AMRO Country Report
ACR/21-03

AMRO Annual Consultation Report

China - 2020

ASEAN+3 Macroeconomic Research Office (AMRO)

June 2021

Acknowledgments

1. This Annual Consultation Report on China has been prepared in accordance with the functions of AMRO to monitor, assess and report its members' macroeconomic status and financial soundness, to identify relevant risks and vulnerabilities, and to assist them in the timely formulation of policy to mitigate such risks (Article 3 (a) and (b) of the AMRO Agreement).
2. This Report is drafted on the basis of the Annual Consultation Visit of AMRO to China from 19 October to 6 November 2020 (Article 5 (b) of AMRO Agreement). The AMRO Mission team was headed by Dr Chaipat Poonpatpibul. Members include Dr Simon Liu, Dr Zhiwen Jiao, Mr Suan Yong Foo, Dr Wei Sun, Dr Jerry (Xianguo) Huang, and Mr Haixin Fu. AMRO Director Dr Toshinori Doi and Chief Economist Dr Hoe Ee Khor also participated in key policy meetings with the authorities. Dr Li Lian Ong participated in meetings related to financial sector stability. Dr Trung Thanh Vu contributed to the selected issue on "High-tech Global Value Chains (GVCs): China's Role, Contribution, and Challenges". This AMRO Annual Consultation Report on China for 2020 was peer reviewed by Dr Matthew Yiu, Mr Justin Lim Ming Han and Ms Diana Del Rosario; and approved by Dr Khor.
3. The analysis in this Report is based on information available up to 31 December 2020 some of which are from commercial institutions and are neither officially published nor audited by Chinese authorities.
4. By making any designation of or reference to a particular territory or geographical area, or by using the term "member" or "country" in this Report, AMRO does not intend to make any judgments as to the legal or other status of any territory or area.
5. On behalf of AMRO, the Mission team wishes to thank the Chinese authorities for their comments on this Report, as well as their excellent meeting arrangements and hospitality during our visit.

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Executive Summary

1. The Chinese economy has shown remarkable resilience and recovered strongly following a sharp contraction due to the COVID-19 pandemic. It was hit hard by the outbreak and contracted significantly in Q1 2020. Since then, the economy has rebounded sharply in Q3 and Q4 due to the success in containing the pandemic and the timely and significant policy package which supported businesses and vulnerable groups. As a result, by Q4, economic activities were restored to almost pre-pandemic levels, and China's GDP growth for the whole of 2020 was positive at 2.3 percent.

2. The recovery was uneven and economic conditions needed a longer time to return to normal. The recovery has been led by the industrial sector since Q2, while the services sector has also improved. Exports and demand for manufacturing goods have been remarkably strong in the face of stiff headwinds. In services, the information technology service sector grew by 16.9 percent in 2020, but catering and other labor-intensive services sectors have still not recovered fully. Micro and small enterprises (MSEs) have been hit hard, and recovered more gradually than larger enterprises. Real estate and infrastructure investments have rebounded sharply since Q2, while manufacturing investment rebounded later in Q4 following further improvements in industrial activities.

3. Labor market conditions have improved significantly, but pockets of weaknesses remain. The surveyed urban unemployment rate peaked at 6.2 percent in February 2020 and declined to 5.2 percent in December. However, the recovery in the labor market has remained uneven partly due to the slower recovery of MSEs, and the challenges faced by new university graduates in securing jobs.

4. CPI inflation fell sharply at the end of 2020 due to a series of factors including the declining pork prices. CPI inflation had peaked at 5.4 percent in January 2020 due to several factors including a spike in pork prices, but it declined gradually to -0.5 percent in November due to the recovery of pork production, the effective pandemic containment measures, and social economic recovery. CPI inflation is expected to remain low in H1 2021, due to base effects and a further drop in pork prices, before recovering gradually with the recovery of the economy and higher energy prices.

5. China's economy is entering 2021 with strong growth momentum that will likely continue. The economy is expected to grow by 8.6 percent in 2021, supported first, by rapid recovery of domestic consumption, as well as the normalization of social activities that will lead to a stronger services sector recovery; and second, in part by a strong recovery in the global economy as the pandemic is expected to be more effectively contained globally by the new vaccines which have proven to be effective against the virus.

6. The external position strengthened, reflecting an increasing current account surplus, while the capital account is expected to be balanced, and FX reserves are expected to increase. Following a sharp decline in February, China succeeded in restoring production and export activities. Since May, exports have remained remarkably strong, led by strong demand for medical supplies and electronics. The current account recorded a large surplus of RMB 2.0 trillion in Q2-Q3, and this will likely continue in 2021. Cross-border capital flows have remained largely balanced amid the pandemic, and FX reserves rose from RMB 3.06 trillion in Q1 2020to USD3.22 trillion in Q4 2020. The RMB exchange rate has been on an appreciating trend since June, in contrast to the weakening trend seen when the pandemic broke out.

7. Targeted fiscal measures have provided timely support since the beginning of the COVID-19 outbreak. The government responded to the pandemic by reducing taxes and fees. Reflecting the economic shock and policy support in 2020, government revenue declined, while total expenditure grew modestly, with spending on social security, employment and health increasing significantly. As a result, the official fiscal deficit-to-GDP ratio rose significantly to 3.6 percent of GDP in 2020, from 2.8 percent in 2019. It is expected that the deficit will decline to 3.2 percent of GDP in 2021 when the economy rebounds further, fiscal revenue increases, and some of the pandemic policy measures are phased out.

8. Several monetary policy measures were deployed to ensure that liquidity remains reasonably adequate and to stimulate credit growth. The PBOC injected short-term liquidity through open market operations (OMOs) to support the substantial liquidity needs in Q1. The central bank also increased medium-term lending facility (MLF) operations and cut the reserve requirement ratio (RRR). Moreover, it expanded the usage of targeted relending and rediscounting, and introduced new targeted tools such as the financial inclusion MSEs loan extension support tool and the financial inclusion MSEs credit loan support plan to support key sectors and MSEs.

9. As a result, total social financing (TSF) growth accelerated markedly. TSF growth picked up through 2020, reaching 13.3 percent, up from 10.7 percent in 2019. As part of efforts to support the sectors hit hard, banks have lent significantly more to MSEs. Long-term loans to the manufacturing sector and MSEs, the two hardest hit sectors grew most rapidly.

10. Given the COVID-19 infection situation and protracted global recession, overall risks to growth and stability will likely remain elevated in the coming quarters.

- A protracted global recession from recurring waves of the pandemic could weigh on China's external-oriented sector, leading to heightening of unemployment risk in related sectors.

- Some city and rural commercial banks are at risk of becoming undercapitalized if they fail to secure a recapitalization assisted by the planned RMB 200 billion special local government bond issuance. If the NPL rates of some small banks continue to rise, contagion could spill over to other small banks as well as other segments of the financial sector and local government financing vehicles (LGFVs).

- Financial distress among highly leveraged real estate developers could still flare up under unfavorable financial conditions.

- Instances of bond defaults among SOEs could also rise further and become a more significant risk with spillover effects on other corporates.

11. China also faces several medium- and longer-term risks. High debt repayment pressures due to rapid expansion of corporate debt, and the impact on macroeconomic and financial stability of continued tensions between China and the US—especially on the technology front—are important longer-term risks that warrant close monitoring and risk mitigating measures.

12. Going forward, authorities must exercise caution in phasing out stimulus policies, taking into account both domestic and external risks and uncertainties. The design and sequencing of the overall phasing-out strategy need to be well-coordinated among all relevant

policymakers and regulators, and should take into consideration various domestic and external risks. Cliff effects should be avoided. It is therefore appropriate that policymakers have decided not to take "sharp turns" in policies during 2021.

13. Further policy support can be provided if the economy falters either because of a recurrence of the pandemic in China or a major slowdown in the global economy – possibly because pandemic control proves ineffective in some parts of the world.

14. It is important to mitigate weak banks' credit risks and strengthen their capital buffers. Close attention should be paid to the credit risks and solvency conditions of small banks, that are highly exposed to the sectors hardest hit.

15. The pandemic experience and reduced policy space suggest a need to enhance long-term economic resilience.

- Given the narrowed policy space, the key for fiscal policy is to support economic growth and livelihoods while avoiding a pronounced increase in debt levels. It is also essential to establish a credible medium-term plan to keep local government debt in check, and to gradually reduce the LGFV debt-to-GDP ratio.

- It is important to further improve the social safety net for vulnerable workers and households. Among policy options, the framework and mechanisms to support MSEs more effectively, including the credit guarantee system, could be further strengthened.

- The high levels of corporate debt should be reined in. This is particularly the case with sectors such as infrastructure and real estate. Policies to further remove local governments' implicit guarantee on SOE debt are a step in the right direction. Tight macroprudential measures in the real estate sector should be maintained to mitigate risks facing real estate developers and potential knock-on effects.

16. AMRO supports the recently proposed "dual circulation" development strategy to enable China to further develop and transform its economy. Key parts of the strategy involve leveraging the domestic market and enhancing capability and capacity through developing indigenous technology, and further strengthening external linkages. Authorities are encouraged to take into consideration the implications for regional economies and to remain committed to rules-based multilateral trading system.

17. In an unusually challenging year, the authorities have demonstrated strong acumen in policymaking, and successfully addressed multifaceted challenges arising from the pandemic. It is also prudent on their part to have begun forging policies to address future challenges in the post-COVID 19 world.

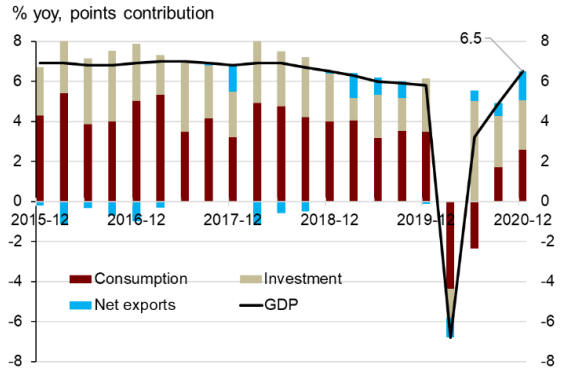
A. Recent Developments and Outlook

A.1 Real Sector Developments and Outlook

1. The Chinese economy was hit hard by the COVID-19 outbreak and contracted sharply in Q1 2020. GDP declined by 6.8 percent yoy in Q1 as business operations and production supply chains were disrupted and firms were under tremendous strain during the period of strict pandemic control. Only a handful of sectors such as software, information technology and financial services registered growth.

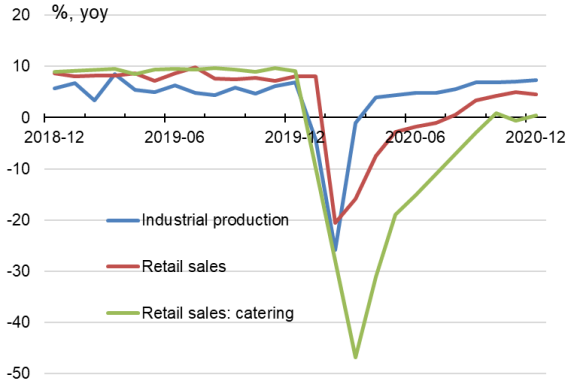
2. Since then, the economy has rebounded sharply in Q3 and Q4 (Figure 1) due to the country's success in containing the pandemic and the timely and significant policy package which supported businesses and vulnerable groups. Economic activities have improved continuously since Q2, displaying a "V" shape recovery. The growth rate rose successively over the next three quarters to 3.2, 4.9 and 6.5 percent. By Q4, economic activities were restored to almost pre-pandemic levels, and GDP growth for the year came in at 2.3 percent.

Figure 1. GDP Growth



Source: National Bureau of Statistics (NBS); Wind

Figure 2. Growth by Sector



Source: Wind

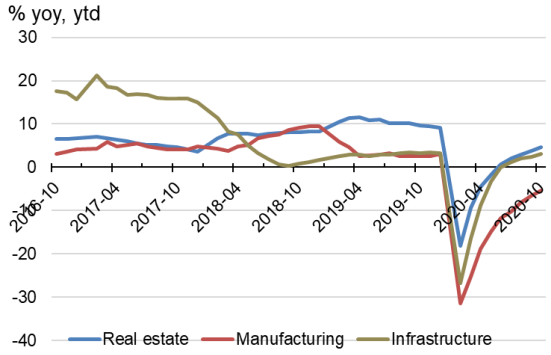
3. The recovery was uneven and economic conditions needed a longer time to return to normal (Figure 2). The progressive relaxation of restrictive measures has led to a strong recovery since March 2020. However, the pace has varied across sectors, depending on the extent to which the sector is dependent on physical distancing and the pace at which market demand has returned towards normalcy. The recovery has been led by the manufacturing sector as production resumed rapidly with the lifting of the lockdown. The services sector, such as retail and hospitality, has also improved but at a slower pace. In particular, labor-intensive industries, such as catering and hospitality, which are operated mostly by micro and small enterprises (MSEs) are still lagging.

4. Private consumption fell in Q1 but has improved since Q2. It contracted sharply as real disposal income shrank and mobility was restricted during the lockdown period. The contraction narrowed in Q2 and recovered modestly in Q3.The recovery was driven by a sharp pick-up in consumer goods including auto, and further improvements in services related to recreational activities, tourism and transportation.

5. Real estate and infrastructure investments have rebounded sharply (Figure 3). Fixed asset investment fell by 16.1 percent year on year in Q1, and the contraction narrowed by 13 percentage points by the end of H1 2020. Then it rebounded and turned positive, reaching 0.8 percent y-o-y for the first three quarters. Real estate investment grew by 1.9 percent in H1 and 5.6 percent in the first three quarters, due to strong demand and the low interest rate environment.

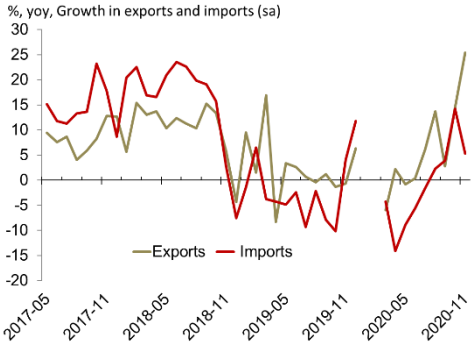
6. Manufacturing investment rebounded later in Q4, following improvement in industrial activities. Manufacturing investment lagged behind industrial activity. It declined in both Q1 and Q2, before increasing by 3.0 percent in Q3, reflecting cautious business sentiment, difficulties faced by MSEs and a high level of inventories. In Q4, industrial activity strengthened further and the industrial capacity utilization rate rebounded to 78.0 percent in December 2020, the highest record since 2013. As a result, manufacturing investment growth surged to 12.0 percent yoy in November, and it is likely that the strong momentum will continue in coming quarters.

Figure 3. Investment Growth



Source: NBS; Wind

Figure 4. Trade Volume Growth



Source: NBS; Wind
Note: NBS has not disclosed trade statistics for January since 2020.

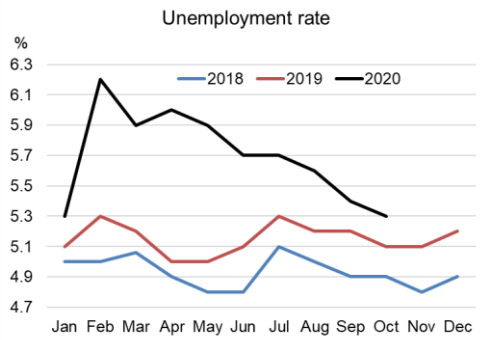
7. Exports have remained remarkably strong despite stiff headwinds. After a sharp decline in Q1, exports rebounded strongly. In particular, in the July-November period, goods exports grew by 11.8 percent in US dollar terms on the back of favorable conditions – including strong demand for medical supplies, products related to work-from-home, year-end festival goods, rapid recovery in production capacity, and continued improvements in global economic conditions. On the other hand, imports showed a V-shape recovery throughout the year. In the first half of 2020, due to the Covid-19 pandemic, domestic demand and commodity prices fell, and imports were affected. In the second half of 2020, commodity prices rose, and imports recovered.

8. Labor market conditions have improved significantly with the surveyed urban unemployment rate declining steadily from its peak in Q1 (Figure 5). The surveyed urban unemployment rate peaked at 6.2 percent in February 2020 and declined to 5.2 percent in November. In Q1, a large number of workers temporarily dropped out of the labor force, particularly as migrant workers who had returned to their villages during the Chinese New Year could not return to work. With the steady improvement in labor market conditions alongside economic conditions, many of these workers have been able to return to their jobs in Q2. By the end of 2020, 98.2 percent of the migrant workers had resumed work. This was helped by migrant workers being organized in an orderly manner to encourage their local

employment. As a result, employment pressure was gradually lessened, and employment tended to be stable. By Q3, the average hours worked for the urban workforce – which had declined sharply in Q1 – increased steadily and reached 46.9 hours per week in November. This was already higher than 2019 levels.

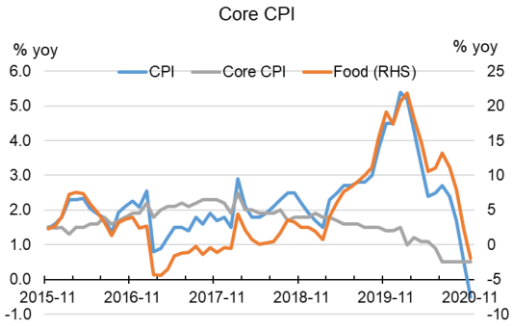
9. The overall improvement in labor market conditions has been better than initially expected. Between January and November 2020, 11.86 million new jobs were added to urban employment. While overall employment dipped sharply by 29.5 percent in Q2, it managed to bounce back with the reopening of the economy and was 1.1 percent higher in Q3. Looking ahead, the labor market recovery is likely to continue steadily. In particular, further normalization of social activities will continue to boost employment in the labor-intensive services sector. However, the recovery may remain quite uneven partly due to the slower recovery of MSEs. In addition, there are challenges that new university graduates face, such as lack of work experience or less developed skills.

Figure 5. Surveyed Urban Unemployment Rate



Source: NBS; Wind

Figure 6. CPI Inflation

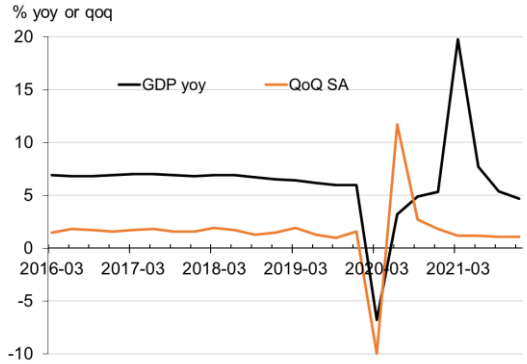


Source: NBS; Wind

10. CPI inflation fell sharply at the end of 2020, due to several factors including declining pork prices (Figure 6). CPI inflation peaked at 5.4 percent in January 2020 due mainly to a spike in pork prices. With the steady recovery from the pandemic, improvement of economic conditions, and restoration of pig production, CPI inflation declined gradually to -0.5 percent in November due to the recovery of pork production, the effective pandemic containment measures, and economic recovery. It is expected to remain low in H1 2021 due to base effects and a further drop in pork prices, before recovering gradually with the recovery of the economy and higher energy prices.

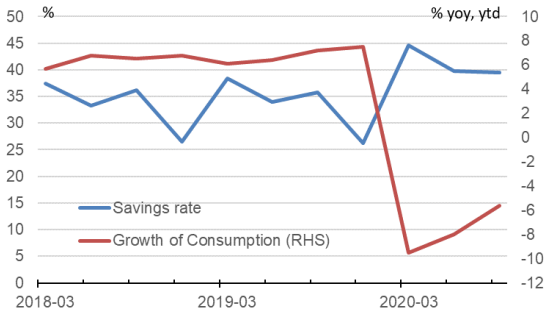
11. China's economy is entering 2021 with strong momentum, and GDP growth will accelerate further (Figure 7). The economy is expected to grow by 8.6 percent in 2021, supported first, by rapid recovery of domestic consumption, as well as the normalization of social activities that will lead to a stronger services sector recovery; and second, in part by a strong recovery in the global economy as the pandemic is expected to be more effectively contained globally by the new vaccines which have proven to be effective against the virus.

Figure 7. Growth Forecast



Source: Wind; AMRO staff estimates

Figure 8. Urban Household Savings Rate and Consumption

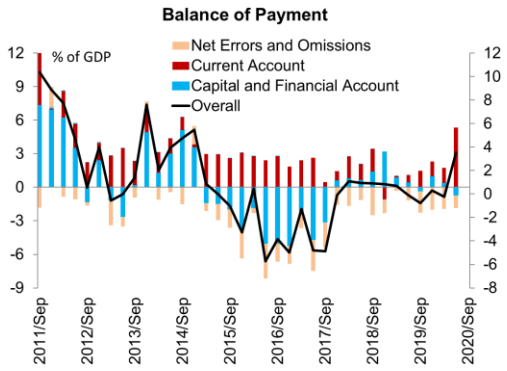


Source: Wind; AMRO staff estimates

A.2 External Sector and the Balance of Payments

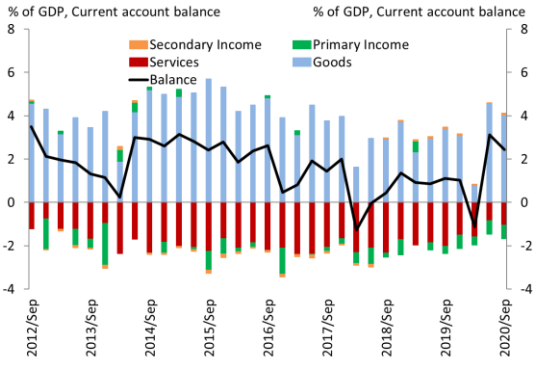
12. The external position strengthened (Figure 9) reflecting an increase in current account surplus, while the capital account is expected to be balanced, and FX reserves are expected to increase. The current account recorded a deficit of USD34 billion in Q1, reflecting disruptions to production and exports. However, in Q2, as China succeeded in restoring production and export activities, the current account recorded a large surplus of USD110 billion. In Q3 2020, the current account surplus rose to 2.4 percent of GDP (Figure 9). Exports remained strong in H2, while imports grew relatively more slowly. As a result, the current account surplus is expected to increase further.

Figure 9. Balance of Payments



Source: State Administration of Foreign Exchange (SAFE); Wind; AMRO staff estimates

Figure 10. Current Account

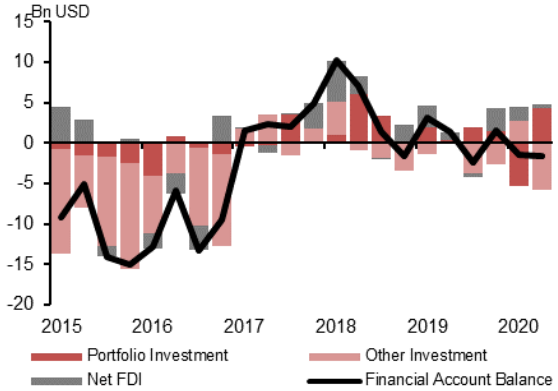


Source: SAFE; Wind; AMRO staff estimates

13. Cross border capital flows remained largely balanced amid the pandemic. The financial account (excluding reserves and errors and omissions) registered a small deficit of USD29 billion in H1 (Figure 11). Portfolio investment recorded net outflows in Q1, likely due to risk aversion resulting from the global financial market turbulence in the early part of 2020. However, it reversed to a net inflow of USD42 billion in Q2 as global financial markets rebounded and foreign investors sharply increased their investment in China's financial assets,

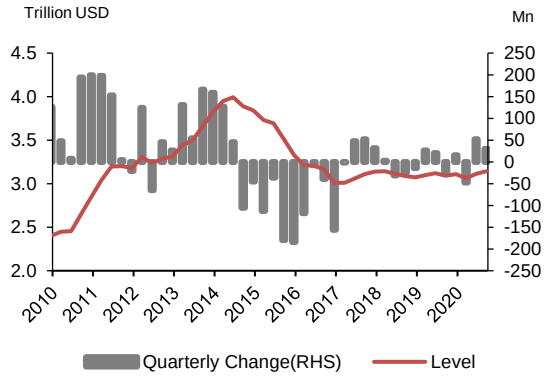
particularly in onshore bonds. The strong turnaround more than offset the Q1 outflows. Preliminary data show that foreign investors continued to increase their investment in Chinese securities in Q3. Direct investment was not adversely impacted by the pandemic. In the first three quarters of 2020, FDI inflows stood at USD126 billion, 27 percent higher than in the same period in 2019, while ODI increased by about 15 percent to USD80 billion. FX reserves have remained stable at around USD3.2 trillion (Figure 12).

Figure 11. Financial Account



Source: Wind; AMRO staff calculations

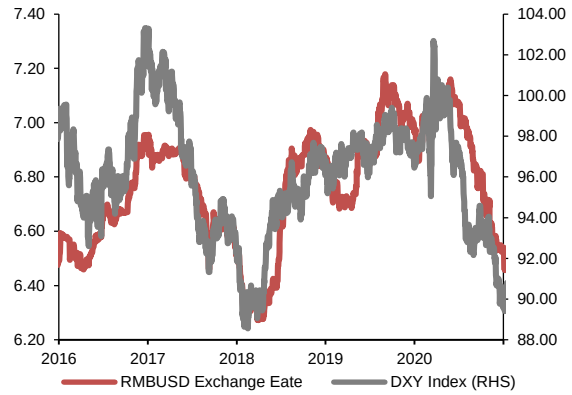
Figure 12. FX Reserves



Source: Wind; AMRO staff calculations

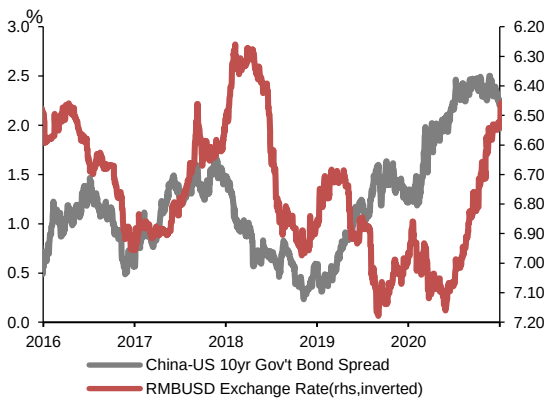
14. The RMB exchange rate has been on an appreciating trend since June, reversing from the weakening trend in the first half when the pandemic first broke out and global financial markets were in turbulence (Figure 13). The RMB depreciated by 2.4 percent against the U.S. dollar from January to May and then appreciated by9.3 percent from June to December. In 2020, it appreciated by about 6.6 percent, and became one of the strongest-performing regional currencies. There are several factors contributing to the RMB's exchange rate strength. First, the successful containment of the COVID-19 pandemic has led to a quick economic recovery in China. Second, China's bond yield has become more attractive on the back of the sharp monetary easing in advanced economies. Interest differentials between Chinese and U.S. government bonds have widened to record levels (Figure 14). Third, the U.S. dollar has been weakening sharply since May (Figure 13). Finally, the continued opening up of domestic financial markets in China and the inclusion of China's bonds in global bond indices have led to a rebalancing of global investment portfolio in favor of China's markets.

Figure 13. RMB Exchange Rate and U.S. Dollar Index



Source: Wind; AMRO staff calculations

Figure 14. RMB Exchange Rate and Interest Rate Differential



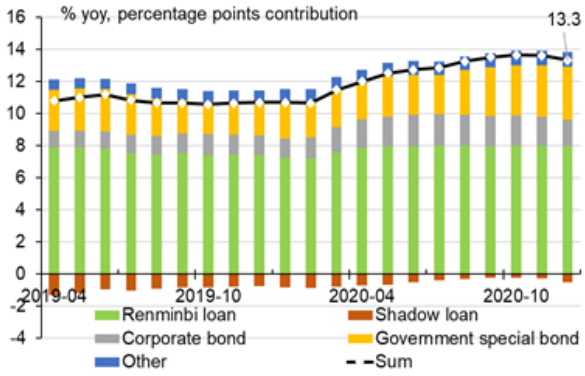
Source: Wind; AMRO staff calculations

A.3 Monetary Conditions and Financial Sector

15. Amid the pandemic, several monetary policy measures were deployed to ensure that liquidity remained reasonably adequate and to encourage lending. Open market operations (OMOs) were conducted to inject short-term liquidity into the banking system in Q1. The central bank increased medium-term lending facility (MLF) operations at lower interest rates and cut the reserve requirement ratio (RRR) to provide medium-term liquidity in the financial system and support credit expansion. Meanwhile, the central bank also continued to encourage the banks to increasingly use the loan prime rate (LPR) (the policy rate) as a benchmark for their lending rates. It expanded the usage of structural tools such as targeted relending and rediscounting, and introduced new targeted tools such as the financial inclusion MSEs loan extension support tool[1] and the financial inclusion MSEs loan support plan[2], to support key sectors and MSEs.

16. As a result, total social financing (TSF) growth accelerated markedly. TSF grew steadily over the pandemic period, reaching 13.3 percent in 2020, up from 10.7 percent in December 2019. It was driven by rising bank loans and government special bonds, while shadow banking loans continued to fall (Figure 15). Both short- and long-term new corporate loans increased at a much faster pace than in the same period in 2018 and 2019. Loans to households grew at a similar pace as in the previous year. To support sectors which were hit hard, banks lent significantly more to MSEs. In September 2020, long-term loans to the manufacturing sector and MSEs — the two sectors with the highest NPL ratios — grew by as much as 30.5 and 21.1 percent respectively. Despite the strong growth, the increase in TSF is still much lower than in 2009-2010, when it grew by a cumulative 74 percent.

Figure 15. Total Social Financing (TSF) Growth

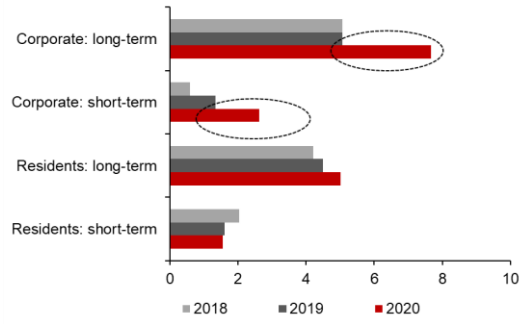


Source: NBS; Wind

17. Banks increased credit to the corporate sector significantly, and granted principal and interest payment deferrals to micro, small and medium-sized enterprise (MSME) borrowers to cushion the pandemic's impact. New corporate loans increased by 60 percent in the first ten months of the year (Figure 16), as authorities encouraged and incentivized banks to support MSMEs, manufacturing and other battered sectors. To give banks more room to lend, the CBIRC reduced the provision requirement by 20 percentage points to 100-130 percent of NPLs for small and medium-sized banks temporarily. Banks also allowed borrowers with loan amounts below RMB10 million to defer their principal and interest payments, for a cumulative total of up to RMB7 trillion of the principal amount (Figure 17). About RMB6 trillion of principal and interest deferments were granted to MSMEs as of Q4 2020.

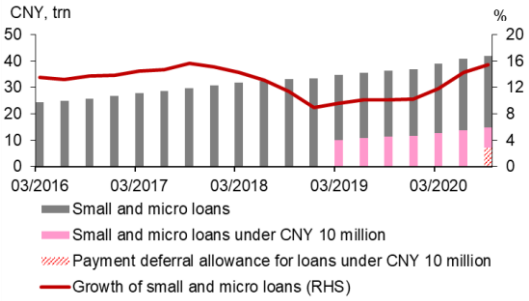
[1] In Chinese "普惠小微企业贷款延期支持工具"
[2] In Chinese "普惠小微企业信用贷款支持计划"

Figure 16. New Bank Loans between January and October



Source: Wind

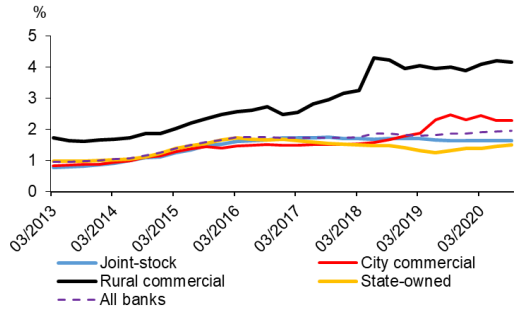
Figure 17. Micro and Small Loans Outstanding and Allowance for Payment Deferrals



Source: Wind

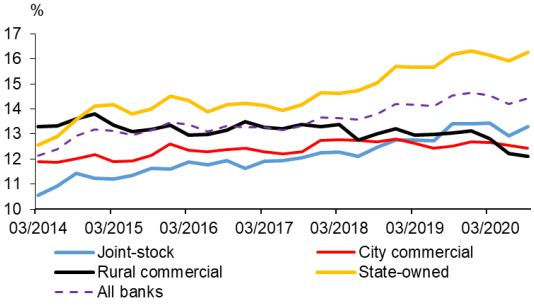
18. The banking sector has been resilient in the face of the economic downturn, but capital adequacy ratios (CARs) of small banks have been under pressure. Due to write-offs of NPLs and postponements in NPL recognition owing to the deferral of principal and interest payments, banks' NPL ratios have increased more slowly than expected (Figure 18). Large state-owned and joint-stock banks saw their capital adequacy weaken slightly early this year, but they have raised perpetual and subordinated bonds in the market to boost their capital positions (Figure 19). In contrast, the CARs of city and rural commercial banks, which were lower prior to the pandemic period, continued to decline, although less sharply in Q3, as their risk-weighted assets increased. Their profitability declined significantly in the first two quarters (Figure 20) due to slowing economic growth as well as interest and fee cuts, affecting efforts to strengthen capital levels.

Figure 18. Bank NPL Ratios



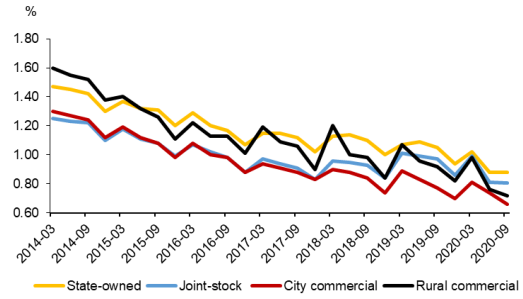
Source: Wind

Figure 19. Bank Capital Adequacy Ratios



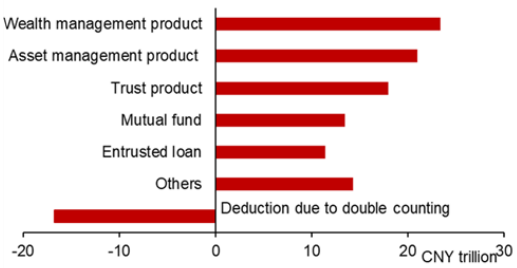
Source: Wind

Figure 20. Bank Return on Asset



Source: Wind

Figure 21. Composition of Shadow Banking Assets



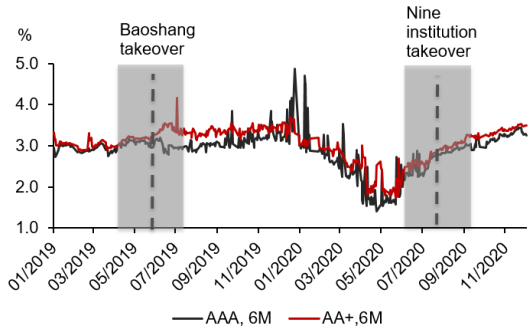
Source: CBIRC

19. Shadow banking loans have decreased further from the peak in 2017, and regulation of wealth management products has been strengthened. Total assets in the shadow banking sector declined from the peak of RMB100 trillion in 2017 (121 percent of GDP) to RMB85 trillion in 2019 (86 percent of GDP), based on the China's Banking and Insurance Regulatory Commission (CBIRC)'s broad definition (Figure 21). Some risky businesses—such as inter-bank wealth management products, inter-bank investment through special purpose vehicles, entrusted loans and P2P lending—have shrunk significantly following the curb on financial leverage. However, due to challenges posed by the pandemic, the transition period of the new rules on asset management issued in 2018, to further reduce shadow banking activities and remove implicit guarantees for wealth management products, have been extended from end-2020 to end-2021.

20. The restructuring and resolution of some troubled financial institutions has made further progress, helping enforce market discipline. Hengfeng Bank and Bank of Jinzhou managed to secure capital injections from existing and new investors, lifting their CARs from a negative value and 8.1 percent to 12.3 and 12.6 percent, respectively. Separately, Baoshang Bank transferred its assets and liabilities to Mengshang and Huishang Bank for businesses inside and outside of Inner Mongolia, respectively. It subsequently obtained regulatory approval to start bankruptcy proceedings, with its original equity liquidated and RMB6.5 billion in Tier 2 capital bond written down. In July 2020, authorities took over nine other financial institutions linked to Tomorrow Holdings. This takeover did not impact negotiable certificate of deposit (NCD) yields significantly (Figure 22), as their inter-bank exposures were smaller and regulatory action was already anticipated. Additionally, the troubled Anbang Group started its liquidation process after Dajia Insurance took over its insurance businesses.

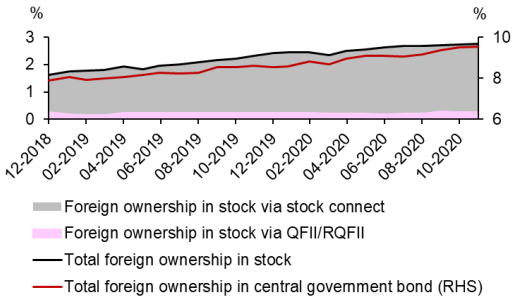
21. The authorities have made significant progress in strengthening laws and regulations to manage systemic risks and safeguard financial stability. Regulators launched the countercyclical capital buffer mechanism for banks, with the initial value set at zero, to adapt to circumstances surrounding the pandemic. They released their assessment of, and supervisory approaches for, the systemically important banks and also established entry requirements and supervisory / regulatory measures for financial holding companies. Further, the draft revision of the Central Bank Law is aimed at strengthening the central bank's macro-prudential function, enabling its coordination of the supervision of systemically important banks and financial holding companies. The draft revision of the Commercial Bank Law is intended to establish detailed risk resolution and market exit procedures for troubled lenders.

Figure 22. NCD Issuance Coupon Rates



Source: Wind

Figure 23. Foreign Holdings of Domestic Stock and Bonds



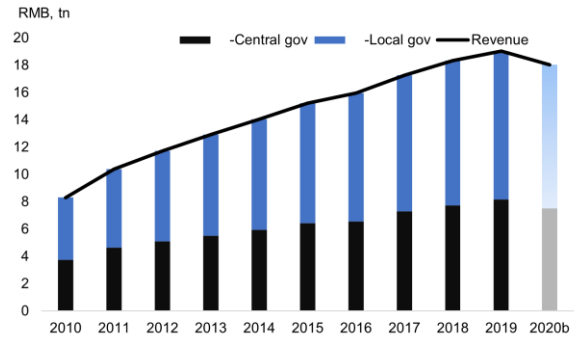
Source: Wind

22. The authorities accelerated the opening-up of financial markets in 2020. Regulations pertinent to the entry of foreign entities into the Chinese market for direct investments have been significantly liberalized. Foreign ownership ceilings for banks, insurers, mutual funds, securities and futures brokerages have been mostly scrapped. In addition, more business areas have been permitted, and requirements on entities' assets, experience, and shareholders have been revised to encourage foreign participation. The Qualified Foreign Institutional Investors (QFII) and the RMB Qualified Foreign Institutional Investors (RQFII) programs have been combined. In doing so, their application and review processes have been streamlined, the scope of eligible applicants expanded, and the investment quotas for these programs removed. These measures, along with China's inclusion in global flagship indices such as the MSCI Emerging Market and Bloomberg Barclays Global Aggregate has led to a rebalancing of investment portfolios by global investors and attracted large capital inflows into the domestic stock and bond markets (Figure 23). China's prospective inclusion in the FTSE Russell World Government Bond Index is expected to lead to a further inflow of capital.

A.4 Fiscal Sector

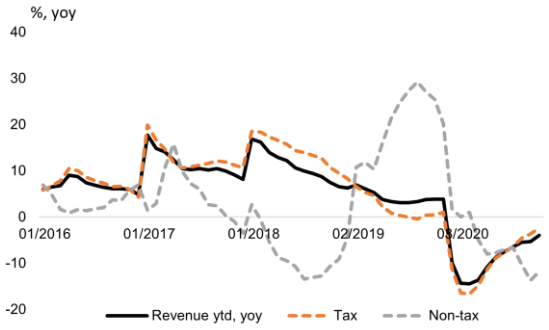
23. Government revenue has contracted significantly due to the pandemic's impact on the economy, and tax and fee cuts. Revenue in the government's general public budget,[3] including both central and local governments, has decreased significantly since the economy was severely affected by the outbreak in Q1 2020. The government responded by deploying significant tax and fee relief measures (Figures 24 and 25). The authorities estimated that the reduction in taxes and fees in 2020 exceeded RMB2.6 trillion or equivalent to 2 percent of GDP. General Public Budget Revenue in 2020 declined by 3.9 percent (yoy). Tax revenue declined by 2.3 percent. However, it had rebounded somewhat starting in May 2020. Non-tax revenue has decreased by 11.7 percent (yoy) and continues to show a downward trend.

Figure 24. Tax Revenue



Source: Ministry of Finance

Figure 25. Revenue Realization (YTD)



Source: Ministry of Finance

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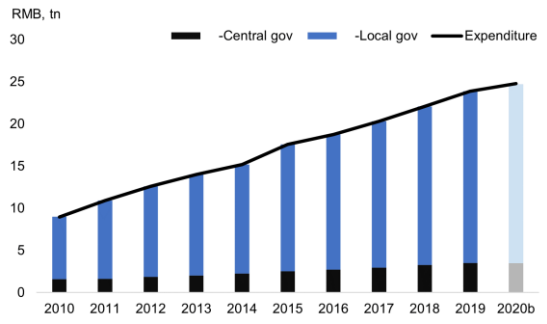
24. The general public budget's expenditure has moderately contracted against the backdrop of the sharp revenue declines. To mitigate the impact of the pandemic, the government intended to expand spending at a rate higher than the GDP growth rate, in order to support the economy. It was budgeted to grow by 3.8 percent (Figure 26) and primarily through local governments. So far, spending on social security, employment and health has increased significantly. Approaching the year-end of 2020, the expenditure disbursement

[3] In addition to government's general public budget, other fiscal accounts include the government managed-fund account, social security account and state capital management account.

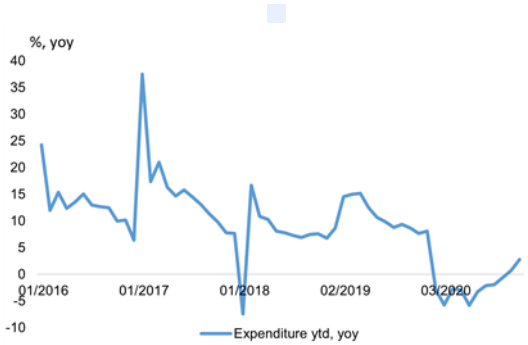
improved somewhat, witnessing actual expenditure growing by 2.8 percent for the whole year (Figure 27).

Figure 26. Expenditure



Source: Ministry of Finance

Figure 27. Expenditure Realization (YTD)



Source: Ministry of Finance

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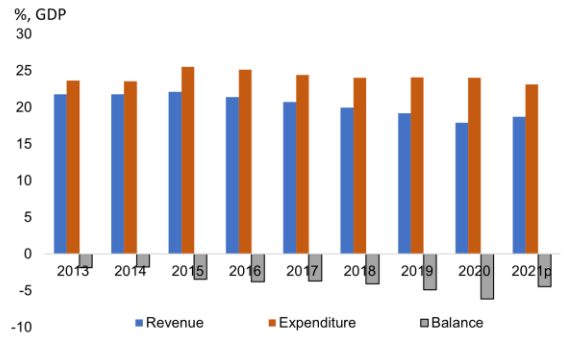
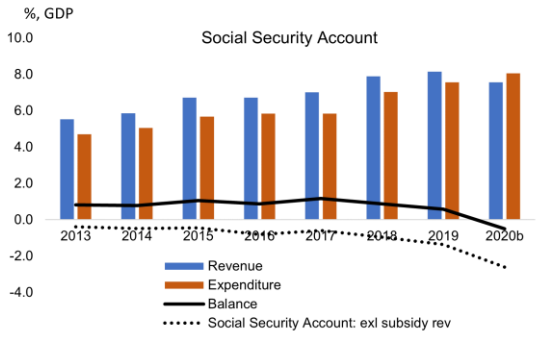
25. The deficit in the government's general public budget increased initially and then decreased towards the end of the year. Given the sharp contraction in revenue and moderate growth in expenditure, the deficit widened further to 6.1 percent of GDP in 2020, from 4.9 percent in 2019 (Figure 28), before narrowing to 4.3 percent of GDP in 2021 as the economy rebounds. It is expected that the deficit will decline to 4.3 of GDP in 2021 as the economy rebounds and policy support is phased out gradually.[4]

Figure 28. Budget Balance (General Public Budget)



Source: Ministry of Finance; AMRO staff estimates

Figure 29. Social Security



Source: Ministry of Finance

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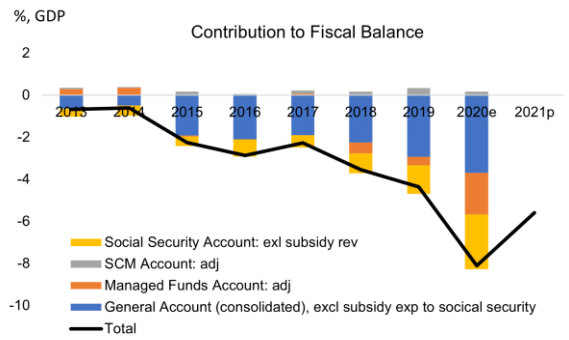
26. Government-managed fund and social security accounts are also expected to register increasing deficits. Authorities scaled up expenditure in the government-managed fund account by 24.7 percent in the first 10 months of 2020. Revenue of government funds, which was 44.4 percent of the general public budget's revenue in 2019, grew by 4.1 percent. In comparison, the managed fund account grew by 8.7 percent over the same period in 2019. The social security account is also expected to register a small deficit last year due to a reduction in social security contributions by firms (Figure 29).

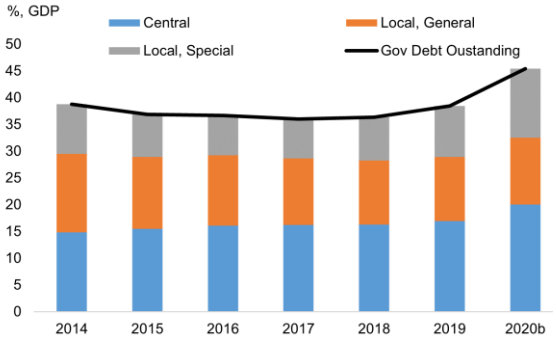
[4] The numbers are adjusted by moving the official revenue and expenditure's carryover, transfer and adjustment fund into financing. Before these adjustments, the realized official deficits stood at -2.8 percent in 2019 and -3.6 percent in 2020, respectively.

Figure 30. Overall Fiscal Deficit (YTD)



Source: Ministry of Finance
Note: SCM stands for State Capital Management

Figure 31. Public Debt



Source: Ministry of Finance

27. The central government has increased transfers to local governments considerably to support their revenue shortfalls and to enable them to provide further support to the local economy. Provincial and lower-tier governments faced a widening gap between revenue and expenditure due to the rising need to support their economies and declining revenue. In response, total transfers from the central government were budgeted to increase from 7 trillion in 2019 (7.5 percent of GDP) to 8 trillion in 2020 (8.2 percent of GDP). In addition, the central government adjusted the shares between general transfers and special transfers for specific-purpose expenditures, allowing local governments to have more flexibility in spending the funds transferred from the central government.

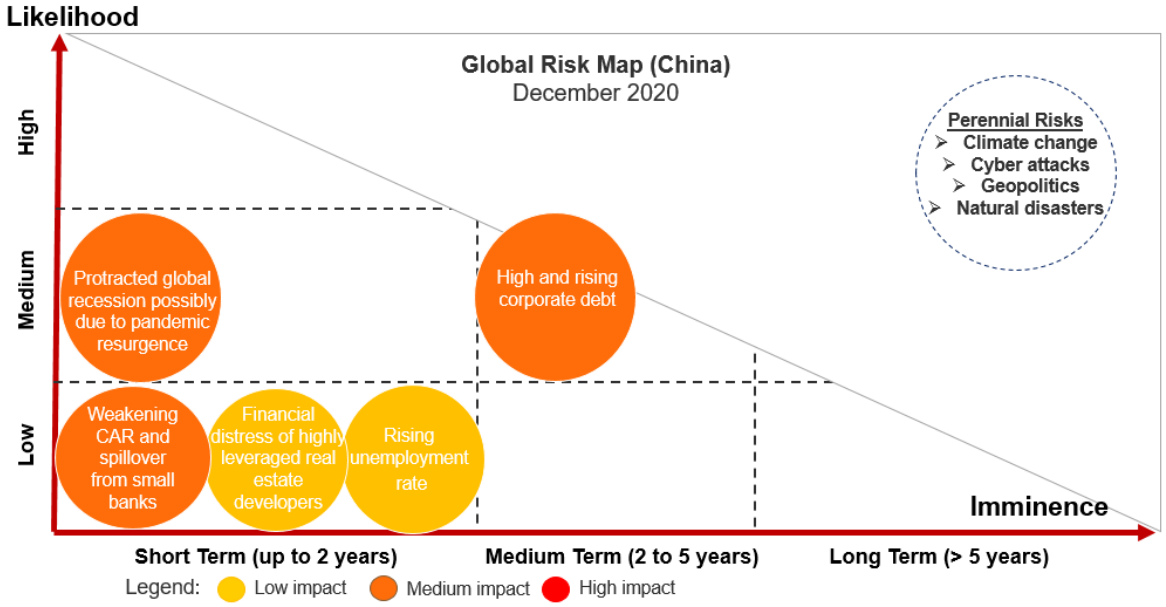
28. The bigger fiscal deficit in 2020 was financed mainly by government bond issuances. We expect the total fiscal deficit – consolidating general public budget, managed-fund and social security accounts – to reach around 8.3 percent of GDP from 4.4 percent of GDP in the previous year (Figure 30). Deficit financing has mainly relied on issuance of central government bonds and local government bonds, in terms of both general bonds and special bonds for designated projects. As shown in the approved quota for general bonds, the central and local governments will issue bonds worth a total of RMB2.78 trillion (2.8 percent of GDP) and RMB0.98 trillion (1.0 percent of GDP) respectively. In addition, special bonds—including RMB1 trillion special central government bonds for COVID-19 control, and RMB3.75 trillion special local government bonds were approved for 2020 and issued as planned.

29. Due to the larger fiscal deficit, public debt is expected to have increased significantly in 2020. Outstanding public debt, including general and special bonds outstanding held by the central and local governments, stood at 38.5 percent in 2019. This number is expected to have risen to around 46 percent by end-2020 (Figure 31).

Risks, Vulnerabilities and Challenges

30. **Given the COVID-19 infection situation and protracted global recession, overall risks to growth and stability will likely remain elevated in coming quarters.** The COVID-19 pandemic situations, both domestically and externally, will be a key factor affecting several of the following risks.

Figure 32. Risk Map, China 2021



A.5 Near-term Risks to the Macro Outlook

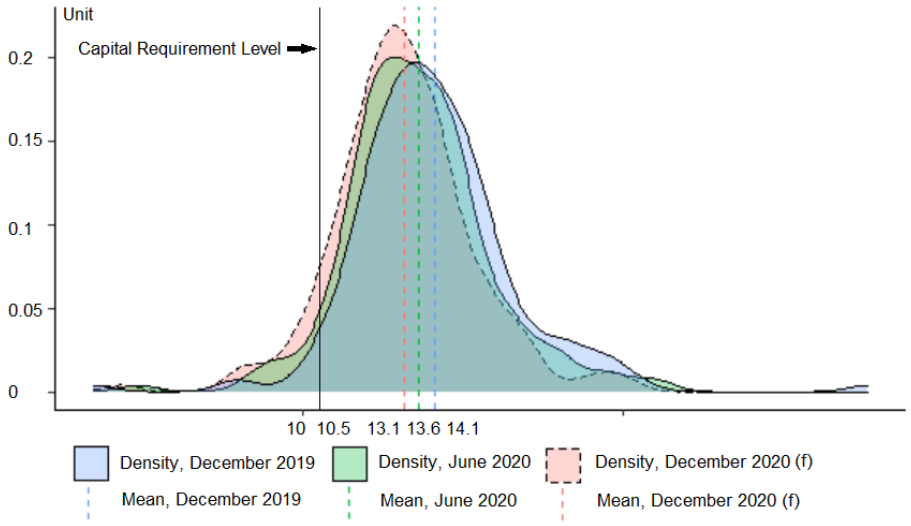
31. A protracted global recession from recurring waves of the pandemic is a downside risk weighing on China's external-oriented sector. The number of daily new cases globally is still very high, albeit decreasing, and there may still be sporadic COVID-19 outbreaks in China. While vaccine development has been rapid and vaccinations have begun in the US, UK and several other countries, there is uncertainty over its production and distribution, and their effectiveness on the mutated virus. Due to much narrower policy space and policy uncertainties, key trading partners may not be able to sufficiently mitigate the downward pressure on their economies, leading to a protracted global recession, which will hurt China's export-oriented manufacturing sectors, in particular the MSEs.

32. If this happens, China may see increasing risk of unemployment in these sectors. This would hold back the demand for labor, particularly fresh graduates and migrant workers. The weaker labor market will, in turn, threaten the livelihood of vulnerable households. The current social security system is still not adequately developed to sufficiently support them yet.

33. Some city and rural commercial banks are at risk of becoming undercapitalized. The CARs of these small banks could worsen further once more NPLs start to materialize when policy support is phased out. CARs could also worsen if MSE borrowers and their key clients fail to recover fully. A sample of 179 city and rural commercial banks with disclosed financial information shows many banks' CARs have become weaker over the six-month period starting December 2019 (Figure 33). Drawing on the accounting-based stress testing approach

introduced by Wezel et al. (2014)[5] and assuming NPLs, loan loss reserves, corporate and household loans to increase at 7, 5, 3.9 and 3.7 percent qoq at the time of testing, we found that capital deterioration, due to rising NPLs and provisions, along with larger loan extensions, could result in 8 percent of banks falling below the regulatory capital requirement by December 2020. Banks in some provinces are concentrated on the weaker side of the distribution. These banks may have to rely on both market and fiscal resources for capital replenishment. Capital replenishment could become a significant challenge for the local government**.**

Figure 33. Distribution of Capital Adequacy Ratios among 179 City and Rural Commercial Banks

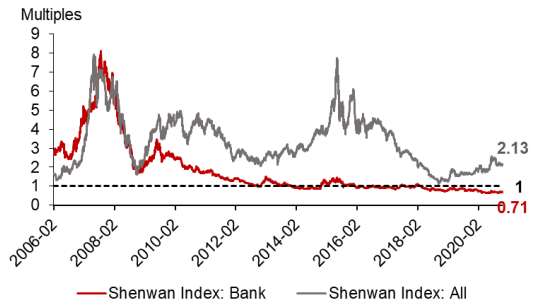


Source: Wind; AMRO staff estimates
Note: The forecast for December 2020 is based on assumptions: NPLs, loan loss reserves, corporate and household loans increase at prevailing rates, i.e., 7, 5, 3.9 and 3.7 percent qoq, respectively. The dividend payout ratio is 30 percent.

34. It will be challenging for weak banks to recapitalize. Listed banks are among the strongest in China. However, their stocks have recently been trading below their book value on average (Figure 34), reflecting market perceptions of their prospects. It is, therefore, very challenging for them to raise common equities in the capital market, especially those with government ownership, because of concerns about diluting the state share. Regulatory measures to facilitate banks' issuance of tier 2 bonds and the ones without fixed maturity dates and broadening of their investor base, have been somewhat effective. Issuances accelerated in Q3 2020 with the majority being able to raise the higher-quality tier 1 capital (Figure 35). That said, weaker banks have not been able to do the same. While local authorities have been allowed to use the proceeds from special local government bonds to recapitalize banks, stringent requirements on dividend payouts and their potential negative signaling effect about the banks' solvency, pose important challenges.

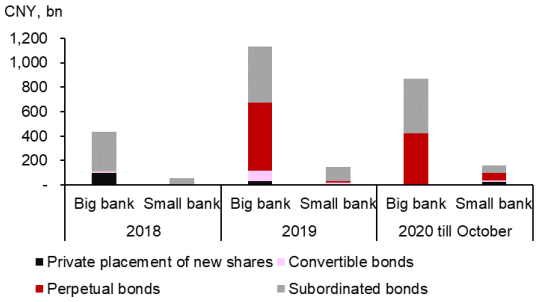
[5] Wezel, Torsten, Michel Canta, and Manuel Luy. 2014. "A Practical Example of the Nonperforming Loans Projection Approach to Stress Testing." In *A Guide to IMF Stress Testing: Methods and Models*, edited by Li Lian Ong. International Monetary Fund.

Figure 34. Price-to-Book Ratio for A-share Listed Banks



Source: Wind

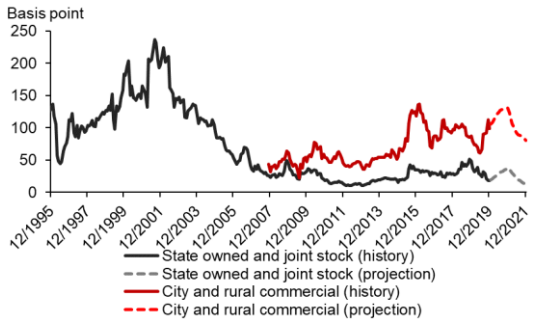
Figure 35. Share and Bond Issuances to Replenish Tier 1 and Tier 2 Capital



Source: Wind

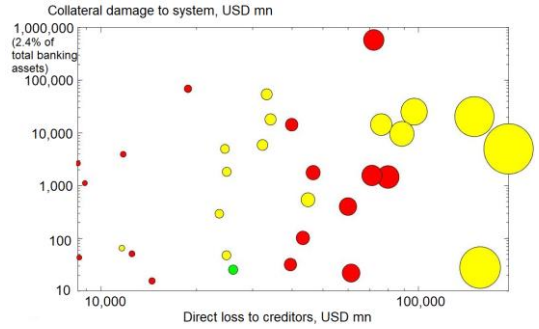
35. Credit risks of small banks could continue to rise and spill over to the rest of the financial sector and local government financing vehicles (LGFV). The NPL ratios of small banks are expected to continue to rise moderately. The probabilities of default of the listed city and rural banks are expected to stay elevated until the economy is back on a strong footing (Figure 36), based on AMRO estimates. The failure of these banks could have significant impact on their direct creditors and, under certain circumstance, have serious repercussions on the broader financial system (Figure 37). For example, the failure of certain small institutions could cause collateral damage of up to 2.4 percent of banking sector assets, given their interconnectedness with other financial institutions in the system. Moreover, rising credit risk among small banks could cause the yields of LGFV bonds to increase. This impact through the bank-LGFV nexus, could impede LGFVs from providing support to much-needed infrastructure projects, thus weakening the economic recovery (see Selected Issue 1 Managing Funding Risk of Local Government Financing Vehicles (LGFVs)).

Figure 36. Probability of Default of Big and Small Banks



Source: The Credit Research Initiative of National University of Singapore; AMRO staff estimates
Note: Stress testing scenario based on AMRO's economic projection – real GDP growth: 2.0 percent for 2020 and 8.7 for 2021; unemployment rate: 5.6 percent for 2020 and 5.2 in 2021; net interest margin: 2.1 percent for both 2020 and 2021.

Figure 37. Expected Credit Loss and Collateral Damage if Bank Fails



Source: The Credit Research Initiative of National University of Singapore; AMRO staff estimates
Note: Each node represents a listed city or rural commercial bank. Node size represents one's total liability. Node color represents the probability of default (PD)-implied credit rating referenced to the S&P scale — red for B, yellow for BB and green for BBB. The projection of a node on x-axis is the expected credit losses to the direct creditors of this bank. The projection on the y-axis is the collateral damage to the broader financial system through contagion.

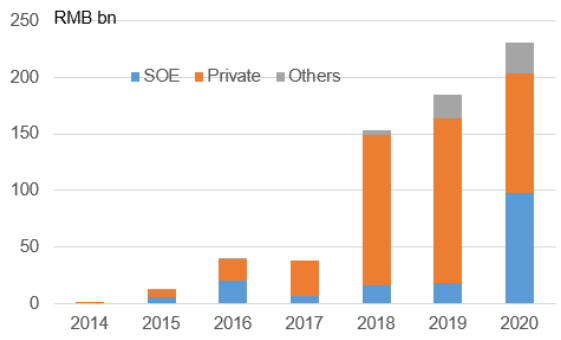
36. Financial distress of highly leveraged real estate developers remains elevated (See Selected Issue 2: Rising Debt Levels of Chinese Real Estate Developers and New Financing Rules). Chinese real estate developers' leverage at the aggregate level, in terms of the debt-to-asset ratio, is much higher than those of global peers. The debt is spread out across many financial institutions and creditors, ranging from banks and non-bank financial institutions (NBFIs) to domestic and overseas bond investors. The COVID-19 pandemic has worsened their financial situation, and a number of real estate developers are facing greater difficulties in repaying debt. Furthermore, given developers' linkages with upstream and downstream enterprises, these enterprises could also be adversely affected, along with property buyers. The situation has been improving since Q2, but the debt repayment pressure will likely increase and remain high over the next few years.

37. Bond defaults could remain an important risk for some state-owned enterprises (SOEs), causing a potential spillover effect to other corporates. In the past few years, defaults among SOEs were concentrated in certain provinces: Hainan, Liaoning, Qinghai and Henan. Default events had spillover effects on other SOEs in the same province or industry. The amount of SOE bond defaults reached a new record high in 2020 (Figure 38) as their businesses were under stress and local government support was more limited. After the default of a state-owned mining firm in Henan in November 2020**,** SOEs in Henan did not issue a single bond for a month, and some planned bond issuances were also cancelled. Stress on some individual SOEs may persist, and the risk may increase again especially if growth becomes weaker than expected.

A.6 Longer-term Challenges and Vulnerabilities

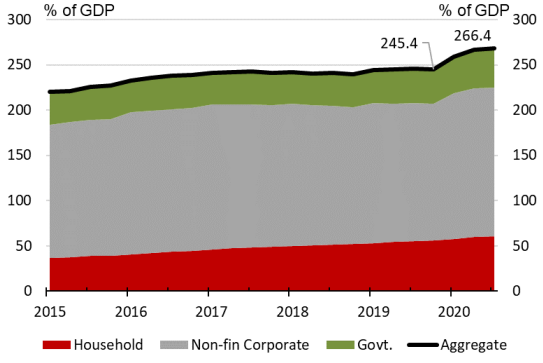
38. Corporate debt increased significantly in the first three quarters of 2020 from the already high levels before the pandemic, and the corporate default rate may rise further. China's corporate debt-to-GDP ratio stood at 151.3 percent in December 2019 (Figure 39), among the highest in emerging markets globally. It rose further to 165 percent in September 2020. A number of corporates in the hard-hit sectors have been under stress. Given the high debt levels, any weakening of the economy could lead to financial distress and an increase in NPL. In the longer term, high corporate indebtedness could become a drag on growth as firms with high debt will likely be vulnerable to financial and real shocks.

Figure 38. Bond Defaults (Onshore)



Source: Wind; AMRO staff estimates

Figure 39. Debt-to-GDP Ratio



Source: Wind; AMRO staff estimates

39. Tensions with the U.S., especially on the technological front could be a source of concern for the semiconductor and other high-tech industries. U.S. sanctions on exports to China's high-tech companies are likely to affect the development of China's high-tech sector, at least in the short to medium term. This is because while China is highly advanced in chip design and has fabrication capacity, it relies on other suppliers for the equipment in making the design and for fabrication of the most advanced chips. Tech tensions may lead to a decoupling of technologies between China and the US with ramifications for global supply chains. Uncertainty over the timing of a catch-up by China is significant. The lack of access to the most advanced chips could potentially affect the prospects of high-tech development and the global market shares of Chinese high-tech products and services.

B. Policy Discussions and Recommendations

B.1 Policy Measures to Combat COVID-19 Impact

40. **Chinese authorities have taken effective measures to contain the COVID-19 outbreak, mitigate the impact on MSEs, people's livelihood and lower-tier governments, and support the economic recovery.** (See a comprehensive analysis in the policy perspective paper on "Conceptualizing and Examining China's Economic Policy Responses to the COVID-19 Pandemic"). Economic policy measures at the beginning of the outbreak were timely but measured. Subsequent policy measures have become more sizable and focused on economic recovery.

41. **Targeted fiscal measures have provided timely and needed support since the beginning of the COVID-19 outbreak.** Fiscal measures initially focused on providing urgent support to save lives, bring the pandemic under control, and deliver relief to the vulnerable. Tax and fee cuts were implemented following that, particularly for MSEs. Since April 2020, the size of fiscal support has increased in the form of comprehensive tax and fee cuts, infrastructure spending, and support to vulnerable groups and MSEs. To support lower tier governments, the central government also transferred more than RMB2 trillion directly to county level authorities that were hit hard and were short of funds. Government-owned credit guarantee companies have cut their fees sharply, to support bank lending to MSEs, and have also expanded their coverage.

42. **Chinese authorities have maintained sound monetary policy, which has become increasingly supportive of MSEs.** At the beginning of the COVID-19 outbreak, monetary policy measures were timely and sizable. In particular, the PBC injected liquidity to calm inter-bank markets. A set of measures, including RRR cuts and larger relending facilities, was deployed to ensure banks had enough liquidity to lend to the real economy. As MSEs are still suffering and have lagged behind, monetary policy measures have become more targeted. Innovative instruments, such as the relending program for bank lending to MSEs, have been deployed. The focus has been on enabling small banks to lend to these firms as they have extensive networks in lower-tier cities and rural areas.

43. **Cooperation between fiscal policies and financial policies has been important.** Financial policies have been proactively deployed to support the economy through forbearance measures and increased lending at lower interest rates to vulnerable sectors. The authorities provided guidance to banks on more flexible treatment of loans. These include deferment of principal and interest payments, and the extension of loan contracts until March 2021, particularly for MSEs. In addition, the banking sector was encouraged to support the economy by reducing its lending rates and fees by a total of RMB2 trillion (1.5 percent of GDP) in 2020. In terms of total lending, we expect TSF in 2020 to have increased by 13 percent – significantly higher than the 10.7 percent in 2019, with a significant increase in bank loans to vulnerable sectors, including manufacturing firms and MSEs.

44. **It is important that the recovery continues to broaden and becomes more supportive to vulnerable sectors.** Although the overall recovery has become more entrenched, some sectors are still lagging and the labor market has yet to fully recover. The Central Economic Work Conference has indicated that China will not take a "sharp turn" in policy in 2021. While

both fiscal and monetary policies are set to normalize gradually in 2021, it is still important to buttress domestic demand and provide further support to vulnerable sectors, especially unemployed migrant workers and university graduates and suffering MSEs.

45. **Going forward, caution is necessary in phasing out stimulus policies, taking into account both domestic and external risks, and uncertainties.** In particular, it should be done in a gradual manner in tandem with the strength of the economic recovery and improvement in the conditions of the vulnerable sectors. While macro policies have been normalized, the design and sequencing of the phasing-out strategy need to be well-coordinated among all relevant policymakers and regulators, and should take into consideration the various domestic and external risks.

46. **In particular, cliff effects need to be avoided.** It is appropriate that policymakers have decided not to take “sharp turns” in policymaking in 2021. Support for viable but vulnerable industries and firms should continue for longer, while support for nonviable ones should be wound down. To assess the viability of enterprises, inputs from key stakeholders should be considered. Rollback of PBC’s relending programs should be done only when the recovery has become broad-based.

47. **Further policy support can be deployed if the economy falters, either due to a recurrence of the pandemic in China or a major slowdown in the global economy.** China still has moderate policy space. Looking ahead, it can continue to implement tax and fee cuts in 2021. It can also support enterprises for another year to assist in the economic recovery. The government still has sufficient funds to deploy fiscal measures, if needed.

48. **It is important to mitigate credit risks and strengthen the capital buffers of weak banks.** Close attention should be paid to the credit risk and solvency conditions of small banks which are highly exposed to hard-hit sectors. At the same time, the authorities should continue to support banks to actively dispose NPLs, particularly those arising from MSE defaults. In addition, authorities could help these banks raise more capital. The recent policy move to revise the Commercial Bank Law will help strengthen the bank resolution framework.

49. **Tight measures should be maintained in the real estate sector to keep buoyant conditions in check and mitigate real estate developers’ risk** (See Selected Issue 2: Rising Debt Levels of Chinese Real Estate Developers and New Financing Rules). The property markets in a few coastal cities have been relatively buoyant. As abundant liquidity and strong demand can contribute to overheating in real estate markets, macro-prudential measures should remain tight. At the same time, authorities have been making efforts to ensure the healthy development of the sector. They have introduced the “three red lines” rule by setting up thresholds for the debt-to-asset ratio, net gearing ratio and cash-to-short-term debt ratio. The new financing rule will help promote transparency of financing in the real estate sector and curb excessive borrowing by some developers. While this is a welcome policy measure, it is important for regulators to be cautious in its implementation during the transition period to avoid triggering more short-term risks.

50. **Recent policy measures to further control banks’ lending to the real estate sector are welcome.** In December 2020, the PBC and the CBIRC jointly issued the "Notice on Establishing a Centralization Management System for Real Estate Loans of Banking and Other Financial Institutions" (the "Notice" hereinafter). The Notice imposed quantitative constraints on banks’ real estate-related loans. It also set ceilings on two indicators – the proportions of real estate loan and retail housing loan in a bank’s balance sheet. AMRO

assess that these ceilings will keep property loans and mortgage loans from exceeding 30-35 percent and 25 percent of all outstanding bank loans. This policy will therefore help limit the systemic risk posed by the real estate sector. It is expected to also curb excessive increase in property prices and help mitigate rising household debt.

B.2 Structural Reforms to Strengthen Growth Potential

51. **The reduction in policy space as a result of the stimulus policies suggests a need to rebuild policy space post pandemic in order to enhance long-term economic resilience.** The pandemic experience shows that timely and significant policy stimulus measures were effective in mitigating COVID-19's impact and facilitating a strong recovery. Moreover, the pandemic's impact—especially on vulnerable groups—shows that there is still a need to improve the ability to design policies to cope with large future shocks. The reduced policy space should therefore be rebuilt in the medium term.

52. **Given the narrowed policy space, it has become imperative to mobilize more revenue and enhance efficiency and quality of fiscal spending so that it can still support economic growth while avoiding increases in debt levels.** The authorities could consider revenue raising measures such as property tax. Revenue collection can be strengthened using digital technologies, allowing for a boost in VAT collection (See Box B: Enhancing Tax System through Digital Invoicing). Non-essential spending should be further reduced and spending effectiveness should be strengthened. The Minister of Finance's Annual Work Conference calls for more "effective" and "sustainable" fiscal policy, which is in the right direction to keep public debt in control and preserve policy space.

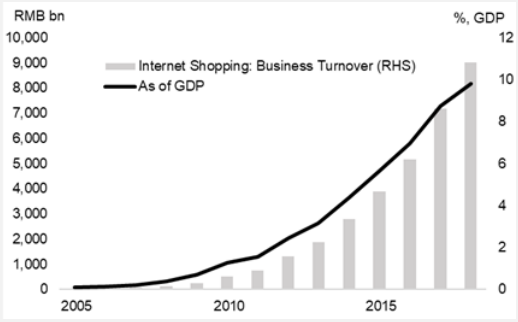
Box B. Enhancing Tax System through Digital Invoicing

China's invoice-based tax system has been progressively improved by employing the latest digital technologies. Serving as a legal receipt, an invoice is an essential business document for corporate transactions and accounting. The calculation of various tax obligations, including value-added tax (VAT), corporate income tax, and other tax deduction items, is based on the invoice system. Especially for VAT, the invoice is an instrument for companies to pay the correct amount of tax on the value-added components of each transaction. Since the VAT reform in the 1990s, the State Taxation Administration (STA), the tax authority in China, has built a national invoice management system equipped with information technology to verify information and ensure authenticity. The latest digital technologies have been increasingly employed in response to a rising number of digitalized economic activities.

There were challenges to the traditional taxation system based on paper invoicing. First, despite continuous improvement and enhancement, paper invoices are still burdensome for taxpayers. Second, the rapid growth of the volume of transactions and a rising share of e-commerce activities are posing new requirements and challenges to the tax administration. As shown in the data from China Internet Network Information Center, retail shopping using the Internet rose from RMB5 billion in 2005 to RMB10.6 trillion in 2019, or 10.7 percent of nominal GDP (Figure B1). Taxing online economic activities had been technically and legally challenging.

The tax authority has made significant efforts for the transition to e-invoicing. T Since 2016, the STA has progressively implemented e-invoicing nationwide. E-invoicing has helped reduce paper waste, enabled easier storage and management of receipts, and streamlined corporate expense management. In order to actively respond to taxpayers' needs, further improve the business environment, spur the development of the digital economy, stimulate entrepreneurship, reduce systemic transaction costs, and conserve overall social resources, in 2020, the STA adopted pilot programs for implementing the Electronic Special Value-Added Tax Invoice System for new tax payers, before implementing these nationwide. The STA endeavored to promote collaborative social governance to achieve paperless invoicing in the process of checking,

Figure B1: Online Retail Sales



Source: China Internet Network Information Center

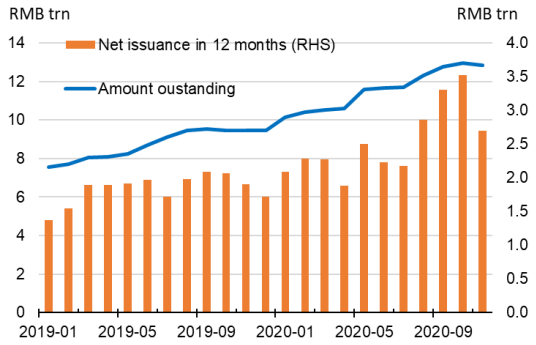
reimbursement, accounting, and filing.

There is still room for further development of e-invoicing. The implementation of e-invoicing nationwide has shown initial results, and in the next step, the STA will continue to explore and improve the supporting system to further promote the reform of e-invoicing. Also, e-invoicing based on blockchain technology has been piloted in Shenzhen, Guangzhou and Beijing. The first blockchain invoices were issued in August 2018 in Shenzhen, while a pilot scheme for blockchain invoicing in Beijing was started in March 2020.

Moving forward, the authorities will likely continue to leverage new technologies and Big Data to further improve tax administration. The efforts will provide insightful information that would not only help bolster tax revenue but also assist policymakers to calibrate broader economic policies more effectively.

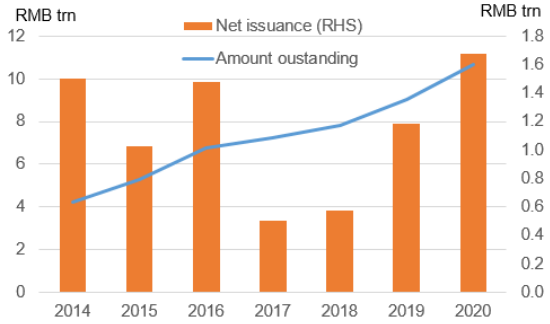
53. **It is also essential to establish a credible medium-term plan to keep local government debt levels in check, and to gradually reduce the LGFV debt-to-GDP ratio.** Since growth has fully recovered and consumption is likely to be its main driver, it is no longer necessary to use infrastructure investment to support growth in the short term. Accordingly, the rapidly growing amount of local government special bonds (Figure 40) and LGFV bonds (Figure 41) in 2020 should be contained. Local authorities should reduce curb the LGFV debt and government guaranteed SOE borrowing. Stricter enforcement measures should be taken to ensure that the borrowing objectives are clear upfront, the funds raised are used accordingly, and debt repayment is timely.

Figure 40. Outstanding Local Government Special Bond and Net Issuance



Source: Wind; AMRO staff estimates

Figure 41. Outstanding LGFV Bond and Net Issuance



Source: Wind; AMRO staff estimates

54. **As fiscal policy space has narrowed significantly for certain lower-tier governments, direct fiscal transfers from the central to the lower- governments could be used judiciously in special circumstances.** In 2020, the authorities established and implemented a system of direct transfer from the central government to lower-tier governments (county-level government in particular) in addition to the existing system of transfers between central and provincial governments and between provincial and lower-level local governments to safeguard employment, livelihoods and businesses. Such arrangements can be used judiciously in special circumstances. At the same time, the central authorities should also monitor the usage of funds, allowing certain flexibility while prioritizing local governments' basic spending.

55. **It is important to further improve the social safety net for vulnerable groups of workers and households.** The central government should continue to provide more fiscal support to these groups. It should leverage on the local authorities' better understanding of (changing) socioeconomic conditions to better match resources to the needs of enterprises and people. Looking ahead, the authorities are encouraged to continue efforts in improving the two-way flow of information between the central government and local government, as well as improving mechanisms for collaborative efforts in formulating policies and implementing policy measures. Part of these efforts could be focused on enhancing the coverage and portability of social safety nets for rural households and migrant workers.

56. **The framework and mechanisms to support MSEs could be strengthened further**. In particular, the credit guarantee system, which had been implemented at the local level, was strengthened in 2018 with the establishment of the National Financing Guarantee Fund. This allows for enhanced risk-sharing and cooperation between banks and credit guarantee agencies within a three-tier guarantee system across China (featuring the national financing guarantee fund, provincial-level re-guarantee companies, and local guarantee companies) (see 2021 analytical note on Financing Micro and Small Enterprises: China's Approach and

Increasing Role of the Credit Guarantee System). Although the system was strengthened further during the pandemic, the guarantee coverage needs to be increased further, and the gap in coverage between developed and less developed areas is substantial. A more comprehensive credit guarantee scheme—with broader customer and geographical coverage, supported by fiscal resources—should therefore be considered.

57. **It is important to contain the growth of the high corporate debt, including through tight macro-prudential measures.** More efforts could be taken to rein in rising corporate debt which is already high by international standards. China's corporate debt is concentrated in certain sectors, particularly infrastructure and real estate. The infrastructure sector's debt is primarily borne by SOEs, including LGFVs. Policy measures to remove local governments' implicit guarantees on SOE debt is an important step in the right direction. However, the policy should be implemented cautiously to avoid the adverse side effects on financial markets. Loopholes that permit SOEs to make asset transfers with subsidiaries to conceal their debt should be addressed as they can undermine market confidence. In the property sector, the recently proposed set of tight macro-prudential measures should be implemented. These measures will not only mitigate excessive price increase but also gradually help improve debt repayment capacity.

58. **China should collaborate with other countries to strengthen the resilience and flexibility of global value chains (GVCs).** The COVID-19 pandemic had led to widespread disruptions in cross-border supply chains and production networks. This has cast the spotlight on the vulnerability of countries which rely heavily on GVCs for critical intermediate components and strategic products, such as medical supplies. It has also heightened sensitivity to the need for countries to develop domestic capacity to produce strategic products and diversify their sources of supplies from different partner countries. These concerns are likely to lead to a reconfiguration of GVCs to strengthen countries' resilience to supply shocks. As a central node in GVCs for many products, China plays a key role in global supply chains (See Selected Issues 3 on "High-tech Global Value Chains (GVCs): China's Role, Contribution, and Challenges"). China should therefore collaborate with other countries to enhance GVCs' robustness. The authorities should hold consultation with enterprises across different sectors which may be affected by the reconfiguration and see how they can assist them with the restructuring. The reconfiguration of GVCs would also require closer regional and global cooperation.

59. **AMRO supports the recently proposed development strategy—commonly referred to as "dual circulation"—to enable China to further develop and transform its economy, by leveraging the domestic market, and enhancing capacity through developing indigenous technology while also strengthening external linkages.** In view of China's current development stage, changes in global economic trends, and the rise of more protectionist sentiment, it is no longer viable for China to rely heavily on an export-oriented strategy. Instead, China should rely more on its fast-growing domestic markets to drive growth, which will also help enhance economic security. Greater reliance on domestic demand for growth will also help contribute towards reducing the external imbalance in global trade. On the production side, reforms in factor markets (land, labor, capital, technology and data) and institutions need to be accelerated to improve resource allocation and quality of growth. China has reached upper middle-income country status. However, for it to reach an advanced level of development, China would have to further improve its governance framework and rely more on innovation and productivity growth. It should reform its SOEs to improve the efficiency of its economy and develop its own innovative technology.

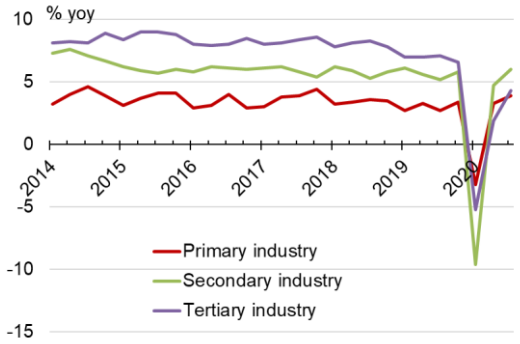
60. **In sum, in an unusually challenging year, China's authorities have acted decisively to address multifaceted challenges.** Swift policy actions have anchored macro stability, supported lives and livelihoods, and facilitated a swift economic recovery, while putting more efforts in reforms for the post-pandemic age and liberalizing the financial sector. Looking ahead, the authorities have adopted the "dual circulation strategy" which emphasizes strengthening of domestic growth drivers and deepening external linkages in order to strengthen the quality and sustainability of long-term development. Other major recent initiatives include the signing of the Regional Comprehensive Economic Partnership (RCEP) and the EU-China Comprehensive Investment Agreement.

Appendices

Appendix 1. Selected Figures for Major Economic Indicators

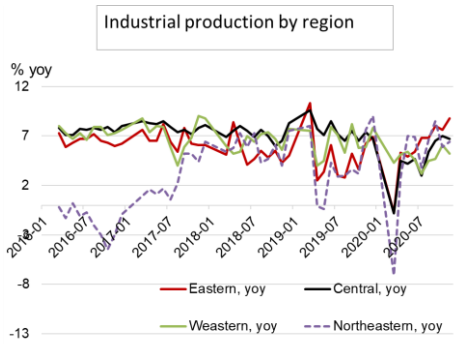
Figure 1.1. Real Sector

Growth recovery has been led by manufacturing and construction, while the services sector has been catching up.
[Growth by production]



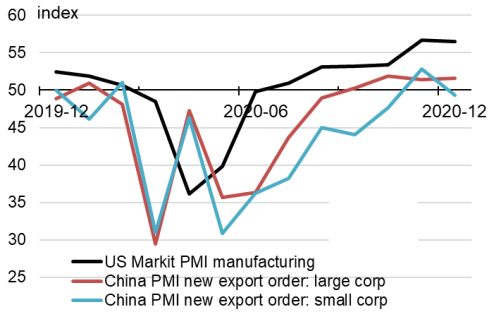
Source: Wind; NBS

Manufacturing activities have been strong in all regions, led by the more export-oriented eastern region.
[Growth in industrial production]



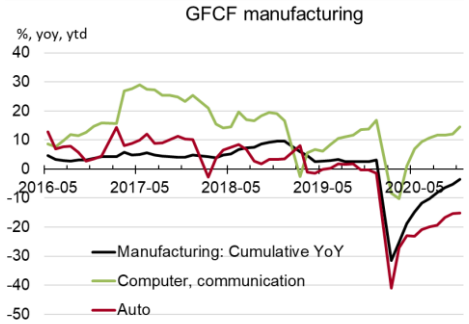
Source: Wind; NBS

Export orders have been strong, in particular for large corporates.
[Exports PMI]



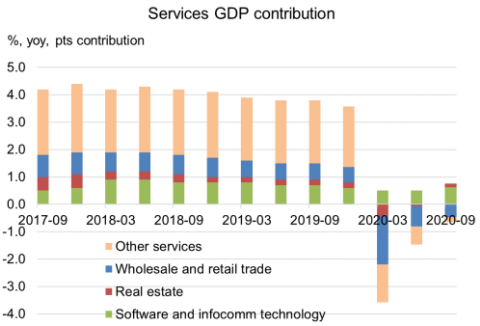
Source: CEIC; Wind

Manufacturing investment has been rebounding, led by the information technology sector.
[Manufacturing sector investment]



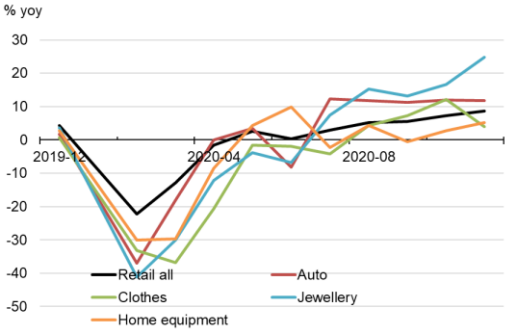
Source: Wind

Services activities have been supported by online activities, as indicated by the continued growth of “software and information technology”.
[Growth in service sector]



Source: Wind; NBS

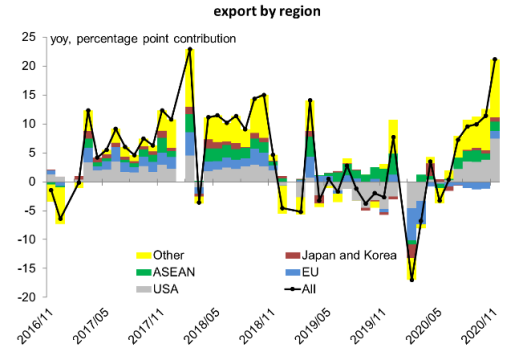
Retail sales of discretionary items have recovered.
[Retail sales]



Source: Wind; NBS

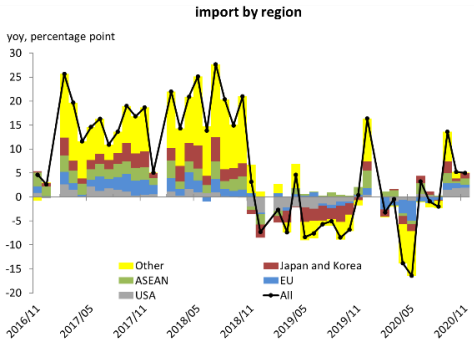
Figure 1.2. External Sector

Goods exports, in particular those to the US and ASEAN, have been strong.
[Goods export by region]



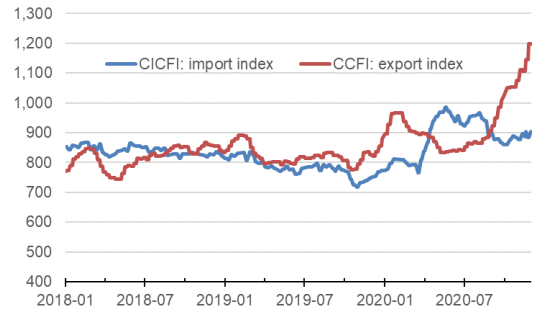
Source: Wind

Imports showed a V-shaped recovery, the same as commodity prices.
[Goods imports by region]



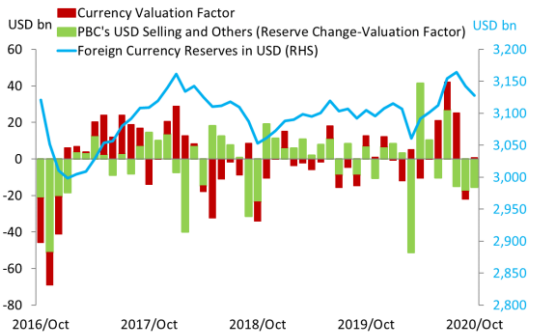
Source: Wind

The much faster recovery of exports has led to record dispersion in freight prices.
[China freight index]



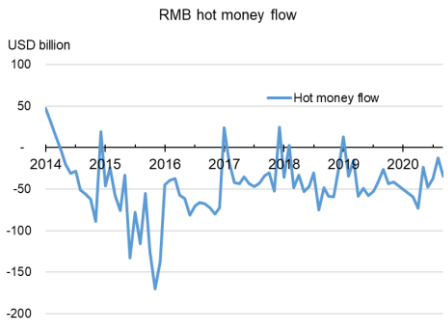
Source: Wind

Foreign reserves have increased steadily due to the weak U.S. dollar and high current account surplus.
[China's foreign reserves]



Source: Wind; SAFE.

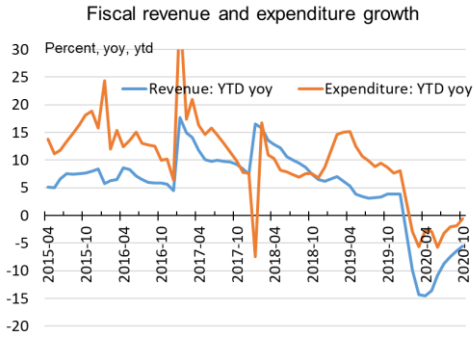
Hot capital outflow has been low, and capital flight pressure has been limited.
[Monthly hot money flow]



Source: Wind; AMRO staff estimates
Note: It is estimated as FX purchases by the PBC +change in FX deposits - monthly trade balance - direct investment balance

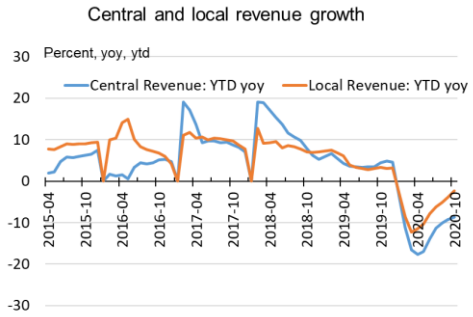
Figure 1.3. Fiscal Sector

General revenue has declined due to the pandemic, leading to a decline in general expenditure.
[Fiscal revenue and expenditure growth]



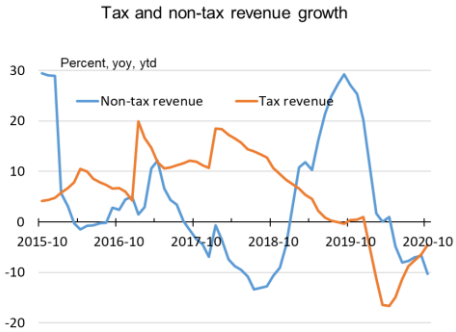
Source: Wind

Central government revenue declined more significantly than that of local governments, as it is more reliant on taxes, which have been cut further.
[Central and local government revenue growth]



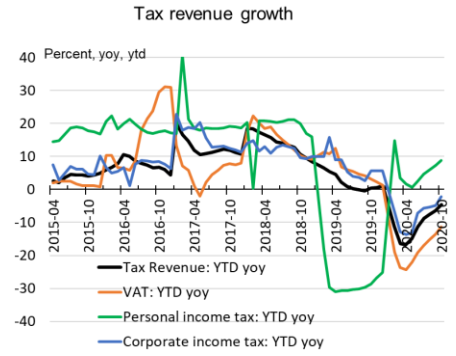
Source: Wind

Both tax and non-tax revenues declined, unlike in the past, when they tended to move in opposite directions.
[Tax and non-tax revenue growth]



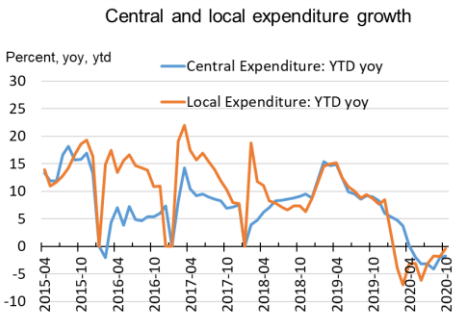
Source: Wind

Tax revenue declined most significantly, followed by corporate income tax, in part due to tax cuts.
[Tax revenue growth]



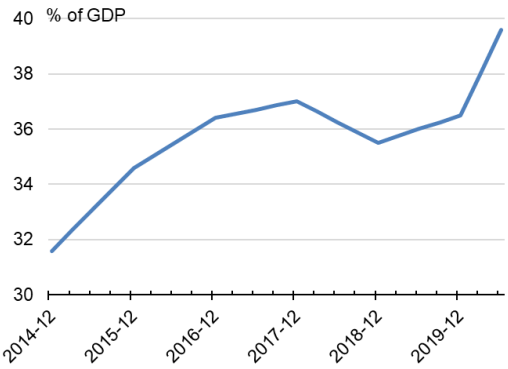
Source: Wind

Local government expenditure has rebounded recently after the sharp decline in H1 2020.
[Central and local government expenditure growth]



Source: Wind

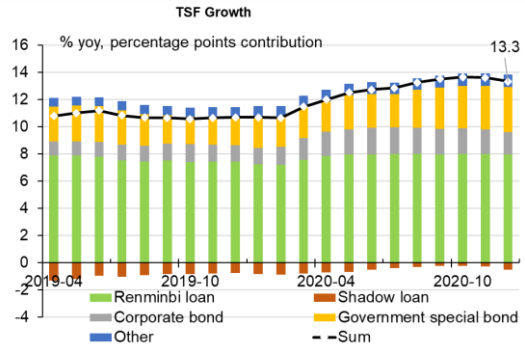
The LGFV debt-to-GDP ratio has risen again, after declining in 2018-2019.
[LGFV debt-to-GDP ratio]



Source: Wind; NBS; AMRO staff estimates

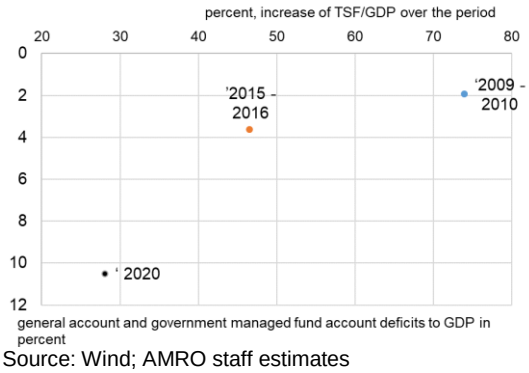
Figure 1.4. Monetary and Financial Sectors

Total Social Financing (TSF) has increased, as financial institutions have been tasked and incentivized to support the economy.
[Total social financing growth]



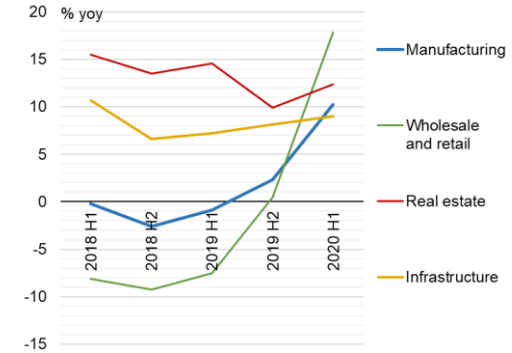
Source: Wind; PBC

The increase in TSF in 2020 is expected to be much more modest compared to that during the 2009-2010 period.
[Size of policy mix]



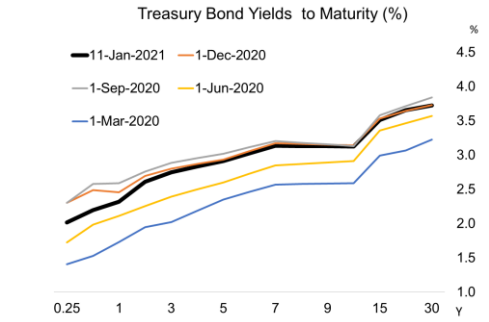
Source: Wind; AMRO staff estimates
Note: Changes in the size of TSF in relation to GDP reflects the extent of additional financing for the economy – and is a gauge of changes in the magnitude of overall policy response.

The significant credit growth was in "wholesale and retail" (a proxy for MSEs) and manufactruing, the two sectors with the highest NPL rate.
[Loan growth of four largest banks]



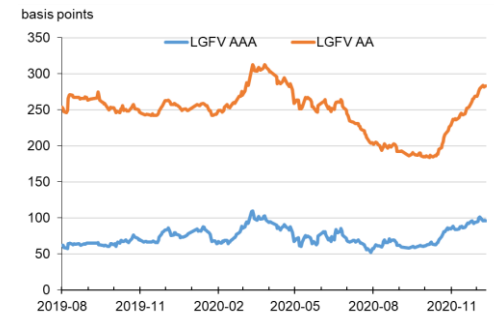
Source: Wind; AMRO staff estimates

Treasury yields have increased in 2020, against the global trend.
[Treasury bond yields to maturity]



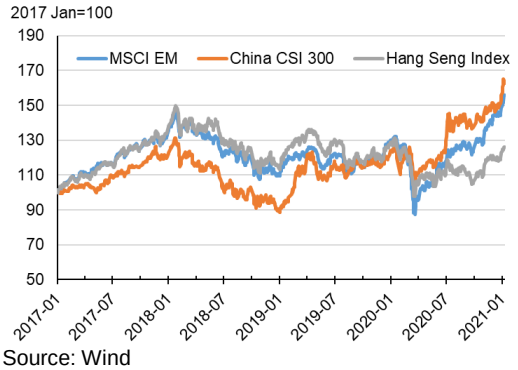
Source: Wind

Interest rates of LGFV bonds have risen, following the default of a state-owned mining company in Henan Province.
[Credit spreads of LGFV]



Source: Wind

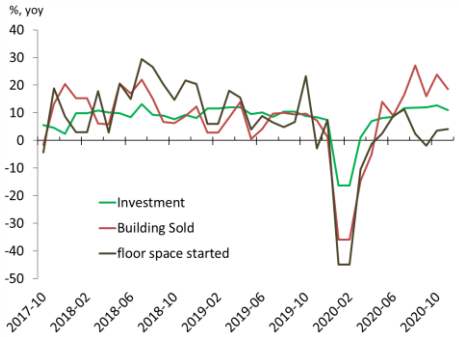
A bull market sentiment has been witnessed in the stock markets and this will likely continue.
[Stock indices performance]



Source: Wind

Figure 1.5. Property Sector

Property sales increased significantly in H2 2020…
[Total social financing growth]



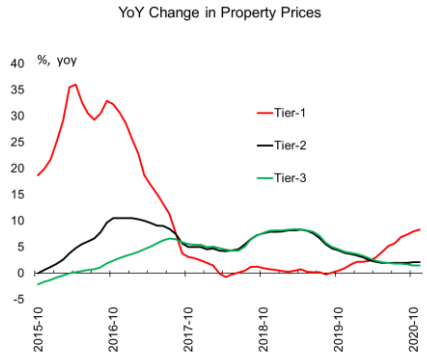
Source: Wind

..driven by the surge in sales in tier-1 cities.
[Property sales in 30 cities]

Source: Wind

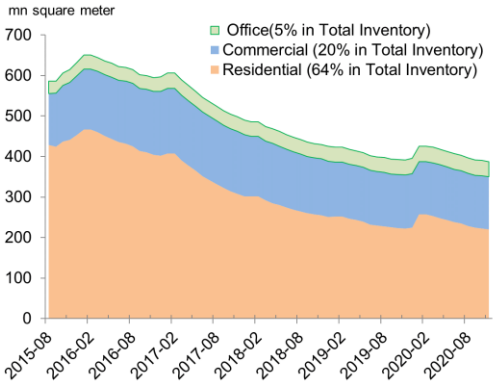
Price appreciation has also been seen in tier-1 cities.

[Property Price Appreciation]



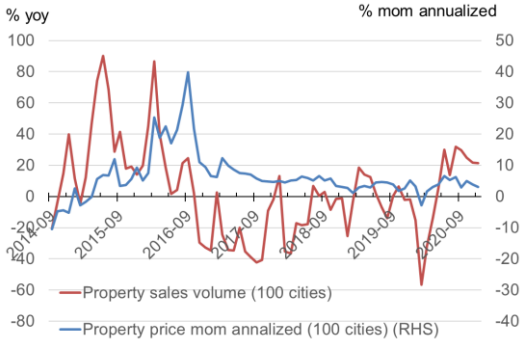
Source: Wind

As inventory is low….
[Credit spreads of LGFV]



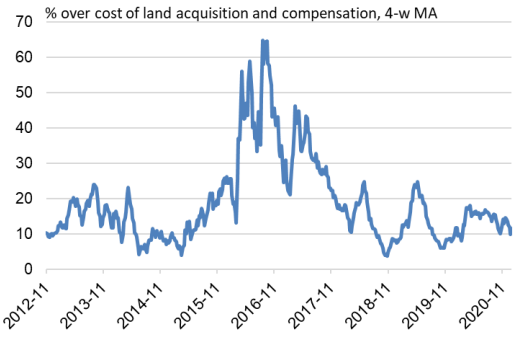
Source: Wind

…and transaction volume has increased significantly, price appreciaion may continue.
[Property Sales and Property Price Appreciation, 100 cities]



Source: Wind

Land premium stays at a moderate level, supporting revenue of government-managed funds, although it is much lower than at its peak in 2016.
[Stock indices performance]



Source: Wind

Appendix 2. Selected Economic Indicators for China

	2018	2019	2020 1/	Projections 2021	Projections 2022
National income	(In percent change unless specified)				
Nominal GDP (RMB trillion)	91.9	98.7	101.6	111.66	120.03
Nominal GDP (USD trillion)	13.9	14.3	14.7	17.2	18.8
Real GDP	6.7	6.1	2.3	8.7	5.5
Consumption	8.1	6.4	1.0	11.2	6.5
Gross Capital Formation	6.6	4.5	5.5	4.0	3.5
PMI (Mfg)	49.4	50.2	51.9	…	…
PMI (non-Mfg)	55.2	53.2	55.7	…	…
Labor Market					
Newly-hired Urban Workers (Person mn)	13.6	13.5	11.5	13.5	13.0
Average Surveyed Unemployment Rate: Urban, %)	5.0	5.2	5.5	5.1	4.7
Average Wages (RMB, thousand)	82.4	90.5	94.1	104.5	113.9
Average Wages	10.9	9.8	4.0	11.0	9.0
External Sector					
Exports (% yoy, USD)	9.7	-0.1	2.1	8.0	6.0
Imports (% yoy, USD)	15.8	-3.0	0.4	9.0	7.0
Trade Balance (% of GDP)	0.7	1.2	2.1	1.5	1.0
Current Account (% of GDP)	0.2	1.0	1.8	0.8	0.5
Financial and Capital Balance (% of GDP)	1.1	0.4	-1.2	0.0	0.0
FDI (% of GDP)	1.7	1.1	1.2	1.5	1.7
ODI (% of GDP)	1.0	0.7	0.5	1.0	1.5
External Debt, Gross (% of GDP)	14.3	14.3	15.0	…	…
Foreign Reserves (USD bn)	3072.7	3107.9	3217.2	…	…
Exchange Rate (Against USD, Period Average)	6.62	6.91	6.90	…	…
Monetary sector					
M2	8.1	8.7	10.6	9.0	8.5
Total Social Financing	10.3	10.7	13.4	11.5	10.0
Total Loan	12.9	11.9	12.7	12.0	11.0
Lending Rate (1y, Period End, %)	4.4	4.4	4.4	…	…
CPI (Period Average, % yoy)	2.1	2.9	2.5	1.5	2.0
Core CPI (Period Average, % yoy)	1.9	1.6	1.0	2.0	2.5
Producer Price Index (Period Average, % yoy)	3.5	-0.3	-1.9	2.0	3.0
Fiscal Sector					
Revenue	6.2	3.8	-6.0	8.1	8.0
Expenditure	8.7	8.1	3.0	1.8	8.0
Revenue (% of GDP)	19.9	19.3	17.3	17.7	17.8
Expenditure (% of GDP)	24.1	24.3	24.1	22.4	22.5
Overall deficit (% of GDP)	2.6	2.8	3.6	3.2	2.9
Government Debt (% of GDP)*	36.2	38.3	43.0	45.1	45.4
Financial Sector and Property Markets					
Shanghai Stock Exchange Composite Index	2494	3050	3473	…	…
Shanghai Interbank Offered Rate, Overnight (%)	2.55	1.69	1.09	…	…
10 Year Treasury Bond Yield (%)	3.63	3.18	2.94	…	…
Banking Capital Adequacy Ratio (%)	14.2	14.5	14.0	…	…
NPL Ratio (%)	1.83	1.86	2.0	…	…

Note: (i) The data is as of 31 Dec 2020
(ii) Government debt includes both central and local government debt
(iii) Number is blue cells is the latest, not forecast
(iv) The average wages refers to employees in urban non-private firms; the number for 2020 is AMRO estimate. For average wages in 2021 and 2022, we expect wage growth to accelerate in 2021 before slowing down in 2022, and the pace of wage growth to be largely in line with nominal GDP growth.
Source: National Bureau of Statistics, Ministry of Finance, People's Bank of China, Ministry of Commerce, Ministry of Human Resources and Social Security, China Customs, China Banking Regulatory Commission, State Administration of Foreign Exchange, AMR

Appendix 3. Balance of Payments

	2016	2017	2018	2019
	(In percent of GDP)			
Current account	**1.8**	**1.6**	**0.2**	**1.0**
Trade balance	**2.3**	**1.8**	**0.7**	**1.2**
Goods	4.5	3.4	2.5	3.6
Exports	18.5	18.4	17.9	17.6
Imports	14.1	15.0	15.3	14.5
Services	-2.1	-2.1	-2.1	-1.8
Exports	1.9	1.7	1.7	1.7
Imports	3.9	3.8	3.8	3.5
Primary income	-0.4	-0.1	-0.5	-0.2
Credit	2.0	2.3	1.8	1.6
Debit	2.4	2.4	2.3	1.9
Secondary income	-0.1	-0.1	0.0	0.1
Capital and financial account	**0.2**	**0.1**	**1.1**	**0.4**
Financial account	-3.7	0.9	1.2	0.3
Direct investment, net	-0.4	0.2	0.7	0.4
FDI	1.6	1.3	1.7	1.1
ODI	1.9	1.1	1.0	0.7
Portfolio investment, net	-0.5	0.2	0.8	0.4
Liabilities (net inflow)	0.4	1.0	1.2	1.0
Assets (net outflow)	0.9	0.8	0.4	0.6
Other investment, net	-2.8	0.4	-0.6	-0.5
Liabilities (net inflow)	0.3	1.2	0.9	-0.3
Liabilities (Currency and deposits)	0.1	0.9	0.4	-0.4
Liabilities (Loans)	-0.2	0.4	0.2	0.3
Liabilities (Trade credit)	0.1	0.0	0.3	-0.2
Assets (net outflow)	3.1	0.8	1.4	0.2
Reserve assets	4.0	-0.7	-0.1	0.1
Net errors and omissions	**-2.0**	**-1.7**	**-1.3**	**-1.4**
Overall Balance of Payments	**-1.9**	**2.5**	**1.4**	**1.2**
Memorandum Items:				
Export growth (in USD, percentage change)	**-6.9**	**10.5**	**9.1**	**-0.3**
Goods (contribution)	-7.7	7.9	9.9	0.5
Services (contribution)	-0.4	0.2	0.8	0.4
Import growth (in USD, percentage change)	**-3.0**	**13.9**	**15.2**	**-2.7**
Goods (contribution)	-5.5	16.1	15.8	-2.7
Services (contribution)	0.3	1.6	2.4	-0.8
External debt (percentage of GDP)	**12.6**	**14.6**	**14.8**	**15.8**

Source: Chinese authorities, AMRO staff estimates

Appendix 4. Statement of Central/General Government Operations

	2016	2017	2018	2019	2020
	(In RMB trillion)				
National General Budget Revenue	**16.0**	**17.3**	**18.3**	**19.0**	**18.3**
yoy %	*4.5*	*7.4*	*6.2*	*3.8*	*-3.9*
Tax Revenue	13.0	14.4	15.6	15.8	...
Consumption	1.0	1.0	1.1	1.3	...
VAT	4.1	5.6	6.2	6.2	...
Business	1.2	0.0	0.0	0.0	...
Corporate Income	2.9	3.2	3.5	3.7	...
Personal Income	1.0	1.2	1.4	1.0	...
Others	2.9	3.4	3.5	3.5	...
Non-Tax Revenue	2.9	2.8	2.7	3.2	...
Carry Over Balances and Transfer Funds	0.7	1.0	1.5	2.2	2.6
Total National General Budget Revenue	**16.7**	**18.3**	**19.8**	**21.3**	**20.9**
National General Buget Expenditure	**18.8**	**20.3**	**22.1**	**23.9**	**24.6**
yoy %	*6.3*	*7.6*	*8.7*	*8.1*	*2.8*
General Public Services	1.5	1.7	1.8	2.0	...
National Defense	1.0	1.0	1.1	1.2	...
Public Safety	1.1	1.2	1.4	1.4	...
Education	2.8	3.0	3.2	3.5	...
Science and Technology	0.7	0.7	0.8	0.9	...
Social Security and Employment	2.2	2.5	2.7	2.9	...
Health Care and Family Planning	1.3	1.4	1.6	1.7	...
Urban and Rural Community Affairs	1.8	2.1	2.2	2.5	...
Transportation	1.0	1.1	1.1	1.2	...
Others	5.4	5.6	6.1	6.5	...
To Supplement Central Govt Stability Fund	**0.1**	**0.3**	**0.1**	**0.1**	***0.1***
Total National General Budget Expenditure	**18.9**	**20.6**	**22.2**	**24.0**	***24.7***
General Budget Balances	**-2.2**	**-2.4**	**-2.4**	**-3.0**	...
	(In percent of GDP)				
National General Budget Revenue	**21.4**	**20.7**	**19.9**	**19.3**	**18.0**
Tax Revenue	17.5	17.4	17.0	16.0	...
Consumption	1.4	1.2	1.2	1.3	...
VAT	5.5	6.8	6.7	6.3	...
Business	1.5	0.0	0.0	0.0	...
Corporate Income	3.9	3.9	3.8	3.8	...
Personal Income	1.4	1.4	1.5	1.1	...
Others	3.9	4.0	3.8	3.6	...
Non-Tax Revenue	3.9	3.4	2.9	3.3	...
Carry Over Balances and Transfer Funds	1.0	1.2	1.6	2.2	2.6
Total National General Budget Revenue	**22.4**	**22.0**	**21.6**	**21.6**	**20.6**
National General Buget Expenditure	**25.2**	**24.4**	**24.0**	**24.2**	**24.2**
General Public Services	2.0	2.0	2.0	2.1	...
National Defense	1.3	1.3	1.2	1.2	...
Public Safety	1.5	1.5	1.5	1.4	...
Education	3.8	3.6	3.5	3.5	...
Science and Technology	0.9	0.9	0.9	1.0	...
Social Security and Employment	2.9	3.0	2.9	3.0	...
Health Care and Family Planning	1.8	1.7	1.7	1.7	...
Urban and Rural Community Affairs	2.5	2.5	2.4	2.5	...
Transportation	1.4	1.3	1.2	1.2	...
Others	7.2	6.7	6.6	6.6	...
To Supplement Central Govt Stability Fund	**0.1**	**0.4**	**0.1**	**0.1**	***0.1***
Total National General Budget Expenditure	**25.3**	**24.8**	**24.1**	**24.3**	***24.3***
General Budget Balances	**-2.9**	**-2.9**	**-2.6**	**-3.0**	...

Source: Chinese authorities, AMRO staff estimates

Appendix 5. Monetary Survey

	2016	2017	2018	2019	2020
Money supply	(Annual percentage change, unless otherwise specified)				
Broad money (M2) (percent of GDP)	415.3	406.3	397.4	402.7	430.5
Broad money (M2)	11.3	8.1	8.1	8.7	10.1
M1	15.2	21.4	11.8	1.5	4.4
M0	4.9	8.1	3.4	3.6	5.4
Money multiplier (times)	5.0	5.2	5.5	6.1	6.6
Reserve requirement ratio (RRR) (percentage of deposit liabilities)					
Large banks	17.5	17.0	17.0	14.5	13.0
Small and medium-sized banks	15.5	15.0	15.0	12.5	11.0
Total social financing	(Annual percentage change, unless otherwise specified)				
Total social financing (percent of GDP)	209.0	247.5	247.0	254.7	280.3
Total social financing	12.9	32.0	10.3	10.7	13.3
Bank loans (contribution)	9.0	8.9	7.6	7.4	8.0
Shadow banking (contribution)	0.9	2.2	-1.4	-0.8	-0.5
Net corporate bond financing (contribution)	2.4	0.6	0.9	1.2	1.7
Net government bond (contribution)	NA	NA	2.4	2.1	3.3
Banks	(Annual percentage change)				
Deposits	11.0	9.0	8.2	8.7	10.2
Loans	13.5	12.7	13.5	12.3	12.8
Small and Micro Enterprise Loans	13.8	15.1	8.9	10.2	...
Real estate (RMB loan)	27.0	20.7	20.2	14.8	...
Mortgage (RMB loan)	35.0	14.4	17.6	16.8	...
Manufacturing (all currency)	2.9	5.1	6.0	6.9	...
Infrastructure (all currency)					
Water conservancy, environment and public facilities	NA	25.9	6.1	11.1	...
Transportation, warehousing and postal services	6.3	10.3	10.5	12.6	...
Banking sector soundness indicators	(In percentage, unless otherwise specified)				
Non-performing loan ratio	1.7	1.7	1.8	1.9	...
Special-mention loan ratio	3.9	3.5	3.1	2.9	...
Provision coverage ratio (provisions/NPLs)	176.4	181.4	186.3	186.1	...
Loan-to-deposit ratio	67.6	70.6	74.3	75.4	...
Liquidity coverage ratio	NA	123.3	138.0	146.6	...
Net interest margin	2.2	2.1	2.2	2.2	...
Return on assets	1.0	0.9	0.9	0.9	...
Return on equity	13.4	12.6	11.7	11.0	...
Capital Adequacy Ratio	13.3	13.7	14.2	14.6	...
Tier 1 capital adequacy ratio	11.3	11.4	11.6	12.0	...
Core Tier 1 Capital Adequacy Ratio	10.8	10.8	11.0	10.9	...
Interbank lending: weighted average interest rate: 7 days: current month value	2.8	3.5	3.6	3.0	...

Source: Chinese authorities, AMRO staff estimates

Appendix 6. Data Adequacy for Surveillance: Preliminary Assessment

Key Indicators for Surveillance	Data Availability[(i)]	Reporting Frequency/ Timeliness[(ii)]	Data Quality[(iii)]	Consistency[(iv)]	Others, if any[(v)]
National Accounts	• Available	Quarterly GDP, monthly CPI and PPI, monthly industrial production, monthly fixed asset investment, monthly retail trade	China has implemented a new quarterly GDP accounting measure since 2015.	-	More real quarterly GDP data for expenditure sides is welcomed
Labor market	• Available	• Quarterly data for newly-hired workers and unemployment • Quarterly data for new jobs and unemployment in urban areas	-	-	• There is room to improve accuracy
Balance of Payments (BOP) and External Position	Available	• Quarterly BOP data released within 3 months after the quarter ends, monthly trade data within 3-4 weeks after the month ends.	Errors and omissions can sometimes be large.	-	• Earlier release is welcomed
State Budget and Government/ External Debt	• Available	Monthly fiscal data released within 3-4 weeks after the month ends. Quarterly foreign debt data released within 3 months after the quarter ends. Yearly government outstanding debt data released within 6 months after the year ends.	-	-	
Money Supply and Credit Growth	Available	• Monthly data release within 2-4 weeks after the month ends	-	-	-
Financial Sector Soundness Indicators	• Available	Quarterly data release within 3 months after the quarter ends.	-	-	Earlier release is welcomed
SOE Statistics	Some key data available	Monthly data release within 2 months after the month ends	-	-	More detailed data is welcomed

Source: AMRO staff compilation. This preliminary assessment will form the “Supplementary Data Adequacy Assessment" in the EPRD Matrix.

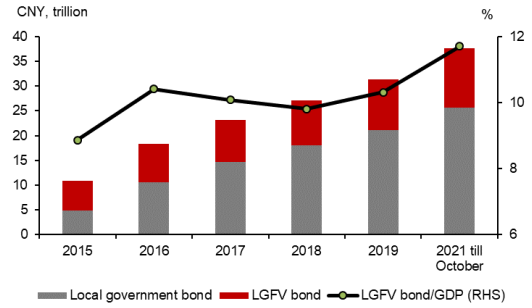
Notes:
(i) Data availability refers to whether the official data are available for public access by any means.
(ii) Reporting frequency refers to the periodicity of the available published data. Timeliness refers to how up-to-date the published data are relative to the publication date.
(iii) Data quality refers to the accuracy and reliability of the available data given the data methodology.
(iv) Consistency refers to both internal consistency within the data series and horizontal consistency with other data series.
(v) Other criteria might also apply. Examples include, but are not limited to, potential areas of improvement for data adequacy.

Annexes: Selected Issues

1. Managing Local Government Financing Vehicles (LGFVs)' Funding Risk[6]

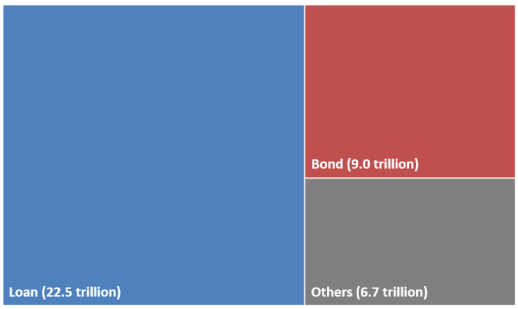
1. LGFV debt has increased again due to increasing fiscal challenges for local governments amid US-China tensions and the impacts of the pandemic. LGFVs were originally SOEs, set up by local governments to provide flexible ways of financing for infrastructure projects. They expanded in scale during the GFC and accounted for about RMB2.8 trillion of the total RMB4 trillion fiscal stimulus (Ang et al., 2019). Since the passing of the New Budget Law in 2014, many LGFVs have been transformed into purely market-based entities and their quasi-fiscal functions removed. A significant portion of their debt has been converted into local government debt, as provincial governments have been allocated quotas to issue bonds and finance their own fiscal undertaking. However, LGFVs have become active again since 2019 amid the economic downturn resulting from the pandemic. Their outstanding bonds are approaching RMB12 trillion, or 12 percent of national GDP as of October 2020 (Figure A1.1). These bonds are the most transparent and account for about 24 percent of LGFVs' interest-bearing debt (Figure A1.2).

Figure A1.1. Size of LGFV Bonds



Source: Wind

Figure A1.2. Components of LGFV Debt



Source: Wind
Note: Data taken from end-2019 balance sheets of 1,978 LGFVs that have issued bonds prior to October 2020. "Others" include account receivables, nonstandard products, etc.

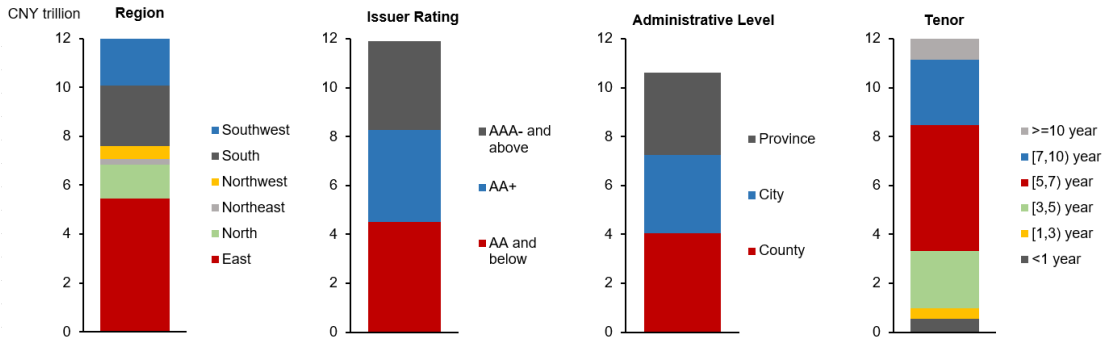
2. Funding risks of LGFVs can be assessed by analyzing LGFV bond yields and their driving factors. LGFV bonds are the only asset class issued by local (quasi-) fiscal entities that have a market pricing mechanism (Ang et al., 2019). Its prices reflect the perceived financial health of the LGFVs and consequently indicate, in part, the market's assessment of the health of local governments and economies. Using information released alongside the public bond issuance, we seek to identify the factors affecting the financing costs of LGFV bonds. Conceptually, many factors can cause a higher financing cost—a lower-rated LGFV entity in a less developed region suggests less confidence in its ability to generate revenues. The affiliation with a lower level of administration, e.g. county government, can imply a disadvantage to secure a government rescue during a crisis. A shorter tenor of the bond, many for refinancing purpose, may reflect investors' skepticism over the LGFV's prospect and greater reluctance to lend to them long-term.

3. Salient characteristics of outstanding bonds reveal vulnerabilities in some LGFVs' funding structure and exposure to credit risks (Figure A1.3). LGFVs operate predominantly in the affluent southern and eastern provinces that present ample business opportunities. That said, they are also actively engaged in large-scale projects in the less

[6] Prepared by Haixin Fu (Associate Researcher) and Wei Sun (Financial Specialist).

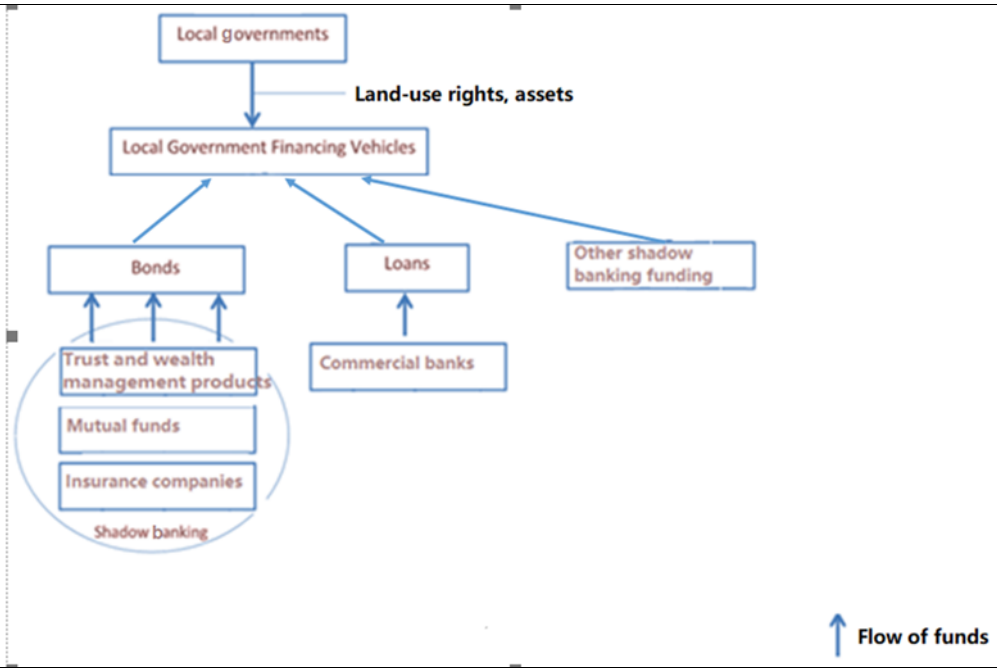
developed southwest. In this region, the prospects for many such projects appear less promising. About a third of LGFV issuers are rated AA or below, which is low in the Chinese context. Duration mismatches prevail on LGFVs' balance sheets, as they largely use medium-term financing for long-term projects. These two characteristics indicate significant rollover risks if market conditions worsened. Moreover, a third of LGFVs are at the county level, where the economies and governments are generally weaker than those at the provincial and city levels. They may still face heightened uncertainties moving forward. This is due to economic and fiscal conditions in such localities being hit particularly hard by the pandemic.

Figure A1.3. Salient Characteristics of LGFV Bonds



Source: Wind
Note: Data as of October 2020

Figure A1.4 Funding of LGFVs



Source: Ang et al. (2019); AMRO staff calculations

4. Our regression analysis suggests that issuer characteristics, the fiscal strength of the home province and regional factors can influence financing costs for LGFVs (Table A1.1). In three different specifications of pooled OLS regression based on all outstanding LGFV bonds as of August 2020, with yield spreads over the China Development Bank bond

of similar maturity as the dependent variable, we find that lower-rated LGFVs and those at lower administrative levels pay sizable premia. We also find evidence that a strong fiscal standing at the home province level reduces the spread. This might reflect market perceptions about resources available to guarantee LGFV debt. LGFVs in the southwest and northeast are subject to higher funding costs even after entity- and province-specific characteristics are controlled for. Reflecting the role of regional factors, such as business environment and reputation, it is likely to be more difficult for the average LGFV in these regions to secure funding at an affordable cost.

5. Liquidity and credit distress in the banking sector can have sizable spillover effects on LGFVs' funding costs (Table A1.1). The regression results also show that liquidity tightness among depository institutions could push up the required returns for LGFV bonds across specifications. Rising credit risks in the banking sector could also translate into higher spreads. The positive relationship between bank credit risk and the LGFV yield spread appears starker for small lenders, many of which engage actively in non-standard products and are linked to the shadow banking sector. In specifications (1) and (3), the credit risks measured by both negotiable certificate of deposit (NCD) spreads of small banks in the same province, and NPL ratios of all city and rural commercial banks in the country, could significantly affect bond yields. The statistical significance weakens once fiscal indicators are introduced in specification (2). This change suggests that small lenders in the same locality may be less discriminating in their LGFV investments given the perception of underlying government guarantees.

6. Tackling LGFVs' funding risk needs a holistic plan, comprising further efforts to strengthen fiscal and corporate governance, supervisory oversight of smaller banks, and coordination between fiscal and financial authorities. The less creditworthy county-level LGFVs, and those in the northeast and southwest, appear to be the most vulnerable. Strengthening their financial health and governance will lend support to much-needed infrastructure development in these areas. The COVID-19 pandemic has reduced fiscal revenue and increased many provincial governments' spending. This situation could weigh on LGFV funding costs in their jurisdictions. Therefore, keeping fiscal positions in check is key for local LGFVs to secure future funding at an affordable cost. Coordination between fiscal and financial authorities is encouraged to tackle such risks.

Table A1.1. Pooled OLS Regression of LGFV Bond Yield Spread

	(1)	(2)	(3)
(Intercept)	7.03 ***	6.78 ***	5.96 ***
LGFV characteristics			
CorporateRating_num	-0.93 ***	-0.83 ***	-0.67 ***
AdminLevel_num	0.01	-0.14 ***	-0.11 ***
TenorInYr	-0.03 **	-0.04 ***	-0.08 ***
Fiscal Strength			
GDP_growth		-0.01 **	0.00
FiscalRev_size		0.00	-0.02
FiscalSurplus		-0.31 ***	-0.13 ***
Regional Characteristics			
RegionNorth		0.27 ***	0.09
RegionNortheast		1.12 ***	0.93 ***
RegionNorthwest		0.02	0.10
RegionSouth		0.15 *	0.13 ***
RegionSouthwest		0.56 ***	0.44 ***
Banking Conditions			
DR007	0.93 ***	0.79 ***	0.19 *
NCD_prov	0.42 ***	-0.14	
NPL_big			-0.17
NPL_small			0.55 ***
Adjusted R-squared	0.35	0.41	0.30
# of Observations	2,907	2,907	6,475

Source: AMRO staff estimates
Note: '***': p value<0.001; '**': p value<0.01; '*': p value<0.05; '.': p value<0.1.
Dependent variable – **LGFV yield spread**: spread of LGFV bond at issuance benchmarked to the yield of China Development Bank bond of similar maturity.
Independent variables – **CorporateRating_num**: numeric scores for issuer rating at issuance. BBB being 1, BBB+ being 2, and AAA having the highest score. **AdminLevel_num**: numeric scores for administrative level of LGFV issuer, county being 1, city being 2, and province being 3. **TenorInYr**: bond tenor in years. **GDP_growth**: yoy growth of province's quarterly GDP. **FiscalRev_size**: YTD fiscal revenue of the province relative to the median fiscal revenue nation-wide. **FiscalSurplus**: (YTD revenue-YTD expenditure)/YTD revenue of the province. **Region***: region dummies with East being the reference group. **DR007**: 7-day repo rate among depository institutions, representing bank liquidity risk. **NCD_prov**: 1-year NCD yield spread (benchmarked to Shibor of similar maturity) averaged across small banks in the same province as the LGFV issuer, representing bank credit risk. **NPL_big and NPL_small**: NPL ratios of big (state-owned and joint stock) and small banks (city and rural commercials).

7. Moving forward, further enabling market forces to play a greater role in determining the pricing of different LGFV assets is key. Governments have required LGFVs to transform themselves into market-based entities with the intention of eliminating perceptions about implicit guarantees for their debt obligations. Correspondingly, banks have started to step up their efforts to screen LGFVs' requests for loan extensions. Shadow banking activities, meanwhile, have decreased from their peak, pushing LGFVs to obtain more transparent forms of funding. Despite mixed success in these areas, investors' perceptions are gradually changing. Market forces will eventually favor strong LGFVs, while weak and underperforming ones will be less likely to secure (stable) funding. While these will help reduce moral hazard and risky LGFV assets ahead, authorities may need to step in and implement orderly resolutions for LGFVs in trouble that could have strong spillover effects.

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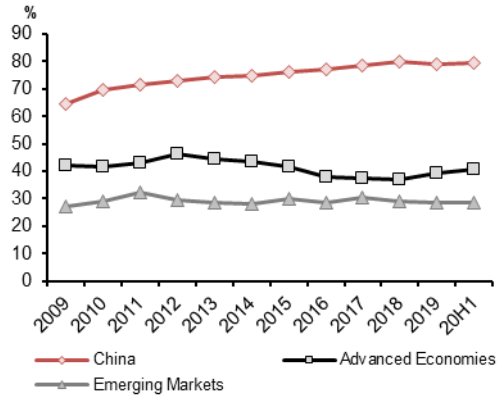
2. Rising Debt of Real Estate Developers and New Financing Rules[7]

1. Concerns about the sustainability of Chinese developers' growing debt levels emerged in Q3 2020 with news relating to the financial difficulties of one large Chinese developer. Although this might be an isolated idiosyncratic incident, a closer look at the overall financial health of real estate developers will be helpful for policy makers given the importance of the sector to both the financial system and real economy. This study analyzes the evolution of financial risks of listed Chinese real estate companies by examining their leverage levels and debt repayment pressure and capacity. A preliminary assessment of the potential impact of the new financing rules that were rolled out by Chinese authorities in August 2020 is also provided.

Rising Debt Levels

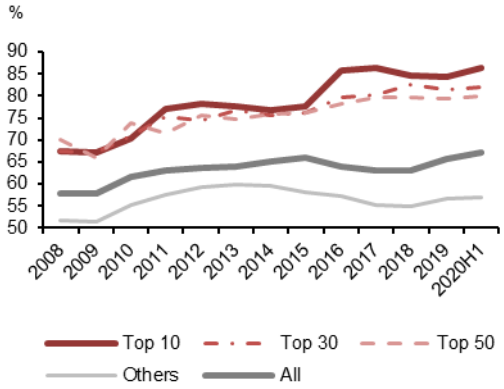
2. Chinese real estate developers' leverage at the aggregate level—debt-to-asset ratio—is much higher than those of global peers, and has been on a rising trend since the GFC (Figure A2.1). The aggregate debt-to-asset ratio of listed Chinese real estate companies rose to around 80 percent as of H1 2020. This is about two to three times higher than those in advanced and emerging market economies. Over the past ten years, the average debt-to-asset ratio of listed Chinese real estate companies has increased by an average of about 1.6 percentage points per annum.

Figure A2.1 Debt-to-Asset Ratio of Listed Real Estate Companies



Source: Wind; Bloomberg; AMRO staff calculations
Note: The debt-to-asset ratios is calculated from the real estate index of MSCI and China A-shares.

Figure A2.2 Distribution of Debt-to-Asset Ratio of Chinese Real Estate Companies by Size



Source: Wind; AMRO staff calculations.
Note: To provide comprehensive coverage, the samples include all Chinese real estate companies listed both in Hong Kong China and mainland China. The number was 302 in H1 2020.

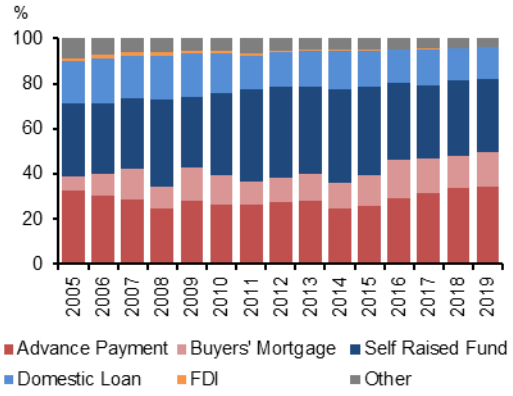
3. Leverage ratios differ significantly among real estate companies of different sizes (Figure A2.2)**.** In general, larger developers tend to have much higher leverage ratios, and the gap has grown wider over the past five years. The top 10 and top 50 listed developers' median debt-to-asset ratios were more than 29 and 25 percent higher than the median of smaller listed real estate companies, respectively in H1 2020. The divergence first appeared in 2013**,** when larger developers continued to increase their leverage, whereas overall smaller developers embarked on a deleveraging process.

[7] Prepared by Zhiwen Jiao (Economist).

Evolving Funding Sources

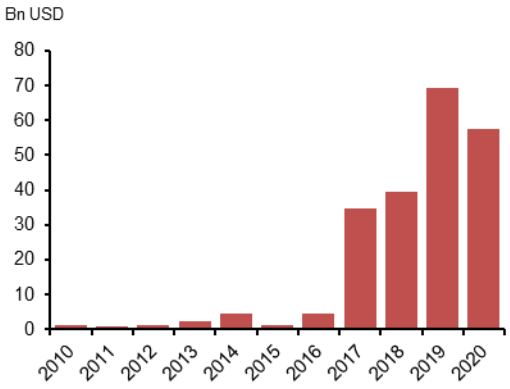
4. There has been a growing reliance on pre-sales and bond issuance for financing. Figure A2.3 shows that advance payments from presales have become one of the largest sources of funding of real estate developers in China. Its share in total funding has increased from about a quarter in 2015 to slightly over one-third in 2019. The advance payments from presales, together with buyers' mortgages, both of which are sourced from households, provide about half the funding for developers. The other source of funding that has been on the rise is offshore bond issuance (Figure A2.4). Annual offshore bond issuance by Chinese real estate companies increased from less than USD5 billion in 2016 to close to USD70 billion in 2019. In the first ten months of 2020, the issued amount has reached USD57.6 billion. On the other hand, the amounts raised from bigger sources of funding—including onshore bond issuance by real state companies and domestic loans and trust products—have largely been stable for the past four years.

Figure A2.3 Funding Source of Real Estate Developers in China



Source: Wind; AMRO staff calculations
Note: Self-raised fund includes borrowing through bond issuance both in domestic and offshore markets, and wealth management products (such as trust products), and the like.

Figure A2.4 Offshore Borrowing by Chinese Real Estate Companies



Source: Bloomberg; AMRO staff calculations
Note: 1/ Bond issuance for social housing was excluded.
2/ Data are as of end-October, 2020.

5. The shift towards offshore borrowing may in part reflect the responses of real estate companies to the changing regulatory environment. Beginning in 2016, Chinese authorities tightened regulations and policies on the real estate market and shadow banking activities to curb excessive increase in leverage and overheating in the property market. Bank loans and domestic bond issuance are not allowed for funding land purchases. Meanwhile, access to funding through wealth management products was considerably reduced by tightened regulations on shadow banking activities. Faced with more restrictions on domestic funding, large real estate developers have relied more on offshore borrowing, which provides more flexibility for funding usage such as land purchases.

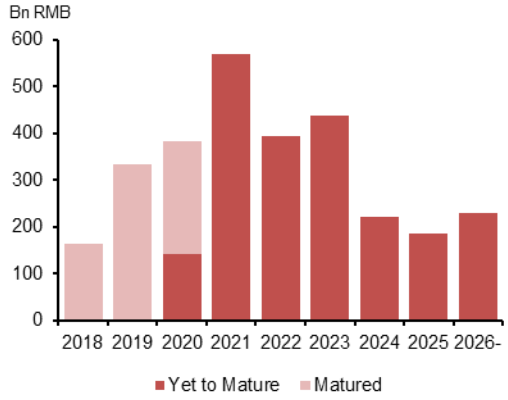
Debt Repayment Pressure

6. The COVID-19 pandemic further increased financial pressure on real estate companies, but the situation has been improving. Although China has been quite successful in containing COVID-19 and has been swift in reopening the economy, the debt repayment capacity of real estate companies has weakened. The impact was particularly acute in Q1 but has gradually improved thereafter, thanks to the rapid recovery in housing

sales, which recovered to pre-COVID levels in August. In Q1 2020, around 75 percent of the listed real estate developers had negative operating cash flows, while around 40 percent of them continued to encounter this difficulty in Q3. Despite the improvement, a number of real estate companies continued to face difficulties in repaying debt. The share of real estate companies that did not have enough earnings to cover interest payments (EBIT/Interest Payment smaller than 1) rose to 43 percent in Q1 2020, and then declined to around 30 percent in Q3. However, this was still twice the level of the same period in 2019.

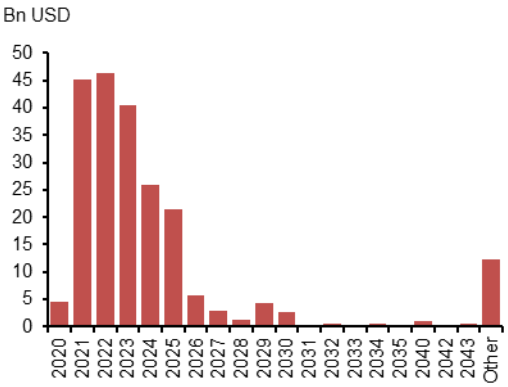
7. Real estate companies' debt repayment pressure will likely increase and remain high in the next few years. The overall financial risk of the real estate sector is expected to be manageable amid continued economic recovery. However, some developers may still encounter financial difficulties. The amount of maturing bonds in the domestic market has increased sharply since 2019 following a sharp increase in bond issuances with tenors of 3–5 years in 2016 (Figure A2.5). The amount of maturing bonds will increase further in 2020 and peak at about RMB576 billion in 2021 before declining in 2022 and 2023 to levels that will still be higher than those in 2020. Offshore bonds exhibit a similar maturity profile (Figure A2.6). There will be USD40-45 billion of bonds that will mature annually through 2021-2023. Should financial conditions tighten or risk sentiments worsen, some highly leveraged developers could face considerable refinancing difficulties or even solvency risks.

Figure A2.5 Domestic Bond Maturity Profile of Listed Real Estate Companies in China



Source: Wind; AMRO staff calculations

Figure A2.6 Offshore Bond Maturity Profile of Listed Real Estate Companies in China



Source: Bloomberg; AMRO staff calculations
Note: Data are as of end-October 2020.

New Financing Rules and Potential Impact

8. The Chinese authorities have been aware of the build-up of vulnerabilities due to the increasing leverage of real estate companies and have been taking measures to ensure a healthier development of the sector. In August 2020, the PBC and the Ministry of Housing and Urban-Rural Development invited several developers with interest-bearing debt to join a pilot program. The authorities introduced the "three red lines" rules by setting up thresholds for the debt-to-asset ratio (excluding presale deposits) at 70 percent, net gearing at 100 percent and cash-to-short-term debt ratio at one The developers will be categorized into four different color groups based on how well their financial indicators fare against the three thresholds, and each category will face a different limit on their interest-bearing debt growth each year (Table A2.1).

Table A2.1 The Three Red Lines Rules

Red Category: breaching all 3 red lines	Annual increase of interest-bearing debt is not allowed
Orange Category: breaching 2 red lines	Up to 5 percent rise in annual increase of interest-bearing debt is allowed
Yellow Category: breaching 1 red line	Up to 10 percent rise in annual increase of interest-bearing debt is allowed
Green Category: breaching no red line	Up to 15 percent rise in annual increase of interest-bearing debt is allowed

Source: AMRO staff compilation

Figure A2.7 Share of Listed Developers Breaches Three Red Lines

Source: Wind; AMRO staff calculations

9. The new financing rules will help promote transparency of financing in the real estate sector and curb the excessive borrowing of some developers. To meet the constraint on debt increase and other financing requirements, developers will need to continue to optimize their capital structure and reduce leverage. This will help strengthen their debt repayment capacity. Besides, more financial resources may be freed up for investment and consumption in other areas. Thus, this policy measure may also enhance the efficiency of resource allocation.

10. While this is a welcome policy measure, it is important for regulators to be cautious about its implementation during the transition period. Based on data as of Q3 2020, a third to a half of listed real estate developers will breach at least one of the three red lines (Figure A2.7). All of the three redlines will be crossed by about a quarter of the developers, whose debt accounts for 40 percent of total debt of the whole sector. The limit on their incremental new borrowing could put pressure on their cash flows in an environment of tight financial conditions. The measure could also affect the decisions of other developers, which may take a wait-and-see attitude, affecting local governments' revenue structure and impacting growth. Last but not least, it will likely be challenging for highly leveraged developers to meet the debt-to-asset ratio requirement in a short period of time and some developers may need some time to adjust their business models. Therefore, some leniency could be considered to mitigate potential risks to the economy during this transition period.

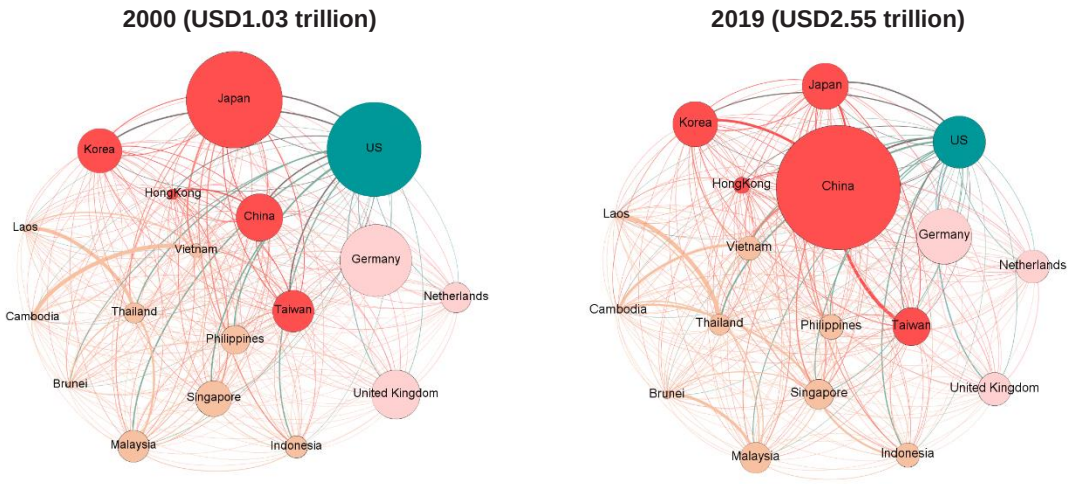
3. High-tech Global Value Chains: China's Role, Contribution, Challenges[8]

1. China has become the most important hub for global value chains (GVCs) of high-tech products due to its success in pursuing a manufacturing-for-exports strategy as well as adopting and developing technologies. This SI write-up examines the expanding role of China in the GVCs of high-tech products over the past two decades by using network analysis. It also study the impacts of the pandemic and US-China trade and tech tensions on the high-tech exports of China and its trade partners by employing stress tests, and finally, it discusses some implications, and raises policy suggestions.

[8] Prepared by Wei Sun (Financial Specialist), Trung Thanh Vu (Researcher) and Foo Suan Yong (Senior Economist).

2. China has become an important node in high-tech GVCs network in the past two decades. Using machinery, electrical and optical equipment sectors as proxy, we show in the network chart (Figure A3.1) that China's share of domestic value added (DVA) exports to global DVA exports of these products has grown substantially to about 30 percent in 2019 compared with only 5 percent in 2000. The trade linkages with key players—particularly Korea, Japan, Taiwan Province of China, and the U.S.—have deepened and become very extensive. In value terms, China's DVA exports have increased to almost USD800 billion in 2019 from only USD56 billion in 2000. This amount is considerably higher than those of Japan, U.S. and Germany, USD695 billion in combined value (Figure A3.2).

Figure A3.1 Global Network of DVA in Machinery, Electrical and Optical Equipment Exports



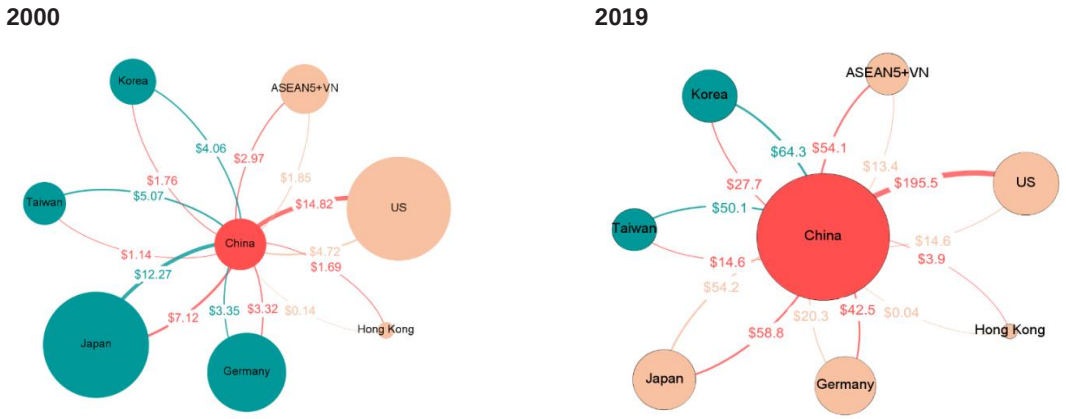
Source: ADB; AMRO staff calculations
Note: Underlying data is that of domestic value added (DVA) embedded in an economy's gross exports. The DVA is embedded in exports of either final or intermediate goods which ultimately contribute to the production of final goods abroad. The size of each bubble represents the share of a country's DVA exports to total global DVA exports in machinery, electrical and optical equipment. The thickness of the line linking country *i* to its corresponding trading partner represents the percentage share of value-added export from country *i* to its corresponding trading partner with regard to the country *i*'s total value-added exports. The color of the circles represents the region that economies belong to: red represents Plus3 countries, cream represents ASEAN countries, green represents North America countries, and pink represent European countries. Machinery, Electrical and Optical Equipment Industry refers to Sector 13-14 in ADB Multiregional IO's Sector Aggregation

Figure A3.2 DVA Exports in Machinery, Electrical and Optical Equipment (in billions of USD)

Source: ADB; AMRO staff calculations
Note: Underlying data is domestic value added (DVA) embedded in an economy's gross exports. The DVA is embedded in the exports of either final or intermediate goods which ultimately contribute to the production of final goods abroad. ASEAN refers to all ASEAN members except for Myanmar

3. China's top trading partners in terms of value-add remain the U.S., Japan and Germany, while trade flows between China and ASEAN-5 members and Vietnam have also grown significantly (Figure A3.3). The U.S. is the biggest net importer of Machinery, Electrical and Optical Equipment from China. The DVA of these exports from China to U.S. has risen from USD14 billion in 2000 to USD195 billion in 2019. Japan has switched from being a net exporter to China to now being a net importer. Meanwhile, Korea and Taiwan Province of China, continue to be important high-tech suppliers to China. The ASEAN-5 economies and Vietnam have become significant net importers of high-tech goods from China. DVA exports from China these countries have grown significantly to USD54.1 billion in 2019 from just USD3 billion in 2000.

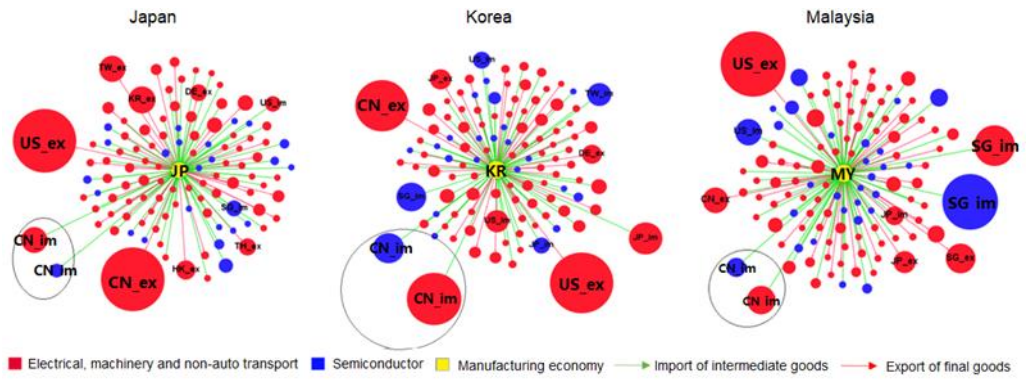
Figure A3.3 DVA in Machinery, Electrical and Optical Equipment Trade with China (in billions of USD)



Source: ADB; AMRO staff calculations
Note: Underlying data is that of DVA embedded in an economy's gross exports. The DVA is embedded in exports of either final or intermediate goods which ultimately contribute to the production of final goods abroad. The size of each bubble represents the share of a country's DVA exports to total global DVA exports in machinery, electrical and optical equipment. Cream color circles represent net importer from China, and green color circles represent net exporter to China. The ASEAN-5 economies refer to Indonesia, Malaysia, the Philippines, Singapore and Thailand.

4. China is a prominent supplier of intermediate goods in high-tech value chains in the ASEAN+3 region. High-tech manufacturers source intermediate parts and accessories from various markets and export their finished products to international destinations. Our study, using granular trade data to analyze import-export networks, reveals that China serves as a major supplier of semiconductors and electrical/ electronic components to major high-tech exporters in the region including Japan, Korea and Malaysia (Figure A3.4). Based on trade data between January 2005 and 2020, we estimate the elasticities of Japan's, Korea's and Malaysia's high-tech exports to different destinations with respect to their imports of machinery and electrical parts from China (AMRO, forthcoming). The elasticity will allow us to quantify the impact of supply disruptions in China on high-tech exports from these economies.

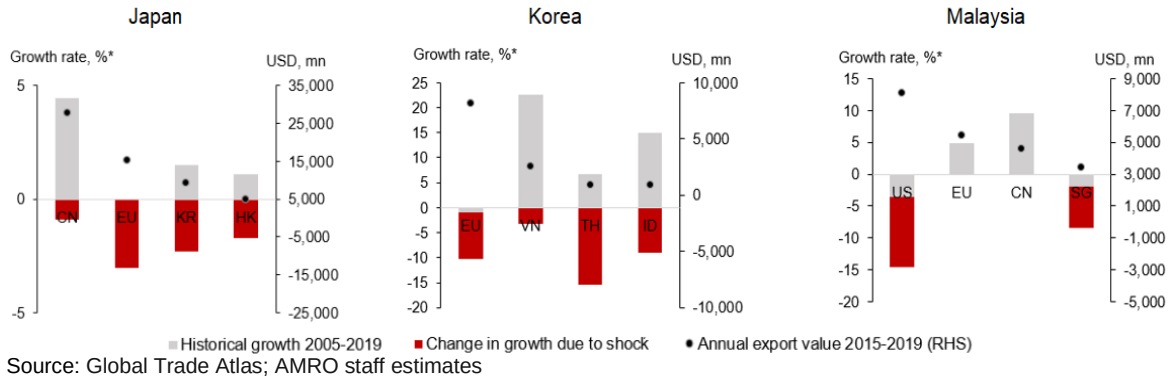
Figure A3.4 Import-Export Network of Selected Economies for Machinery/ Electrical Products



Source: Global Trade Atlas; AMRO staff estimates
Note: A node represents an economy that provides intermediate input; for example, CN_im, if it has a green arrow going into the manufacturing economy in the center. A node represents an export destination for products; for example, US_ex, if it has a red arrow going out of the manufacturing economy in the center. Node sizes represent the import or export value of the manufacturing economy from the supplier origin or to the export destination. The data are 12-month averages of the import/ export value from February 2019 to January 2020

5. Disruptions in China's production during the pandemic are likely to have adversely affected regional countries' exports to global markets to varying degrees. We use the elasticity estimates to perform a stress test by assuming China's supply growth of machinery and electrical parts declines by 30 percentage points in a pandemic and lockdown scenario. The results show that Korean manufacturers will see their high-tech export growth to Vietnam, Indonesia, E.U. and Thailand decline by 3–15 percentage points (Figure A1.5). The decline in Japan's high-tech export growth to overseas markets will be somewhat milder but significant, relative to historical averages. Malaysia's high-tech exports growth to the U.S. and Singapore, meanwhile, will decrease by as much as 11 and 6.5 percentage points, although those to the E.U. and China will only be marginally affected. Varying results are likely because these regional economies export distinct products to different markets. In addition, the degree of substitutability of inputs from other economies for inputs from China also varies across different high-tech export products.

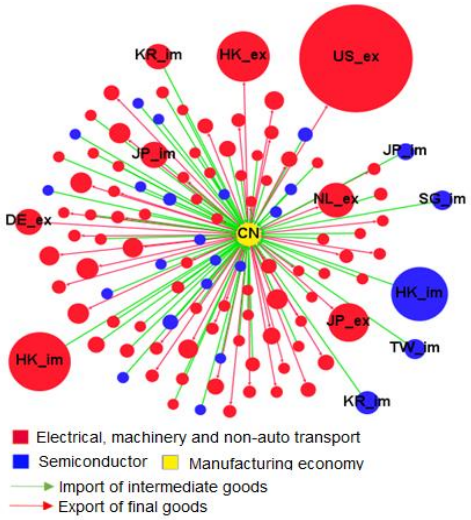
Figure A3.5 Stress Test on Machinery/ Electrical Export from Selected Manufacturing Economies Given a 30 Percentage Point Decline in China's Supply of Machinery Parts



Source: Global Trade Atlas; AMRO staff estimates
Note: *Growth rate is proxied by 1-year difference in log levels. Methodology is referred to as "Stress Testing Global Value Chains in the ASEAN+3 Region" (AMRO, forthcoming). Economies along the x-axis denote export destinations of the manufacturing economies. CN=China, EU=European Union, HK=Hong Kong, ID=Indonesia, KR=Korea, TH=Thailand, US=the United States, VN=Vietnam.

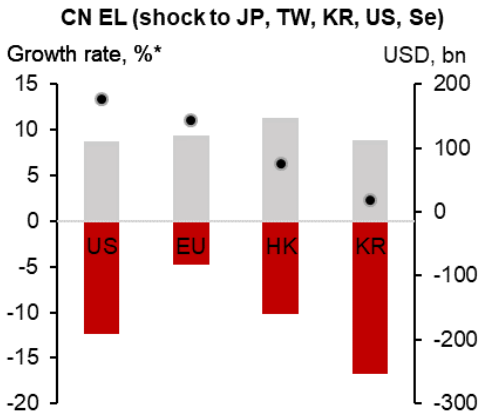
6. China's high-tech exports are susceptible to disruptions in global supply chains as a result of the pandemic and further trade and technology tensions with the U.S. The import-export network demonstrates China's dependence on semiconductor and machinery/ electrical components from Korea, Japan, Taiwan Province of China, and to a lesser extent, the U.S. (Figure A1.6). With the escalation of U.S.-China tech tensions, several Chinese high-tech companies face the challenge of sourcing key components from global suppliers whose products involve U.S. technology. We performed a stress test, assuming that the U.S. pressure results in inputs of semiconductor and machinery/ electrical components from the above economies to decline by 30 percentage points. The results indicate that the growth of China's high-tech exports to major markets—including the U.S.—will decline by 5 to 17 percentage points (Figure A3.7). Indeed, tech tensions have already taken a toll on China's high-tech exports. China's share of U.S. high-tech imports from the ASEAN+3 region has declined by 5 percentage points since 2019 (Figure A3.8).

Figure A3.6 Import-Export Nexus for China's Machinery/ Electrical Production



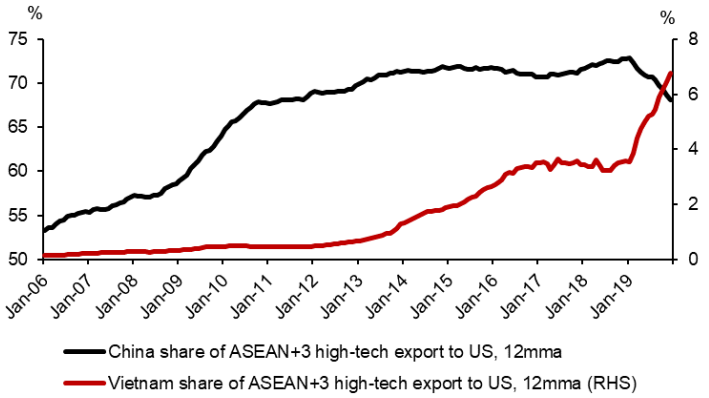
Source: Global Trade Atlas; AMRO staff estimates
Note: A node represents an economy that provides intermediate input; for example, HK_im, if it has a green arrow going into the manufacturing economy in the center. A node represents an export destination for products; for example, US_ex, if it has a red arrow going out of the manufacturing economy in the center. Node sizes represent the import or export value of the manufacturing economy from the supplier origin or to the export destination. The data are 12-month averages of the import/ export value from February 2019 to January 2020.

Figure A3.7 Stress Test on Machinery/ Electrical Exports from China Given a 30 Percentage Point Decline in Semiconductor and Machinery Parts from the US, JP, KR, and TW



Source: Global Trade Atlas; AMRO staff estimates
Note: *Growth rate is proxied by 1-year difference in log levels. Methodology is referred to "Stress Testing Global Value Chains in the ASEAN+3 Region" (AMRO, forthcoming). Economies along the x-axis denote export destinations of the manufacturing economies. EU=European Union, HK=Hong Kong, KR=Korea, US=the United States

Figure A3.8 Share of US Imports of High-tech Products from ASEAN+3



Source: Global Trade Atlas; AMRO staff estimates

7. It is crucial that China continues to collaborate with its trade partners to strengthen the resilience and flexibility of GVCs, while developing its own technological capacity in key areas (for example in manufacturing state-of-the art chips)**.** The impact of the COVID-19 pandemic, in the form of widespread disruptions to cross-border supply chains and production networks, has cast a spotlight on the vulnerability of countries that rely heavily on GVCs for critical intermediate components – including China. It has also heightened the need for countries to develop domestic capacity to produce strategic products and to diversify supply sources from different partner countries. These concerns, as well as issues arising from U.S.-China tech tensions, support the argument for a reconfiguration of GVCs to strengthen the resilience of countries to supply shocks. As a central node in GVCs, China has

a key role in working with other countries to enhance GVCs' robustness to shocks. Encouraging and fostering diversification of supply chains within China and supply chains involving China partnering other countries would enhance resilience to shocks. Deeper integration with other countries will be key to the diversification. For example, encouraging Chinese enterprises to diversity and set up operations overseas and concurrently attracting more FDIs from abroad – including those from ASEAN+3 countries to do likewise in China. This could boost the technological advancement of partner countries, including China, as well as collective resilience to shocks to GVCs.

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