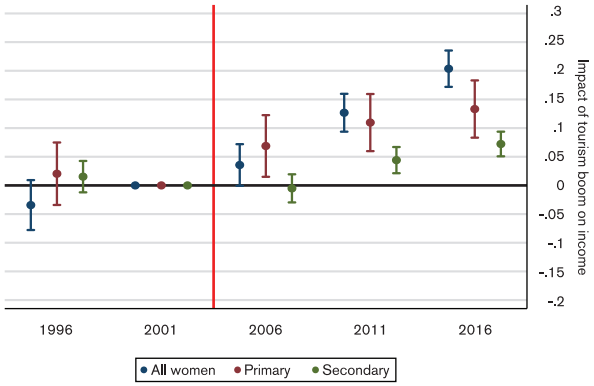
Chart B2.2
Employment impact of the IVS on women



Note: The chart shows the event study estimations of the impact of the IVS on the probability of employment in the tourism-related sectors. 95% confidence intervals are plotted. The red vertical line indicates the IVS launch event in 2003.

Sources: C&SD and HKMA staff estimates.

Chart B2.3
Income impact of the IVS on female and less-educated workers



Note: The chart shows the event study estimations of the impact of the IVS on income. Blue dots are coefficients from a model using a sample of all female workers; red denotes all workers with primary education, while green denotes those with secondary school education.

Sources: C&SD & HKMA staff estimates.

[25] Specifically, the dependent variable is a dummy variable which equals one if an individual is employed in a tourism-related sector, and zero otherwise. The main independent variable is an interaction term that indicates whether an individual belongs to the 20–40 age group and whether it is before or after the IVS launch. We also control for gender, occupation, years of education, potential experience, time trend and other factors.

[26] The strategy of treatment assignment based on cohort as a proxy for exposure to the policy of interest follows a large body of work in the empirical literature.

(iii) Implications

These findings are generally in line with the international experience that tourism is an important source of employment, particularly for young people, female and less-educated workers. In the case of Hong Kong, our results also echo earlier analysis[27] that labour market resilience increased in the lower-skilled segment as vibrant growth in inbound tourism led to strengthened demand for lower-skilled labour. As the inbound tourism boom turns into a bust, these labour groups may become more vulnerable and therefore merit close monitoring.

Concluding remarks

The IVS generated an unprecedented boom in inbound tourism in Hong Kong. As a result, younger workers, especially female and those with secondary school education, were drawn to tourism-related sectors. Moreover, female and less-educated workers in these sectors saw larger and rising growth (3–20 percentage points) in labour income compared with their peers in other sectors. These labour groups may become more vulnerable under the current tourism bust and therefore merit close monitoring. On the other hand, the pandemic is likely to have a scarring effect on global tourism and business travel, affecting unemployment for some years to come. For example, structural factors such as behavioural changes (e.g. higher risk aversion, adoption of e-commerce) and technological progress (e.g. the use of virtual conference to facilitate business operations) may have reduced demand for tourism and travel compared with the pre-pandemic period.

[27] See "Box 2: The tight labour market puzzle: will it remain resilient?", *HKMA Half-yearly Monetary and Financial Stability Report*, September 2012.

4. Monetary and financial conditions

The Hong Kong dollar continued to trade close to the strong-side Convertibility Undertaking, with the strong-side Convertibility Undertaking triggered intermittently in September and October 2020. The strong demand for the Hong Kong dollar was driven mainly by equity-related demand arising from vibrant initial public offering activities and the southbound Stock Connects. Along with the expansion of the Aggregate Balance to more than HK$450 billion, Hong Kong Interbank Offered Rates softened across the board. While the uncertainties related to the development of the COVID-19 pandemic, pace of economic recovery and lingering China-US tensions may heighten fund-flow volatility, Hong Kong is able to withstand the volatility given its ample foreign reserves and robust banking system.

4.1 Exchange rate and capital flows

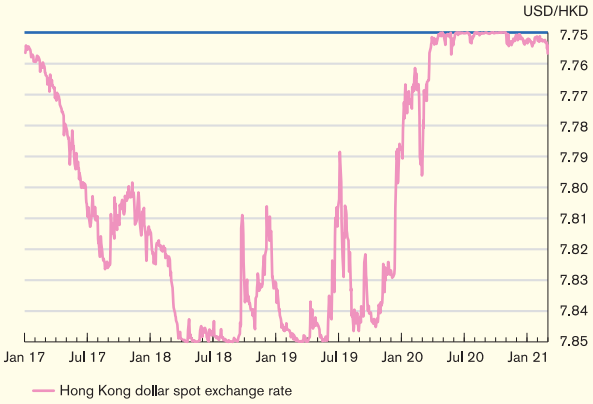
The Hong Kong dollar traded close to the strong-side Convertibility Undertaking (CU), driven mainly by equity-related demand arising from vibrant initial public offering (IPO) activities and the southbound Stock Connects (Chart 4.1). Despite some repatriation of monies raised from the IPO subscriptions, the Hong Kong dollar remained trading in a narrow range of 7.7505 to 7.7544 in November and December 2020, underpinned by improved sentiment in the local stock market and anticipated funding needs towards the year-end. With equity fund-raising activities staying strong in the first two months of 2021 (Chart 4.2), the exchange rate closed at 7.7568 on 26 February 2021. Overall, the Hong Kong dollar continued to trade in a smooth and orderly manner.

During the review period, there were strong inflows to the Hong Kong dollar, as shown by the repeated triggering of the strong-side CU and the increase in the Aggregate Balance (AB). The strong-side CU was triggered 47 times in September and October 2020. In accordance with the design of the Linked Exchange Rate System (LERS), the HKMA sold Hong Kong dollars totalling HK$263.3 billion, leading to an increase of the AB from HK$193.1 billion at the end of August to HK$457.5 billion at the end of February (Chart 4.3). For 2020 as a whole, the strong-side CU was triggered 85 times, resulting in accumulated inflows of HK$383.5 billion.

From a cross-border perspective, there was no sign of significant outflows from the Hong Kong banking system as total deposits increased[28]. Meanwhile, the latest Balance of Payment statistics indicated that non-residents' direct investment inflows into Hong Kong continued in the fourth quarter of 2020, and did not show any abnormal flow pattern.

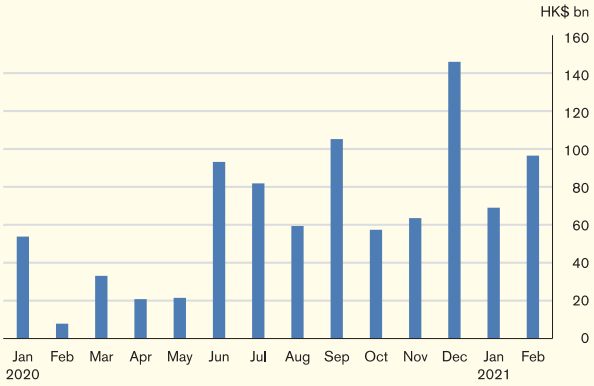
[28] For a detailed analysis of Hong Kong's deposit growth, see section 4.2.

Chart 4.1
Hong Kong dollar exchange rate



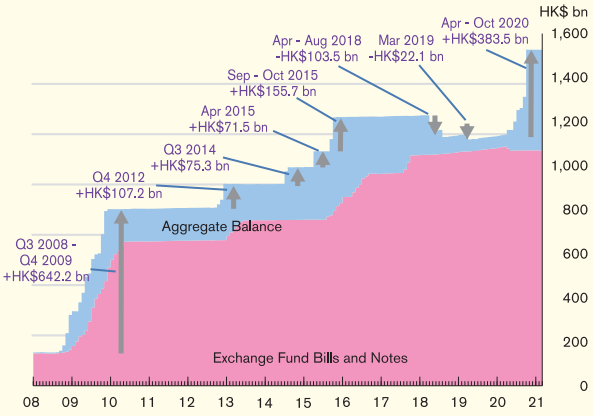
Source: HKMA.

Chart 4.2
Equity funds raised in Hong Kong Stock Exchange (HKEX)



Source: HKEX.

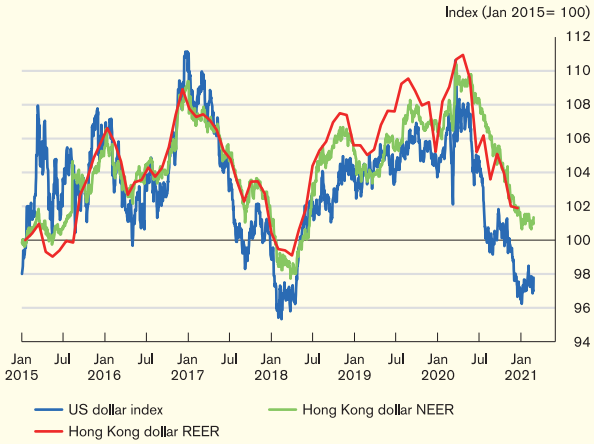
Chart 4.3
Aggregate Balance and Exchange Fund Bills and Notes (EFBNs)



Source: HKMA.

Broadly in line with the weakening of the US dollar against major currencies, the Hong Kong dollar nominal effective exchange rate index (NEER) declined 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



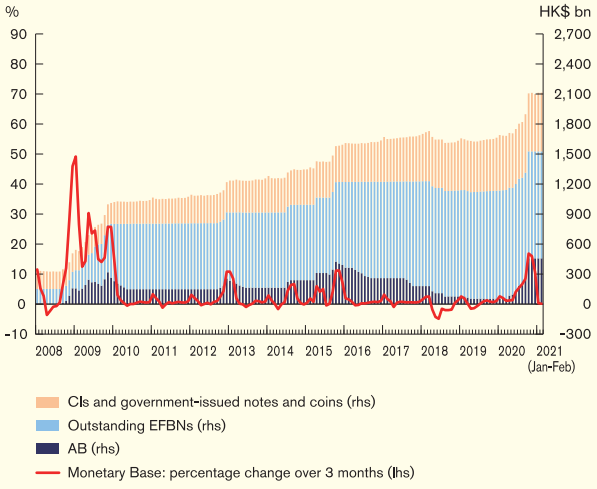
Note: The REER is seasonally adjusted and available only on a monthly basis.
Sources: CEIC, C&SD and HKMA staff estimates.

Looking ahead, the uncertainties related to the development of the pandemic, pace of economic recovery and lingering China-US tensions may heighten fund-flow volatility. As an international financial centre which embraces a wide range of capital-raising activities such as IPOs, Hong Kong sees enormous amounts of funds flowing into and out of the city. On the one hand, these fund-raising activities may attract international investors to allocate funds to Hong Kong. On the other hand, the funds raised by the listed companies may be transferred out of Hong Kong for business needs afterwards. Given its ample foreign reserves and robust banking system, Hong Kong is able to withstand fund-flow volatility without compromising its financial stability.

4.2 Monetary environment and interest rates

During the second half of 2020 and in recent months, Hong Kong's monetary environment stayed accommodative amid continuous inflows into the Hong Kong dollar. The Hong Kong dollar Monetary Base expanded by 20.8% during the eight-month period since the end of June 2020 (Chart 4.5). Analysed by its components, the increase in the Monetary Base during this period was led by the rise in the AB as the strong-side CU was repeatedly triggered. On the other hand, other components, including Certificates of Indebtedness (CIs), government-issued notes and coins, and outstanding EFBNs remained relatively stable.

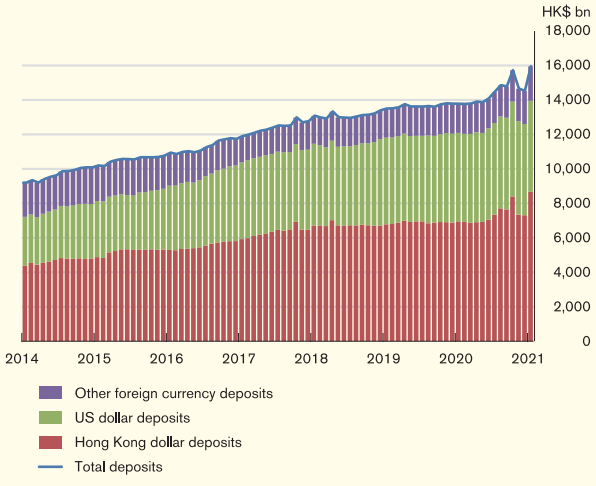
Chart 4.5
Monetary Base components



Source: HKMA.

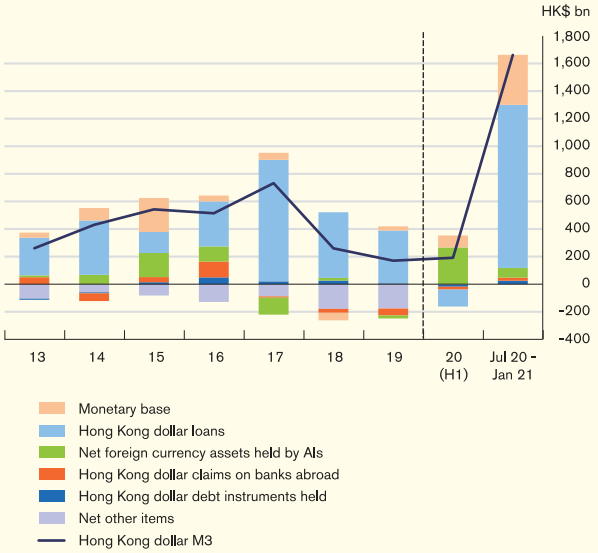
During the review period, the Hong Kong dollar broad money (HK$M3) and its Hong Kong dollar deposit component picked up noticeably between July and October 2020 as well as in January 2021 (Chart 4.6), as large-scale IPO activities brought an increase in Hong Kong dollar deposits through deposit creation from IPO loans. As the IPO activities ended and customers repaid IPO loans, Hong Kong dollar deposits and broad money eased back to normal levels in late 2020. Moving into January 2021, HK$M3 picked up significantly again with sizeable IPO activities straddling the end of January. Overall, HK$M3 rose by 21.7% in the seven-month period since the end of June; it increased by a moderate 9.1% if the effect of IPOs straddling the end of January was excluded. According to an analysis of asset-side counterparts, the growth of HK$M3, excluding IPO loans, was mainly led by the rise in the Monetary Base as a result of the triggering of the strong-side CU (Chart 4.7). As a major component of HK$M3, Hong Kong dollar deposits picked up by 22.9% during the same period, or grew moderately by 9.1% if the effect of IPOs straddling the end of January was excluded. Although Hong Kong dollar time deposits registered a fall due to low deposit rates, such a drop was more than offset by rapid increases in demand and savings deposits underpinned partly by investment demand.

Chart 4.6
Deposits with AIs by currency



Source: HKMA.

Chart 4.7
Changes in HK$M3 and asset-side counterparts

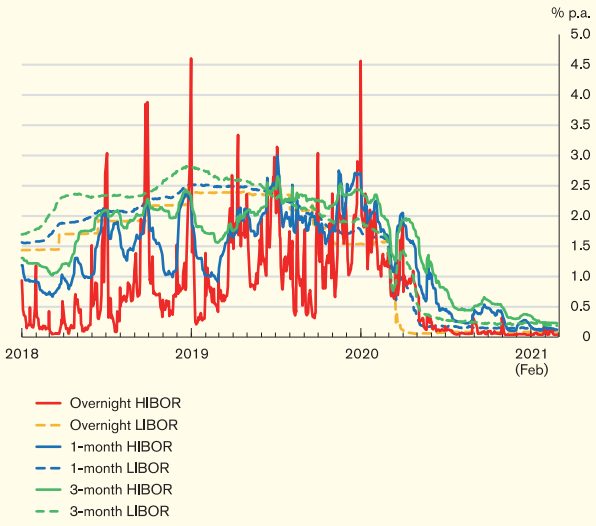


Note: The HK$M3 in the monetary survey has been adjusted to include foreign currency swap deposits.
Source: HKMA staff estimates.

Overall foreign currency deposits picked up steadily by 3.6% in the seven-month period since the end of June. While US dollar deposits recorded a slight decline of 0.3%, partly reflecting a weak US dollar, other foreign currency deposits picked up strongly by 15.5% during the same period, mainly reflecting the expansion of renminbi deposits. As a whole, owing to short-term fluctuations of Hong Kong dollar deposits stemming from IPOs, total deposits with AIs picked up strongly by 13.2% during the review period (Chart 4.6). Excluding IPOs straddling the end of January, total deposits increased moderately by 6.4%. 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.

Along with the expansion of the AB, Hong Kong Interbank Offered Rates (HIBORs) generally stayed at very low levels during the review period (Chart 4.8). Despite sizeable IPO fund-raising activities during the second half of 2020, HIBORs did not witness large fluctuations, owing to abundant liquidity in the banking system. Overall, Hong Kong's interbank market continued to function normally.

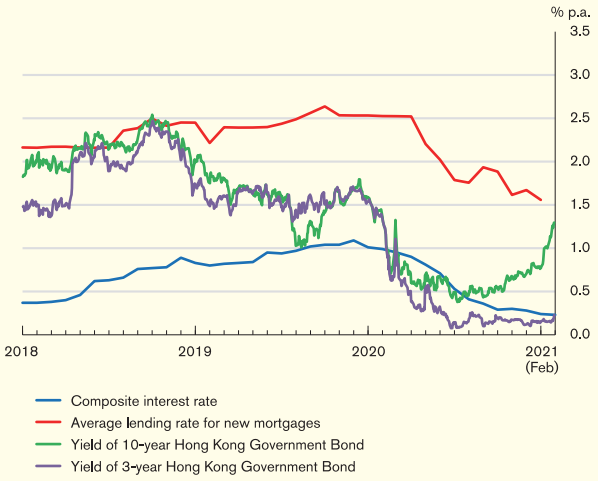
Chart 4.8
Hong Kong dollar and US dollar interbank interest rates



Sources: CEIC and HKMA.

Broadly following the movements of the US dollar yield curve, the Hong Kong dollar yield curve steepened during the review period, with yields for the short tenors edging down and yields for the long tenors moving up (Chart 4.9). Compared with the end of June, the yield of the three-year Hong Kong Government Bond decreased slightly by 4 basis points to 0.23% at the end of February, while the yield of the 10-year Hong Kong Government Bond picked up by 67 basis points to 1.30% during the same period.

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



Sources: HKMA and staff estimates.

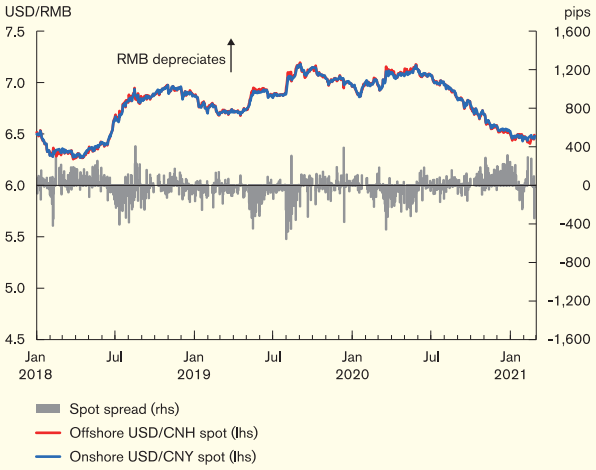
Retail-level Hong Kong dollar interest rates mostly decreased along with the decline in Hong Kong dollar interbank rates. The composite interest rate, which measures the average Hong Kong dollar funding cost of retail banks, dropped further from 0.71% at the end of June to 0.23% at the end of February 2021 (Chart 4.9). As a result of lower funding costs, the average lending rate for new mortgages also declined from 2.02% in June 2020 to 1.56% in January 2021, largely following the movements of the one-month HIBOR. 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.

Under the LERS, Hong Kong dollar interest rates will be influenced by their US dollar counterparts. As a result, Hong Kong dollar interest rates are likely to continue to stay low given the low-for-long US interest rate environment, with occasional fluctuations stemming from capital market activities and seasonal liquidity demand. In the face of the highly uncertain macro-financial environment, the abundant liquidity in the banking system should provide an adequate buffer for maintaining Hong Kong's monetary and financial stability.

Offshore renminbi banking business

Largely reflecting better economic prospects for Mainland China relative to the rest of the world, as well as a weak US dollar, both the offshore (CNH) and the onshore (CNY) renminbi have appreciated against the US dollar since late May (Chart 4.10). The strengthening of the renminbi was further supported by investment demand following an announcement in late September that Mainland government bonds would be included in FTSE Russell's World Government Bond index. In most of the review period, the CNH traded at a premium over the CNY, with the premium averaging at around 100 pips during the fourth quarter, which remained moderate by historical standards.

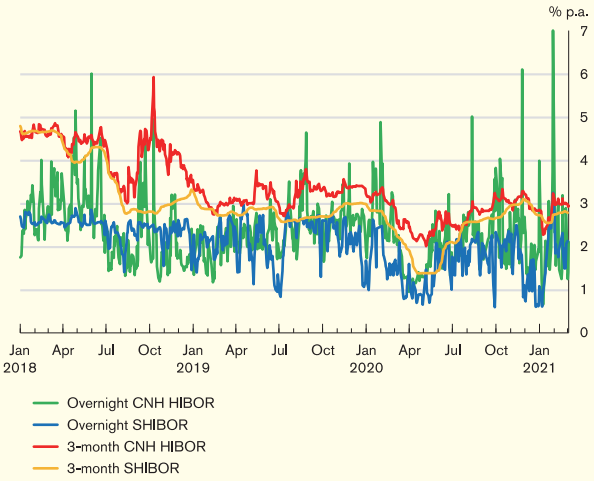
Chart 4.10
CNY and CNH exchange rates



Source: Bloomberg.

Liquidity conditions in the offshore CNH interbank market continued to be stable during the review period. While the overnight CNH HIBOR witnessed brief fluctuations due to occasional funding needs for northbound remittances and seasonal liquidity demand near the year-end, it mostly traded below 4% (Chart 4.11). Moving along with the onshore counterpart, the three-month CNH HIBOR softened in late December before firming again in late January, driven in part by tight onshore liquidity and seasonal factors.

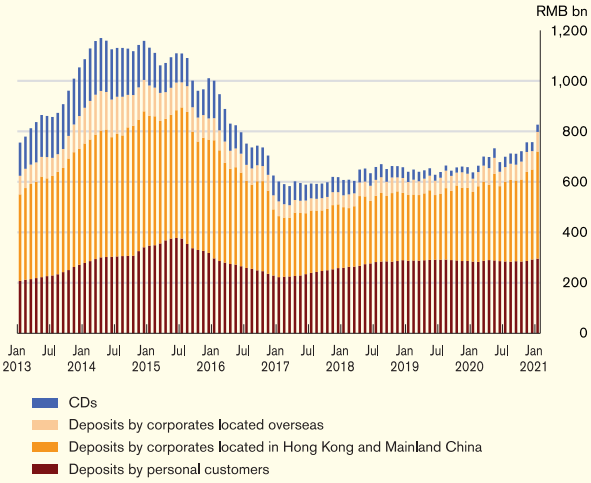
Chart 4.11
The overnight and the three-month CNH HIBOR fixings



Source: CEIC.

Hong Kong's CNH liquidity pool continued to grow during the second half of 2020. The pace of increase in renminbi deposits has accelerated since the fourth quarter, in part supported by appreciation of the renminbi and higher interest rates of the renminbi relative to other currencies. Compared with the end of June 2020, the total outstanding amount of renminbi customer deposits and certificates of deposit (CDs) grew faster, by 21.9%, to RMB826.3 billion at the end of January 2021 (Chart 4.12 and Table 4.A). Of the total, renminbi customer deposits expanded by 24.7%, driven mainly by a strong expansion in deposits by corporate customers. On the other hand, outstanding CDs decreased by 25.0% during the same period.

Chart 4.12
Renminbi deposits and CDs in Hong Kong



Source: HKMA.

Table 4.A
Offshore renminbi banking statistics

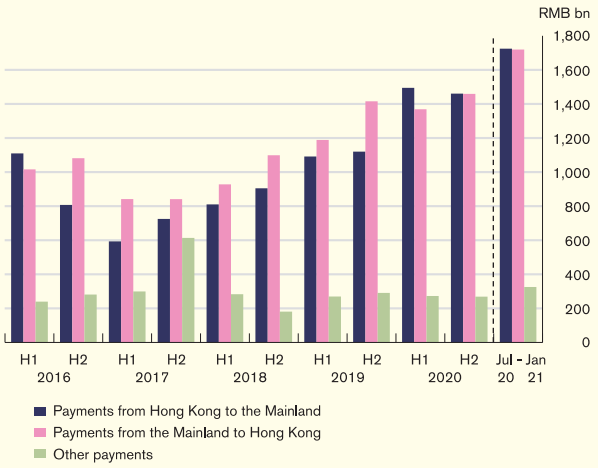
	Dec 2019	Jan 2021
Renminbi deposits & CDs (RMB bn)	658.0	826.3
Of which:		
Renminbi deposits (RMB bn)	632.2	797.7
Share of renminbi deposits in total deposits (%)	5.1	6.0
Renminbi CDs (RMB bn)	25.8	28.6
Renminbi outstanding loans (RMB bn)	153.7	159.2
Number of participating banks in Hong Kong's renminbi clearing platform	204	206
Amount due to overseas banks (RMB bn)	76.3	102.7
Amount due from overseas banks (RMB bn)	95.4	125.6
	2019	**2020**
Renminbi trade settlement in Hong Kong (RMB bn)	5,376.3	6,324.1
Of which:		
Inward remittances to Hong Kong (RMB bn)	2,604.1	2,827.7
Outward remittances to Mainland China (RMB bn)	2,211.7	2,955.0
Turnover in Hong Kong's RMB RTGS system (Daily average during the period; RMB bn)	1,133.9	1,191.5

Source: HKMA.

As for other renminbi business, the outstanding amount of renminbi loans decreased by 2.4% to RMB159.2 billion during the seven-month period since the end of June. On the other hand, Hong Kong's renminbi trade settlement continued to pick up strongly. Transactions handled by banks in Hong Kong amounted to RMB3,769.5 billion during the seven-month period between July and January, up by 16.7% compared with the same period last year. Among these transactions, outward remittances to Mainland China picked up more than inward remittances to Hong Kong (Chart 4.13). The deep pool of renminbi liquidity in Hong Kong continued to be adequate

to support the large amount of renminbi payments and financial transactions. For 2020 as a whole, average daily turnover of the renminbi Real Time Gross Settlement (RTGS) system stayed high at RMB1,191.5 billion, compared with RMB1,133.9 billion in 2019.

Chart 4.13
Flows of renminbi trade settlement payments



Source: HKMA.

The development of Hong Kong's offshore renminbi business will continue to depend on Mainland's economic prospects, China-US tensions and the development of the COVID-19 pandemic. With efficient financial infrastructure and multiple access channels for cross-border portfolio investment vis-à-vis the Mainland, Hong Kong's offshore renminbi business is expected to benefit from ongoing liberalisation of Mainland's capital account, increasing demand for renminbi assets from international investors, and deepening regional economic and financial cooperation under the Belt and Road and the Guangdong-Hong Kong-Macao Greater Bay Area initiatives.

Asset markets

Hong Kong equity prices rebounded after a sharp correction at the beginning of the review period. The rally was in tandem with the rise in global equity prices and strong buying interest from Mainland investors through southbound trading on the two Stock Connects. Meanwhile, the Hong Kong dollar and offshore renminbi debt markets expanded steadily in the second half of 2020. While the residential property market broadly held up, the non-residential property market remained generally weak amid the lingering pandemic.

4.3 Equity market

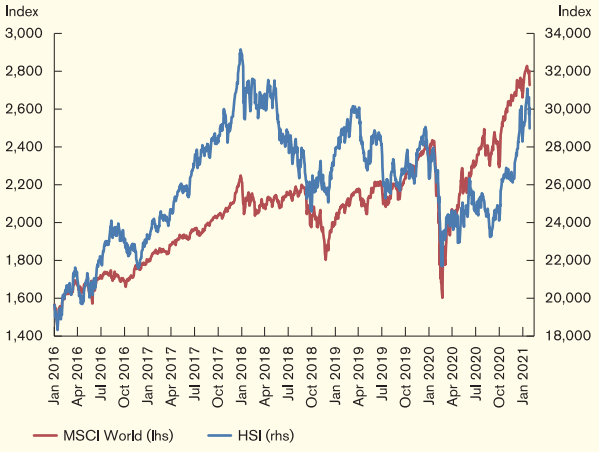
On the back of strong gains in global equity markets and keen southbound buying interest, the Hong Kong equity market rebounded in the review period after a sharp correction in the September of 2020. While renewed waves of COVID-19 infections have stalled recovery in most developed economies with new lockdown measures since the fourth quarter of 2020, global equity markets rose as unprecedented monetary easing measures in major economies continued to lend support to asset markets and, more importantly, investors could be optimistic that the positive vaccine developments might speed up recovery of the global economy. During the review period, global equity markets were also further bolstered by developments that might help reduce key uncertainties hanging over the world. These included progress on additional fiscal stimulus by the US government after the presidential election results were confirmed, and the reaching of a post-Brexit trade agreement between the UK and the European Union before the December deadline.

Stepping into 2021, the Hang Seng Index (HSI) has broadly maintained its upward momentum amid strong buying flows from the southbound Stock Connects despite an executive order from the administration of Donald Trump that banned US investors from owning shares of companies deemed to have ties to Mainland's military, and related announcements by US stock exchanges. Towards the end of the review period, the HSI was under consolidation amid concerns on over-valuation in equities and worries about an earlier-than-expected rate hike in US after rallying to a new high of over 31,000 points in 32 months in mid-February.

Overall, the local market rose by 15.1%, from September 2020 to February 2021, while the MSCI World Index gained by 10.5% in the same period (Chart 4.14). Option-implied volatilities surged at the beginning of the review period, but have since subsided as calm returned to the market. However, the SKEW Index rebounded towards the end of the review period, reflecting that investors were once again concerned about heightened tail risks and were hence willing to pay more for downside protection (Chart 4.15)[29].

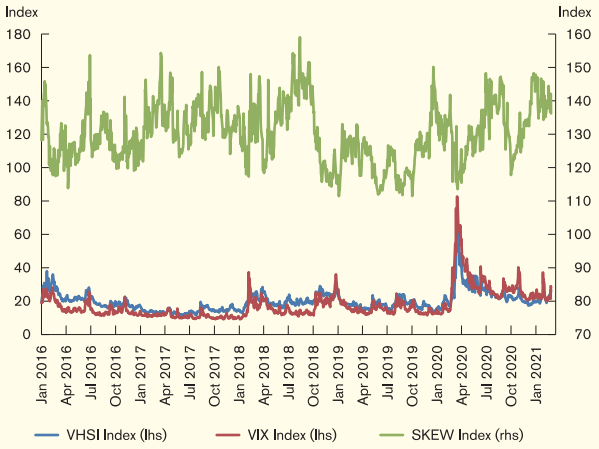
[29] The SKEW Index is calculated by the Chicago Board Options Exchange from the prices of the S&P 500 out-of-the-money options. A SKEW value of 100 means that the probability of outlier negative returns on a 30-day horizon is negligible. As the SKEW rises above 100, the left tail of the S&P500 returns 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 4.14
Equity prices and the MSCI World Index



Sources: Bloomberg and Reuters.

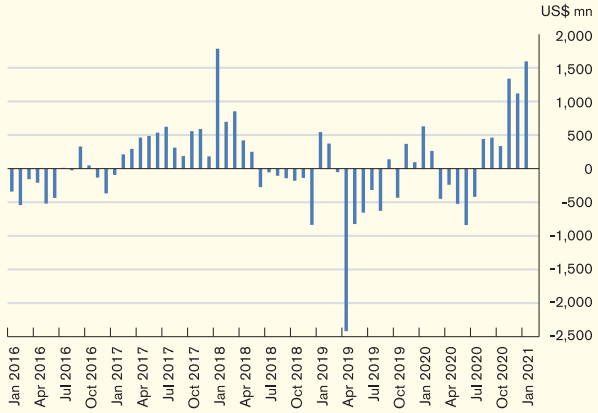
Chart 4.15
Option-implied volatilities of the HSI and S&P500, and the SKEW index



Sources: Bloomberg and Reuters.

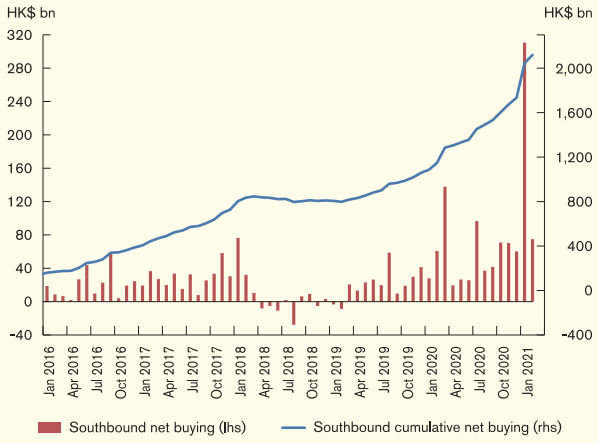
With an improved risk appetite, net inflows to the Hong Kong stock market had been observed since September 2020, totaling US$4,850.1 million from September 2020 to January 2021, the best five-month period in more than two years (Chart 4.16). Net southbound buying through the Shanghai-Hong Kong and Shenzhen-Hong Kong Stock Connects had been recorded since March 2019. During the review period, the cumulative net buying amount increased by 42.2% to HK$2,119.5 billion and surged to a peak at the end of February, with a record-breaking level of over HK$300 billion of southbound net buying in January 2021. (Chart 4.17).

Chart 4.16
Equity market fund flows into Hong Kong



Source: EPFR Global.

Chart 4.17
Net flows through Stock Connect

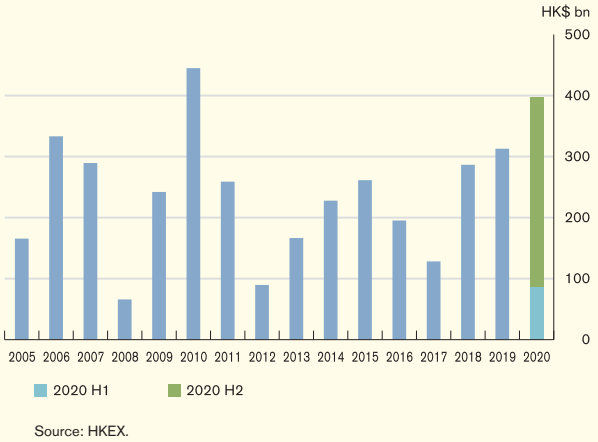


Note: Southbound net buying is the sum of such buying on the Shanghai-Hong Kong Stock Connect and the Shenzhen-Hong Kong Stock Connect.

Sources: CEIC, HKEX and HKMA staff estimates.

In the primary market, IPOs in Hong Kong registered sustained growth in 2020 in terms of the funds raised. There were 154 IPOs, raising a total of HK$397.5 billion (Chart 4.18), an increase of 27.05% from 2019. In 2020, the HKEX ranked second among the world's IPO markets, attributable partly to more Mainland firms having sought secondary listings in Hong Kong. In the past year, eight US-listed Mainland companies completed their secondary listings in Hong Kong, raising a total of HK$127.9 billion.

Chart 4.18
The IPO market in Hong Kong



Source: HKEX.

Looking ahead, the outlook for the local equity market will remain clouded by uncertainties over the development and impact of the pandemic. In particular, global economic growth and market sentiment will hinge on the pace and efficacy of vaccine rollouts. Furthermore, market sentiment may be dampened by uncertainties surrounding the China-US relationship, which could have a significant impact on the Hong Kong stock market. As such, the local equity market would remain susceptible to volatility in the external environment.

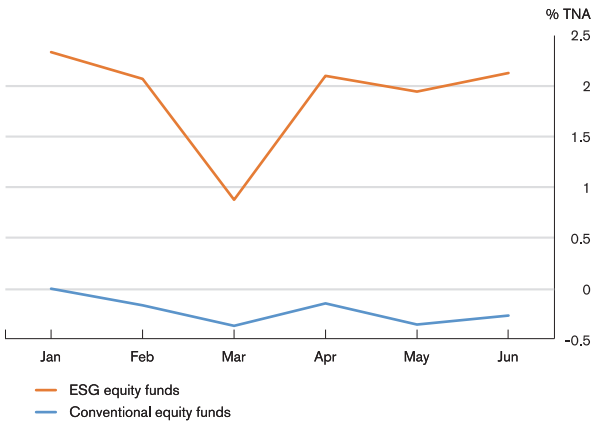
Latest developments in the stock market also suggest that environmental, social and governance (ESG) factors have played an increasingly important role in determining stock valuations. Indeed, ESG equity funds were found to be relatively resilient to market turbulence during the pandemic, suggesting that ESG factors significantly differentiated between the stock valuation of firms. Box 3 studies the effect of ESG disclosures on stock valuations using a sample of ESG reports issued by Hong Kong-listed firms. Our findings suggest that firms' exposure to ESG risks is one important source of uncertainty in their stock valuations, and such uncertainty can be reduced effectively by their ESG disclosures.

Box 3
Effects of ESG disclosures on stock valuations

Introduction[30]

ESG investing refers to the consideration of non-financial factors related to ESG issues, alongside financial factors, in the investment decision-making process. ESG equity funds are found to be relatively resilient to market turbulence during the COVID-19 pandemic (Chart B3.1), suggesting that ESG factors significantly differentiated between the stock valuations of firms. Relatedly, inadequate disclosures about ESG-related risks would limit investors' ability to assess these risks properly. This could become a source of financial stability risks, as stock markets could be vulnerable to abrupt price corrections to ESG risks systemically.

Chart B3.1
Inflows into ESG equity funds during the first half of 2020



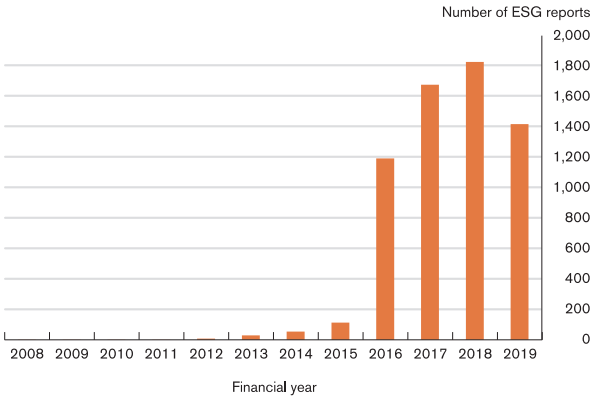
Note: Conventional and ESG equity funds are based on classification by source.
Source: EPFR.

This Box focuses on firms listed on the HKEX and examines whether the ESG disclosures of firms affect the informational efficiency and volatility of their stock prices. In theory, more transparent disclosures on ESG matters could reduce information asymmetry between listed firms and investors, and promote price discovery in the market. ESG disclosures may also reduce the volatility of stock prices by, arguably, lowering uncertainty arising from the exposure of firms to ESG risks.

Data and methodology

We source the firms' ESG disclosures from their annual ESG reports. Since 2016, when the "comply or explain" requirement on ESG disclosure came into force, the number of ESG reports issued has increased tenfold and stayed above that level (Chart B3.2)[31].

Chart B3.2
Number of ESG reports issued by Hong Kong-listed firms



Note: The figure for the 2019 financial year covers only reports issued on or before 29 May 2020.
Source: HKMA staff calculations based on ESG reports collected from the "HKEXnews" website.

[30] Wu (2020), "What can we learn from analysing listed firms' ESG reports? – observations from Hong Kong based on textual analysis," *HKMA Research Memorandum*, 05/2020.

[31] "Comply or explain" requirement means listed firms need to report on the "comply or explain" provisions in the ESG reporting guide. If the listed firm does not report on one or more of these provisions, it must provide reasons in its ESG report. These provisions have been upgraded to mandatory reporting for financial years commencing on or after July 2020.

As the information in the ESG reports is mainly textual and unstructured, we use computer-based textual analysis to convert the information into several attributes to facilitate a better comparison of ESG disclosures (Table B3.A)[32].

Table B3.A
Attributes derived from textual analysis

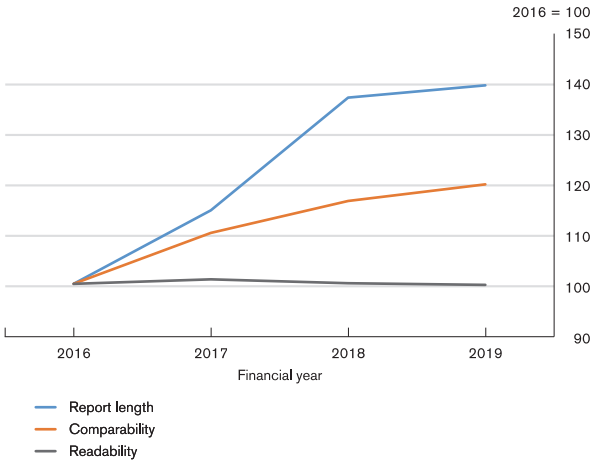
Attributes	Description / Definition
Report length	Measures the amount of information based on the number of words in the ESG report
Readability	Measured by the average length of a sentence and complexity of words
Comparability	Measured by the similarity of words used in the ESG reports across different firms
Topic identification	Identifies topics by different combinations of keywords that are commonly discussed among ESG reports
Forward-looking content	A sentence is classified as forward-looking if it contains forward-looking words (e.g. will, future)

Taking these attributes as independent variables, we estimate two panel data regression models to estimate their relationships with the bid-ask spread of stock prices (a measure of informational efficiency) and the standard deviation of daily stock returns (a measure of stock price volatility) respectively[33]. The regression sample consists of 1,571 listed firms covering the period from the 2016 to 2019 financial years[34].

Empirical findings

The textual analysis highlights four observations. First, the length of ESG disclosure reports has generally increased since 2016. Firms in sectors more exposed to environmental issues, such as utilities and energy, tend to disclose more information. Second, the comparability of ESG reports among firms has increased over time, while little improvement is seen in the reports' readability (Chart B3.3). Third, regarding the content of reports, environmental issues (e.g. greenhouse gas, energy consumption and hazardous waste) have received increasing attention, while social (e.g. employee safety and social responsibility) and governance-related (e.g. law and regulation, and corporate governance) disclosures continue to dominate the discussions. Finally, forward-looking information accounted for an important part of the firms' ESG disclosures, providing important information on the long-term ESG risks of listed firms.

Chart B3.3
Trends in the selected attributes of ESG reports



Notes:
(1) The figures refer to the median value of the selected attributes, covering ESG reports issued in each financial year.
(2) All attributes are normalised based on the 2016 financial year having a value of 100.

[32] Unstructured information refers to information that either does not have a pre-defined data model or is not organised in a pre-defined manner. Some techniques are required to convert it into structured data for analysis and interpretation.

[33] Variables such as firms' size, leverage ratio, stock price, return on assets, previous return and market volatility are included in the panel regression models to control for factors that could affect the bid-ask spread of stock prices or standard deviation of stock returns.

[34] The number of firms in the regression analysis is smaller than the number of firms issuing ESG reports (Chart B3.2) as certain firm-year observations with outlier values or incomplete data are removed from the regression analysis.

We further examine how the key attributes of ESG disclosure will affect the bid-ask spread of stock prices and standard deviation of stock returns. Empirical findings suggest that firms can benefit from ESG disclosure, because it improves informational efficiency and reduces the uncertainty of stock valuation. Specifically, estimation results of the panel data regressions show that firms with more ESG disclosures and more forward-looking information are associated with a smaller bid-ask spread of stock prices (i.e. better informational efficiency, as shown in the middle column of Table B3.B). In addition, firms that disclosed more environment-related and forward-looking information are associated with a smaller standard deviation of stock returns (i.e. lower volatility, as shown in the right-hand column of Table B3.B).

Table B3.B
Estimated relationship between ESG disclosures and stock valuations

Attributes of ESG reports	Better informational efficiency	Lower volatility
Longer report	**	
More readable		*
More comparable		
Environmentally oriented		**
More forward-looking content	***	*

Notes:
(1) A blank entry denotes the estimated relationship is not statistically significant at the 10% level.
(2) ***, ** and * denote the estimated relationship being statistically significant at the 1%, 5% and 10% levels respectively.
(3) An ESG report is characterised as environmentally oriented if it is dominated by an environment-related topic.

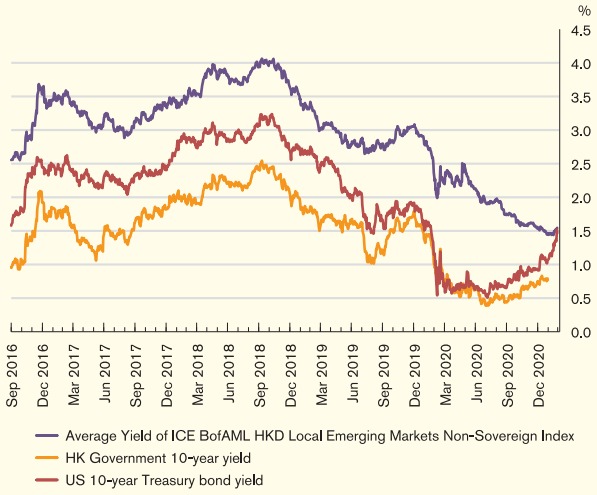
Conclusion

Our findings show that the exposure of firms to ESG risks is one important source of uncertainty in their stock valuations, and such uncertainty can be reduced effectively by ESG disclosures. The fact that firms can benefit from being more transparent in ESG issues will provide a strong support to stock market regulators in their ongoing efforts to improve listed firms' ESG disclosures.

4.4 Debt market

The Hong Kong dollar debt market continued to expand in the second half of 2020 on the back of steady growth in issuances. The yield of Hong Kong dollar 10-year sovereign bond, while still hovering around its historically low level, rebounded a bit in tandem with an increase in US Treasury yield during the review period amid concerns over rising inflationary pressure with better growth outturns and the prospect of higher government borrowing to support additional fiscal stimulus in the US. Meanwhile, the yield of Hong Kong dollar non-sovereign bonds continued to decrease (Chart 4.19).

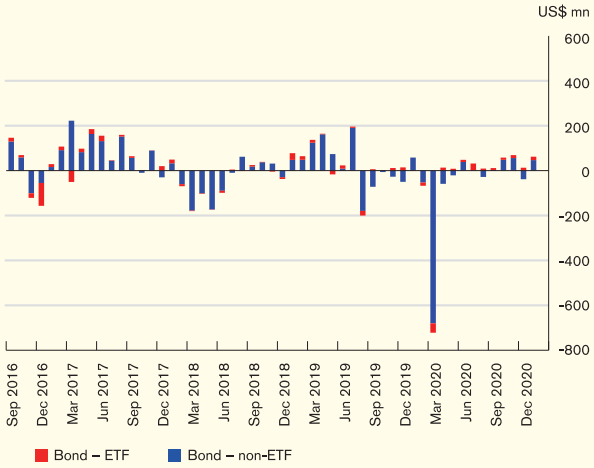
Chart 4.19
Hong Kong dollar sovereign and non-sovereign bond yields and US ten-year Treasury yield



Sources: ICE Data Indices and HKMA.

Net bond fund flows to Hong Kong returned after a sharp net outflow of US$742.5 million in the first half of 2020. Confidence was gradually restored by unprecedented support from central banks and government stimulus measures globally. The uptick in confidence, together with improved liquidity conditions, contributed to a net bond fund inflow to Hong Kong of US$101 million in the fourth quarter of 2020. Since September 2020, non-exchange traded fund (non-ETF) bond funds, which have garnered inflows, were the main contributor, accounting for 66.0% of the total net inflows of bond funds between September 2020 and January 2021. (Chart 4.20).

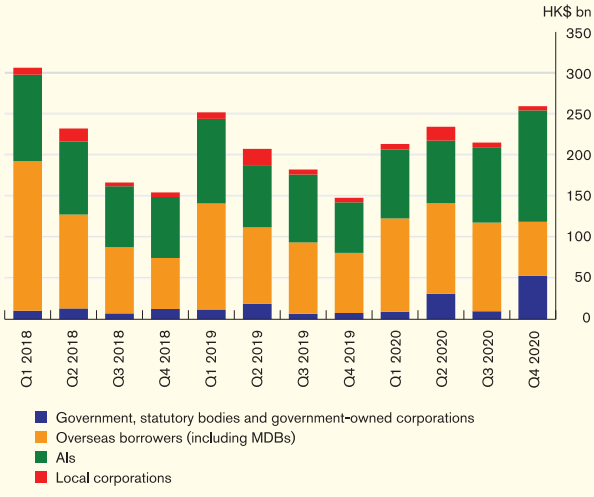
Chart 4.20
ETF and non-ETF bond fund flows into Hong Kong



Source: EPFR Global.

The total issuance of Hong Kong dollar debt in the second half of 2020 increased by 9.8% year-on-year to HK$2,209.6 billion. The increase was driven by a more than threefold increase in non-EFBN issuances by the government sector and a 57.1% increase in issuances by authorized institutions (Chart 4.21), and a 3.2% increase in the issuance of EFBNs.

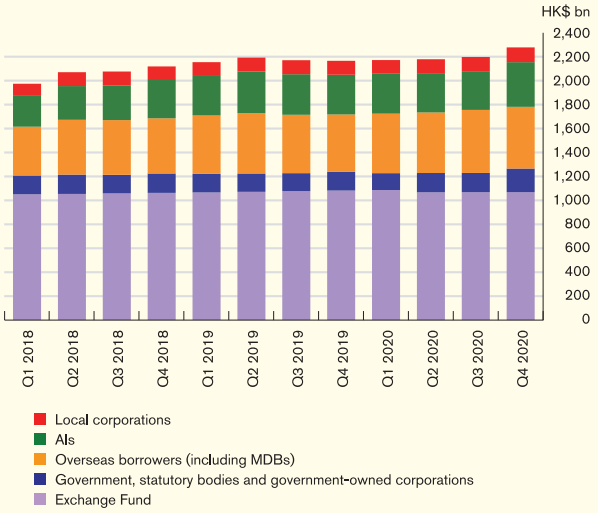
Chart 4.21
New issuance of non-EFBNs Hong Kong dollar debt



Source: HKMA.

As a result, the outstanding amount of Hong Kong dollar debt expanded by 5.2% year-on-year to HK$2,278 billion at the end of December 2020 (Chart 4.22). The amount was equivalent to 28.7% of HK$M3, and to 23.8% of the Hong Kong dollar-denominated assets of the banking sector. Within the total, the government sector saw non-EFBN debt outstanding rising by 26.9% from a low base a year ago to HK$198 billion, while outstanding EFBNs declined marginally by 1.3% year-on-year to HK$1,068 billion.

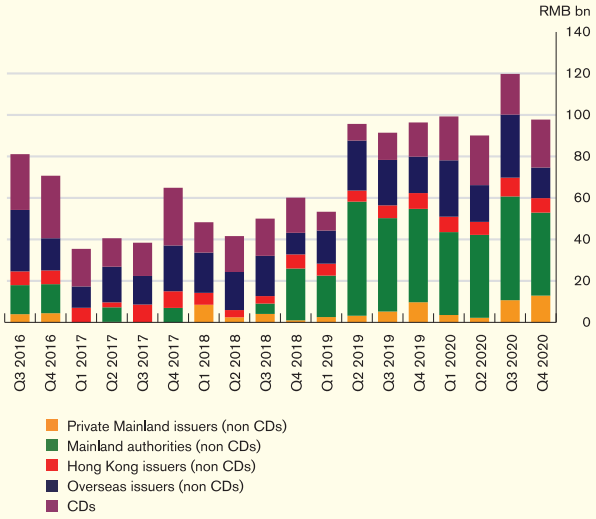
Chart 4.22
Outstanding Hong Kong dollar debt by issuer



Source: HKMA.

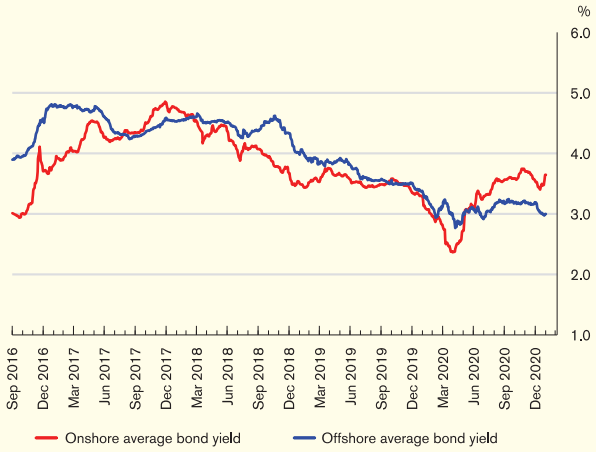
The offshore renminbi debt market in Hong Kong continued to grow steadily in the second half of 2020. As sentiment in the offshore renminbi (CNH) debt market improved, total new issuance increased by 14.9% in the second half of 2020 from the first half to RMB217.6 billion. This increase was driven mainly by a greater than threefold increase in issuances by private Mainland issuers. In addition, debt issued by Mainland authorities and Hong Kong issuers increased by 12.5% and 17.6%, respectively (Chart 4.23). Onshore bond yields started to pick up last April, while offshore bond yields remained at low levels partly due to strong buying interest from international investors. As a result, the yield difference widened in the second half of 2020 (Chart 4.24).

Chart 4.23
New issuance of offshore renminbi debt in Hong Kong by issuer



Sources: Newswires and HKMA staff estimates.

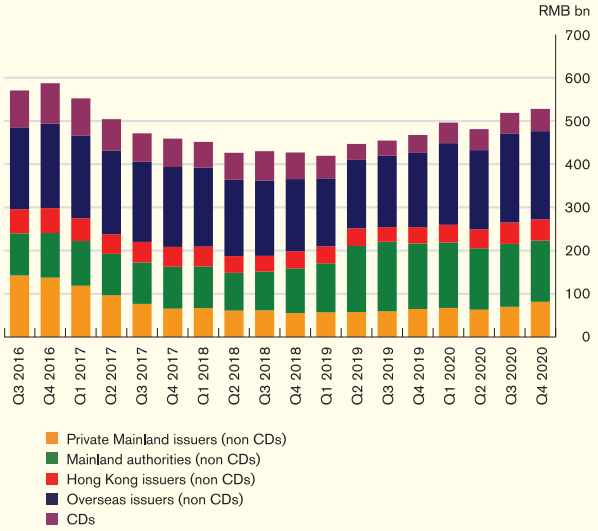
Chart 4.24
Average yields of onshore vs. offshore renminbi bond indices



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

Due to the rapid growth in new issuance, the total outstanding amount of CNH debt securities recorded a 12.9% year-on-year increase to RMB528.0 billion at the end of December 2020 (Chart 4.25).

Chart 4.25
Outstanding amount of CNH debt in Hong Kong



Sources: Newswires and HKMA staff estimates.

Near-term prospects for the Hong Kong dollar and CNH debt markets remain uncertain. In particular, for CNH debt, the prospects of a weaker US dollar against the renminbi, combined with the "lower-for-longer" interest rate environment, are likely to attract more foreign investors to markets that can offer them relatively high yields and potentially also foreign exchange gains. That said, uncertainties in the pace of global economic recovery, in terms of the development of the pandemic and lingering concerns of continued US policy restrictions by the new administration on investment in some Chinese entities, are likely to weigh on market sentiment.

In the latest Budget unveiled in February 2021, the Government announced its plans to enhance the efficiency and capacity of the Central Moneymarkets Unit (CMU) to cope with the developments of Bond Connect and retail bond market. In the medium term, local debt market development is set to be boosted by a number of policy initiatives in the Government Bond Programme, particularly on green finance[35].

[35] The Government launched HK$15 billion of inflation-linked retail bonds and the fifth batch of the Silver Bond, also totalling HK$15 billion, in October and November of 2020 respectively.

On 27 January 2021, the Government announced the successful offering of US$2.5 billion of green bonds under the Government Green Bond Programme. Green finance is expected to be an important driver in local bond market development as the market is strategically positioned to attract issuances of green bonds denominated in multiple currencies, capitalising on Hong Kong's strengths as an international financial centre while boosting Hong Kong's profile as a financing platform for green projects on the Mainland and overseas[36].

4.5 Property markets

Residential property market

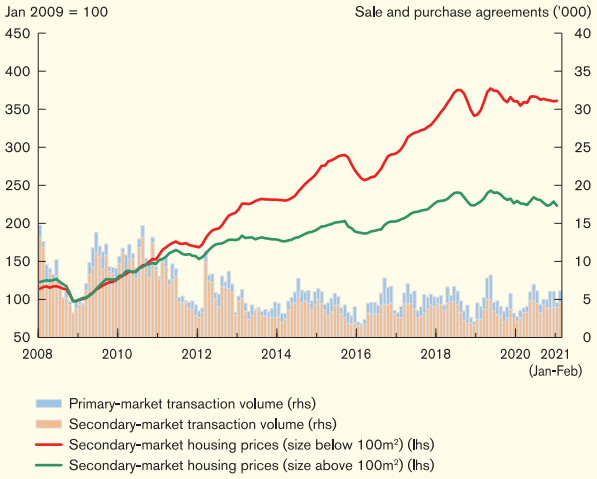
The residential property market broadly held up, despite new waves of local COVID-19 infections. Transaction activities were restrained in the third quarter of 2020 amid the third wave of local infections, but picked up in the last quarter of 2020 as many new development projects were launched after the third wave receded (Chart 4.26). For 2020 as a whole, the housing transaction was about 60,000 units, similar to 2019. Following some stabilisation of the fourth wave of local infections in early 2021, housing transactions picked up in February after a temporary dip in January.

Secondary-market housing prices have consolidated slightly since mid-2020. In particular, large flats (with a saleable area of at least 100m^2) saw relatively larger consolidation than small and medium-sized flats (with a saleable area of less than 100m^2) (Chart 4.26). Overall, housing prices declined mildly by 1.9% in the second half of 2020[37]. In early 2021, the Centa-City Leading Index remained roughly stable in February compared with end-2020.

[36] According to Dealogic, green bonds listed in Hong Kong totalled US$22.9 billion at the end of December 2020, mostly denominated in other currencies, such as the US dollar (81.1%), the euro (13.1%) and the renminbi (3.3%). Only 2.5% were denominated in the Hong Kong dollar.

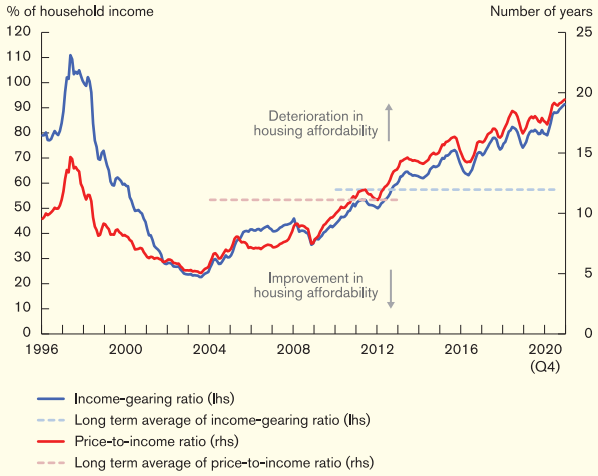
[37] Official housing prices recorded a slight increase of 0.1% for the whole year, the smallest annual rise since 2008.

Chart 4.26
Residential property prices and transaction volume



Sources: R&VD and Land Registry.

Chart 4.27
Indicators of housing affordability



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

Housing affordability became more stretched, mainly due to a fall in household income. The housing price-to-income ratio climbed to 19.3 in the fourth quarter of 2020, compared with the historical peak of 14.6 in 1997. While the average interest rate for new mortgages went down during 2020, repayment ability deteriorated along with falling household incomes. Meanwhile, the income-gearing ratio reached a high of 90.7%, well above the long-term average (Chart 4.27)[38]. Although housing prices edged down only slightly and rentals flattened in the second half of 2020, the buy-rent gap stayed elevated[39]. In tandem, residential rental yields remained low at 2.0–2.4% in January 2021.

While the pandemic and the prolonged economic fallout continued to pose downside risks to the housing market, macroprudential measures implemented by the HKMA since 2009 have strengthened banks' resilience to property market shocks. The debt-servicing ratio for new mortgages stayed low at around 37% in the seven months to January 2021. The average LTV ratio for new mortgages was 58% in January 2021, below the prevailing ratio of 64% before the measures were first introduced.

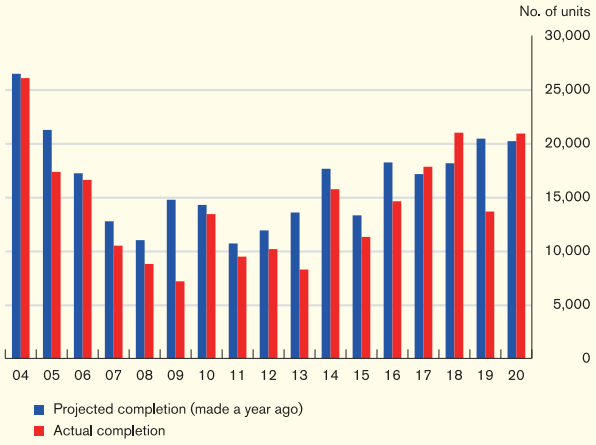
The residential property market outlook is subject to a number of uncertainties and risks as discussed in previous chapters. On the one hand, the high unemployment rate and the fall in household income will weigh on housing demand. On the other hand, the prolonged ultra-low interest rates are expected to provide support for asset prices. Over the longer term, the outlook for the housing market will depend on the supply-demand gap. Actual completions reached 20,900 units in 2020, the second highest in the recent decade (Chart 4.28), and the Government projects that private housing supply will remain high in the upcoming years[40].

[38] The price-to-income ratio measures the average price of a typical 50m² flat relative to the median income of households living in private housing. Alternately, the income-gearing ratio compares 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.

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

[40] For example, gross completions are projected at around 19,100 units per year in 2021 and 2022, compared with the annual average of 14,300 units in the past 10 years (2011–2020).

Chart 4.28
Projected and actual private flat completion



Sources: Transport and Housing Bureau and R&VD.

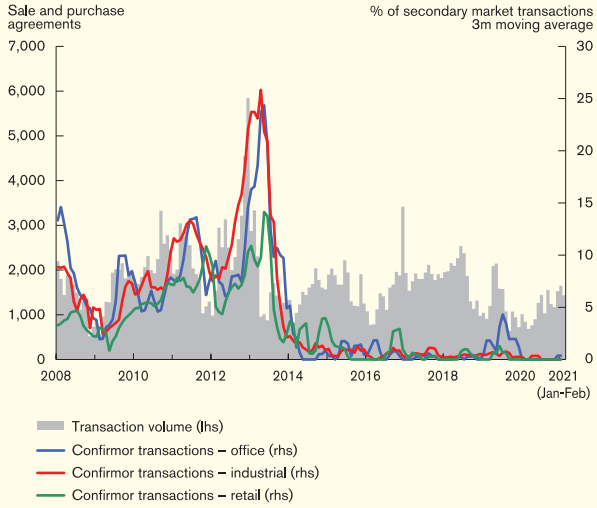
Non-residential property market

The non-residential property market remained generally weak. Overall transactions reached a record low of 13,442 units for the whole of 2020, although activity picked up in late 2020 (Chart 4.29). Speculative activities stayed muted, as indicated by confirmor transactions. Restrained by the challenging economic environment, prices of non-residential properties remained soft during the second half of 2020 (Chart 4.30). Similarly, the leasing market for commercial properties continued to be sluggish, with rentals of office space recording enlarged declines (Chart 4.31). Rental yields across segments stayed low at 2.6–3.1% in January 2021.

The non-residential property market may continue to face headwinds in the near term, as economic activities will take time to recover even with the new vaccines. In particular, the prices and rentals of office space and retail premises may remain under pressure given higher vacancies. Over the longer term, some post-pandemic behavioural changes may have long-lasting effects on the commercial property market. For example, the rise of remote working could reduce demand for office space in the future.

In view of slackening market demand over the past two years, the Government considered it appropriate to abolish the Doubled Ad Valorem Stamp Duty (DSD) for non-residential property as a demand management measure, effective on 26 November 2020[41]. The abolition of DSD could facilitate the selling of non-residential property by companies that are encountering financial difficulties or liquidity needs due to the economic downturn. Earlier in August 2020, the HKMA adjusted countercyclical macroprudential measures on non-residential property, raising the applicable LTV ratio caps for mortgage loans on non-residential property by 10 percentage points. The HKMA will continue to monitor developments closely and introduce appropriate measures in response to changes in the property market cycle to safeguard banking stability.

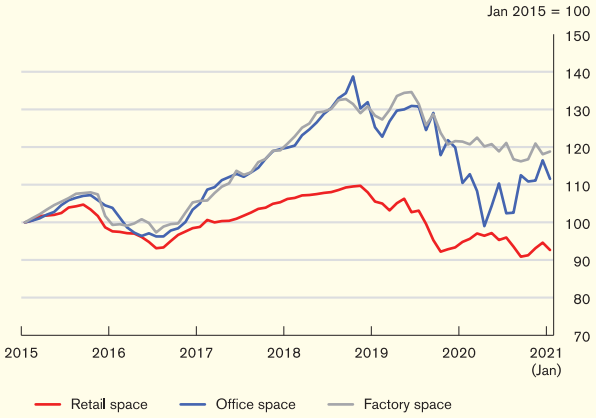
Chart 4.29
Transactions in non-residential properties



Sources: Land Registry and Centaline Property Agency Limited.

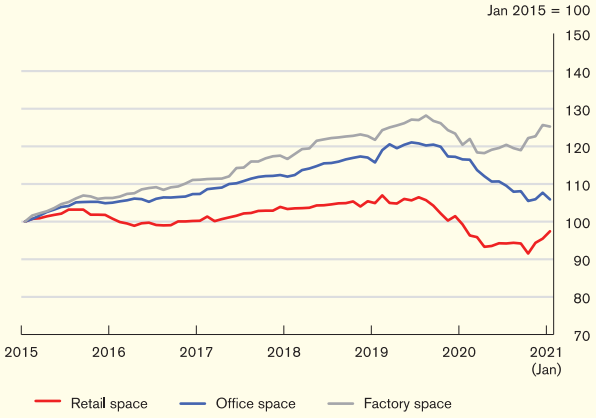
[41] The DSD was introduced in February 2013 to curb speculation and maintain property market stability against the backdrop of an overheating property market with active transaction activities and soaring prices.

Chart 4.30
Non-residential property price indices



Source: R&VD.

Chart 4.31
Non-residential property rental indices



Source: R&VD.

5. Banking sector performance

As the economic recession persisted amid the COVID-19 pandemic, coupled with the effects of low-for-long interest rate environment, retail banks' profit declined further alongside a slight deterioration in asset quality in the second half of 2020. However, the Hong Kong banking sector has remained resilient, underpinned by robust capital and liquidity positions. During the review period, the HKMA extended various support measures to further help the economy ride out this difficult period. Looking ahead, although the rollout of vaccines may raise hopes of containing the pandemic and reopening economic activities globally, the pace of economic recovery remained uncertain. The uncertainties, together with lingering geopolitical tensions and the ensuing impact on business activities, will continue to pose challenges to the Hong Kong banking sector. Banks should remain vigilant to the implications of these downside risk factors for asset quality, particularly in view of the weakening ability of corporates and households to repay debt amid the pandemic.

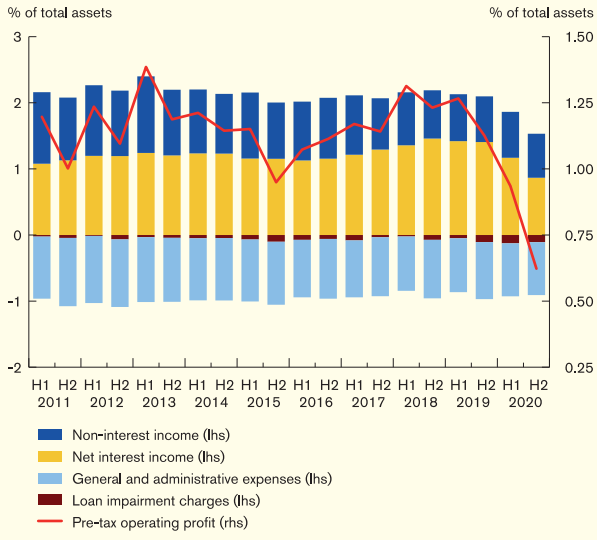
5.1 Profitability and capitalisation

Profitability

The aggregate pre-tax operating profit of retail banks[42] declined by 38.5% in the second half of 2020, compared with the same period in 2019. As a result, the return on assets fell to 0.62% in the second half of 2020, compared with 1.13% in the same period in 2019 (Chart 5.1). The decline in profit was contributed mainly by falls in net interest income, as the net interest margin (NIM) of retail banks decreased from 1.63% in the second half of 2019 to 1.01% in the same period of 2020 (Chart 5.2). The fall in net interest income more than offset a mild increase in non-interest income during the same period.

For 2020 as a whole, the aggregate pre-tax operating profit of retail banks decreased by 29.4%, with the return on assets dropping to 0.77% from 1.19% in 2019.

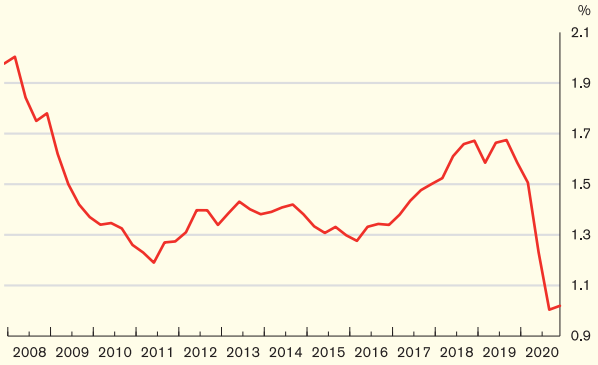
Chart 5.1
Profitability of retail banks



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

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

Chart 5.2
NIM of retail banks

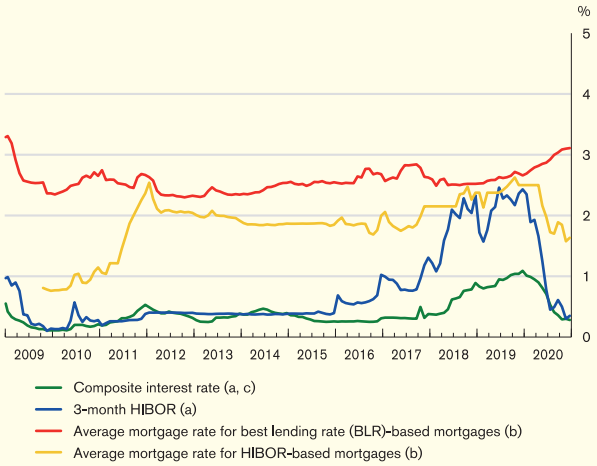


Note: Annualised quarterly figures.
Source: HKMA.

Largely reflecting ample Hong Kong dollar liquidity amid sizeable capital inflows[43] driven by stock market activities, Hong Kong interbank interest rates further softened in the fourth quarter of 2020. For instance, the three-month Hong Kong Interbank Offered Rate (HIBOR) declined by 43 basis points in the second half to 0.35% at the end of 2020 (blue line in Chart 5.3).

The composite interest rate (a measure of average Hong Kong dollar funding costs for retail banks) also showed a similar development, decreasing notably from 0.71% at the end of June 2020 to 0.28% at the end of 2020 (green line in Chart 5.3). The drop in the composite interest rate was attributable to lower interbank funding costs and lower time deposit rates offered by some major retail banks.[44]

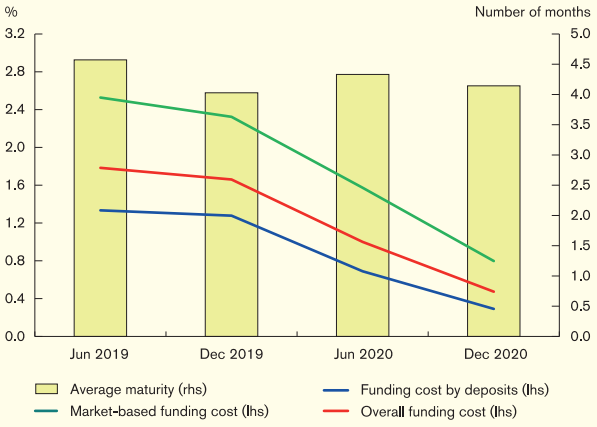
Chart 5.3
Interest rates



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.

From a broader perspective, the overall Hong Kong dollar and US dollar funding costs for licensed banks in Hong Kong declined moderately by 53 basis points during the second half of 2020 (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.

[43] The strong-side Convertibility Undertaking was repeatedly triggered between September and October 2020. For details, see Chapter 4.1.

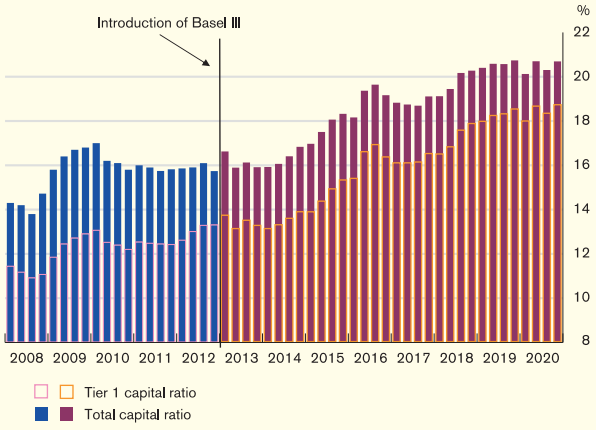
[44] Although several virtual banks began operations in 2020 and offered competitive deposit rates to customers, their business scale remained small in the second half of 2020.

Looking ahead, the outlook for banks' profitability would remain highly challenging in the near term as the global low interest rate environment is likely to be prolonged, continuing to suppress banks' NIM. In addition, despite some optimism in the global economic outlook arising from the vaccine breakthroughs, the trajectory of economic recovery remains unclear given the significant uncertainties surrounding the distribution and efficacy of vaccines. These risk factors would continue to weigh on banks' loan quality and profitability going forward.

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 20.7% at the end of 2020, exceeding the international minimum requirement of 8% (Chart 5.5). The Tier 1 capital ratio was 18.7% in the same period, with 16.7% being contributed by Common Equity Tier 1 (CET1) capital. In addition, the non-risk-based Leverage Ratio[45] (LR) of locally incorporated AIs stood at a healthy level of 8.2% at the end of 2020, exceeding the statutory minimum of 3% (Chart 5.6).

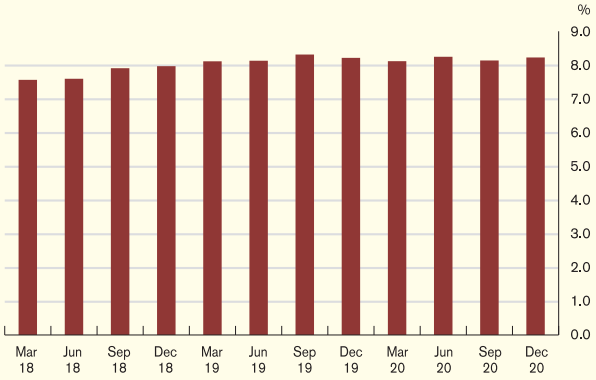
Chart 5.5
Capitalisation of locally incorporated AIs



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

Source: HKMA.

Chart 5.6
Leverage ratio of locally incorporated AIs



Note: Consolidated basis.
Source: HKMA.

5.2 Liquidity and interest rate risks

Liquidity and funding

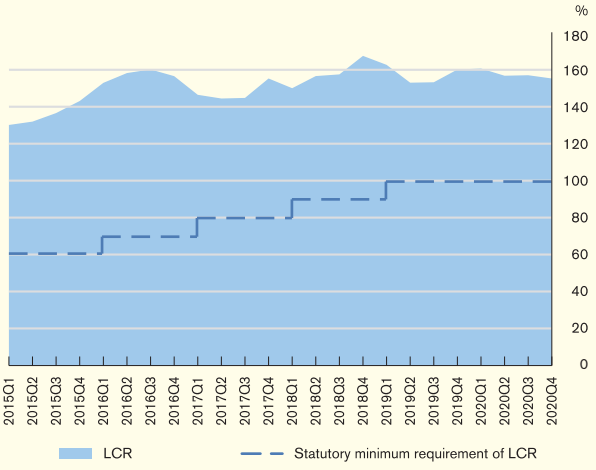
The liquidity positions of the banking sector, as measured by the Basel III Liquidity Coverage Ratio (LCR)[46], remained sound during the review period. The average LCR of category 1

[45] 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).

[46] 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"*.

institutions was 155.1% in the fourth quarter of 2020 (Chart 5.7), which was well above the statutory minimum requirement of 100%. The average Liquidity Maintenance Ratio (LMR) of category 2 institutions was 57.9% during the same period, also well above the statutory minimum requirement of 25%.

Chart 5.7
Liquidity Coverage Ratio

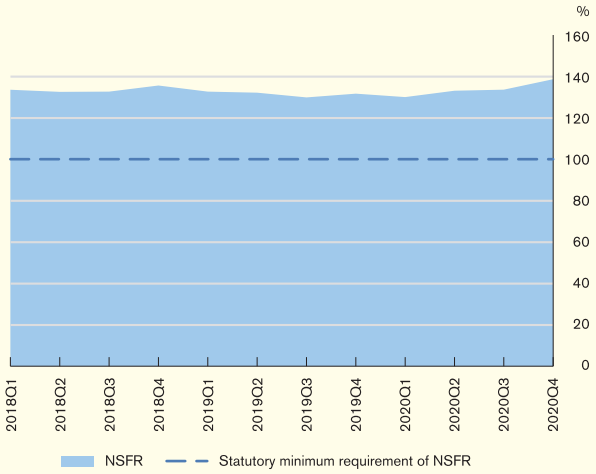


Notes:
1. Consolidated basis.
2. Quarterly average figures.

Source: HKMA.

The latest ratios of the Net Stable Funding Ratio (NSFR)[47] requirement also indicate a stable funding position of AIs. The average NSFR of category 1 institutions and average Core Funding Ratio (CFR) of category 2A institutions stood at the high levels of 138.6% and 139.5% respectively in the fourth quarter of 2020 (Chart 5.8). Both ratios were well above their respective statutory minimum requirements of 100% and 75%. The strong liquidity and stable funding positions of AIs suggest the Hong Kong banking sector is well positioned to withstand liquidity shocks.

Chart 5.8
Net Stable Funding Ratio

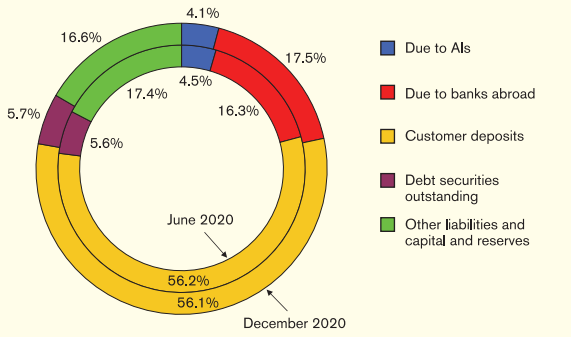


Note: Consolidated basis.

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 2020, the share of customer deposits to all AIs' total liabilities hovered around 56.1%, a level similar to 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.

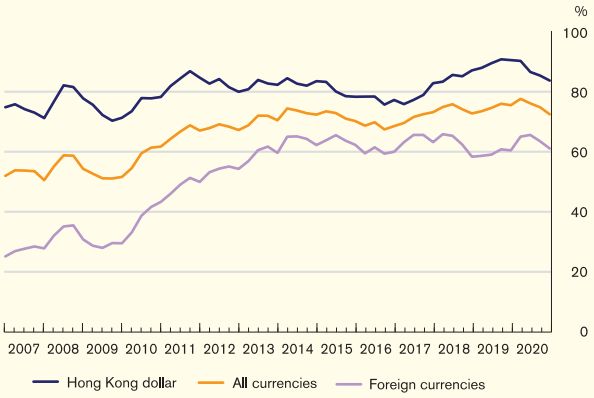
Source: HKMA.

In the second half of 2020, the total deposits of all AIs increased while total loans and advances declined. The average all-currency loan-to-deposit (LTD) ratio of all AIs decreased from 76.0% at the end of June 2020 to 72.3% at the end of 2020 (Chart 5.10). The increase in total deposits was driven by increases in both Hong

[47] 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).

Kong dollar deposits and foreign currency deposits. Reflecting this, the average Hong Kong dollar LTD ratio and foreign currency LTD ratio also declined to 83.5%[48] and 61.0% at the end of 2020, compared with 86.4% and 65.5% six months ago.

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

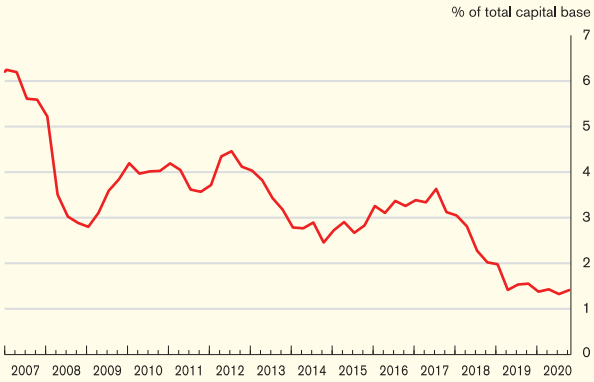


Note: End-of-quarter figures.
Source: HKMA.

Interest rate risk

The interest rate risk exposure of locally incorporated licensed banks remained relatively low in the fourth quarter of 2020. 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 1.41% of their total capital base at the end of 2020 (Chart 5.11).[49]

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 2020.
2. The impact of the interest rate shock refers to its impact on the economic value of the banking and trading book[50], 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

Against the backdrop of the resurgence of virus outbreaks and the tightening of social distancing measures, total loans and advances contracted modestly in the second half of 2020 as the domestic recession continued. Nevertheless, for 2020 as a whole, total credit of the banking sector still recorded a positive growth, despite decelerating notably to 1.2% from 6.7% in 2019.

On a half-yearly basis, total loans and advances of all AIs declined by 1.8% in the second half of 2020, after increasing by 3.0% in the first half. (Chart 5.12). The decline was driven by decreases in both domestic loans (comprising loans for use in Hong Kong and trade financing)

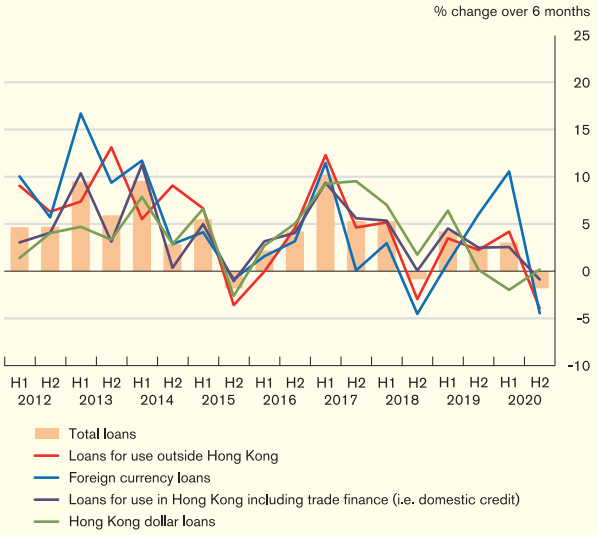
[48] If one also takes into account AIs' own capital and reserves as a broader measure of funding liquidity, the adjusted Hong Kong dollar LTD (including customer deposits, capital and reserves, qualifying capital instruments and other capital-type instruments as the denominator) was around 70.7% at the end of December 2020. This reflects a sound Hong Kong dollar liquidity position of the banking sector.

[49] 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.

[50] 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.

and loans for use outside Hong Kong. Domestic loans dropped mildly by 0.9% while loans for use outside Hong Kong contracted by 3.9% during the second half, contrasting with increases of 2.6% and 4.2% respectively in the preceding six months.

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.

Analysed by currency, Hong Kong dollar loans broadly stabilised at a level similar to six months ago, after decreasing by 2.0% in the first half of 2020. Foreign currency loans declined by 4.5% in the second half after a sharp rise of 10.6% in the first half, partly reflecting lower demand for US dollar loans as liquidity improved globally.

Banks' views on the near-term credit demand outlook became mildly more optimistic, compared with six months ago. According to the results of the HKMA Opinion Survey on Credit Condition Outlook in December 2020, the share of surveyed AIs expecting loan demand to be higher in the following three months increased to 37%, while the share expecting loan demand to be lower for the same period decreased to 13% (Table 5.A).

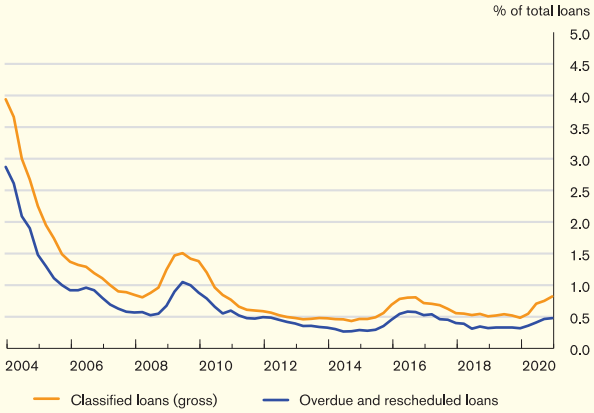
Table 5.A
Expectations of loan demand in the next three months

% of total respondents	Mar-20	Jun-20	Sep-20	Dec-20
Considerably higher	0	0	0	3
Somewhat higher	24	21	33	33
Same	36	55	43	50
Somewhat lower	40	24	23	13
Considerably lower	0	0	0	0
Total	100	100	100	100

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

As the debt repayment abilities of household and corporates were adversely affected amid the pandemic, banks' loan quality deteriorated modestly, though it remained sound by historical and international standards. Also, the pace of deterioration in the loan quality slowed in the second half of 2020. The gross classified loan ratio (CLR) of all AIs increased modestly to 0.9% at the end of 2020 from 0.79% six months ago, while the ratio of overdue and rescheduled loans of all AIs rose to 0.57% at the end of 2020 from 0.49% at the end of June 2020. For retail banks, the gross CLR and the ratio of overdue and rescheduled loans increased to 0.82% and 0.48% respectively (Chart 5.13).

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.

Household exposure[51]

Half-yearly growth in household debt accelerated to 3.9% in the second half of 2020 from 1.5% in the first half, but at a much slower pace than in 2019, when the annual growth rate was 12.8%. The growth in household debt in the second half of 2020 was driven by an increase in residential mortgage loans and a rebound in personal loans (Table 5.B).

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

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

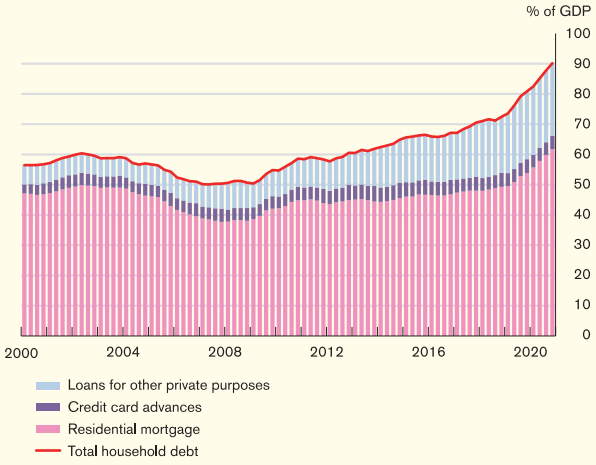
Notes:

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 of the data submitted by AIs earlier.

Source: HKMA.

The household debt-to-GDP ratio rose further to 90.2% in the second half of 2020 from 85.2% in the first half, contributed by both growth in household debt (3.3 percentage points) and a decline in nominal gross domestic product (GDP) (1.7 percentage points) (Chart 5.14). More recently, the ratio has risen more significantly, reflecting mainly a decline in nominal GDP since 2019 and more importantly, the impact of the COVID-19 pandemic. As such, although the growth in household debt moderated in 2020, the decline in nominal GDP still pushed the household debt-to-GDP ratio higher. It is worth noting that while economic activities slow down sharply during a recession, households do not usually make early repayment of their debt within a short period of time. As such, the adjustment of household debt is usually slower than that of GDP during an economic downturn. The household debt-to-GDP ratio may thus be expected to stay elevated in the near term.

Chart 5.14
Household debt-to-GDP and its components



Notes:

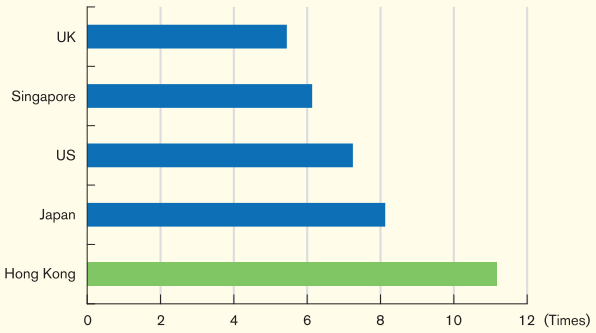
1. Only borrowings from AIs are covered.
2. GDP refers to the annualised GDP, which is the sum of the quarterly GDP in the trailing four quarters.
3. Since December 2018, the figure for household debt has been restated to reflect AIs' reclassification of working capital loans.
4. The data series of loans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

Source: HKMA.

Although the household debt-to-GDP ratio has been a widely used indicator in evaluating households' financial position, a full assessment requires considering the entirety of the household balance sheet as well, including the level of assets and the composition of assets and liabilities. In an assessment, the HKMA found that in Hong Kong, the household net worth-to-liabilities ratio remained high at 11.2 times in 2019 (UK: 5 times, Singapore: 6 times, US: 7 times, Japan: 8 times) (Chart 5.15). The safe assets-to-liabilities ratio for Hong Kong's household sector also stayed high at 2.88 times (the ratio was 1 in the US, the UK and Singapore, and 3 times in Japan) (Chart 5.16). Both ratios are high, and are also greater than most other developed economies, suggesting that Hong Kong's households, on aggregate, are financially sound and have a strong buffer to cushion potential financial and economic shocks.

[51] 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 comprises mainly loans to private banking and wealth management customers secured by financial assets, credit card advances and unsecured personal loans. At the end of 2020, household lending made up 33.1% of domestic lending.

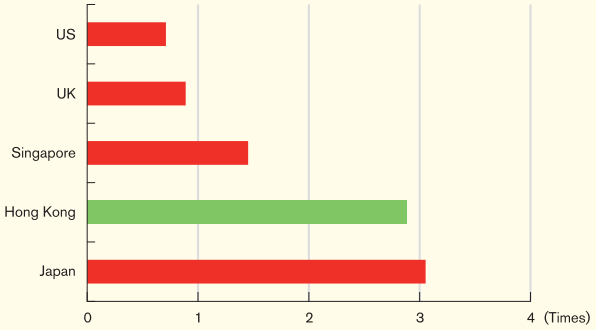
Chart 5.15
Household net worth-to-liabilities ratio for selected economies



Note: Japan figures refer to those at end-2018, while other figures refer to those at end-2019.

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

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



Note: Safe assets comprise deposits, as well as 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.

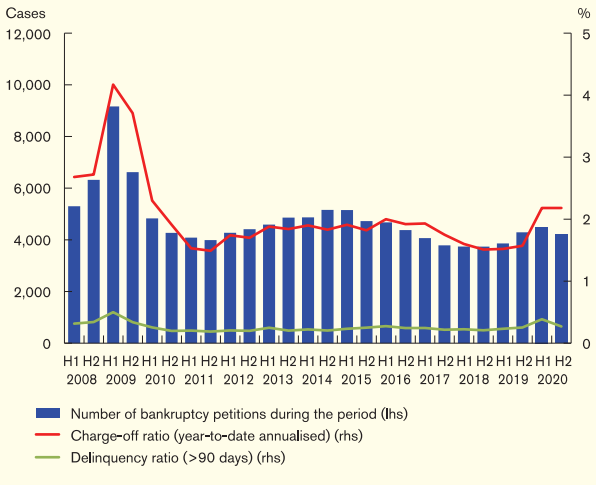
Given the prudent risk management and sound credit quality of these loans, the HKMA considered the associated credit risk as manageable. More than 90% of household debt were collateralised loans, mainly residential mortgages and wealth management advances secured by financial assets.

Regarding residential mortgages, following several rounds of countercyclical macroprudential measures introduced by the HKMA since 2009, the average LTV ratio and average debt servicing ratio of newly approved mortgage loans have stayed 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. These measures include imposing a cap on LTV ratios for financial assets pledged as collateral, prompt margin call and 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 closely monitor changes in banks' loan quality.

For unsecured household exposure, the associated credit risk remained contained during the review period. The number of bankruptcy petitions presented decreased in the second half of 2020 compared with six months ago (Chart 5.17). The year-to-date annualised credit card charge-off ratio stayed unchanged at 2.18% in the fourth quarter of 2020, while the delinquency ratio dropped to 0.27% in the same period.

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

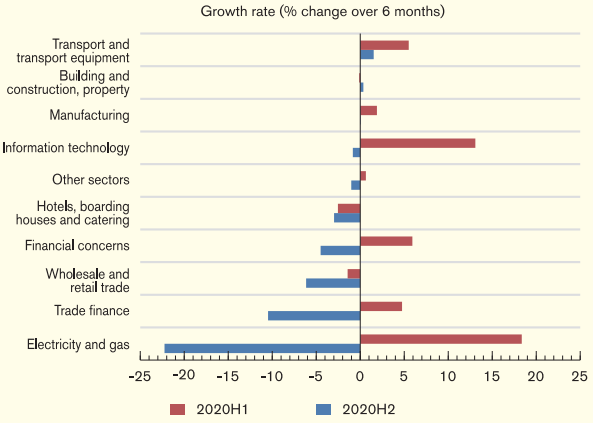


Sources: Official Receiver's Office and HKMA.

Corporate exposure[52]

Domestic corporate loans (including trade finance) declined by 3.1% on a half-yearly basis at the end of 2020, after recording 3.0% growth during the first half. Lending to major economic sectors recorded broad-based flattening or declines (Chart 5.18). Such changes could be attributed to the subdued credit demand amid the economic recession, and also some corporates have repaid loans with their deposits. For 2020 as a whole, domestic corporate loans were roughly maintained at a similar level to the end-2019 position.

Chart 5.18
Growth in domestic corporate loans by selected sector



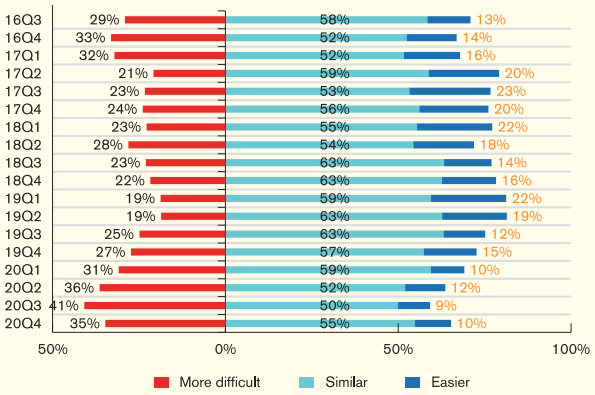
Source: HKMA.

The demand-side survey on the credit conditions of small and medium-sized enterprises (SMEs) showed signs of improvement in the fourth quarter of 2020. Compared with the survey results for the third quarter, SMEs' perception of banks' credit approval stance improved, with 35% of the respondents perceiving credit approval as "more difficult" relative to six months ago, down from 41% in the third quarter (Chart 5.19). Of the respondents with existing credit lines, 5% indicated a tighter stance by banks, lower than the 18% recorded in the third quarter (Chart 5.20).

To ease the cash-flow pressure on SMEs amid the COVID-19 pandemic, the HKMA has been working closely with the banking sector and encouraging banks to continue providing credit by making good use of their lending capacity. Specifically, the HKMA extended the Pre-approved Principal Payment Holiday Scheme to October 2021. By the end of January 2021, banks had granted some 59,000 cases of credit relief for corporate customers including principal payment holidays and other relief measures, involving an aggregate amount of around HK$750 billion. In addition, the Hong Kong Mortgage Corporation Limited (HKMC) extended the moratorium on principal repayments for the 80% Guarantee Product and the 90% Guarantee Product under the SME Financing Guarantee Scheme by six months to the end of March 2021. As for the new Special 100% Loan Guarantee, in September 2020, the HKMC raised the maximum loan amount per enterprise from the equivalent of six months of employee wages and rents to 12 months (capped at HK$5 million), and extended the maximum repayment period from three years to five years. As at the end of January 2021, a total of HK$42.7 billion in loans was approved under the 100% Guarantee Product, benefiting over 20,000 enterprises, involving 260,000 employees. In February 2021, the HKMC announced that the application period of the Special 100% Loan Guarantee would be extended to 31 December 2021. The maximum amount of loan per enterprise would be raised further to 18 months of employee wages and rents (capped at HK$6 million) and the maximum repayment period of the guaranteed loans would be extended further from five years to eight years. 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.

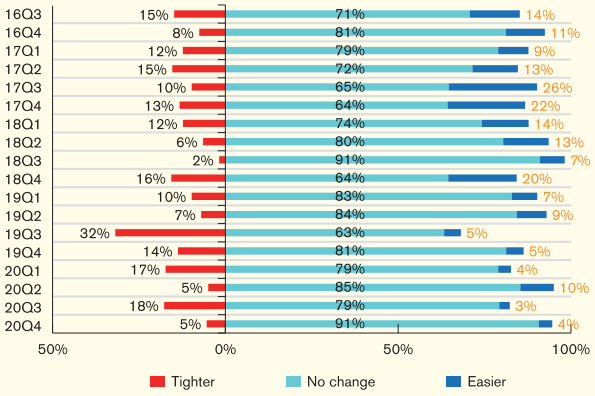
[52] Excluding interbank exposure. At the end of 2020, the share of corporate loans in domestic lending was 66.8%.

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.

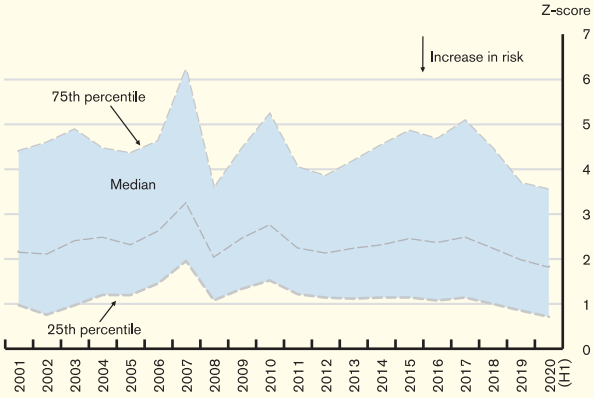
Chart 5.20
SMEs' reported change in banks' stance on existing credit lines



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

The financial health of listed corporates deteriorated slightly as they were broadly hit by the pandemic. Based on accounting data for all non-financial corporates listed in Hong Kong, the Altman's Z-score (a default risk measure for non-financial corporates) saw an across-the-board decline during the first half of 2020, reflecting a weakening in the financial health of these corporates (Chart 5.21). Nevertheless, the number of petitions presented for the compulsory winding-up of companies only edged up to 449 in 2020 from 419 in 2019, partly reflecting the policy effect of support measures.

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

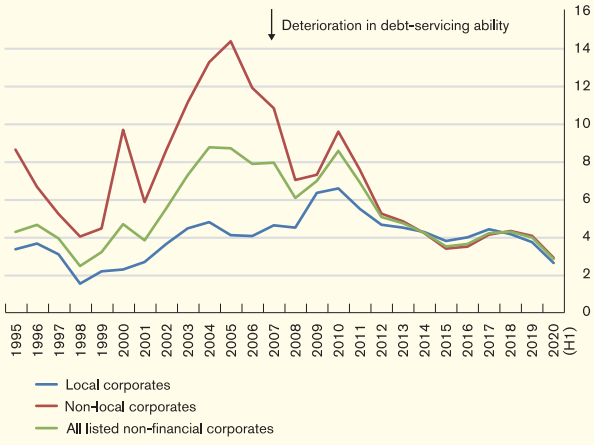


Notes:
1. All non-financial corporates listed on the Hong Kong Stock Exchange are selected.
2. Figures are calculated based on information up to end-February 2021.

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

Consistent with the observation based on the Altman's Z-score, both local and non-local listed corporates' debt servicing abilities, as indicated by the weighted average interest coverage ratios (ICRs), also deteriorated during the same period (the blue and red lines respectively in Chart 5.22) due mainly to declines in corporate earnings amid the pandemic.

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

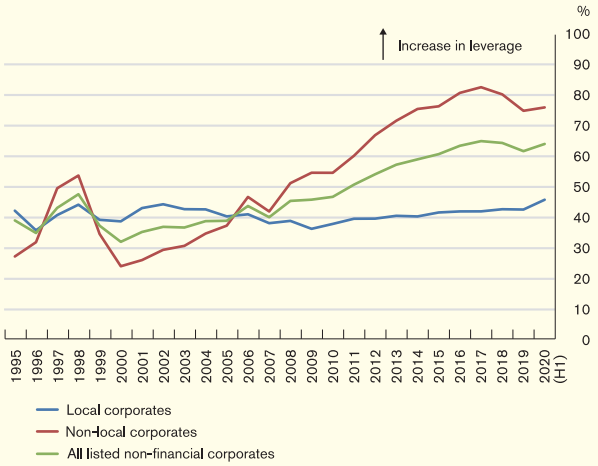


Notes:
1. Weighted average figures.
2. The ICR is calculated by dividing the earnings before interest and tax (EBIT) by total interest expenses. A lower value indicates deterioration of debt servicing ability.
3. All non-financial corporates listed on the Hong Kong Stock Exchange are selected. Local 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-February 2021.

Source: HKMA staff estimates based on data from Bloomberg.

Meanwhile, the weighted average debt-to-equity ratio, a common measure of corporate leverage, increased modestly for both local and non-local corporates in the first half of 2020 (Chart 5.23). Such changes could be attributed to a rising demand of corporates for funding to cope with cash-flow pressures during the pandemic or to strengthen their liquidity buffer with cheaper costs amid the low interest rate environment.

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-February 2021.

Source: HKMA staff estimates based on data from Bloomberg.

The upward trend in the leverage of non-local corporates after the global financial crisis (GFC) has been driven mainly by Mainland corporates listed in Hong Kong. Box 4 provides a comprehensive assessment by analysing key drivers for the rising leverage of Mainland firms amid the low interest rate environment based on a sample of firms listed in Hong Kong.

The analysis found that the increase in investment activities was a significant driver for the rising leverage of Mainland firms listed in Hong Kong after the GFC, as the "low-for-long" interest rate environment reduced external financing costs. Importantly, Mainland firms' investment on average was found to be more responsive to productive investment opportunities, and their return on equity (ROE) also improved more relative to the group of local firms in the "low-for-long" interest rate environment.

Looking ahead, since it would take time for the global economy to recover to pre-pandemic level even with the help of vaccines, the challenging business environment is likely to persist for some time, posing continuous pressure on corporates' financial fundamentals. Banks therefore should stay alert in their credit risk management and closely monitor any changes in the financial fundamentals of borrowers in their corporate exposures.

Mainland-related lending and non-bank exposures

The banking sector's total Mainland-related lending decreased by 4.9% to HK$4,553 billion (15.6% of total assets) at the end of 2020, from HK$4,790 billion (17.2% of total assets) at the end of June 2020 (Table 5.C). Other non-bank exposures increased to HK$1,826 billion (Table 5.D).

Table 5.C
Mainland-related lending

HK$ bn	Mar 2020	Jun 2020	Sep 2020	Dec 2020
Mainland-related loans	4,765	4,790	4,827	4,553
Mainland-related loans excluding trade finance	4,435	4,463	4,523	4,292
Trade finance	330	326	304	261
By type of AIs:				
Overseas incorporated AIs	1,973	1,985	1,882	1,733
Locally incorporated AIs*	2,060	2,087	2,208	2,048
Mainland banking subsidiaries of locally incorporated AIs	732	718	737	772
By type of borrowers:				
Mainland state-owned entities	1,993	2,036	1,978	1,809
Mainland private entities	1,313	1,288	1,369	1,309
Non-Mainland entities	1,460	1,466	1,479	1,435

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	Mar 2020	Jun 2020	Sep 2020	Dec 2020
Negotiable debt instruments and other on-balance sheet exposures	1,184	1,202	1,232	1,353
Off-balance sheet exposures	408	404	434	473
Total	**1,592**	**1,607**	**1,666**	**1,826**

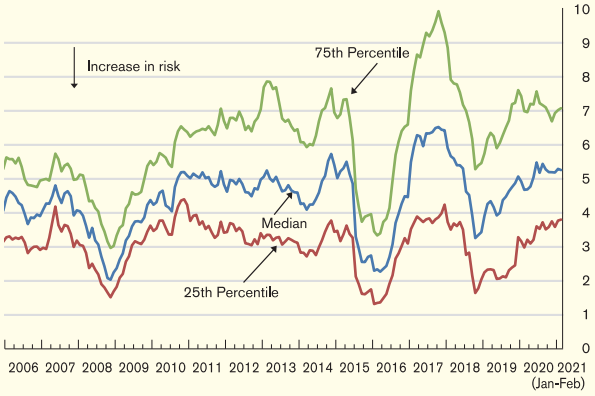
Note: Figures may not add up to the total due to rounding.

Source: HKMA.

The pace of deterioration in asset quality of banks' Mainland-related lending stabilised. The gross CLR of Mainland-related lending of all AIs[53] edged up slightly to 0.96% at the end of 2020 from 0.94% at the end of June 2020.

At the same time, a forward-looking market-based indicator also indicated signs of stabilisation in the default risk for the Mainland corporate sector. The median and 25th percentiles of the distance-to-default (DTD) index[54] hovered at levels similar to six months ago (Chart 5.24). The stabilisation in default risk for the Mainland corporate sector could be driven in part by significant recovery of the Mainland economy.

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, it is worth noting that other downside risk factors such as the uncertainty over the China-US relationship and potential business reshuffling after the pandemic, may cloud the future prospects of Mainland corporates. Banks should stay vigilant and closely monitor the financial health of Mainland corporates, and remain alert to the credit risk management of their Mainland-related exposures.

Macro stress testing of credit risk[55]

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 fourth quarter of 2022 under four specific macroeconomic shocks[56] using information up to the fourth quarter of 2020.

In the stressed scenarios, the expected credit losses two years after different macroeconomic shocks are estimated to be moderate, ranging from 0.66% (Interest rate shock) to 1.48% (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 2.28% (Interest rate shock) to 4.41% (Hong Kong GDP shock). Nevertheless, the probability of such extreme scenarios actually occurring is rather remote, given that Hong Kong has already experienced a severe economic downturn over the past two years, and the chance of a further sharp fall in GDP from such a low base is very small.[57]

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

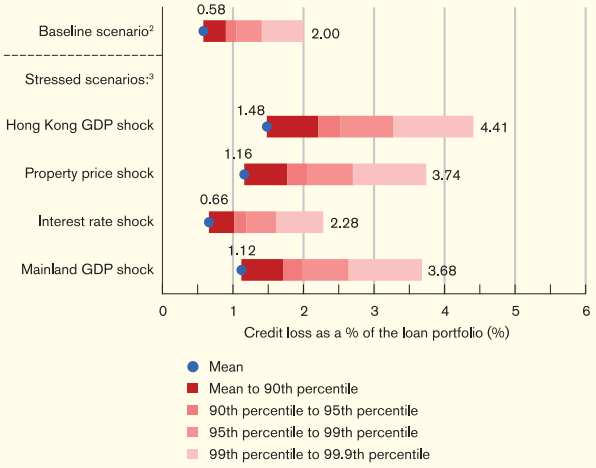
54 The DTD is a market-based default risk indicator based on the framework by R. Merton (1974), "On the pricing of corporate debt: the risk structure of interest rates", *Journal of Finance*, Vol. 29, pages 449–470, in which equity prices, equity volatility, and companies' financial liabilities are the 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.

55 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.

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

57 Under the Hong Kong GDP shock scenario where a similar extreme shock to that experienced during the Asian financial crisis is assumed, there would be a chance of less than 0.1% that the loan loss would be similar to that following the Asian financial crisis (i.e. 4.4%).

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 2020 Q4 as the current environment. The Monte Carlo simulation method is adopted to generate the credit loss distribution for each scenario.
2. Baseline scenario: no shock throughout the two-year period.
3. Stressed scenarios:

   Hong Kong GDP shock: Reductions in Hong Kong's real GDP by 2.7%, 2.4%, 1.7% and 1.6% respectively in each of the four consecutive quarters starting from 2021 Q1 to 2021 Q4.

   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 Q1 to 2021 Q4.

   Interest rate shock: A rise in real interest rates (HIBORs) by 300 basis points in the first quarter (i.e. 2021 Q1), followed by no changes in the second and third quarters, and another rise of 300 basis points in the fourth quarter (i.e. 2021 Q4).

   Mainland GDP shock: An average year-on-year real GDP growth rate of 2% for the four consecutive quarters starting from 2021 Q1.

Source: HKMA staff estimates.

5.4 Systemic risk

Although the rollout of vaccines has brightened the global economic outlook, the potential scarring effect from the lingering pandemic and other downside risk factors will still inevitably pose challenges to the Hong Kong banking sector on various fronts.

The trajectory of economic recovery remains uncertain, as it would hinge on the efficacy of vaccines and the pace of vaccine rollouts among economies. Should the economic recovery turn out to be slower or weaker than expected, the credit risk of banks' loan portfolio would be subject to further deterioration as the repayment ability of both corporates and households has weakened amid the pandemic.

The systemic insolvency risk in Hong Kong has so far been contained, given the proactive relief measures taken by the public sector and banks in Hong Kong. In an effort to further help Hong Kong's economy ride out these difficult times, the HKMA has extended various relief measures to support corporates and individuals in need[58].

Some corporates, however, may face greater challenges in the medium term as their indebtedness may have risen during the pandemic. The pandemic may also change the business environment for some corporates structurally, calling into question the viability of their business models after the pandemic. These together may pose longer-term challenges for bank in managing the credit risk of corporate loan portfolios. Banks therefore should uphold their credit risk management and assess the potential longer-term impacts of the pandemic on the financial fundamentals of their corporate borrowers.

Geopolitical risks, particularly those related to the China-US relationship, still merit close monitoring. An escalation of these risks could aggravate the already grim economic situation and potentially affect Hong Kong's banking sector.

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

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

[58] For details, see the webpage https://www.hkma.gov.hk/eng/key-functions/banking/banking-regulatory-and-supervisory-regime/riding-out-the-covid-19-challenge/.

deployed in times of a downturn, allowing banks to continue providing credit to support the real economy. The latest applicable jurisdictional CCyB ratio for Hong Kong, announced on 28 January 2021, was 1.0%[59].

In setting the CCyB rate, the Monetary Authority considered a series of indicators (Table 5.E), including an "indicative buffer guide" (which is a metric providing a guide for CCyB rates based on 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)[60]. 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[61].

For the latest situation, the indicative buffer guide, calculated based on the third-quarter data of 2020, signals a CCyB of 2.5% (after rounding down to the nearest multiple of 25 basis points)[62]. The projection, based on all available data at the decision date, suggests the indicative buffer guide is very likely to signal a lower CCyB when all relevant data for the fourth quarter of 2020 becomes available, and the indicative buffer guide is expected to be volatile in the current circumstances.

Nevertheless, information drawn from the series of Comprehensive Reference Indicators, along with all relevant information available at the time of the decision in January 2021, suggests the economic environment in Hong Kong is still subject to a high level of uncertainty. The Monetary Authority therefore considered that it is more appropriate to keep the CCyB unchanged at 1.0% and to 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

	07-Jul-20	12-Oct-20	28-Jan-21
Announced CCyB rate	1.0%	1.0%	1.0%
Date effective	07/07/2020	12/10/2020	28/01/2021
Indicative buffer guide	2.3%	2.5%	2.5%
Basel Common Reference Guide	2.5%	2.5%	2.5%
Property Buffer Guide	1.8%	2.5%	2.2%
Composite CCyB Guide	2.3%	2.5%	2.5%
Indicative CCyB Ceiling	None	None	None
Primary gap indicators			
Credit/GDP gap	36.4%	36.6%	24.1%
Property price/rent gap	7.7%	10.5%	9.0%
Primary stress indicators			
3-month HIBOR spread* (percentage points)	0.61%	0.38%	0.21%
Quarterly change in classified loan ratio (percentage points)	0.06%	0.16%	0.04%

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 the end of each quarter (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 the end of the quarter) is shown at the top of the column.
2. * Following a review of the appropriate risk-free rate benchmark (previously identified as the three-month OIS rate), the HKMA amended the definition of the interbank market spread to the difference between the three-month HIBOR and the three-month Exchange Fund Bill yield on April 2017.

Source: HKMA.

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

[59] For details, see the Announcement of the CCyB to AIs on 28 January 2021 (https://www.hkma.gov.hk/eng/key-functions/banking/banking-legislation-policies-and-standards-implementation/countercyclical-capital-buffer-ccyb/).

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

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

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

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

	Dec 2019	Sep 2020	Dec 2020
Interest rates			
1-month HIBOR fixing[2] (quarterly average)	2.16	0.34	0.27
3-month HIBOR fixing (quarterly average)	2.30	0.53	0.42
BLR[3] and 1-month HIBOR fixing spread (quarterly average)	2.88	4.66	4.73
BLR and 3-month HIBOR fixing spread (quarterly average)	2.74	4.47	4.58
Composite interest rate[4]	1.09	0.36	0.28
		All AIs	
Balance sheet developments[5]			
Total deposits	1.3	4.9	-1.8
Hong Kong dollar	0.0	8.4	-4.4
Foreign currency	2.7	1.5	1.1
Total loans	0.7	3.2	-4.8
Domestic lending[6]	0.6	4.7	-5.3
Loans for use outside Hong Kong[7]	0.8	-0.4	-3.6
Negotiable instruments			
Negotiable certificates of deposit (NCDs) issued	7.8	-0.1	3.9
Negotiable debt instruments held (excluding NCDs)	-0.4	0.1	3.9
Asset quality			
As a percentage of total loans[8]			
Pass loans	98.10	97.42	97.29
Special mention loans	1.33	1.74	1.81
Classified loans[9] (gross)	0.57	0.84	0.90
Classified loans (net)[10]	0.28	0.47	0.50
Overdue > 3 months and rescheduled loans	0.34	0.56	0.57
Classified loan ratio (gross) of Mainland related lending[11]	0.75	0.96	0.96
Liquidity ratios (consolidated)			
Liquidity Coverage Ratio — applicable to category 1 institutions (quarterly average)	159.9	156.8	155.1
Liquidity Maintenance Ratio — applicable to category 2 institutions (quarterly average)	56.4	55.9	57.9
Net Stable Funding Ratio — applicable to category 1 institutions	131.7	133.6	138.6
Core Funding Ratio — applicable to category 2A institutions	134.4	139.2	139.5
		Retail banks	
Profitability			
Loan impairment charges as a percentage of average total assets (year-to-date annualised)	0.08	0.11	0.12
Net interest margin (year-to-date annualised)	1.63	1.24	1.18
Cost-to-income ratio (year-to-date)	39.5	44.3	46.8
		Surveyed institutions	
Asset quality			
Delinquency ratio of residential mortgage loans	0.03	0.04	0.04
Credit card lending			
Delinquency ratio	0.25	0.33	0.27
Charge-off ratio — quarterly annualised	1.64	2.53	2.17
— year-to-date annualised	1.57	2.28	2.18
		All locally incorporated AIs	
Capital adequacy (consolidated)			
Common Equity Tier 1 capital ratio	16.5	16.3	16.7
Tier 1 capital ratio	18.5	18.3	18.7
Total capital ratio	20.7	20.3	20.7
Leverage ratio	8.2	8.1	8.2

Notes:
1. Figures are related to Hong Kong offices only except where otherwise stated.
2. The Hong Kong Interbank Offered Rates are released by the Hong Kong Association of Banks.
3. With reference to the rate quoted by The Hongkong and Shanghai Banking Corporation Limited.
4. The composite interest rate is a weighted average interest rate of all Hong Kong dollar interest-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
Real effects of "low-for-long" interest rates on Mainland firms listed in Hong Kong

Introduction

Amid the "low-for-long" interest rate environment that has been prevailing since GFC, non-financial corporate debts in emerging market economies have risen significantly, from around US$9 trillion in 2008 to more than US$31 trillion in 2019, as indicated by Bank for International Settlements statistics. The piling up of debts by non-financial corporates has been on the radar of central banks and international organisations, as high corporate leverage could amplify the impact of negative shocks on financial markets and the real economy, subsequently posing systemic risks to the financial sector.

A rising trend in corporate leverage was also observed in Hong Kong amid the low interest rate environment. Based on the financial information of firms listed in Hong Kong, the weighted average debt-to-equity ratio rose notably from 45.3% in 2008 to 61.6% in 2019[63]. The increased leverage of these corporates was driven mainly by firms headquartered outside Hong Kong, particularly in Mainland China (hereinafter referred to as Mainland firms), while the leverage of listed firms headquartered in Hong Kong (hereinafter referred to as local firms) was broadly stable[64].

While the rising trend in the leverage of Mainland firms may be one strong reason for examining its financial stability implications, a comprehensive investigation requires examination of whether and to what extent the funds raised were put into productive investments, as these would directly affect the firms' debt-servicing ability. If Mainland firms have deployed the borrowed funds into productive investments, it would warrant much less concern on their corporate vulnerability than suggested by rising leverage alone. Therefore, a better understanding of the nature, productivity and efficiency of such investments is warranted from the perspective of financial stability, given that Hong Kong's financial sector has significant exposure to Mainland corporates.

Against this background, this Box aims to shed light on the following two questions: (1) Was the rise in the leverage of Mainland firms listed in Hong Kong driven by an increase in their investment activities due to the relaxation of financial constraints under the low interest rate environment? (2) If so, how far were these increased investments supported by economic fundamentals rather than unproductive motives, such as "empire building"[65, 66].

The empirical framework

This study employs the difference-in-differences (DID) methodology by making use of institutional differences between Mainland firms and local firms. Institutional difference refers to the generally more restricted access of Mainland

[63] Non-financial corporate debt to GDP is another common aggregate indicator of corporate leverage. This indicator also surged dramatically, from 128% in 2008 to 225% by the end of 2019. However, caution should be exercised when interpreting the level of this aggregate indicator, as it tends to overstate corporate leverage in Hong Kong. This is mainly due to the fact that Hong Kong is an international financial centre and therefore many multinational and non-local corporates borrow funds from Hong Kong to finance their overseas operations. Their economic activities, and thus their incomes, are not fully reflected in Hong Kong's GDP.

[64] For details, see Chart 5.23.

[65] "Empire building" commonly refers to the act of attempting to increase the size and scope of an individual or organisations' power and influence.

[66] For details, see Jin (2021), "Real effects of "low-for-long" interest rates on Mainland firms listed in Hong Kong", *HKIMR working paper* (forthcoming).

firms to financial markets, which in turn makes their investment decisions more sensitive to changes in external financing costs. By contrast, local listed firms generally have more access to different financing sources and broader investor bases. In that regard, the financing decisions of local firms would be relatively less sensitive than their Mainland counterparts to changes in the interest rate environment. Such an institutional difference provides a backdrop to investigate the consequences of a "low-for-long" interest rate environment, with the identification assumption that local firms could have served as counterfactuals for Mainland firms had the interest rate environment not changed. The model is specified as follows:

$$y_{i,t} = \beta \times Post_t \times Mainland_i + b \times Controls_{i,t} + \alpha_i + \tau_t + \varepsilon_{i,t}, \quad (1)$$

where *i* indexes firm and *t* indexes year. Variable *y* represents the outcome variables, which include the firm's leverage (measured by the debt-to-asset ratio), total investments and cash holdings (both of which are scaled by the firm's assets). The latter two variables are used to investigate how the borrowed funds may be utilised. "*Post*" equals one for the period from 2009 onwards, and zero otherwise to represent the period of "low-for-long" interest rates. "*Mainland*" equals one for firms that are defined as Mainland firms, and zero otherwise. "*Controls*" include size, profitability, tangibility and market-to-book[67]. α represents firm fixed effects (FE) and τ represents industry-time FE. The coefficient of interest is β, which captures the difference in the response of Mainland firms as a group relative to the group of local firms in the "low-for-long" interest rate environment[68].

[67] The leverage and cash flow of a firm would be included as control variables when the dependent variables are the firm's investment-to-asset ratio and cash-to-asset ratio.

[68] After excluding firms that existed only before 2008 or were listed after 2009, this study ends up with a sample of 522 listed Mainland firms and 730 listed local firms from 2003 to 2016.

Analysis of possible drivers behind rising leverage of Mainland firms during "low-for-long" period

The estimation results for equation (1) are presented in Table B4.1. The first column shows that the leverage of Mainland firms on average was more responsive to the "low-for-long" interest rate environment than that of local firms. Specifically, the average rise in the leverage of Mainland firms after the GFC is estimated to be three percentage points higher than that of the local firms. The difference is material, given that the average debt-to-asset ratio of Mainland firms was only around 26% before the GFC.

Table B4.1
Estimation results for corporate policies

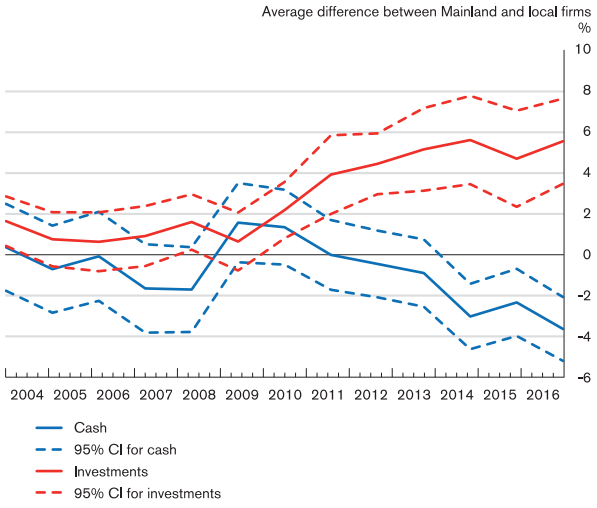
Dependent variable	Leverage	Investments	Cash holdings
Mainland*Post	0.030***	0.015***	-0.002
Size	0.043***	0.011***	-0.036***
Tangibility	-0.107***	0.004	0.023***
Market-to-book	0.168***	0.001	-0.195***
Return on assets	-0.004***	0.005***	0.005***
Leverage		-0.007	-0.105***
Cash flow		-0.022**	0.082***
Firm FE	YES	YES	YES
Industry*Time FE	YES	YES	YES
Observations	13,065	13,059	13,064
Adj R-squared	0.630	0.366	0.614

Note: ***, **, * denote significance level at 1%, 5% and 10%, respectively.

Regarding the usage of funds, our regression results show that the change in the investment-to-asset ratio of Mainland firms is, on average, higher than that of their local counterparts by around 1.5 percentage points amid the low interest rate environment (i.e. column 2 in Table B4.1). Meanwhile, there is no statistically significant difference between the cash holdings of the two groups of firms during the low interest rate period (i.e. column 3). Taken together, our findings suggest that the rising leverage of Mainland firms was driven mainly by investment activities amid the "low-for-long" interest rate environment rather than by other motives (e.g. cash hoarding).

Consistent with the above findings, Chart B4.1 shows that the difference in the average investment-to-asset ratios between Mainland and local firms changed from virtually zero before the GFC to significantly positive afterwards, with the gap widening to around 6 percentage points[69] in 2016.

Chart B4.1
Differences in investment and cash holdings between Mainland and local firms listed in Hong Kong



Note: The solid line represents the mean difference, while the dotted lines show the 95% confidence interval (CI).
Sources: Bloomberg and HKMA staff calculations.

Assessment of investment efficiency of Mainland firms

In view of the above results, a natural follow-up question is to what extent these borrowed funds were deployed into productive investment opportunities. On the one hand, it can be argued that the relaxation of financial constraints on Mainland firms amid the "low-for-long" interest rate environment may improve their investment efficiency by enabling them to exploit more positive net-present-value (NPV) investments. On the other hand, one can argue that Mainland firms may have undertaken unproductive and excessive investments by capitalising on lower financial costs, as suggested by the agency theory[70].

Further empirical work is then conducted to shed light on which view may give a better explanation of the investments of Mainland firms amid the low interest rate environment. We first investigate the investment-Tobin's q sensitivity[71] of Mainland firms to examine the responsiveness of investments to good investment opportunities (i.e. investments with a positive NPV)[72]. In theory, a firm with an increase in good investment opportunities should optimally conduct more investments to maximise shareholder value. A positive investment-q sensitivity thus indicates efficient investment decisions. By contrast, an insignificant or negative investment-Tobin's q sensitivity may suggest that Mainland firms' investment decisions would be based on factors such as managerial preferences rather than the availability of good investment opportunities as proxied by Tobin's q. Our empirical results show that Mainland firms with a higher Tobin's q (i.e. with more good investment opportunities) tended to have higher investment responsiveness

69 This is higher than the regression result (1.5%), because the regression effectively measures the average investment gap from 2009 to 2016.

70 The agency theory suggests that managers have incentives to carry out excessive investment and empire building, as asset growth will expand their power by increasing resources under their control. In these circumstances, firms tend to make more investments when external financing becomes less costly, even though these investments generate negative returns.

71 Tobin's q is defined as the ratio between a physical asset's market value and its replacement value. Specifically, it is measured as (total assets + market value of equity – book value of equity)/book assets. If the ratio takes a value greater than one, it indicates the firms' future potential value is greater than its current replacement cost. This measure has been widely used as a proxy for investment opportunities.

72 Specifically, we rerun equation (1) on the investment of firms, which further includes a triple interaction term of $Post_t \times Mainland_i \times Tobin's\ q$. A positive coefficient term for such an interaction term would suggest that investments undertaken by Mainland firms became more responsive to good investment opportunities in the "low-for-long" interest rate environment.

to the low interest rate environment after the GFC than their local counterparts[73].

We further examine whether the operating efficiency of Mainland firms have improved under the low interest rate environment, by conducting the DID estimation on firms' ROE. If Mainland firms' rising investment amid the low interest rate environment was generally excessive and unproductive, we should observe a deterioration in ROE during the same period. Empirical results, however, show that Mainland firms on average had higher rises in ROE in the low interest rate environment relative to local firms (Table B4.2). This finding is consistent with the previous finding that Mainland firms were relatively more responsive to good investment opportunities than local firms amid the low interest rate environment.

Table B4.2
Estimation results for operating efficiency

Dependent variable	ROE
Mainland* Post	0.054***
Controls	YES
Firm FE	YES
Industry* Time FE	YES
Observations	13,988
Adj R-squared	0.217

Note: ***, **, * denote significance level at 1%, 5% and 10%, respectively.

Conclusion

This study finds evidence that the increase in investment activities was a significant driver behind the rising leverage of Mainland firms listed in Hong Kong after the GFC, as the "low-for-long" interest rate environment reduced external financing costs. Importantly, Mainland firms' investment on average is found to be more responsive to productive investment opportunities, and their ROE also improved more, relative to the group of local firms in the "low-for-long" interest rate environment. These empirical results together support the view that after the GFC, the mitigation of financial constraints accounted relatively more for the increase in leverage and investment of Mainland firms listed in Hong Kong. Nevertheless, the findings should be interpreted with caution, as they would explain the economic behaviour of Mainland firms listed in Hong Kong as a whole rather than individual Mainland firms.

One important implication of this study is that while a persistent rise in corporate leverage in the "low-for-long" interest rate environment would raise a red flag about the healthiness of the corporate sector, a comprehensive assessment is required to further investigate the underlying drivers of such increase in corporate leverage so as to obtain clear implications for financial stability. The financial health of Mainland firms should be closely monitored, given the significant exposure of Hong Kong's financial sector to Mainland firms and the possibility of a prolonged low interest rate environment.

[73] The coefficient on the triple interaction term $Post_t \times Mainland_i \times Tobin'sq$ is 0.005, significant at 1% level, indicating the average rise in investment-q sensitivity for Mainland firms is estimated to be 0.5 percentage points higher than that of local firms.

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
APs	Authorized Participants
BIS	Bank for International Settlements
bn	Billion
BLR	Best lending rate
BLS	Bureau of Labor Statistics
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
CFETS	China Foreign Exchange Trading System
CFR	Core Funding Ratio
CIs	Certificates of Indebtedness
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
DID	Difference-in-differences
DSD	Double Ad Valorem Stamp Duty
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
EPS	Earnings per share
ESG	Environment, social and governance
ESS	Employment Support Scheme
ETFs	Exchange traded funds
EU	European Union
EUR	Euro
Fed	Federal Reserve
FI	Financial Institutions
FE	Fixed effects
FX	Foreign exchange
GBP	British Pound Sterling
GDP	Gross Domestic Product
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
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
IVS	Individual Visit Scheme
JPY	Japanese Yen
LCR	Liquidity Coverage Ratio
LIBOR	London Interbank Offered Rate
LERS	Linked Exchange Rate System
LMR	Liquidity Maintenance Ratio
lhs	Left-hand side
LR	Leverage Ratio
LTD	Loan-to-deposit
LTV	Loan-to-value
mn	Million
MDBs	Multilateral Development Banks
MoF	Ministry of Finance
MRF	Mutual Recognition of Funds
MSCI	Morgan Stanley Capital International
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
NIFC	National Interbank Funding Center
NIM	Net interest margin
NPL	Non-performing loan
NPV	Net present value
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
POE	Privately-owned enterprise
PPPHS	Pre-approved Principal Payment Holiday Scheme
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
SARS	Severe Acute Respiratory Syndrome
SDR	Special Drawing Rights
SFGS	SME Financing Guarantee Scheme
SHIBOR	Shanghai Interbank Offered Rate
SKEW	Chicago Board Options Exchange Skew Index
SMEs	Small and medium-sized enterprises
SOEs	State-owned enterprises
SPM	Supervisory Policy Manual
SWIFTs	Society for Worldwide Interbank Financial Telecommunication
S&P	Sale and Purchase Agreements of Building Units
S&P 500	Standard & Poor's 500 Index
th	Thousands
tn	trillion
TWI	Trade Weighted Index

UK	United Kingdom
US	United States
USD	US dollar
VHSI	HSI Volatility Index
VIX	Chicago Board Options Exchange Market Volatility Index
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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