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

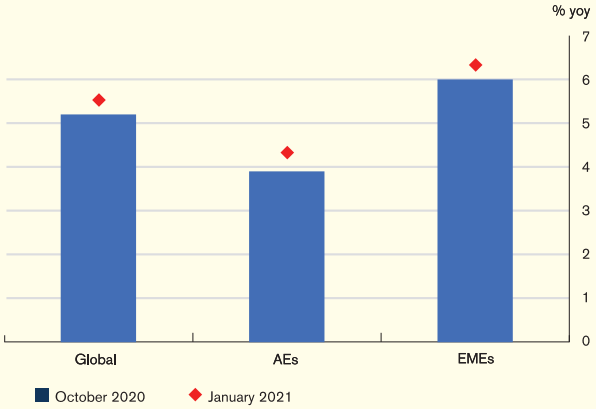
Real gross domestic product (GDP) growth outturns in major economies mostly surprised on the upside in the third quarter of 2020, thanks to a release of pent-up demand amid economic reopening. However, global growth momentum has tapered again since the fourth quarter, as the resurgence in COVID-19 infections 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).

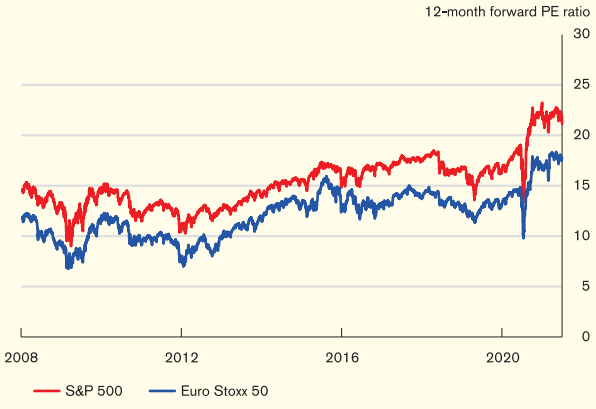
Chart 2.1
IMF's real GDP growth projections, January 2021 vs. October 2020



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

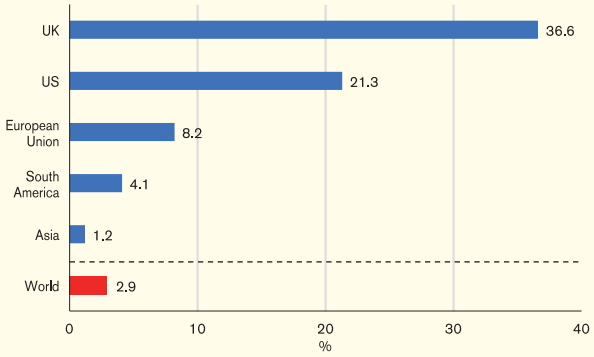


Source: Bloomberg.

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)

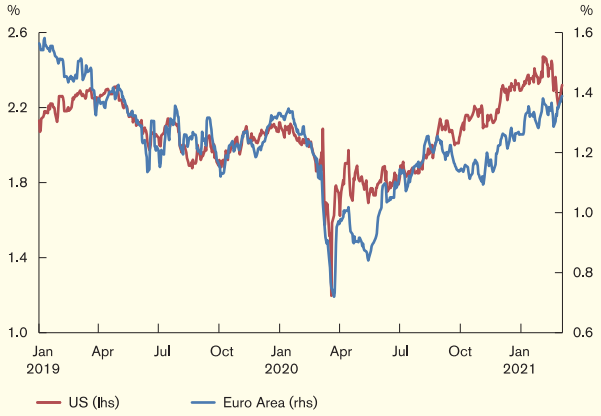


Source: Our World in Data.

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



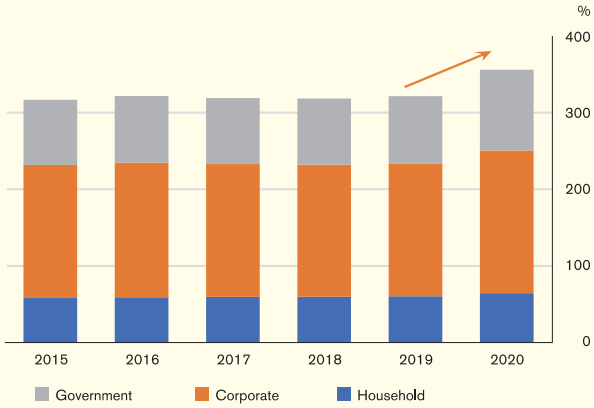
Source: Datastream.

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



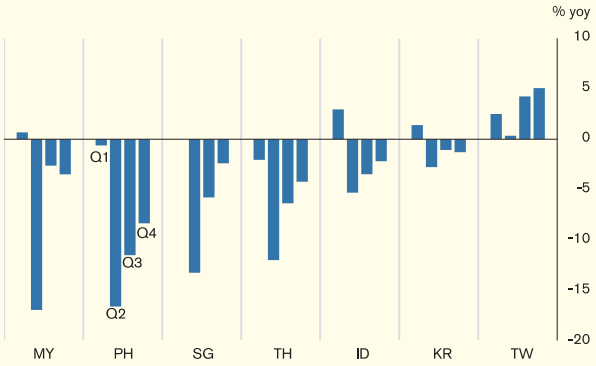
Source: Institute of International Finance.

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.

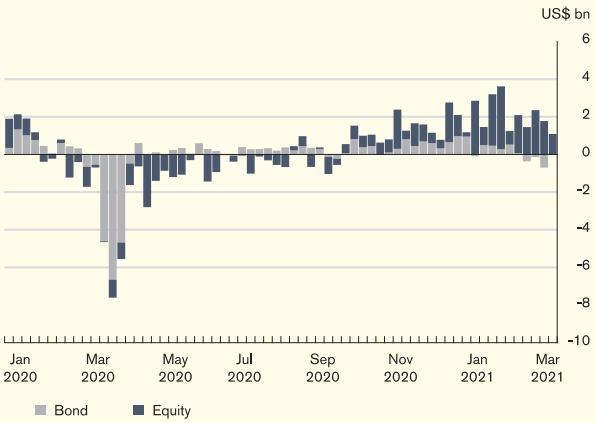
Chart 2.6
East Asia: Real GDP growth in 2020



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.

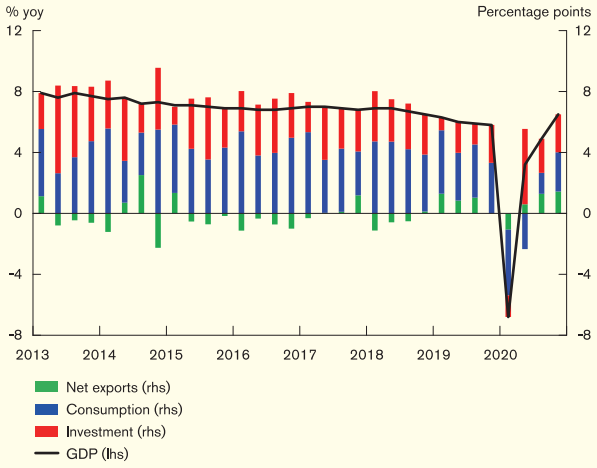
Second, as the investor optimism is largely supported by the rollout of vaccines, the current rally in fund inflows and financial asset prices could come to an end if vaccination progress or efficacy falls significantly below expectations. An abrupt contraction of fund inflows could trigger another bout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

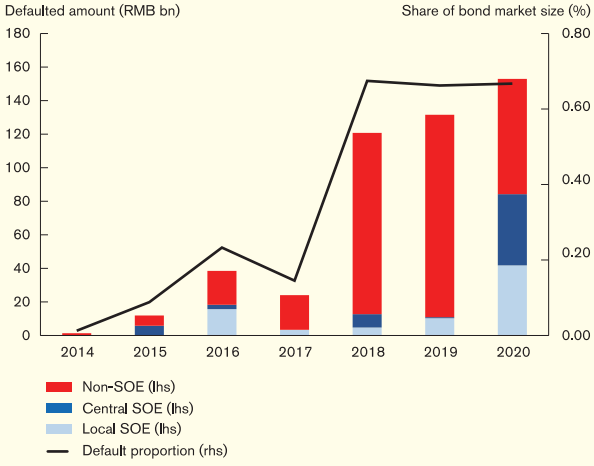
Looking forward, the latest consensus forecasts expect the Mainland economy to expand notably by 8.4% in 2021, with private consumption likely to be a major driver of economic growth. Nevertheless, the path of recovery will continue to hinge partly on the development of the pandemic. Domestically, despite 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.

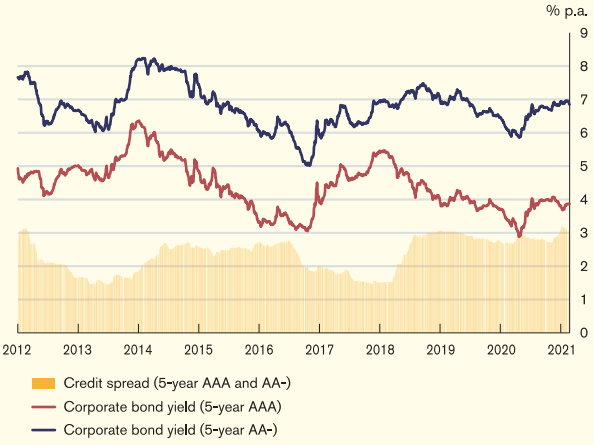
Chart 2.9
Mainland China: Onshore bond default size and proportion



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).

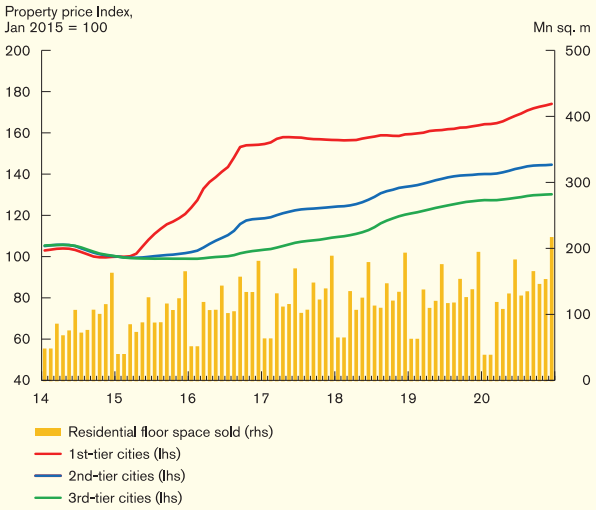
Chart 2.10
Mainland China: Five-year corporate bond yields



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

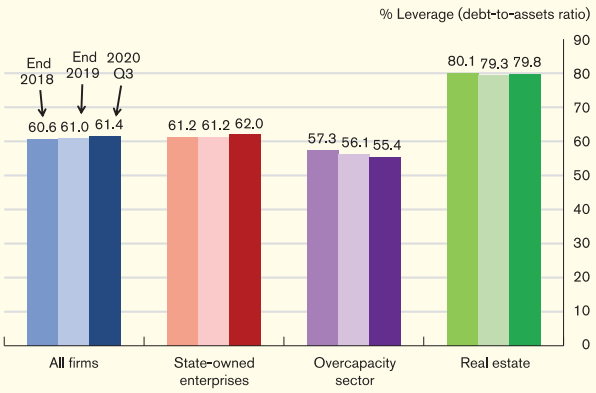


Sources: CEIC and HKMA staff estimates.

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).

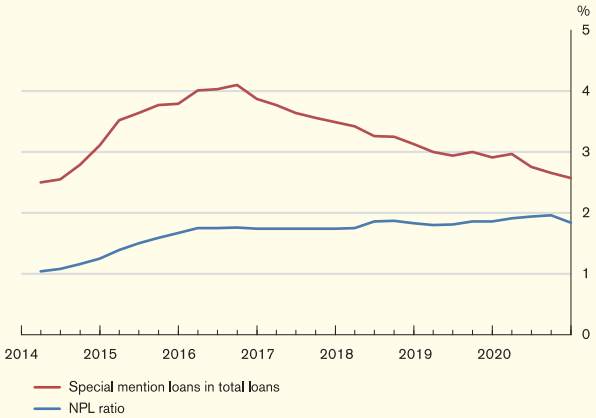
Chart 2.12
Mainland China: Corporate leverage of SOEs, firms in overcapacity sectors and real estate companies



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).

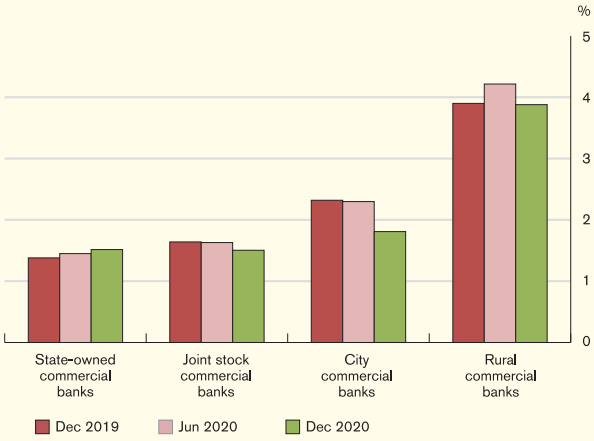
Chart 2.13
Mainland China: NPL ratio and special mention loan ratio



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

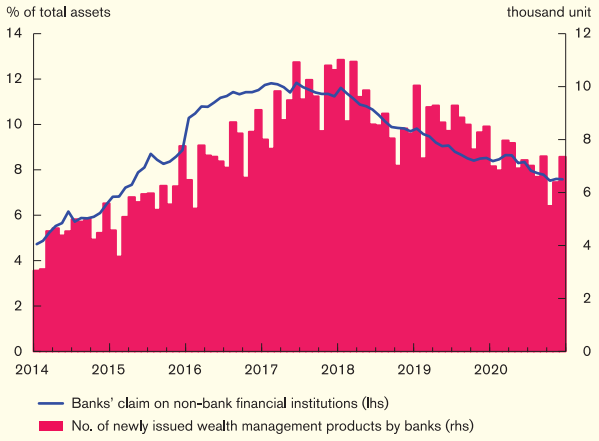


Source: CEIC.

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).

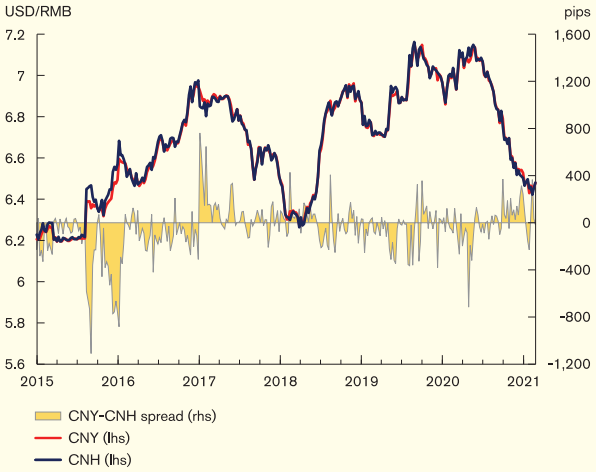
[5] According to the China Banking and Insurance Regulatory Commission, NPL disposals by Mainland commercial banks amounted to RMB1.7 trillion in the first three quarters of 2020, which were about RMB0.3 trillion more than in the same period of 2019.

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.

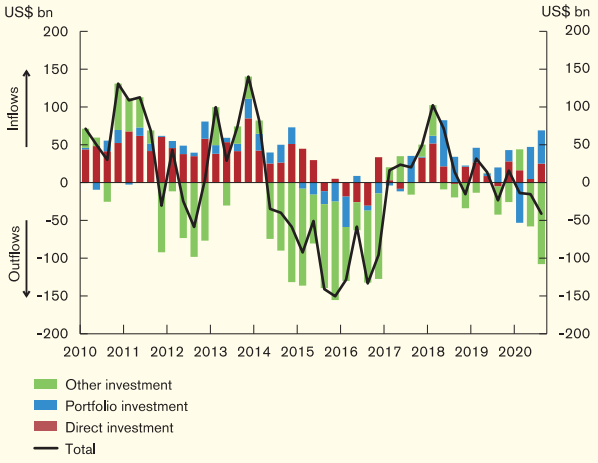
Exchange rate and cross-border capital flows

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



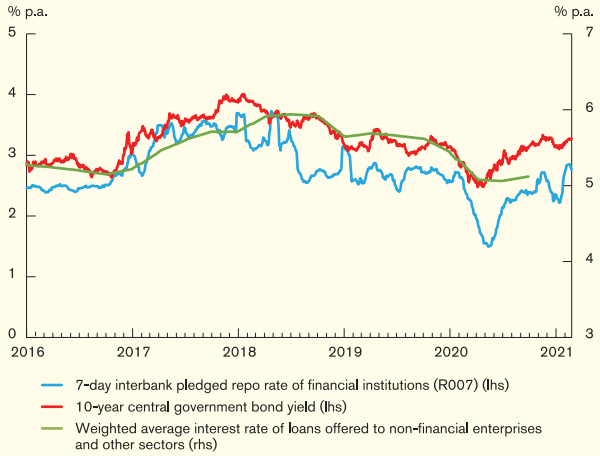
Sources: CEIC, State Administration of Foreign Exchange and HKMA staff estimates.

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.

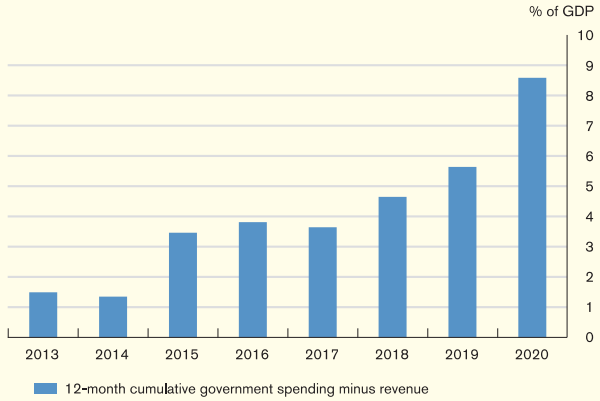
Chart 2.18
Mainland China: Major market interest rates



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

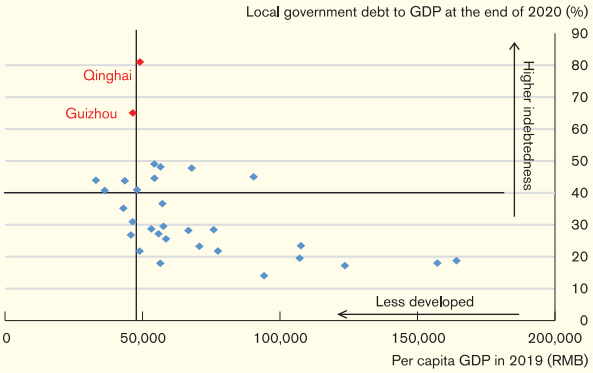


Sources: CEIC, Ministry of Finance and HKMA staff estimates.

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



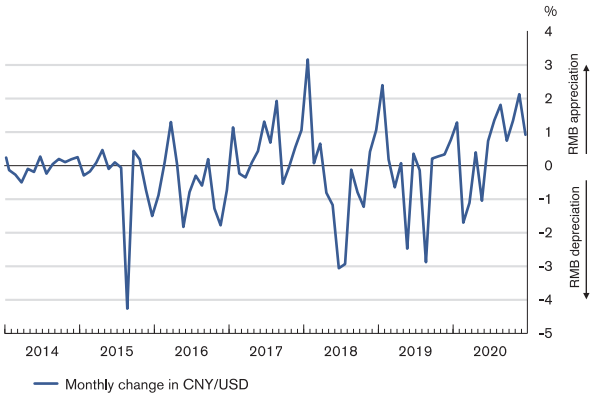
Sources: Wind and HKMA staff estimates.

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:

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

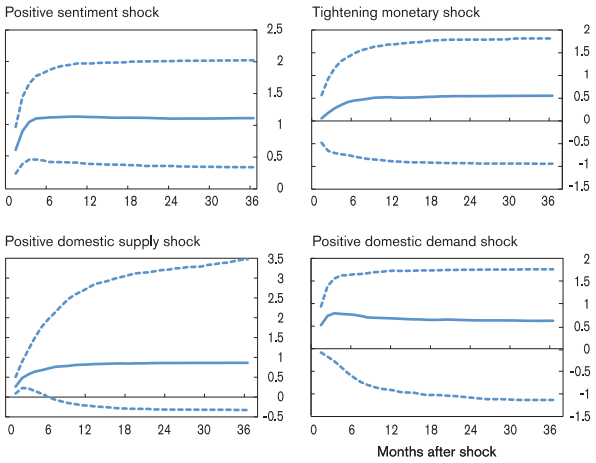
where Δe_t is the monthly change of the CNY/USD nominal exchange rate and $\frac{\Delta R_t}{M1_t}$ is the monthly change in official reserves (excluding FX valuation effects[10]) scaled by narrow money supply. An increase in the value of the EMP means an increase in appreciation pressure on the renminbi. 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.

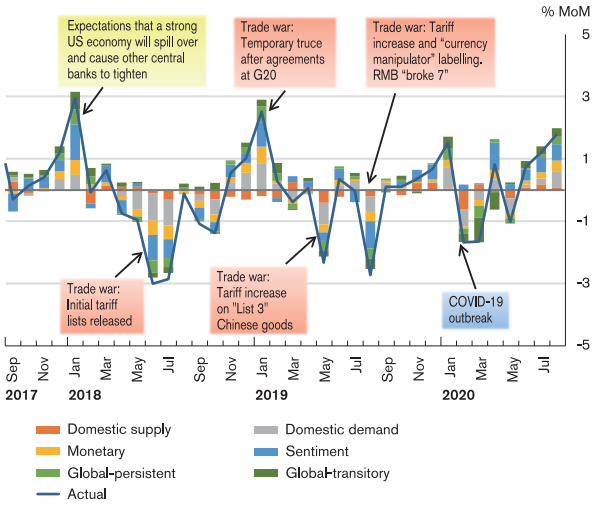
A historical decomposition of renminbi EMP volatility is presented in Chart B1.3. It can be seen that movements of the renminbi EMP tend to be dominated by different types of shocks in different periods. One important observation is that the key drivers of the recent depreciation episode amid the COVID-19 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.

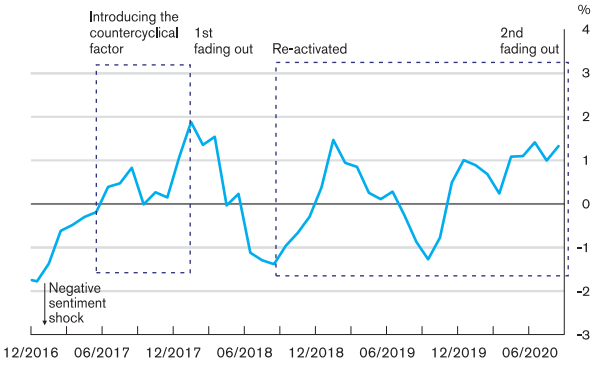
Chart B1.3
Historical decomposition of renminbi EMP volatility



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.