AMRO Country Report
ACR/21-05

AMRO Annual Consultation Report

Korea - 2021

ASEAN+3 Macroeconomic Research Office (AMRO)

August 2021

Acknowledgments

1. This Annual Consultation Report on Korea has been prepared in accordance with the functions of AMRO to monitor and assess the macroeconomic status and financial soundness of its members; identify relevant risks and vulnerabilities; report these to member authorities; and if requested, assist them in mitigating these risks through the timely formulation of policy recommendations. This is being done in accordance with 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 Korea from February 16 to March 11, 2021 (Article 5 (b) of the AMRO Agreement). The AMRO Mission team was headed by Dr. Sumio Ishikawa. Members include Ms. Wanwisa Vorranikulkij (Desk Economist), Dr. Jinho Choi (the first Back-up Economist), Ms. Diana del Rosario (the second Back-up Economist), Mr. Yang-hyeon Yang (Financial Sector Specialist), Mr. Prashant Pande (Financial Sector Specialist) and Ms. Chunyu Yang (Researcher). AMRO Director Mr. Toshinori Doi and Chief Economist Dr. Hoe Ee Khor also participated in key policy meetings with the authorities. This AMRO Annual Consultation Report on Korea for 2021 was peer reviewed by Dr. Seung Hyun (Luke) Hong and Ms. Marthe Memoracion Hinojales, and approved by Dr. Hoe Ee Khor, AMRO Chief Economist.
3. The analysis in this Report is based on information available up to July 5, 2021.
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 Korean 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. Korea's economy is forecast to rebound strongly in 2021. Korea's economy has been on a recovery path after a sharp contraction in Q2 2020. Growth is expected to rebound from -0.9 percent in 2020 to 3.9 percent in 2021, on the back of a solid recovery in exports and domestic investment. In contrast, private consumption would be weighed down by uncertain employment prospects and rising household debt. By sector, the uneven recovery between manufacturing and services will continue, as risks surrounding close contact services remain high. The labor market has improved, although social-distancing measures and restrictions on cross-border travel continue to dampen employment, especially in the services sector.

2. Consumer price inflation has picked up and is forecast to approach the Bank of Korea's (BOK) target of 2.0 percent in 2021 and 2022. Higher food and global oil prices as well as a low base in Q2 2020 pushed up inflation from the low of -0.3 percent in May 2020 to 2.5 percent in April-June 2021. Inflation expectations have likewise climbed to reach 2.3 percent in June 2021, bolstered by an improving consumer sentiment. In 2021 and 2022, consumer price inflation is expected to advance to 1.9 percent from 0.5 percent in 2020 owing to a rebound in oil prices, dissipating effects of the government's welfare policies, and stronger domestic demand.

3. Korea's external position remains strong, while the US dollar liquidity crunch has subsided since April 2020. The current account is expected to remain at a surplus of 4.5 percent of GDP in 2021, on the back of robust exports. Korea continues to maintain its net external asset position, buoyed by overseas investment by Korean corporations and institutional investors. International reserves amounted to USD454.1 billion in June 2021, sufficient to cover more than 1 year of short-term external obligations. The US dollar liquidity squeeze, which Korea experienced in March 2020, coincided with a deterioration of global US dollar funding conditions, and was alleviated after the US Federal Reserve injected massive liquidity into the global financial markets and established a USD60 billion swap arrangement with the BOK.

4. In the financial markets, Korea's capital market has rallied since end-2020, while the government's credit policies have supported credit expansion. The buoyant stock market has been backed by low interest rates, a strong risk appetite from local retail investors, and a brighter economic outlook for Korea. The bond market has attracted foreign inflows. Long term yields have risen reflecting a rise in US Treasury bond yields and massive issuance of Korea Treasury bonds. In the credit market, credit expansion by financial institutions strengthened in 2020, fueled by low interest rates and credit support measures. Financial institutions are well capitalized, while loan impairments remain low.

5. Following sizable economic stimulus packages rolled out in 2020, the government continued its expansionary fiscal stance in 2021. Fiscal spending was maintained at about 28.4 percent of GDP in 2020. The budget in 2021 aims at boosting economic activities and minimizing pandemic-induced scarring of the economy. It is also targeted at strengthening post-pandemic growth potential, as envisaged in the Korea New Deal initiative. Fiscal deficit, excluding the Social Security Fund, is expected to widen modestly from 5.8 percent of GDP in 2020 to 6.2 percent in 2021.

6. Risks stemming from COVID-19 pandemic containment, the US-China trade conflict, and household indebtedness could undermine Korea's growth momentum. Downside risks to Korea's growth outlook could stem from a resurgence of the pandemic and delays in vaccine distribution at the international levels. Protracted social-distancing measures would continue

to weigh on business and employment in face-to-face services. The pandemic could intensify income inequality as well. Besides the pandemic, Korea's exports are also susceptible to uncertainties over the trade policies of the US administration, especially toward China. Moreover, an increase in household debt burden and a sharp correction in asset prices could weigh down domestic demand recovery.

7. Financial imbalances have manifested in terms of rising household debt and surging asset prices, while the financial positions of companies have weakened. The prolonged low interest rate environment and high level of liquidity have spurred risk-taking behavior. A surge in housing and stock prices has also attracted retail investors to the housing and equity markets, which in turn has led to a build-up in household debt to more than 170 percent of disposable income. On the corporate front, many companies faced tighter cash flows during the pandemic. The proportion of companies with an interest coverage ratio (ICR) below one was 39.7 percent at the end of 2020, up from 30.6 percent in 2017. Loan quality is likely to worsen among vulnerable households and businesses, especially zombie companies.

8. Fiscal measures should focus more on groups adversely affected by the pandemic to achieve stronger and more inclusive economic growth. Although the Korean economy is expected to recover strongly in 2021, low-income earners continue to face income and employment instability. Likewise, small businesses will likely grapple with uncertain business prospects. Therefore, the government's support measures should continue to target those vulnerable groups. From a medium-term perspective, the AMRO mission commends the government's initiative in establishing fiscal rules, which would play a pivotal role in anchoring fiscal discipline. That said, the government should recalibrate its medium-term fiscal management plan in line with the new fiscal rules that are scheduled to take effect from 2025.

9. The current monetary policy stance is sufficiently accommodative to support ongoing economic recovery. The negative output gap is expected to narrow in 2021 reflecting the robust recovery. In light of the lingering pandemic and economic uncertainties, credit support measures targeted at vulnerable businesses should be continued.

10. Appropriate policy mix should be employed to contain a build-up of financial imbalances. The build-up of financial imbalances as a result of a prolonged period of accommodative monetary policy should be addressed by macroprudential measures or other policy tools. In light of economic uncertainties, the authorities should continue to closely monitor the loan quality and lending standards of financial institutions. The extension of maturity and repayment deferrals, while providing temporary relief to liquidity-constrained businesses, should be reviewed regularly and phased out at an appropriate time. Meanwhile, stringent macroprudential measures remain necessary to contain risks stemming from a surge in household debt and housing prices. To stabilize housing prices, supply could be increased, especially in metropolitan areas, to complement macroprudential measures and property-related tax measures.

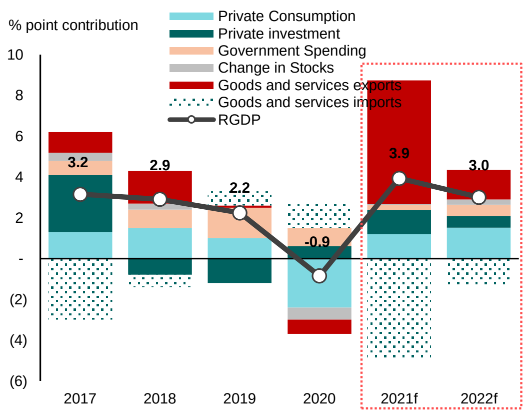
11. The government's continuing efforts to achieve more inclusive growth and strengthen growth potential are welcome. The Korea New Deal initiative to support a green and digitalized economy, nurture new growth engines, and expand the social safety net is a strategic and timely plan for the post-pandemic period. In view of the uneven impact of the pandemic and the recovery, we encourage the government to continue to provide support for small and medium enterprises as well as low skilled workers to achieve a more inclusive economy.

A. Recent Developments and Outlook

A.1 Real Sector Developments and Outlook

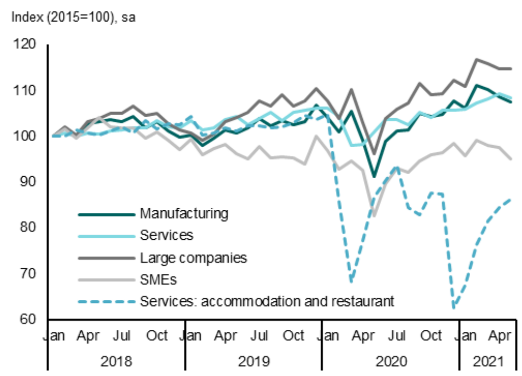
1. **Korea's economy has been on a recovery path after a sharp contraction in Q2 2020, led by a strong rebound in exports and facilities investment.** The economy contracted by 0.9 percent in 2020, less severe than most advanced economies, as containment measures in the first wave of the pandemic were calibrated and targeted. Information and communication technology (ICT) and automotive exports were the main drivers of economic recovery in the second half of 2020, especially ICT, which benefited from a surge in demand for electronic equipment for telework globally. In contrast, face-to-face services were hit hard by containment measures. Domestically, facilities investment picked up robustly in the second half of 2020, also led by the ICT industry, while construction started to recover only toward the year end. Private consumption was dragged down by a resurgence of the pandemic, although universal cash handouts helped to shore up spending somewhat (Figure 1).

Figure 1. Growth Contribution



Source: Bank of Korea; AMRO staff projections

Figure 2. Manufacturing and Service Production Index



Source: Statistics Korea

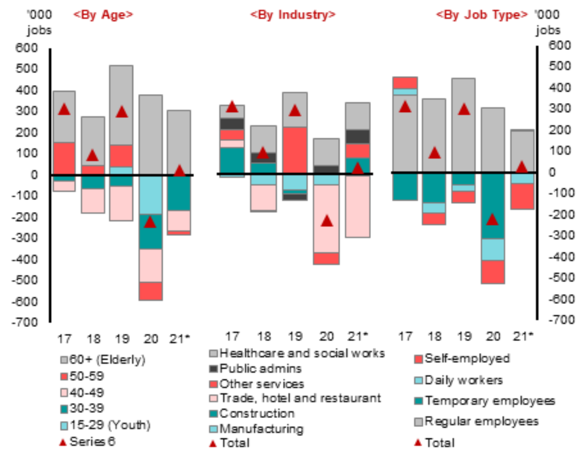
2. **The economy is expected to rebound by 3.9 percent in 2021 and 3.0 percent in 2022; however, the recovery would be uneven across sectors.** By GDP component, exports will continue to be the main driver of growth with solid recovery across sectors. Facilities and construction investment are expected to rebound on the back of the export recovery, a booming housing market and an expanded budget for social overhead capital. On the other hand, private consumption will likely post a slow recovery due to the drag from uncertain employment prospects and rising household debt. By sector, the uneven recovery between manufacturing and services will continue, as risks surrounding face-to-face services remain high (Figure 2). Small and medium enterprises (SMEs) and small merchants[1] in those sectors may see a delayed recovery.

[1] **Legal classification of SMEs in Korea**

Sector	SMEs		Small business	Micro-enterprises
	No of Workers	Size of Capital and Sales	No of Workers	No of Workers
Manufacturing	Less than 300	Capital of KRW3 billion or less	Less than 50	Less than 10
Mining, construction and transportation	Less than 300	Capital of KRW3 billion or less	Less than 50	Less than 10
Large general retail stores, hotel, recreational condominium operation, communications, information processing and other computer-related industries, engineering service, hospital and broadcasting	Less than 300	Sales of KRW30 billion or less	Less than 10	Less than 5

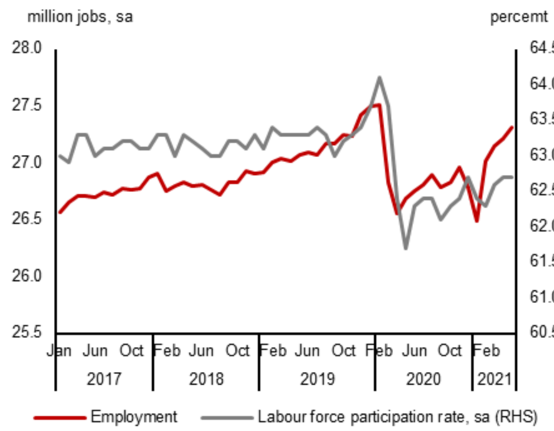
3. The labor market has improved but continues to lag behind the recovery of manufacturing output to pre-COVID-19 levels. After plunging by almost 220,000 in 2020, employment grew steadily from March through May 2021, but has yet to return to pre-COVID-19 levels (Figures 3 and 4). Social-distancing measures and cross-border travel restrictions—necessary to contain the spread of COVID-19 infections—have dampened employment, especially in face-to-face services. The manufacturing sector started to hire more workers in the first five months of 2021, but at a muted pace compared to the rebound in production, which had already surpassed pre-COVID-19 levels in July 2020. By segment, daily and temporary workers, as well as fresh graduates and middle-aged workers, have been the most vulnerable. Despite the job losses, the increase in the unemployment rate has been modest, from 3.8 percent in 2019 to 4.0 percent in 2020 and 4.2 percent in the first five months of 2021. This is mainly due to a decline in labor force participation in 2020 as many youth and part-time female workers dropped out of the labor market. That said, after an uptick in January 2021, the unemployment rate trended lower toward pre-COVID-19 levels in the succeeding five months as the job market recovered.

Figure 3. Job Creation by Various Categories



Source: Statistics Korea; AMRO staff calculations
Note: 21* refers to the average for January–May 2021.

Figure 4. Employment and Labor Force Participation



Source: Statistics Korea.
Note: Data as at May 2021.

4. Consumer price inflation has picked up and is forecast to approach the Bank of Korea's (BOK) target of 2.0 percent in 2021 and 2022. The COVID-19 pandemic and the plunge in global oil prices dampened inflationary pressure in 2020, which was further compounded by policy-induced reductions in the cost of education, medical care and telecommunications. That said, consumer price inflation has picked up since May 2020, led by higher food prices due to extreme weather and livestock disease outbreaks. It breached the BOK's target in April–June 2021, owing to higher global oil prices and a low base in Q2

Seed and seedling production, fishing, electrical, gas and waterworks, medical and orthopaedic products, wholesales, fuel and related products wholesales, mail order sale, door-to-door sale, tour agency, warehouses and transportation-related service, professional, science and technology service, business support service, movie, amusement and theme park operation	Less than 200	Sales of KRW20 billion or less	Less than 10	Less than 5
Wholesale and product intermediation, machinery equipment rent for industrial use, R&D for natural science, public performance, news provision, botanical garden, zoo and natural parks, waste water treatment, waste disposal and cleaning related service	Less than 100	Sales of KRW10 billion or less	Less than 10	Less than 5
Other sectors	Less than 50	Sales of KRW5 billion or less	Less than 10	Less than 5

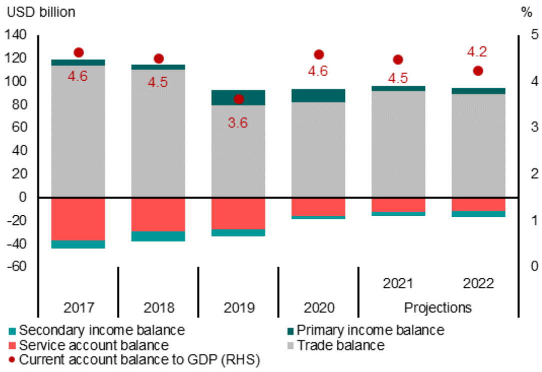
Source: Yang, Junsok. 2009. "Small and Medium Enterprises (SME) Adjustments to Information Technology (IT) in Trade Facilitation: The South Korean Experience." Asia-Pacific Research and Training Network on Trade Working Paper Series No.61, pp.5. https://www.unescap.org/sites/default/d8files/knowledge-products/AWP%20No.%2061.pdf.

2020. Inflation expectations have likewise climbed to reach 2.3 percent in June 2021, bolstered by an improving consumer sentiment. Going forward, consumer price inflation for the whole of 2021 and 2022 is expected to increase to 1.9 percent from 0.5 percent in 2020 on the back of a rebound in oil prices and dissipating effects of the government's policies on cost reduction. Likewise, demand pressure is expected to be strengthened. Over the medium term, consumer price inflation is expected to remain low, despite a full recovery in domestic demand. Persistently low inflation in Korea is driven not only by cyclical and policy factors, but also by structural changes (For a more detailed discussion of inflation dynamics in Korea, please refer to Selected Issue 1 in the annex).

A.2 External Sector and the Balance of Payments

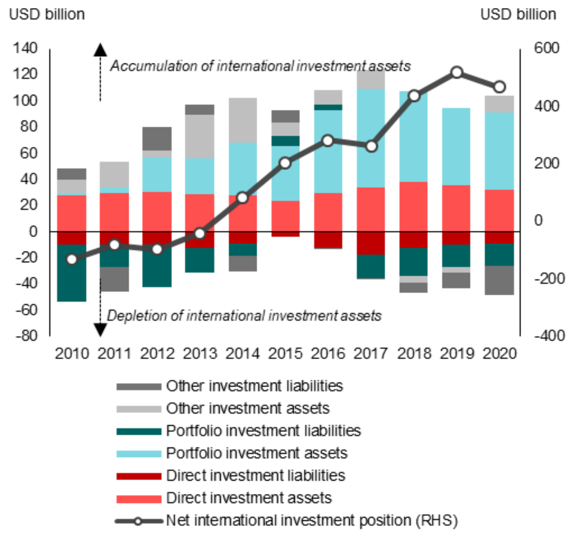
5. Korea's external position remains strong, underpinned by a sustained surplus in the current account, a net external asset position and ample international reserves. The current account surplus widened to 4.6 percent of GDP in 2020 (Figure 5), reflecting robust export performance, especially those of semiconductors and auto products, in H2 2020 (Figure 1.2 in the Appendix). Moreover, a sharp reduction in outbound tourism and higher net income from transport services helped offset the impact of a slump in inbound tourism revenue. In 2021, the current account surplus is expected to remain robust at 4.5 percent of GDP, despite higher imports of intermediate and capital goods. Service account deficit is expected to be relatively unchanged from 2020, as international travel would not be fully reopened by end-2021, under our baseline scenario. The bulk of the current account surplus will be invested overseas by Korean corporations and institutional investors, including pension funds (Figure 6). In terms of net international investment, Korea continues to maintain its net asset position. International reserves amounted to USD454.1 billion in June 2021, more than double short-term external debt.

Figure 5. Current Account Balance



Source: Bank of Korea; and AMRO staff projection

Figure 6. Financial Account and Net International Investment Position



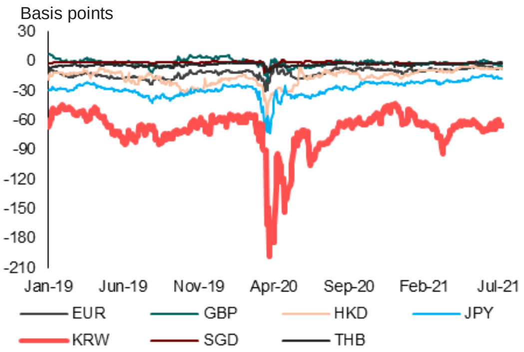
Source: Bank of Korea; AMRO staff calculations

Note: A positive value means that the flows led to an accumulation of Korea's net international investment position (IIP), while a negative value means that the flows led to a decline of the net IIP.

6. US dollar funding stress has subsided after the global financial market turmoil in March 2020. Korea experienced a temporary shortage of US dollar liquidity in March 2020

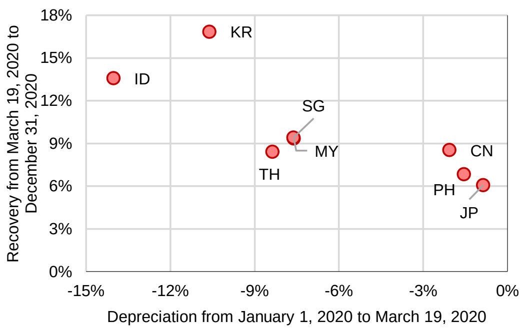
(Figure 7) due to a spike in US dollar demand by local securities companies and foreign investors in Korea's stock exchange, coinciding with a tightening of US dollar funding conditions in global money markets. Amid the plunge in global financial markets, local securities companies faced margin calls related to their equity-linked securities (ELS) products that had overseas underlying assets. (For more information about ELS products, please refer to Selected Issue 2 in the annex). Meanwhile, foreign investors liquidated their equity holdings in Korea's stock market, contributing to a sharp increase in their US dollar demand. The US dollar shortage was alleviated after the US Federal Reserve and the BOK agreed on a USD60 billion swap arrangement and the BOK deployed competitive US dollar loan facility auctions. The Korean won appreciated against the US dollar last year in line with other regional currencies, as the US dollar weakened following a sharp easing in US monetary policy. Moreover, Korean exports were relatively strong compared with other countries, adding pressure to the Korean won to appreciate (Figure 8). However, the won depreciated in early 2021 due to the US dollar strengthening on the back of a rapid recovery of the US economy, a spike in long-term US interest rates, and the large US fiscal stimulus package.

Figure 7. Cross Currency Basis for Selected Currencies



Source: Bloomberg; AMRO staff calculations

Figure 8. Depreciation and Recovery of Asian Currencies in 2020

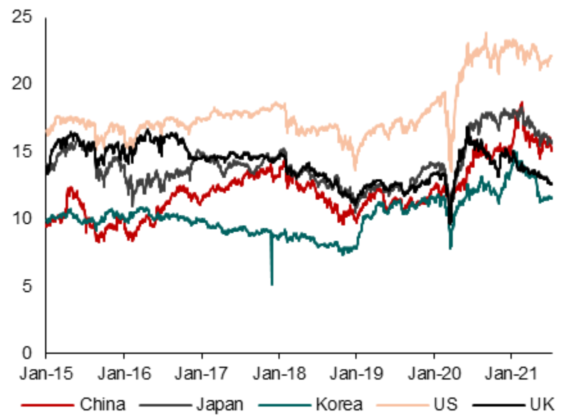


Source: Bloomberg; AMRO staff calculations

A.3 Monetary Conditions and Financial Sector

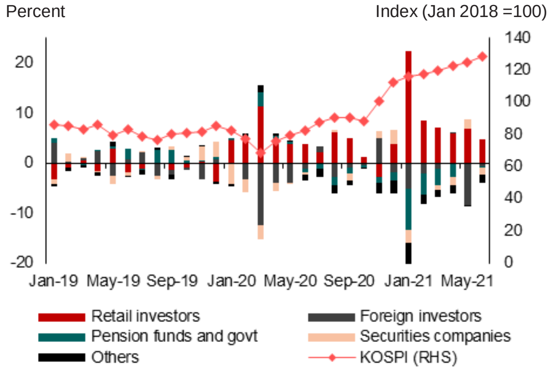
7. Korea's stock market has been buoyant, especially in Q4 2020, while the bond market has faced pressure from the massive issuance of Korea Treasury bonds (KTBs). After plunging in March 2020, Korea's stock index recovered and trended upwards, with the price-to-earnings ratio for the whole year through 2021-to-date going above its historical average (Figure 9). The stock market has been supported by low interest rates, a strong risk appetite from local retail investors, and a brighter outlook for the Korean economy and corporate earnings. By sectoral breakdown, the export-oriented technology sector has been driving most of the strength in Korean equities. Though the rise in US Treasury yields in Q1 2021 (driven by rise in real yields) created some volatility in equity markets, Korean equity markets continued to drift higher, although at a much slower pace than in Q4 2020. However, an important development in Korea's equity markets in 2020 and 2021 is the increased participation of retail investors. Although there is limited evidence that retail investors triggered the outperformance of Korea equities, their strong purchases have helped absorb selling pressures from foreign and institutional investors (Figure 10). Meanwhile, long-term bond yields have risen since August 2020 on the back of a rise in US Treasury bond (UST) yields (Figure 1.4 in the appendix) and increased KTB issuances. Though the spread between KTB and UST yields was compressed this year, the bond market has not shown signs of stress (Figure 11).

Figure 9. Price-to-Forward Earnings Ratio of Selected Markets



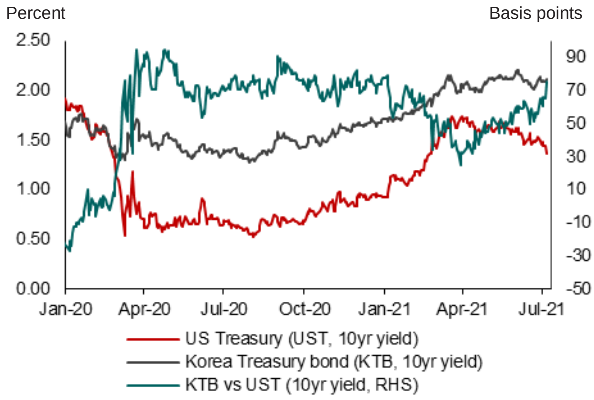
Source: Bloomberg; MSCI

Figure 10. Change in Ownership of KOSPI Stocks



Source: Bloomberg; and AMRO staff calculations

Figure 11. KTB 10yr vs UST 10yr Yields



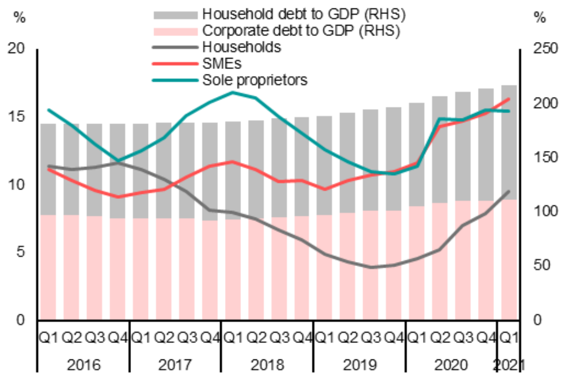
Source: Bloomberg; and AMRO staff calculations

8. Financial institutions expanded credit in 2020, fueled by the reduction in interest rates and credit support measures. As a result, credit grew by nearly 10 percent in 2020, driven by the policy measures and increased loan demand from businesses and households (Figure 12). In response to the economic downturn, the BOK cut its base rate by 75 basis points to a record low of 0.5 percent in the first half of 2020 and has kept it on hold since then. Bank lending rates have been unaffected by a recent rise in long-term bond yields, being more sensitive to short and medium-term bond yields, which are still largely in line with the BOK's base rate (Figure 13). Besides the policy rate cut, the authorities also rolled out the Bank-Intermediated Lending Support Facility[2], temporary regulatory forbearance, maturity extension and payment deferral programs, and special credit guarantee schemes to ease liquidity constraints and prevent credit crunches among small merchants, SMEs and some large corporations during the pandemic. Meanwhile, the record low interest rates, alongside ample liquidity, spurred a build-up of household loans for the purchase of residential property, investment in the equity market and other purposes.

[2] The BOK provides on-lending with a low interest rate of 0.25 percent to commercial banks. Commercial banks could use these on-lending facilities to offer loans to SMEs and small merchants that are hit by the pandemic.

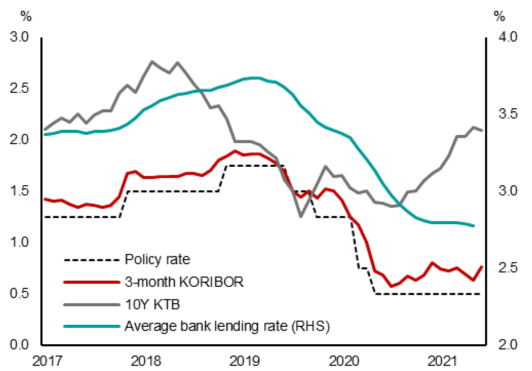
9. Banks and non-bank financial institutions (NBFIs) have ample capital and liquidity buffers, while loan impairments have remained low. Amid the economic downturn, the profitability of banks was affected by higher loan loss provisions set aside for a potential rise in loan impairments. That said, banks and NBFIs have been maintaining their capital buffers well above regulatory requirements. Impacts of the economic fallout on loan quality have yet to materialize, partly due to the maturity extension and payment deferral programs. The substandard-and-below loan (SBL) ratio remained low across all borrower groups. The average SBL ratio of domestic banks[3] was 0.62 percent as of March 2021, down from 0.78 percent a year ago. Likewise, the SBL ratio of mutual saving banks and credit card companies, which have more exposure to lower-rated borrowers, also declined. Despite the low loan impairments, the prolonged virus outbreak and containment measures, which dampened the business performance of small firms, have prompted commercial banks and NBFIs to apply more stringent credit approval standards amid rising concerns over weakening credit quality.

Figure 12. Loan Growth



Source: Bank of Korea; AMRO staff calculations

Figure 13. Interest Rates



Source: Bank of Korea; AMRO staff calculations

A.4 Fiscal Sector

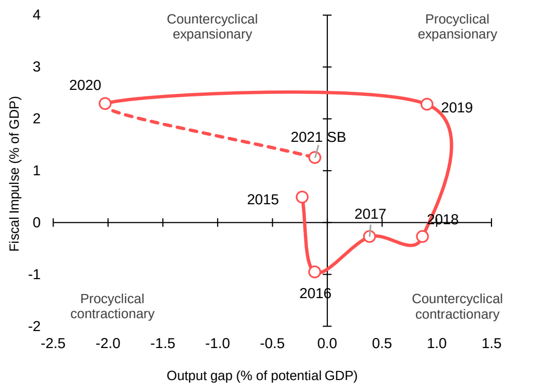
10. The government aims to boost spending in 2021 to support pandemic-hit households and businesses and maintain growth momentum. To alleviate the impacts of the pandemic on the domestic economy, the government set up the Key Industry Stabilization Fund in 2020 to help key industries, including aviation and shipping, that were severely hit by the global outbreak. Special loan programs, employment subsidies and several rounds of cash handouts to support households and SMEs were also rolled out. Following the sizable economic stimulus packages in 2020, the fiscal stance in 2021 continues to be expansionary (Figure 14). The government plans to front-load 63 percent of the initial budget spending in the first half of this year to boost economic activities and minimize scarring of the economy. Part of the year's budget is allocated to the Korea New Deal, an initiative which is aimed at revitalizing the economy in the post-pandemic period and nurturing future growth engines. The government also proposed two supplementary budgets of KRW47.9 trillion, which prioritizes support for small businesses, freelancers and employees, especially those in close-contact services. The size of fiscal spending is budgeted at about 29.7 percent of GDP in 2021.

11. Tax revenue is expected to remain resilient in 2021 due to faster-than-expected economic recovery. Total revenue will likely increase to 25.2 percent of GDP in 2021 from 24.8 percent in 2020. As economic activity has recovered strongly since the second half of 2020, corporate income tax revenue is expected to outperform in 2021. Asset-based tax revenue is also expected to increase further in line with a boom in stock and housing market

[3] Including private commercial banks, internet-only banks, and specialized banks.

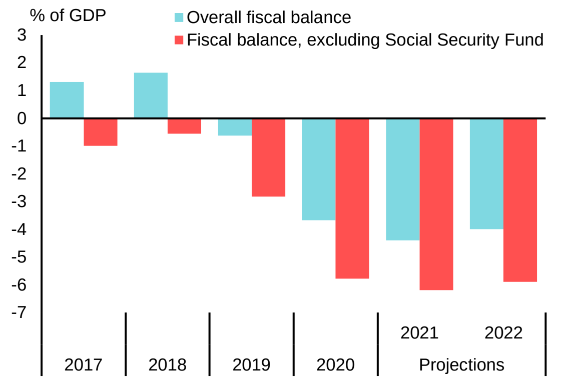
activities, shoring up total tax revenue. Fiscal deficit, excluding the Social Security Fund, will likely widen modestly from 5.8 percent of GDP in 2020 to 6.2 percent in 2021 (Figure 15), while government debt is projected to reach 47.3 percent of GDP in 2021 by AMRO's estimate, up from an estimated 43.8 percent in 2020.

Figure 14. Fiscal Stance



Source: Ministry of Economy and Finance; AMRO staff calculations
Note: 1/ Fiscal impulse is an annual change in the fiscal balance including the Social Security Fund. 2/ "SB" stands for the second supplementary budget proposal.

Figure 15. Fiscal Balance



Source: Ministry of Economy and Finance; AMRO staff projections

B. Risks, Vulnerabilities and Challenges

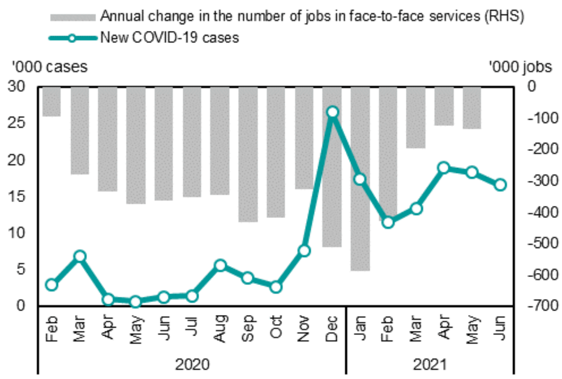
B.1 Near-term Risks to the Macro Outlook

12. At the global level, continuing concerns over a resurgence of the COVID-19 pandemic and delays in the roll-out of vaccines could impede the recovery of Korea's export and economic growth. Social-distancing measures and restrictions on international travel are expected to be in place until the end of this year in many countries. A resurgence of outbreaks in major economies and retightened containment measures could impede the recovery of the global economy and dampen Korea's exports. In addition, Korea's export outlook remains susceptible to uncertainty over the Biden administration's trade policies, especially toward China. While the US' imposition of trade measures on China's technological products could enhance business opportunities for Korean tech firms, it could also have negative spillovers through the firms' global supply chains.

13. On the domestic front, the resurgence of COVID-19 infections and high indebtedness among corporates and households could undermine the growth momentum. The prolonged domestic outbreaks and protracted social-distancing measures would continue to weigh on private consumption and, by extension, the business prospects of small merchants and SMEs, especially those providing face-to-face services. Given that hospitality, wholesale and retail, as well as food services constitute a large proportion of Korea's total employment, the labor market could see a delayed recovery. Moreover, the high indebtedness of corporates and households render their debt servicing burden vulnerable to a sharp rise in interest rates, which could weigh on domestic demand and economic recovery (Figure 16).

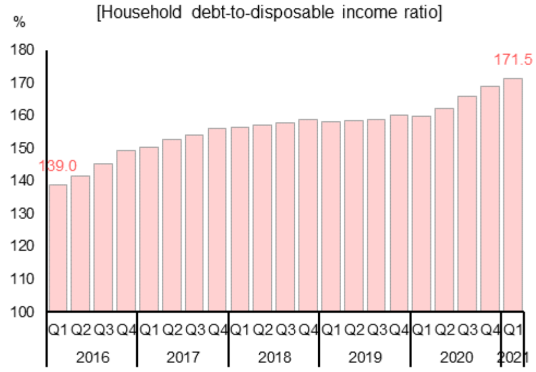
14. Certain segments of the Korean economy are susceptible to a sharp correction in asset prices amid a build-up of financial imbalances. Amid the low interest rate environment, financial imbalances have manifested in the form of a sharp build-up of household debt and a surge in housing and stock prices. The household debt-to-disposable income ratio climbed to 171.5 percent at the end of March 2021 (Figure 17) from 160.3 percent at the end of 2019. In the real estate sector, the increase in housing prices in Seoul started accelerating in May 2020 and spilled over to non-metropolitan areas. The upsurge was attributable to accommodative financial conditions and boosted by economic stimulus policies, which fueled higher demand for houses amid limited supply, especially in the metropolitan area (Figure 18). (For more information of Korea's housing market development and policy responses, please refer to Box A.) Meanwhile, retail investors have contributed to the stock market boom, where some have leveraged up to fund their investments. These financial imbalances may not pose systemic risks to Korea's financial stability, as tightened macroprudential policies serve to guard against risks to financial institutions. That said, a sharp rise in interest rates or asset price corrections may strain the financial soundness of highly leveraged mortgage borrowers and equity investors. More broadly, it could dampen business and consumer sentiment.

Figure 16. Local COVID-19 Outbreak and Jobs Created in Face-to-Face Services



Source: Bank of Korea

Figure 17. Household Indebtedness

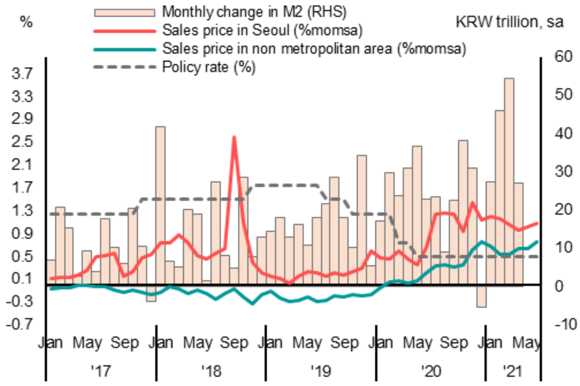


Source: Bank of Korea

15. Financial institutions' asset quality could deteriorate, given the corporate sector's increased indebtedness and weakening financial position. Corporate debt rose to 111.6 percent of GDP in March 2021 from 92.5 percent in 2017, while the proportion of companies with an interest coverage ratio (ICR) of below one likewise increased to 39.7 percent at the end of 2020 from 30.6 percent in 2017 (Figure 19). Against this backdrop, impaired loans will likely become manifest among businesses, especially zombie companies[4]. Increased credit risks would be more prevalent among regional banks and NBFIs, such as mutual savings banks, which are more exposed to lower-rated borrowers. Although the current substandard-and-below loan ratio remains low (Figure 20), impaired loans can rise dramatically if the exit from the stimulus policy is too abrupt. Bank loans under the maturity extension and payment deferral schemes have amounted to KRW 204 trillion as of June 2021 since the introduction of the scheme in February 2020, and account for about 10 percent of total loans[5].

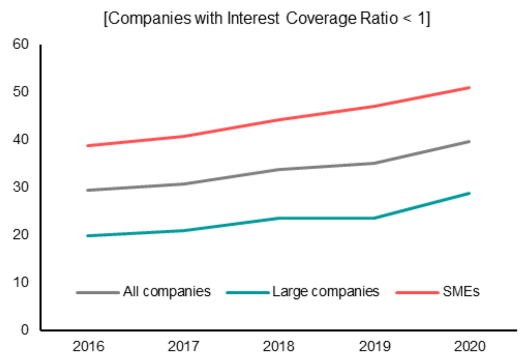
[4] A zombie company is a company that has an ICR of below one for three consecutive years.
[5] That said, the ***outstanding*** amount of loans under the loan relief schemes would be less than 10 percent of total loans. This is because the KRW 204 trillion cited above refers to the *gross* value of loans under the relief schemes, in lieu of the outstanding amount which is not available. To illustrate, if the borrower availed of the maturity extension twice, then the gross value of loans is double-counted. The loan relief schemes were introduced in February 2020, and extended in March 2021 for another six months until September 2021.

Figure 18. Interest Rates, Liquidity and Housing Prices



Source: Bank of Korea; Kookmin Bank; AMRO staff calculations

Figure 19. Proportion of Companies with Weakening Debt Servicing Capacity

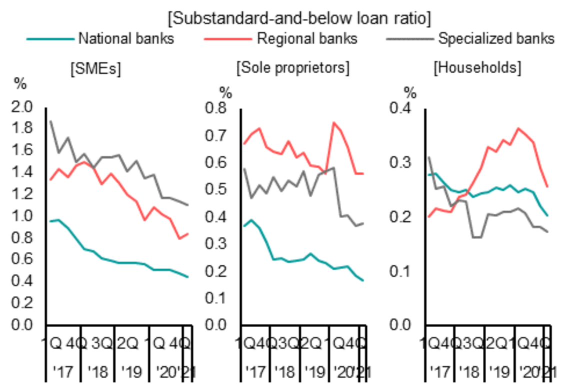


Source: Bank of Korea's calculations based on data by KIS value (BOK's Financial Stability Report, June 2021).

B.2 Structural Challenges Amplified by the Pandemic

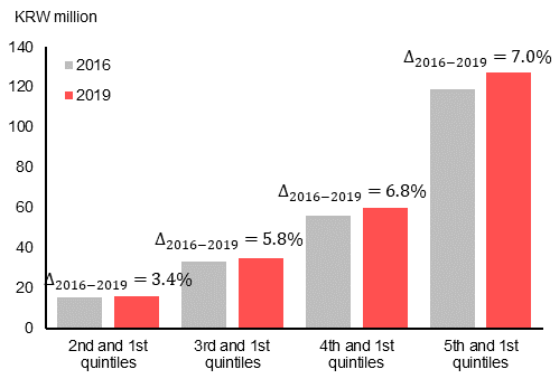
16. The pandemic could widen income inequality. The economic fallout has been uneven between high and low-income earners, and between large corporations and SMEs. As in many other countries, the more highly paid employees in Korea are generally able to work from home and keep their jobs, while low-paid blue-collar workers, especially those hired on a daily or temporary basis, face the risk of being laid off due to the nature of their work, which requires close contact. In addition, low-paid workers are likely to be in hard-hit sectors such as restaurants, hotels, and retail sales. Large Korean conglomerates are generally able to withstand the crisis, as they tend to be financially sound before the onset of the pandemic with stronger balance sheets. Small merchants and SMEs are at greater risk due to their lean financial buffers. In addition, the pandemic has accelerated the digital transformation of business, particularly in services. Firms that rely on traditional and labor-intensive ways of doing business would lag behind if they are not able or ready to embrace digitization.

Figure 20. Substandard-and-below Ratio



Source: Financial Supervisory Service; AMRO staff calculation

Figure 21. Income Gap between Households in Bottom and Upper Quintiles



Source: Statistics Korea (based on 2017 and 2020 Survey of Household Finances and Living Conditions); AMRO staff calculation

Note: The percentage shows how much the income gap between the upper and lowest quintiles changed from 2016 to 2019. The annual Survey of Household Finances and Living Conditions presents information about previous year's household income and distribution indicators.

C. Policy Discussions and Recommendations

17. More targeted social-distancing measures and large stimulus packages have helped to mitigate adverse economic impacts of the pandemic. The large comprehensive package of fiscal, monetary and financial regulatory measures has helped support the economy during the partial lockdown imposed when the country was first hit by the outbreak and global demand and supply shocks. Emergency support measures, such as the Key Industry Stabilization Fund and cash payouts to small entrepreneurs, have curbed business bankruptcies and mitigated job losses. Looking ahead, expansionary fiscal policy and accommodative monetary policy should be maintained amid lingering uncertainty over the pandemic and economic condition to ensure that the recovery remains on track, while rising financial imbalances warrant close monitoring in case timely action is needed.

C.1 Active Role of Fiscal Policy in Pursuing Inclusive Growth

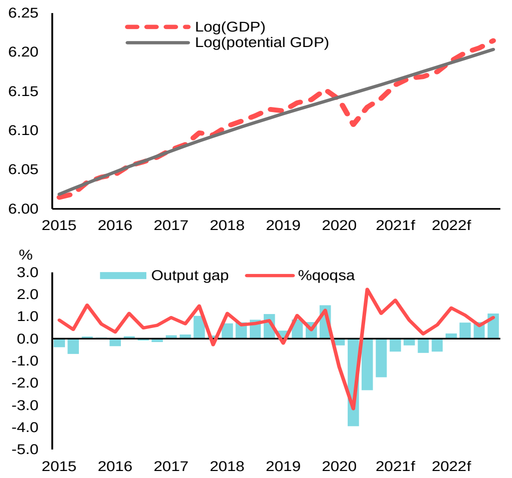
18. Fiscal measures should focus more on helping adversely affected groups in order to achieve stronger and more inclusive economic growth. The government maintained its expansionary fiscal stance to support the growth momentum. Although the recovery is expected to gain traction in 2021 with the output gap narrowing (Figure 22), it will likely remain uneven. Low-income households, as well as daily and contract workers, will continue to face income and job instability. In contrast to manufacturers that have benefited from strong exports, many SMEs and small merchants that depend on the domestic market and provide close contact services are expected to grapple with uncertain business prospects. Therefore, the government's support measures—targeted at vulnerable groups, such as small merchants and temporary workers in close-contact services—would alleviate the lingering effects of the pandemic on these groups. In addition, the withdrawal of crisis support measures should be carefully planned and the measures shifted to supporting the recovery in order to avoid a cliff effect.

19. From a medium term perspective, large fiscal deficits and a rapidly growing government debt would warrant a strong and credible commitment to maintaining fiscal sustainability. According to the 2020-2024 National Fiscal Management Plan (NFMP) envisaged in the 2021 budget proposal, the government's expenditure was set at around 28 percent of GDP between 2022 and 2024, even though the Korean economy is projected to rebound strongly in 2021 and reach potential growth from 2022 onward. As a result, fiscal deficit, including the Social Security Fund, is projected to hover around 4.0 percent during the period (Figure 23). Accordingly, the government debt is projected to increase from 43.8 percent of GDP in 2020 to 58.3 percent of GDP by 2024, which is too rapid in light of long-term fiscal sustainability considerations. Furthermore, Korea's rapidly aging population implies the need for higher social spending over time, which would widen the fiscal deficit further and exacerbate fiscal sustainability risk.[6] In this regard, the AMRO mission commends the government's initiative on establishing fiscal rules that will play a pivotal role in anchoring fiscal discipline. That said, if the fiscal rule takes effect in 2025 as planned, the projected debt-to-GDP trajectory under the current NFMP's fiscal proposal, would be close to the cap of fiscal rule in 2025. In this regard, greater efforts are needed to reduce fiscal deficits in the coming years by cutting back on excessive tax reduction, broadening the tax base and spending more

[6] In addition to higher social spending, rapid population aging may potentially dampen the government's revenue, in terms of tax revenue and contributions to the Social Security Fund, due to fewer working population. Moreover, debt financing may also be squeezed as the capital market may shrink, stemming from decline in aggregate saving in the economy.

efficiently. (For more discussion about the medium term fiscal sustainability of Korea, please refer to Selected Issue 3 in the annex).

Figure 22. Output Gap



Source: AMRO staff estimate
Note: The output gap is calculated by using the Hodrick-Prescott filter.

Figure 23. Projected Fiscal Position of Korea during 2020-2024

Unit: KRW trillion	2020	2021		2022	2023	2024
		Original	SB			
Total government revenue	478.8	482.6	514.6	505.4	527.8	552.2
Total government expenditure	549.9	558.0	604.7	589.1	615.7	640.3
Fiscal balance, including Social Security Fund	-71.2	-75.4	-90.1	-83.7	-87.9	-88.1
(in percentage of GDP)	-3.7	-3.7	-4.4	-4.0	-4.0	-3.9
Government debt	846.9	956.0	963.9	1,070.3	1,196.3	1,327.0
(in percentage of GDP)	43.8	47.3	47.2	50.9	54.6	58.3

Source: Ministry of Economy and Finance
Note: Original stands for original budget. "SB" stands for the second supplementary budget proposal in 2021.

Authorities' Views

20. In preparation for the implementation of the fiscal rule in 2025, the government intends to establish an NFMP for 2021-2025 in order to strengthen the management of the fiscal balance. The Korean government stated that the National Fiscal Management Plan 2021-2025 will include stronger management of fiscal aggregates and other sustainability efforts, such as stabilizing the pace of expenditure increase in line with that of the economic recovery. The Plan will be submitted to the National Assembly in September 2021.

C.2 Maintaining Accommodative Monetary Policy

21. The current monetary policy stance is sufficiently accommodative to support the ongoing economic recovery. As the ongoing economic recovery is gaining traction, there is no need for further monetary stimulus. The negative output gap is expected to narrow in 2021 with the economy continuing to gain growth momentum, led mainly by external demand. Inflation is expected to rise toward the BOK's target in line with the economic recovery, while financial imbalances have built up over the last one year. In light of the lingering pandemic and economic uncertainty, it would be helpful to continue credit support targeted at vulnerable businesses through the BOK's Bank Intermediated Lending Support Facility and a Special Purpose Vehicle implemented last year. While overall financing condition has improved considerably, some vulnerable corporate borrowers are still suffering from uncertain business prospects and are exposed to roll-over risks to some extent.

C.3 Employing Policy Mix to Contain Financial Imbalances

22. The authorities should tighten monitoring of the loan quality of financial institutions in light of the severe economic disruptions in 2020. The AMRO mission supports the authorities plan to tighten oversight of banks' lending standards through monthly inspections. The mission also supports conducting stress tests on a regular basis, as they help to detect vulnerabilities and guard against emerging risks. The financial regulatory authorities should strengthen their collaboration with financial institutions and credit bureaus to obtain timely assessment of the debt servicing capacity of borrowers. Meanwhile, the extension of maturity and repayment deferrals for SMEs and small merchants until September 2021 will continue to provide temporary relief to businesses, constrained by loss of income, and lower the risk of a sharp increase in loan losses. The scheme should be reviewed regularly and phased out at an appropriate time.

23. Stricter prudential measures are necessary to curb the build-up of financial imbalances. As far as the build-up of financial imbalances is concerned, side effects of a prolonged period of accommodative monetary policy should be addressed by adopting macroprudential measures or other policy tools. The prolonged low interest rate environment has spurred risk-taking behavior. The surge in housing and stock prices has attracted domestic investors, including retail investors in the equity markets, which in turn has led to greater household debt. The AMRO mission commends the implementation of a revised rule on the loan-to-deposit ratio that puts more weight on household loans[7] as this could stem the pace of household borrowing. Likewise, the mission supports the authorities' plan to strengthen post-lending monitoring of large and unsecured loans, and to enhance the debt-to-service framework and apply it at the individual borrower's level, in order to limit borrowing for investments in housing and stocks. Meanwhile, the authorities' plan to phase out a short-selling ban[8] that has been in effect since March 16, 2020, to curb stock market volatility, would help level the playing field for all investors and restore market functioning in an orderly manner.

24. Increasing housing supply should work together with macroprudential measures to stabilize housing prices. To address the housing shortage in the Seoul Metropolitan Area, the AMRO mission welcomes the authorities' plans to increase the supply of public housing, especially for first-time home owners. In addition, the government could continue to encourage more private developers to participate in the housing supply program. Meanwhile, macroprudential measures should remain in place to contain housing price speculation. In the longer term, the authorities should review their regional revitalization plan for areas outside the Seoul Metropolitan Area in order to ease congestion and excessive demand for residential properties in the capital area. The plan could include upgrading the intercity public transport system and establishing facilities such as schools and entertainment hubs.

C.4 Strengthening Foreign Exchange Regulations

25. The AMRO mission welcomes recent measures taken to manage the foreign currency liquidity risks of NBFIs, especially securities and insurance companies. The US dollar liquidity crunch and the sharp fall of the foreign exchange (FX) swap rate of the Korean won in March 2020 exposed the FX funding risks of securities firms and the need to enhance their liquidity management. In response, the authorities took preemptive action to strengthen FX-related macroprudential measures and the FX liquidity backstop mechanism in January 2021. Going forward, the authorities could review the need to keep the macroprudential stability levy in light of the strong net international investment position of

[7] The new rules governing loan-to-deposit ratio started from January 1, 2020. The weight assigned to household loans at commercial banks was raised by 15 percent, while the weight assigned to corporate loans was reduced by 15 percent.

[8] In response to stock market turbulence at the onset of the global pandemic, Korean financial regulators imposed a short-selling ban on March 16, 2020. On February 3, 2021, the authorities decided to extend the ban until May 2 and to partially lift the ban on the trading of KOSPI 200 and KOSDAQ150 stocks on May 3, instead of allowing a full resumption of short-selling activities, in order to minimize impacts of the policy exit on local stock markets. Moreover, in Korea, concerns were already existing before the pandemic about illegal short selling and discrepancy in terms of the access of institutional and retail investors to short selling. Therefore, in tandem with the gradual phase out of the short-selling ban, the revised Financial Investment Services and Capital Market Act will take effect on April 6, and the authorities plan to gradually allow retail investors to have more access to short selling.

Korea.[9] Considering that the linkages between the FX swap and spot markets tend to heighten under stress, the authorities should continue their efforts to address demand-supply imbalances in the short-term FX swap market, such as by incentivizing the longer-term FX hedging activity of insurance companies.

Authorities' Views

26. The macroprudential stability levy is still necessary. The volatility in capital flows would remain, given lingering uncertainties in the global economy. Therefore, the Korean government is planning to maintain the macroprudential stability levy, which was introduced after the global financial crisis, in order to prevent systemic risk that could stem from high volatility of cross-border capital flows. In addition, the levy aims at encouraging financial institutions to lengthen the maturity structure of their FX funding. Several research studies have found that the levy is effective in reducing the maturity mismatch of FX-denominated assets and liabilities, and in lengthening the maturity of FX funding, especially external debt, of financial institutions operating in Korea.

C.5 Structural Reforms to Strengthen Growth Potential

27. The AMRO mission supports the government's continuing efforts to achieve more inclusive growth and strengthen the economy's growth potential. In the post-pandemic period, digitization will become an essential part of the global economy, while income inequality could worsen. The AMRO mission supports the Korea New Deal initiative, as a strategic plan for the post-pandemic period, to boost the eco-friendliness of the economy, and promote digitalization as well as new growth engines, such as self-driving automobiles, biohealth, and processor semiconductor. These industries would fortify Korea's growth potential amid aging population. In addition, the mission commends the government's continuing efforts to strengthen the social safety net and to reduce polarization between large enterprises and SMEs. The government should provide more support for human capital development to SMEs, and consider setting up a state-funded R&D institute for SMEs. Structural reforms in the services sector and the labor market should be stepped up in order to enhance the productivity and competitiveness of small enterprises and low-skilled labor, and to create more quality jobs.

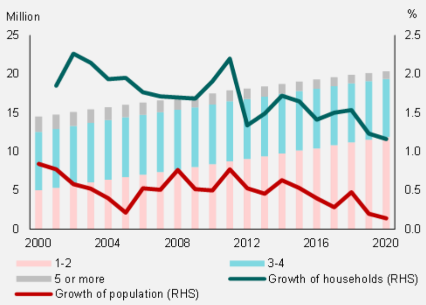
[9] The macroprudential stability levy was implemented to mitigate a systemic risk, which is caused by high capital flow volatility, in Korea's foreign exchange market. The levy was imposed on foreign currency liabilities, excluding deposits, held by domestic and foreign banks from August 2011. The regulation was applied to non-bank financial institutions such as securities and insurance companies in 2015. The rate is now 0.1 percent applied to non-deposit FX liabilities with remaining maturity of one year or less.

Box A. Real Estate Market Development and Policy Responses[10]

Demand and supply developments

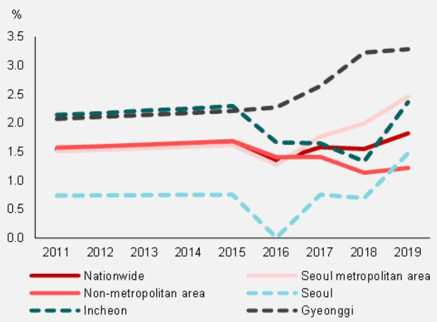
The demand for housing has grown in tandem with the rise in the number of households, although the average household size has shrunk in the last decade. Over the past 20 years, the number of households has grown faster than the population (Figure A1), which implies the average household size has shrunk. Indeed, the number of households increased to about 20 million in 2020 from 17 million in 2010. Meanwhile, the proportion of one-person and two-person households rose from 35 percent in 2000 to 58 percent in 2020, being the most common household size in the country (Figure A1). This may be one of the factors that have swelled the demand for housing, especially small residences. The Seoul metropolitan area,[11] particularly in Gyeonggi-do and Incheon, has shown a higher growth rate of households since 2016 (Figure A2), which must have lifted housing demand in those areas.

Figure A1. Demographic changes in household size and population



Source: Statistics Korea, Ministry of Labour

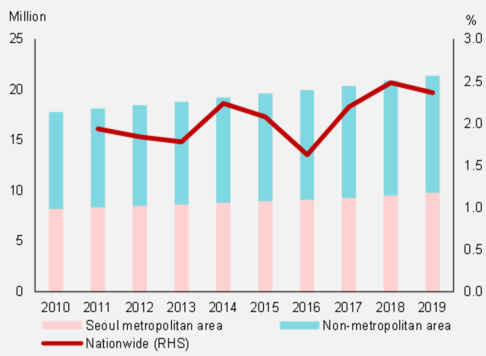
Figure A2. Growth Rate of Households by Region



Source: Ministry of Land, Infrastructure and Transport

Housing supply has been rising steadily, but is still in shortage in the Seoul metropolitan area. The supply of housing increased by over 2 percent on average during a three-year period to reach 21 million in 2019 (Figure A3). Subsequently, newly built housing fell in 2019 and 2020 (Figure A4), casting a shadow over new supply in the short term. Overall, the supply of houses is slightly higher than the number of households nationwide, but supply is still lacking in the Seoul metropolitan area. The house penetration rate[12], which is the ratio of the number of houses to the number of households, has been above 100 percent since 2008 nationwide while remaining below 100 percent in the Seoul metropolitan area, and was only 96 percent in Seoul in 2019 (Figure A5). This indicates that the housing supply in the Seoul metropolitan area is not enough, and an additional 158,000 houses are needed to raise the penetration rate to 100 percent in Seoul.

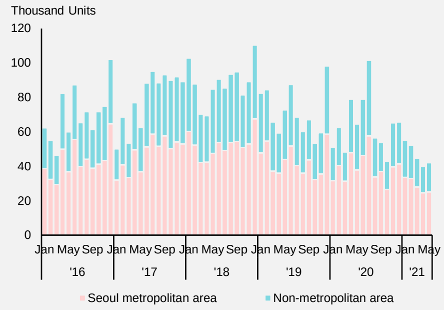
Figure A3. Number of Houses and Growth Rate



Source: Ministry of Land, Infrastructure and Transport

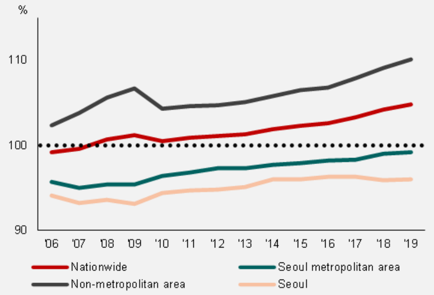
[10] Prepared by Chunyu Yang.
[11] The Seoul metropolitan area consists of Seoul, Incheon and Gyeonggi-do, and accounts for half of the country's population.
[12] The house penetration rate is an upgraded version of the housing supply ratio, which used to be the most popular measure of housing policy in Korea (Kim, K. H., & Park, M, 2016).

Figure A4. Housing Units Constructed



Source: Ministry of Land, Infrastructure and Transport

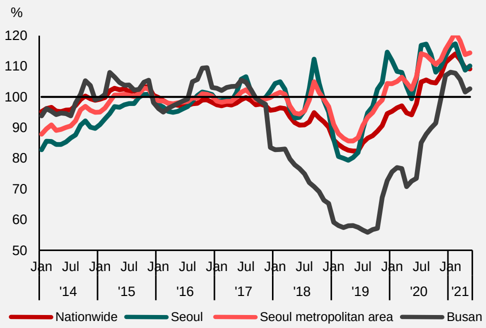
Figure A5. House Penetration Rate



Source: Ministry of Land, Infrastructure and Transport

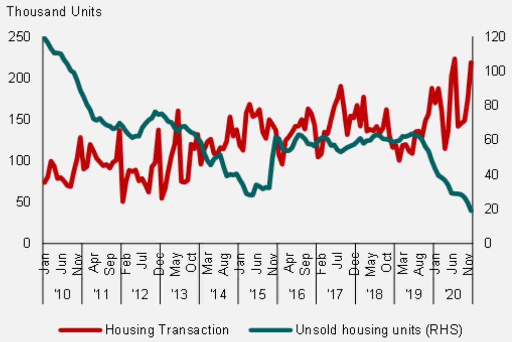
Under heightened demand, housing transactions became more active in 2020, underpinned by ample liquidity in the market. Even before the COVID-19 pandemic, the house demand index[13] had been showing early signs of a rally, particularly in the Seoul metropolitan area. In 2020, the index reflected excessive demand nationwide as various economic stimulus policies injected massive liquidity into the economy. While property regulations had been tightened in the Seoul metropolitan area, the index in other big cities, such as Busan, surged substantially toward the end of 2020 (Figure A6). As a result, housing transaction volumes peaked last year and the number of unsold units was at its lowest in a decade (Figure A7).

Figure A6. House Demand Index



Source: Korea Real Estate Board

Figure A7. Housing Transactions



Source: Korea Real Estate Board, Ministry of Land, Infrastructure and Transport

Policy measures

The Korean government has introduced several measures to discourage speculative activities and stabilize the housing market (Appendix 6). Especially, since taking office in 2017, the administration of President Moon Jae-in has taken several rounds of housing market measures to curb rising housing prices, including restricting mortgage loans, raising taxes for multiple-home owners, penalizing the rapid resale of recently purchased properties, and improving protection for tenants. The loan restrictions and higher taxation are tailored by region. Some regions are labelled by the government as targeted zones and are under tighter regulations than others. These targeted zones are further divided into overheated speculative zones and adjustment-required zones, based on the respective extent of housing price increases. By broadening the targeted zones, the government has expanded the coverage of its tighter regulations to more regions.

[13] The index shows the balance between supply and demand in the real estate sector. It can be interpreted as reflecting home-buying sentiment (Kim, 2021). On a scale of 0 to 200, supply exceeds demand when the index is close to zero, and vice versa when it nears 200. An index of 100 means that supply and demand are at an equilibrium.

In 2020, the government enhanced the measures to crack down on speculative demand, and at the same time, introduced policies to ensure basic standards of living for low-income households. The loan-to-value (LTV) ratio was tightened in February from 60 percent to 30-50 percent in several counties of Gyeonggi-do, before being further reduced to 0-40 percent in June across almost the entire Seoul metropolitan area, in which many places were labelled as overheated speculative zones at the time. Other measures rolled out in June included lowering the debt-to-income (DTI) ratio by 10 percentage points to 40 percent, in overheated speculative zones, strengthening the taxation of housing investment, and to deter individuals from setting up companies to evade tax payment when purchasing multiple homes, raising the property tax for corporate-owned property. To further target individuals with multiple homes, more tax measures were announced in July, including higher comprehensive real estate tax, acquisition tax and capital gains tax. In addition, in order to ensure basic standards of living, the government loosened loan regulations for the low-income group and first-time home buyers. It also lowered the interest rate of Jeonse[14] loans provided by the public housing fund[15] for people under 34 years old.

At the same time, the government has made many efforts to increase housing supply in the metropolitan area. The government acknowledges that demand-side policies alone cannot stabilize the housing market in the metropolitan area, given the structural imbalance between supply and demand. From 2018 to 2019, the government announced three supply plans for the Seoul metropolitan area, amounting to 565,000 units in total, in conjunction with plans for transport networks and new-town construction around Seoul. At the beginning of 2021, another massive home supply plan was announced, which would provide 323,000 new houses in Seoul and 293,000 in the surrounding Gyeonggi-do. If these plans are implemented successfully, the Seoul metropolitan area will get 1.18 million new houses, an increase of about 5.8 percent over the current number of households. This may ease the demand-supply gap in the metropolitan housing market.

References

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Shin, H. S., & Yi, H. C. 2019. The Korean Housing Market: Its Characteristics and Policy Responses. Hot Property, 181.

[14] Jeonse, also known as Chonsei, is a type of a lease or deposit common in the Korean real estate market. Instead of paying monthly rent, the tenant makes a lump-sum deposit to the property owner, at anywhere from 50 to 80 percent of market value. The owner generates returns by taking the deposit money and investing it, then keeping all the interest earned on the deposit. The entire deposit is given back to the tenant at the end of the lease.

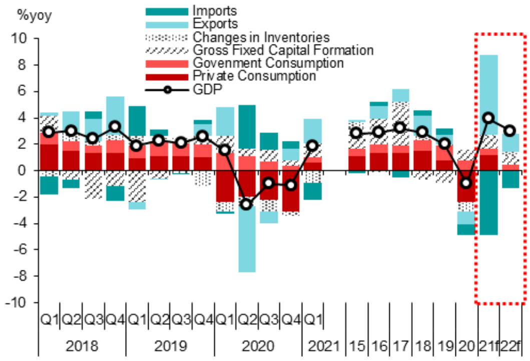
[15] The public housing fund, formally known as the National Housing Fund, is government-based and has a financing scheme called Jeonse Deposit Loan Program to provide loans to workers and low-income residents.

Appendices

Appendix 1. Selected Figures for Major Economic Indicators

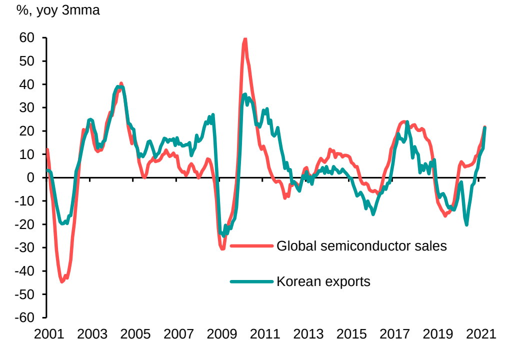
Figure 1.1. Real Sector

The Korean economy is forecast to rebound in 2021 on the back of robust exports.



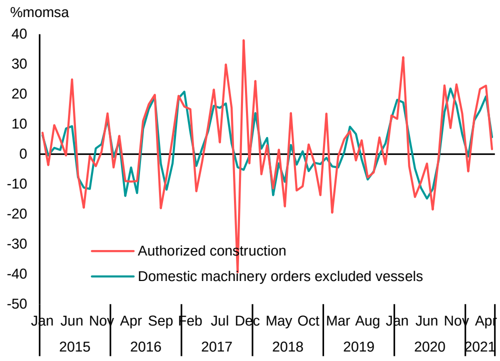
Source: Bank of Korea; AMRO staff estimates

Exports has been recovering steadily since Q3 2020, led by strong orders for semiconductor.



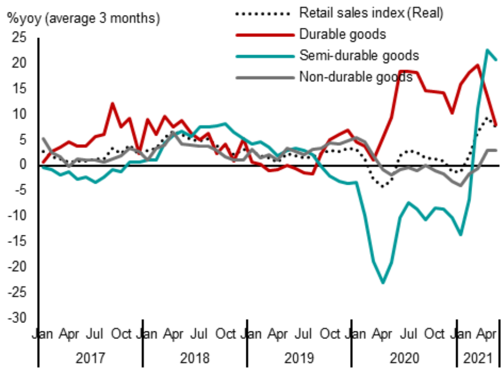
Source: Korea Customs Service; World Semiconductor Trade Statistics

Domestic investment turned around in late 2020, led by the ICT industry and construction.



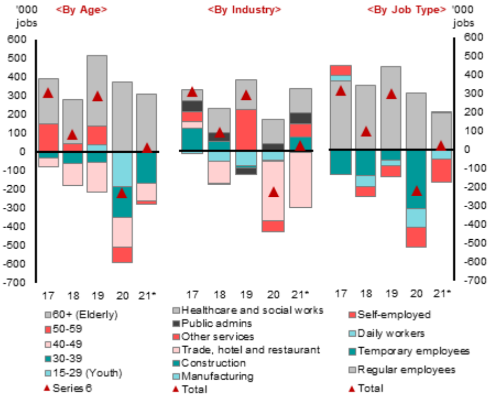
Source: Statistics Korea; AMRO staff calculations

Uncertain job prospects and household debt weighed on domestic consumption.



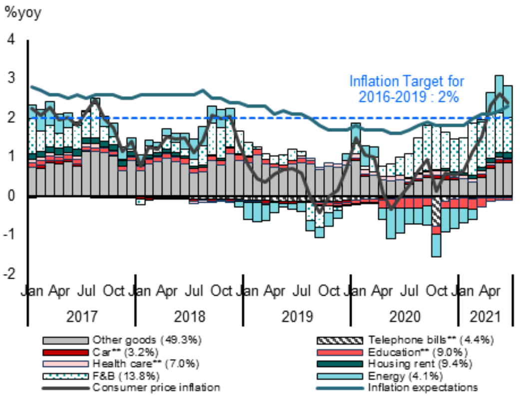
Source: Statistics Korea; AMRO staff calculations

New job creation, especially in face-to-face industries, plunged in 2020.



Source: Statistics Korea; AMRO staff calculations
Note: 21* refers to the average for the January to May 2021 period.

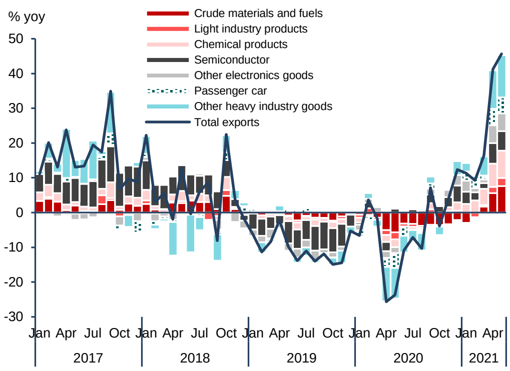
Inflationary pressure has strengthened recently on the back of rising oil and fresh food prices.



Source: Statistics Korea; and AMRO staff calculations
Note: ** shows the prices of consumer products that are affected by the government policies to support household spending.

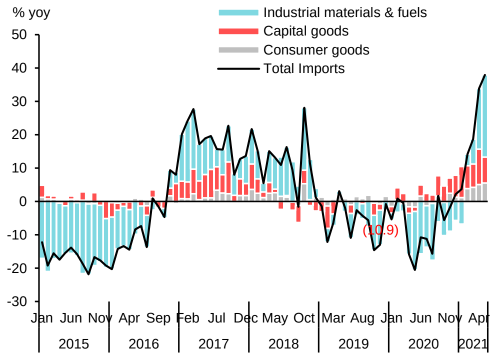
Figure 1.2. External Sector

Exports of goods rallied across sectors, except oil-related products.



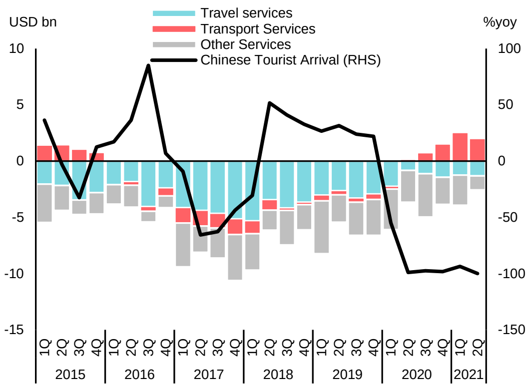
Source: Korea Customs Service; AMRO staff calculations

Imports of goods also expanded, reflecting export and production recovery.



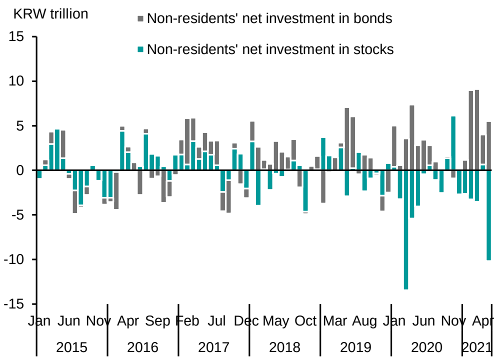
Source: Korea Customs Service; AMRO staff calculations

The services account deficit narrowed in 2020 due to rising income from transport services.



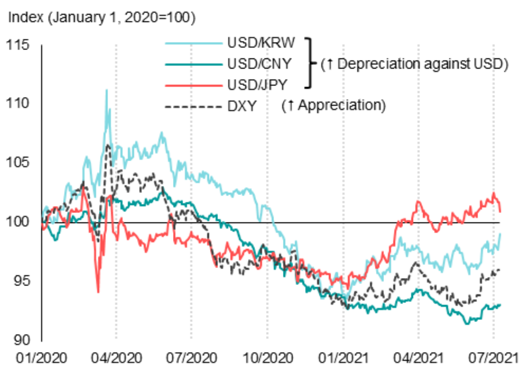
Sources: Bank of Korea; Korea National Tourism Organization

Non-residents have been selling stocks since end-2020, while increasing bond purchases.



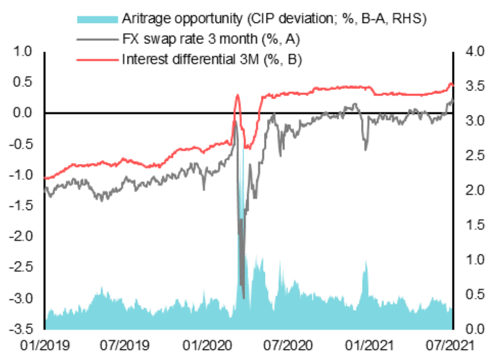
Source: Financial Supervisory Service

The Korean won depreciated in early 2021 as the US dollar strengthened.



Source: Bank of Korea; AMRO staff calculations

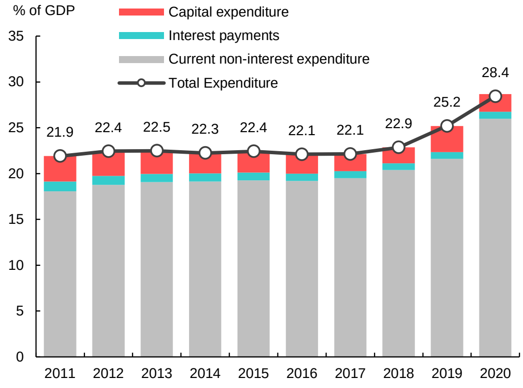
The FX swap market has stabilized after the liquidity crunch in March 2020.



Source: Bloomberg; AMRO staff calculations

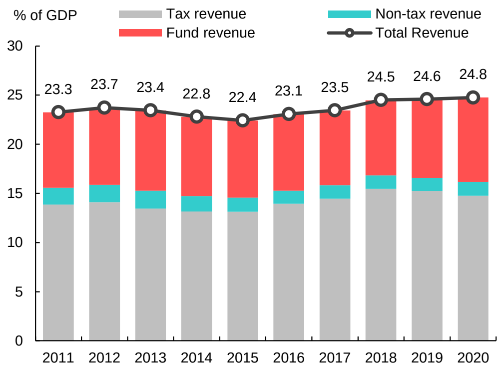
Figure 1.3. Fiscal Sector

Expenditure expanded tremendously in 2020, reflecting sizable economic stimulus measures.



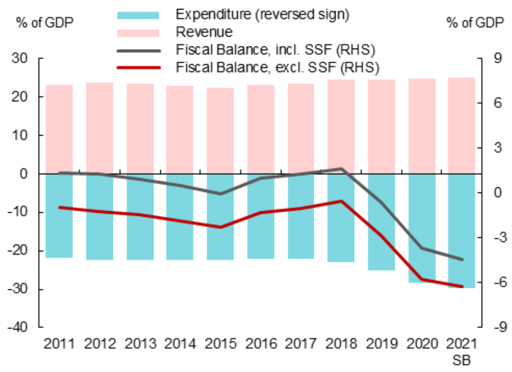
Source: Ministry of Economy and Finance; Bank of Korea; AMRO staff calculations

Government revenue dropped slightly in 2020, mainly attributable to declining CIT revenue.



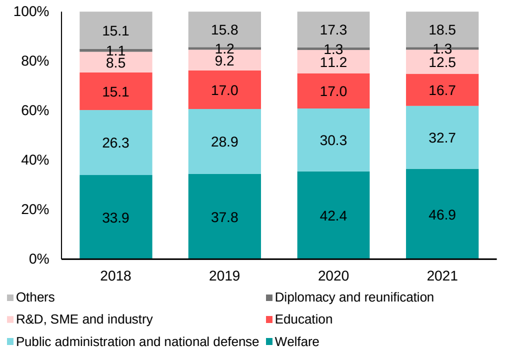
Source: Ministry of Economy and Finance; Bank of Korea; AMRO staff calculations

The government continued its expansionary fiscal stance.



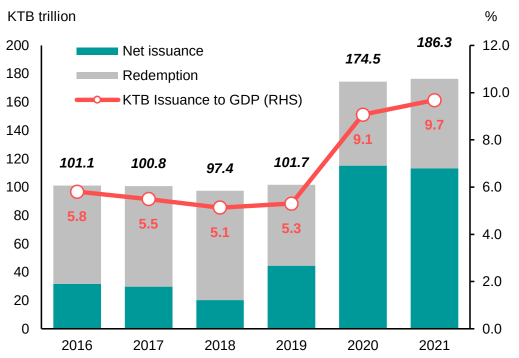
Source: Ministry of Economy and Finance; Bank of Korea; AMRO staff calculations
Note: "e" stands for estimate. "SB" stands for supplementary budget. "SSF" stands for the Social Security Fund.

The main budget aims at promoting welfare, public-sector hiring and the Korea New Deal initiative through R&D.



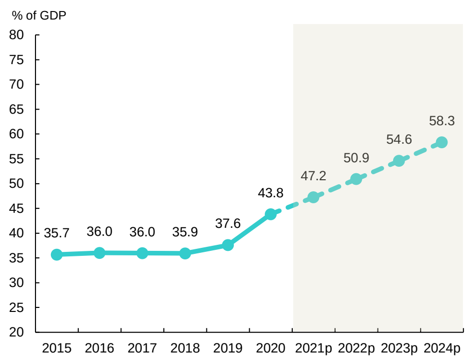
Source: Ministry of Economy and Finance; Bank of Korea; AMRO staff calculations
Note: The annual budget refers to the main budget.

The government plans to issue more KTBs to finance buoyant spending.



Source: Ministry of Economy and Finance

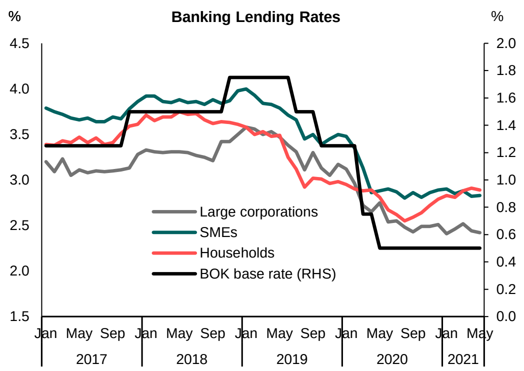
Government debt is forecast to grow rapidly, reflecting an expansionary fiscal stance in the next four years.



Source: Ministry of Economy and Finance
Note: 'p' stands for projection.

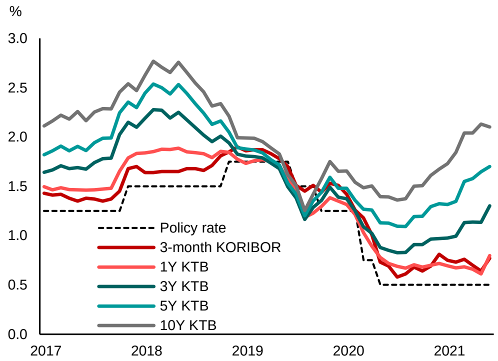
Figure 1.4. Monetary and Financial Sectors

Despite the unchanged policy rate, bank lending rates rose in response to strong loan demand …



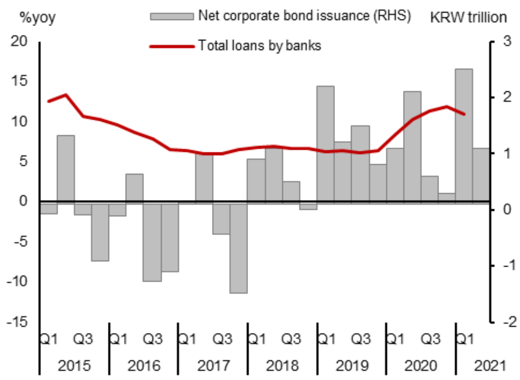
Source: Bank of Korea; Yonhapinfomax; AMRO staff calculations

…and rising bond yields in line with UST bond yields.



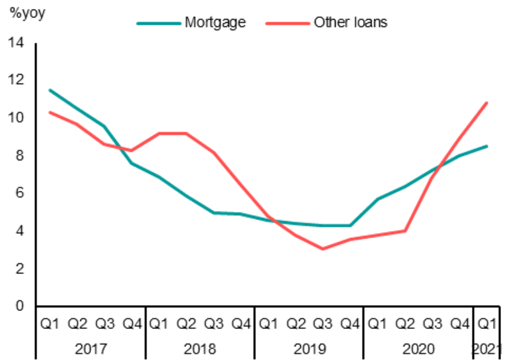
Source: Bank of Korea; AMRO staff calculations

Credit growth accelerated in 2020, boosted by strong loan demand and credit support policies.



Source: Bank of Korea; AMRO staff calculations
Note: The latest data on net corporate bond issuances is as at April-May 2021.

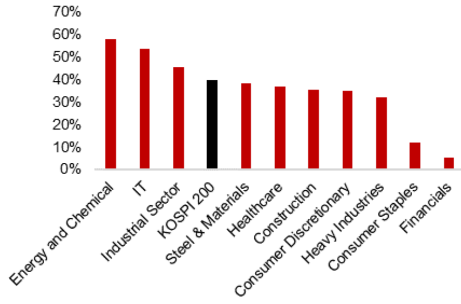
Housing demand and, presumably, stock investment drove household loan growth.



Source: Bank of Korea

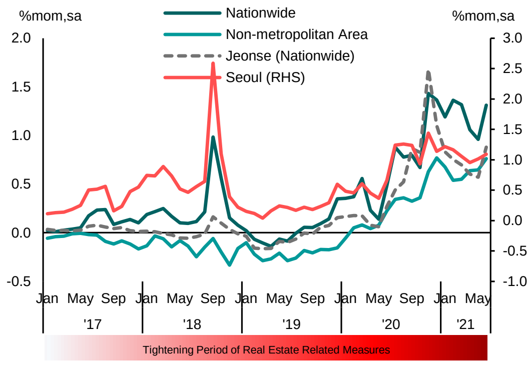
In 2020-2021, the IT sector drove the outperformance of Korea stocks.

Sectoral performance of Korean equities between July 5, 2021 and January 1, 2020



Source: Bloomberg; AMRO staff calculations
Note: The IT sector accounts for about 38 percent of KOSPI 200 and Energy and Chemical about 9 percent.

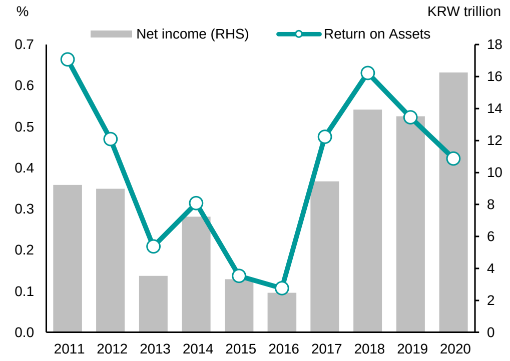
Housing price surged and spilled over from Seoul to the non-metropolitan area.



Source: Kookmin Bank; AMRO staff calculations

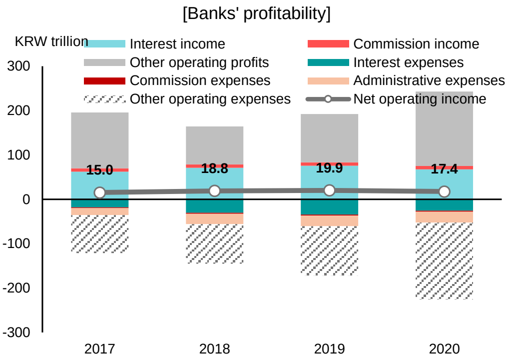
Figure 1.5. Banking Sector

Profitability of commercial and specialized banks declined amid the pandemic.



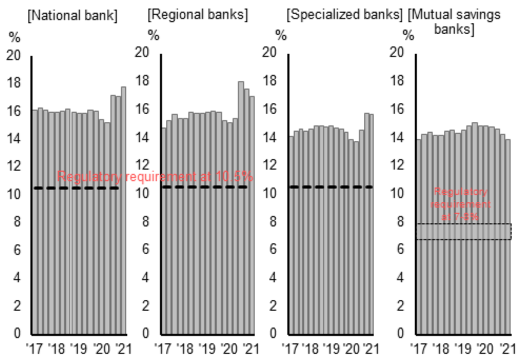
Source: Financial Supervisory Service

Net operating profits declined in 2020 on the back of softening interest income.



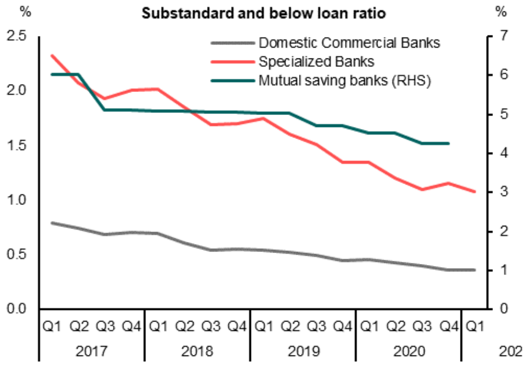
Source: Bank of Korea; AMRO staff calculations

Capital ratios of banks and mutual savings banks are well above the regulatory requirements.



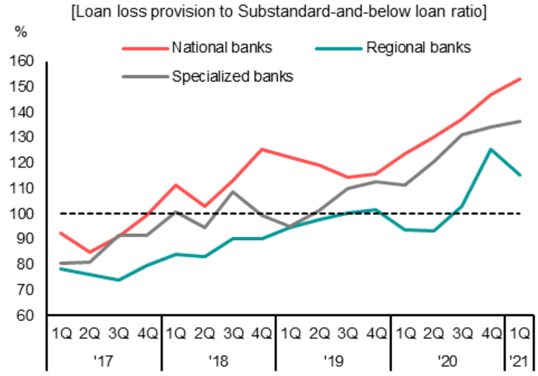
Source: Financial Supervisory Service; AMRO staff calculations

Loan impairments remained low partly due to loan deferral programs.



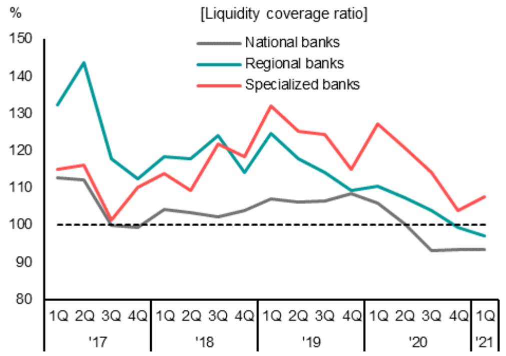
Source: Financial Supervisory Service

Korean banks set aside more loan loss provisions in 2020.



Source: Financial Supervisory Service: AMRO staff calculations

Liquidity coverage ratios of Korean banks declined in 2020 through early 2021.



Source: Financial Supervisory Service

Appendix 2. Selected Economic Indicators for Korea

	2017	2018	2019	2020	Projections 2021	Projections 2022
National income and prices	(In percent change unless specified)					
Real GDP	3.2	2.9	2.2	-0.9	3.9	3.0
Final consumption	3.1	3.7	3.2	-2.5	2.6	3.1
Private sector	2.8	3.2	2.1	-5.0	2.6	3.3
Public sector	3.9	5.3	6.4	5.0	2.8	2.7
Gross capital formation	10.9	-1.3	-1.8	1.4	3.2	3.1
Construction	7.3	-4.6	-1.7	-0.4	1.7	2.2
Facilities investment	16.5	-2.3	-6.6	7.1	5.1	3.3
Intellectual property products	6.5	4.4	3.1	4.0	3.6	1.0
Exports	2.5	4.0	0.2	-1.8	14.5	3.1
Exports of goods	4.4	3.3	-1.1	-0.5	15.4	2.9
Exports of services	-10.1	9.3	9.6	-10.6	8.3	5.0
Imports	8.9	1.7	-1.9	-3.3	13.6	3.4
Imports of goods	8.8	2.0	-2.5	-0.1	16.4	3.3
Imports of services	8.9	0.6	0.4	-15.3	1.3	3.7
Labor Market						
Unemployment rate (in percent, period average)	3.7	3.8	3.8	4.0	3.8	3.7
Employment to population ratio (in percent, period average)	60.8	60.7	60.9	60.1	…	…
Prices						
Consumer price inflation (period average)	1.9	1.5	0.4	0.5	1.9	1.9
Core inflation, excluding food and energy (period average)	1.5	1.2	0.7	0.4	1.2	1.6
External sector	(In billions of US dollars unless specified)					
Current account balance	75.2	77.5	59.7	75.3	79.9	77.8
(In percent of GDP)	4.6	4.5	3.6	4.6	4.5	4.2
Trade balance	113.6	110.1	79.8	81.9	92.0	89.6
(In percent of GDP)	7.0	6.4	4.8	5.0	5.2	4.9
Exports, f.o.b.	580.3	626.3	556.7	516.6	605.4	628.3
Imports, cif	478.5	535.2	476.9	434.7	513.4	538.7
Services, net	-36.7	-29.4	-26.8	-16.2	-12.0	-11.4
Primary income, net	5.3	4.9	12.9	12.1	3.9	5.0
Secondary income, net	-7.0	-8.2	-6.1	-2.5	-4.0	-5.4
Financial account balance	80.2	59.0	57.6	59.7	62.3	68.3
(In percent of GDP)	4.9	3.4	3.5	3.6	3.5	3.7
Direct investment (net)	16.2	26.0	25.6	23.3	30.6	33.4
Portfolio investment (net)	57.9	47.4	42.4	41.5	41.3	44.0
Other investment (net)	14.4	-13.0	-16.7	-9.2	-7.0	-6.4
Overall balance	4.4	17.5	1.5	17.4	17.7	9.5
(In percent of GDP)	0.3	1.0	0.1	1.1	1.0	0.5
Gross official reserves	389.3	403.7	408.8	443.1	464.3	473.8
(In months of imports of goods & services)	7.7	7.2	7.7	9.3	8.4	8.2
Total external debt	412.0	441.2	470.7	544.9	562.5	579.4
Short-term external debt (% of international reserves)	29.8	31.1	33.1	36.0	37.1	39.1
Central government						
Total Revenue	23.5	24.5	24.6	24.8	25.2	24.8
Total Expenditure	22.1	22.9	25.2	28.4	29.7	28.8
Overall balance including Social Security Fund	1.3	1.6	-0.6	-3.7	-4.4	-4.0
Managed balance	-1.0	-0.6	-2.8	-5.8	-6.2	-5.9
Central and local government debt	36.0	35.9	37.6	43.8	47.3	52.6
Monetary and financial sector	(In percent unless specified)					
Domestic credit (in percentage change)	4.7	6.4	6.7	9.7	…	…
(In percent of GDP)	217.8	224.1	236.4	257.2	…	…
Broad money (KRW trillion)	2,530.4	2,700.4	2,913.6	3,199.8	…	…
Substandard-and-below loan ratio (in percent) 1/	0.7	0.6	0.5	0.4	…	…
Capital adequacy ratio (in percent) 1/	15.8	15.9	16.0	17.2	…	…
Memorandum items:						
Exchange rate (KRW per US$, average)	1,130.8	1,100.3	1,165.7	1,180.1	…	…
Exchange rate (KRW per US$, end of period)	1,071.4	1,118.1	1,157.8	1,088.0	…	…
10-year government bond yield (in percent, end of period)	2.5	2.0	1.7	1.7	…	…
1-year government bond yield (in percent, end of period)	1.9	1.7	1.3	0.7	…	…
Nominal GDP (in KRW trillion)	1,835.7	1,898.2	1,924.5	1,933.2	2,039.4	2,125.5
Nominal GDP (in US$ billion)	1,626.7	1,726.0	1,651.7	1,642.0	1,782.7	1,832.3
GDP per capita (US$)	31,605.2	33,429.0	31,928.8	26,904.0	…	…

Source: Data provided the Korean authorities; Bank for International Settlements and AMRO staff estimates.
Note: 1/ Commercial banks only

Appendix 3. Balance of Payments

	2017	2018	2019	2020	Projections 2021	Projections 2022
	(in billions of U.S. dollars unless specified)					
Current account balance (I)	**75.2**	**77.5**	**59.7**	**75.3**	**79.9**	**77.8**
Trade balance	113.6	110.1	79.8	81.9	92.0	89.6
Exports, f.o.b.	580.3	626.3	556.7	516.6	605.4	628.3
Imports, f.o.b.	466.7	516.2	476.9	434.7	513.4	538.7
Services, net	-36.7	-29.4	-26.8	-16.2	-12.0	-11.4
Receipts	89.7	103.7	103.8	90.1	99.3	106.2
Payments	126.4	133.0	130.7	106.3	111.4	117.6
Primary income, net	5.3	4.9	12.9	12.1	3.9	5.0
Secondary income, net	-7.0	-8.2	-6.1	-2.5	-4.0	-5.4
Capital account (II)	**0.0**	**0.3**	**-0.2**	**-0.3**	**0.0**	**0.0**
Financial account (III) (+ indicates net outflows	**80.2**	**59.0**	**57.6**	**59.7**	**62.3**	**68.3**
Direct investment (net)	16.2	26.0	25.6	23.3	30.6	33.4
Portfolio investment (net)	57.9	47.4	42.4	41.5	41.3	44.0
Financial derivatives (net)	-8.3	-1.5	6.2	4.2	-2.7	-2.7
Other investment (net)	14.4	-13.0	-16.7	-9.2	-7.0	-6.4
Errors and omissions (IV)	**9.3**	**-1.3**	**-0.5**	**2.2**	**0.0**	**0.0**
Overall balance (=I + II - III + IV)	**4.4**	**17.5**	**1.5**	**17.4**	**17.7**	**9.5**
Reserve assets (+ indicates increases)	**4.4**	**17.5**	**1.5**	**17.4**	**17.7**	**9.5**
Memorandum items:						
Current account balance (In percent of GDP)	4.6	4.5	3.6	4.6	4.5	4.2
Gross reserves (US$ billion T10)	389.3	403.7	408.8	443.1	464.3	473.8
(In months of imports of goods and services)	7.7	7.2	7.7	9.3	8.4	8.2
Changes in gross reserves (US$ billion, T10)	18.2	14.4	5.1	34.3	21.2	9.5
GDP (US$ billion)	1,626.7	1,726.0	1,651.7	1,642.0	1,782.7	1,832.3

Source: Data provided by the Korean authorities; AMRO staff estimates

Appendix 4. Statement of Central Government Operations

	2017	2018	2019	2020
	(in trillions of Korean won unless specified)			
Total Revenue	**430.6**	**465.3**	**473.1**	**478.8**
Tax revenue	265.4	293.6	293.5	285.5
Income-based tax	134.2	155.4	155.7	148.6
Consumption-based tax	95.5	99.1	98.6	91.0
Trade tax	8.5	8.8	7.9	7.1
Other tax	27.1	30.3	31.2	38.8
Non-tax revenue	25.5	26.0	25.3	26.9
Fund revenue	139.5	145.1	154.0	166.2
Total Expenditure	**406.6**	**434.1**	**485.1**	**549.9**
Current non-interest expenditure	358.0	387.0	416.2	496.3
Interest payments	14.0	14.3	13.8	14.5
Capital expenditure	34.6	32.8	55.1	39.1
Social Security Fund (SSF) Balance	**42.5**	**41.7**	**42.4**	**40.8**
SSF Revenue	81.2	85.1	91.1	100.0
SSF Expenditure	38.7	43.4	48.7	59.1
Fiscal balance				
Fiscal Balance, incl. SSF	24.0	31.2	-12.0	-71.2
Primary Balance, incl. SSF	38.0	45.5	1.8	-56.7
Fiscal Balance, excl. SSF	-18.5	-10.6	-54.4	-112.0
Primary Balance, excl. SSF	-4.5	3.7	-40.6	-97.5
National Debt (Central and local government debt)	**660.2**	**680.5**	**723.2**	**846.9**
External debt	7.2	8.0	8.3	9.5
Domestic debt	653.0	672.5	714.9	837.3
	(in percentage of nominal GDP unless specified)			
Total Revenue	**23.5**	**24.5**	**24.6**	**24.8**
Tax revenue	14.5	15.5	15.2	14.8
Non-tax revenue	1.4	1.4	1.3	1.4
Fund revenue	7.6	7.6	8.0	8.6
Total Expenditure	**22.1**	**22.9**	**25.2**	**28.4**
Current non-interest expenditure	19.5	20.4	21.6	25.7
Interest payments	0.8	0.8	0.7	0.7
Capital expenditure	1.9	1.7	2.9	2.0
Social Security Fund (SSF) Balance	2.3	2.2	2.2	2.1
Fiscal balance				
Fiscal Balance, incl. SSF	1.3	1.6	-0.6	-3.7
Primary Balance, incl. SSF	2.1	2.4	0.1	-2.9
Fiscal Balance, excl. SSF	-1.0	-0.6	-2.8	-5.8
Primary Balance, excl. SSF	-0.2	0.2	-2.1	-5.0
National Debt	**36.0**	**35.9**	**37.6**	**43.8**

Source: Data provided by the Korean authorities; AMRO staff estimates

Appendix 5. Data Adequacy for Surveillance Purposes: a Preliminary Assessment

Criteria/ Key Indicators for Surveillance	Data Availability(i)	Reporting Frequency/ Timeliness(ii)	Data Quality(iii)	Consistency(iv)	Others, if any(v)
National Account	Yearly data for the income approach, and quarterly data for the expenditure and production approach are available.	Quarterly data are released within one month after the reference quarter ends.	-	-	-
Balance of Payments (BOP) and External Position	Monthly BOP data are available in detail.	Monthly BOP data are released about one month after the reference period ends, while quarterly IIP data are released within two months after the reference period ends.	-	-	-
Central Government Budget/External Debt	Monthly data of central government public finance are available, while quarterly external debt data are available in detail.	Monthly data of central government public finance are released within four months after the reference period ends, while quarterly data on external debt are released within two months after the reference period ends.	-	-	-
Inflation, Money Supply and Credit Growth	Data on monthly inflation, money supply and credit growth are available.	Monthly inflation data are released within one month after the reference period, while data on money supply and credit growth are released within two months of the end of the reference period.	-	-	-
Financial Sector Soundness Indicators	Available	Monthly data are released within one to two months after the reference period ends, while quarterly data are available three months after the reference period ends.	-	-	-
Housing Market Indicators	Available	Monthly data are released within one month after the reference period ends.	-	-	-

Notes:
(i) Data availability refers to whether official data are available for public access by any means.
(ii) Reporting frequency refers to the time interval with which available data are published. 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 methodologies.
(iv) Consistency refers to both internal consistency within the data series itself and its horizontal consistency with other data series of either the same or different categories.
(v) Other criteria might also apply, if relevant. Examples include but are not limited to potential areas of improvement for data adequacy.

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

Appendix 6. Key Measures to Contain Surge in Housing Prices

Year	Date of Announcement	Summary of Key Policy Actions	Demand-side measures	Supply-side measures
2014	Feb 27	- Increased annual targets for the proportion of fixed-interest-rate mortgages and amortizing mortgages of banks	✓	
		- Eased debt repayment burden for low-income borrowers by switching to lower-interest loans and debt restructuring	✓	
2015	Mar	- Introduced Guideline for LTV Ratio imposed on NBFIs	✓	
	Jul 22	- Tightened regulations on non-residential mortgages with NBFIs by reducing maximum LTV ratio from 60 to 50 percent and strengthening evaluation of collateral value	✓	
		- Incentivized NBFIs to increase proportion of amortized mortgages	✓	
		- Further increased annual targets for the proportion of fixed-interest-rate mortgages and amortizing mortgages of banks	✓	
		- Strengthened banks' screening of loan applications by focusing on applicant's actual income and repayment ability in all debts, including mortgage loans, rather than on collateral value	✓	
		- Included loans to households as a risk factor of Domestic Systemically Important Banks so as to maintain countercyclical capital buffer and additional capital under Pillar 2	✓	
	Dec 14	- Introduced the Guideline on Mortgage Loan Screening of Banks (1) Included (i) proof of income reference, (ii) encouragement of fully amortized loans and (iii) use of stress interest rate to assess borrower's repayment ability and come up with a loan size that is affordable (2) Introduced Debt Service Ratio (DSR) = (Principal and interest on mortgage + Principal and interest payments on other debts) / Annual income Exemptions: Collective loans (group lending for apartment buyers), loans less than KRW30 million, and loans for necessities such as health care and education - Applied the guideline to Seoul - Applied the guideline to other provinces	✓	
2016	Aug 25	- Tightened monitoring and management of collective lending by requiring banks to secure borrower's income data and make on-site inspections at construction projects - Tightened LTV ratio for commercial-property mortgages with NBFIs	✓	
	Nov 24	- Introduced the Guideline on Loan Screening of Collective Loans and Mutual Finance Loans - Applied the guideline to collective loans - Applied the guideline to mutual finance institutions	✓	
		- Applied the DSR as reference for assessing loan applications and borrower's repayment ability	✓	
2017	Jun 19	- Tightened LTV Before: 70 percent nationwide Amended: 60 percent in selected areas ("bubble-prone areas") in Seoul (all 25 districts), Gyeonggi (7 cities including Gwacheon), Busan (7 cities) and Sejong 70 percent in other areas - Tightened DTI Before: 60 percent in Seoul and only for apartment mortgages excluding collective loans Amended: 60 percent in Seoul including collective loans 50 percent in selected areas in Seoul (all 25 districts), Gyeonggi (7 cities including Gwacheon), Busan (7 cities) and Sejong	✓	

Year	Date of Announcement	Summary of Key Policy Actions	Demand-side measures	Supply-side measures
	Aug 2	- Further tightened LTV from the measures announced on Jun 19 Amended: 50 percent for multiple mortgage borrowers and 60 percent for single mortgage borrowers in non-speculative areas in Seoul (all 25 districts), Gyeonggi (7 cities including Gwacheon), Busan (7 cities) and Sejong 30 percent for multiple mortgage borrowers, 40 percent for single mortgage borrowers, and 50 percent for first-home buyers, low-income households and low-priced housing in overheated speculative zones in Seoul, Gwacheon and Sejong 70 percent in other areas - Further tightened DTI from the measures announced on Jun 19 Amended: 60 percent for collective loans 40 percent for multiple mortgage borrowers and 50 percent for single mortgage borrowers in non-speculative selected areas in Seoul (all 25 districts), Gyeonggi (7 cities including Gwacheon), Busan (7 cities) and Sejong 30 percent for multiple mortgage borrowers, 40 percent for single mortgage borrowers, and 50 percent for first-home buyers, low-income households and low-priced housing in selected overheated speculative zones in Seoul (all 25 districts), Gyeonggi (7 cities including Gwacheon), Busan (7 cities) and Sejong	✓	
	Oct 24	- Adjusted formula of DTI ratio Regular DTI ratio: (Principal and interest repayment on new mortgage + Interest payment on existing mortgages) / Annual Income New DTI ratio for borrower with multiple mortgages: (Principal and interest repayment on new mortgage + Principal and interest payment on existing mortgages) / Annual Income Exemptions: Borrowers who are temporarily servicing two mortgages on a new home, newly married couples, and young employees who have not owned any property - Applied DSR to evaluate borrower's debt repayment ability: Debt Service Ratio (DSR) = (Principal and interest payments on all outstanding debts) / Annual income Note: The DSR varies across groups. The association of each group of financial institutions were tasked with issuing the guideline containing the recommended DSR ratio that would be applied to their own members. - Applied to banks - Applied to NBFIs	✓	
		- Tightened conditions for collective loans - Strengthened risk management of loans for self-employed business owners	✓	
2018	Feb	- Tightened regulations on reconstruction of apartments		✓
	Apr 1	- Raised capital gains tax for residential property Additional 10 percent on top of current 6-40 percent capital gains tax for 2-home owners in designated areas Additional 20 percent on top of current 6-40 percent capital gains tax for owners with more than 2 homes in designated areas	✓	
	Jul 7	- Announced the Comprehensive Real Estate Tax Reform		✓
	Sep 13	- Tightened loan conditions for owners of multiple homes 1) Blocked owners with more than 2 houses from taking out mortgages for additional housing purchase if the new house is in a speculative area 2) Tightened mortgage conditions for high-end houses 3) Lowered LTV and DTI ratios for owners of multiple homes	✓	
		- Raised property tax rates by 0.1-1.2 percentage points for owners of multiple homes (more than 2 houses in adjustment-required areas and more than 3 houses elsewhere) - Raised property tax by 0.2-0.7 percentage points on houses valued over KRW300 million - Raised ceiling of annual property ownership tax from 150 percent to 300 percent for owners of multiple homes	✓	
		- Increased housing supply in metropolitan areas		✓
	Sep 21	- Announced 1st metropolitan area housing supply plan 1) Announced plan to supply 300,000 houses to metropolitan area over next five years 2) Planned to expand supply of urban housing through small maintenance projects such as street houses		✓

<table>
<tr><th>Year</th><th>Date of Announcement</th><th>Summary of Key Policy Actions</th><th>Demand-side measures</th><th>Supply-side measures</th></tr>
<tr><td></td><td>Dec 19</td><td>- Announced 2nd metropolitan area housing supply plan
1) Announced second supply plan with 155,000 apartments
2) Announced wide-area transport network plan called "Commuting to Seoul within 30 minutes" following explosive population growth</td><td></td><td>✓</td></tr>
<tr><td>2019</td><td>Jan 8</td><td>- Established rental housing management system and proposed mandatory conditions for landlords in accordance with tax reduction benefits</td><td>✓</td><td></td></tr>
<tr><td></td><td>Apr 24</td><td>- Announced Comprehensive plan for residential stability
1) Introduced financial support plan for real estate to reinforce residential stability with support for public leases (176,000 households), housing benefits (1.1 million households), and Jeonse/monthly rentals (260,000 households)</td><td>✓</td><td></td></tr>
<tr><td></td><td></td><td>2) Imposed stricter regulatory measures on housing reconstruction projects: increased imposition rate in mandatory rental housing portion, business restrictions on maintenance companies by reconstruction promotion committee, and verification of construction costs</td><td></td><td>✓</td></tr>
<tr><td></td><td>May 7</td><td>- Announced 3rd metropolitan area housing supply plan
1) Announced third supply plan with 110,000 apartments
2) Announced creating two additional “new towns” near Seoul</td><td></td><td>✓</td></tr>
<tr><td></td><td>Aug 12</td><td>- Implemented upper limit on pre-sale prices of private residential land in overheating zones. Extended period for resale of houses under the price cap from 3-4 years to 5-10 years</td><td>✓</td><td></td></tr>
<tr><td></td><td>Oct 1</td><td>- Tightened loan conditions
1) Established and reinforced LTV regulations for private businesses and corporations in speculative zones and overheated zones
2) Restricted public guarantees if home owner has an expensive house</td><td>✓</td><td></td></tr>
<tr><td></td><td>Nov 6</td><td>- Announced applying price cap system to four affluent Gangnam areas in southern Seoul and four districts in northern Seoul</td><td>✓</td><td></td></tr>
<tr><td></td><td>Dec 16</td><td>- Tightened loan conditions and raised taxes.
1) Announced raising property taxes on owners of multiple homes
2) Banned mortgage lending on properties worth over KRW1.5 billion
3) Eased requirement for LTV ratio from 40 percent to 20 percent for properties valued at KRW900 million to KRW1.5 billion</td><td>✓</td><td></td></tr>
<tr><td>2020</td><td>Feb 20</td><td>- Tightened LTV regulations in parts of Gyeonggi-do area (3 counties in Suwon and 2 in Anyang)
Before: 60 percent
Amended: 50 percent for the part of housing price that is less than KRW900 million, 30 percent for the part in excess of KRW900 million</td><td>✓</td><td></td></tr>
<tr><td></td><td>May 6</td><td>- Announced building 8,000-apartment complex in Seoul to help stabilize housing market. Half of the 8,000 apartments will be offered as public rental homes, with the remainder put up for sale in the market. The plan was for this project to get approval by end-2023 (the project is part of the government's broader home supply programs announced in September 2018)</td><td></td><td>✓</td></tr>
<tr><td></td><td>Jun 17</td><td>- Expanded regulated areas, tightened mortgage restrictions and raised tax rate
1) Designated Gyeonggi-do, Incheon, west of Seoul and the central cities of Daejeon and Cheongju as areas subject to close monitoring or "overheated speculative" zones, subject to loan regulations and higher taxes.
2) Required people who take out mortgage loans to buy houses in regulated areas to move into the homes within six months of receiving the loans, in order to discourage so-called gap investments, in which investors would purchase a property while inheriting the Jeonse contract of the tenant living in the apartment. Previously, the grace period was one year in overheated and speculative areas, and two years for less restricted areas. The requirement applied only to apartments valued at more than KRW900 million.
3) Tightened LTV and DTI regulations for different areas.
<table>
<tr><th></th><th colspan="3">LTV (Calculate in segments)</th><th>DTI</th></tr>
<tr><th></th><th>< KRW900 million</th><th>KRW900-1,500 million</th><th>> KRW1,500 million</th><th></th></tr>
<tr><td>For residents buying houses in overheated speculative zones</td><td>40%</td><td>20%</td><td>0%</td><td>40%</td></tr>
<tr><td>For residents buying houses in adjustment-required zones</td><td>50%</td><td>30%</td><td>30%</td><td>50%</td></tr>
</table></td><td>✓</td><td></td></tr>
</table>

<table>
<tr><th>Year</th><th>Date of Announcement</th><th>Summary of Key Policy Actions</th><th>Demand-side measures</th><th>Supply-side measures</th></tr>
<tr><td></td><td></td><td>4) Announced tax measures and loan regulations, targeting individuals who had set up corporate entities to evade taxes when buying multiple homes.

Property owned by corporations would be subject to the maximum tax rate of 3-4 percent from June 2021.
Corporate-owned properties would no longer be granted tax deductions of KRW600 million.
Capital gains tax on property sales bumped up for corporations from January 2021. Before the change, entities were taxed a base rate of 10 to 25 percent on gains made from selling a property, and an additional 10 percent when closing the sale. Under the new measure, the 10 percent additional tax is increased to 20 percent. This also applied to homeowners of eight years or longer, who were previously exempt from the 10 percent tax.

Corporations would be taxed on rental housing acquired in special designated zones.</td><td></td><td></td></tr>
<tr><td></td><td>July 10</td><td>- Raised tax rate for owners of multiple homes. Loosened loan regulations for first-home buyers and tenants.
1) People who own three or more homes, and those who own two or more homes in adjustment-required zones, would see their comprehensive real estate tax rate climb from 0.6-3.2 percent to 1.2-6 percent.
2) Acquisition tax for owners of multiple homes or those registered as housing rental companies would be raised to up to 12 percent.
<table>
<tr><th></th><th>Before</th><th>After</th></tr>
<tr><td>Individuals who own 2 houses</td><td>1-3%</td><td>8%</td></tr>
<tr><td>Individuals who own 3 houses</td><td>1-3%</td><td>12%</td></tr>
<tr><td>Individuals who own 4 or more houses</td><td>4%</td><td>12%</td></tr>
<tr><td>Rental companies</td><td>1-3%</td><td>12%</td></tr>
</table>
At the same time, the government would fully exempt first-time home buyers who purchase apartments under KRW150 million from the acquisition tax, and charge first-time home buyers who purchase apartments between KRW150-300 million only half of the acquisition tax.
3) Capital gains tax would be raised according to different conditions.
<table>
<tr><th></th><th>Before</th><th>After</th></tr>
<tr><td>Individuals who own 2 houses</td><td>10%</td><td>20%</td></tr>
<tr><td>Individuals who own 3 or more houses</td><td>20%</td><td>30%</td></tr>
<tr><td>Multiple homeowners selling an apartment within a year</td><td>40%</td><td>70%</td></tr>
<tr><td>Multiple homeowners selling an apartment within two years</td><td>40%</td><td>60%</td></tr>
</table>
4) Tax benefits would end for people running rental home businesses.
5) Loan regulations were loosened for low-income groups and first-time home buyers. (The LTV and DTI ratios would be raised by 10 percentage points for couples whose combined annual incomes are under KRW80 million, up from KRW60-70 million. For first-time home buyers, that income ceiling would be KRW90 million, up from KRW70-80 million. One condition is that the apartment has to be valued at less than KRW500 million.)
6) Jeonse loans for people under 34 years old would be subject to lower interest rates from the public housing fund, from 1.8-2.4 percent to 1.5-2.4 percent.</td><td>✓</td><td></td></tr>
<tr><td></td><td>Jul 30</td><td>- Enhanced the right of tenants in Jeonse market
1) Tenants would have the right in most cases to extend their two-year Jeonse contract for another two years.
2) The increase in Jeonse deposits is capped at 5 percent when the contract is renewed.</td><td>✓</td><td></td></tr>
<tr><td></td><td>Aug 4</td><td>- Reduced redevelopment regulations and increased public land
1) The government announced relaxing land planning regulations in Seoul, allowing a maximum floor area ratio for redevelopment to reach 500 percent and buildings as tall as 50 floors, compared with the previous floor area ratio of 250 percent and the maximum height of 35 floors.
2) The government planned 33,000 apartments on state land in northern Seoul.
3) The measures were estimated to yield 132,000 more apartments, 110,000 in Seoul alone.</td><td></td><td>✓</td></tr>
<tr><td></td><td>Nov 19</td><td>- Increased supply
1) The government would add 114,000 homes for public rental housing by the end of 2022 by buying empty hotels and offices and converting them into residential studios for citizens in the mid- to low-income bracket. About a third of the housing will be supplied in Seoul.
2) The government would supply 63,000 "quality rental houses" for thee- and four-person households.</td><td></td><td>✓</td></tr>
</table>

Year	Date of Announcement	Summary of Key Policy Actions	Demand-side measures	Supply-side measures
2021	Feb 4	- Announced Massive home supply plan 1) The government would ease building regulations and support redevelopment projects in urban areas to increase the number of new houses up to 836,000 nationwide. (The supply plan, the largest under the Moon Jae-in administration, included 323,000 new houses in Seoul and 293,000 in the surrounding Gyeonggi Province. The government also set out plans to add over 220,000 new houses in major cities, including Busan, Daegu and Daejeon, which saw hikes in property prices.)		✓
	Mar 29	- Announced countermeasures to sustain real estate corruption and speculation. 1) All public officials' assets should be registered. 2) The transfer income tax rate would be increased from 50 percent to 70 percent for land owned for less than one year, and from 40 percent to 60 percent for land owned for less than two years. In the case of land for non-business purposes, the extra transfer tax rate from 10 percent to 20 percent, while special deductions for long-term ownership (up to 30 percent) would be eliminated. 3) The FSC would operate a special financial response team related to real estate loans to closely check illegal loans and suspicious financial transactions.	✓	

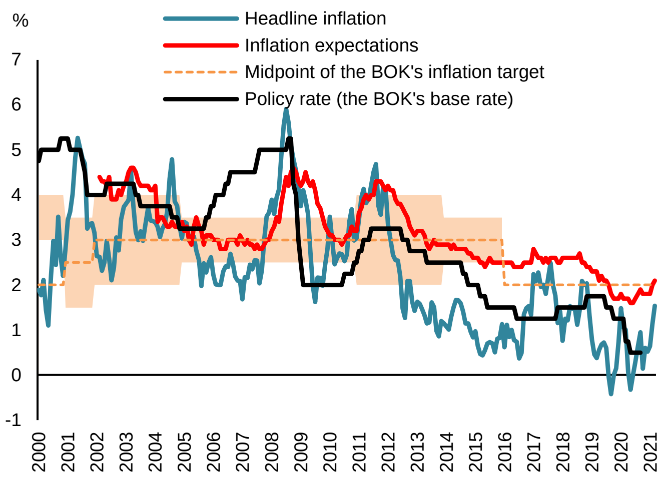
Source: Ministry of Economy and Finance; Financial Services Commission; Ministry of Land, Infrastructure and Transport and other sources, prepared by AMRO.

Annexes: Selected Issues

1. Inflation Dynamics in Korea after the Global Financial Crisis[16]

Korea has been experiencing low inflation after the global financial crisis (GFC), similar to many other countries. The Bank of Korea (BOK) has maintained accommodative monetary policy since 2012, but consumer price inflation has remained below the inflation target (Figure A1.1). Persistently low inflation after the GFC suggests that inflation dynamics might have undergone structural changes since 2012. Moreover, the welfare policy of the Korean government has dampened inflation further in recent years. This selected issue explores the key determinants of Korea's inflation dynamics and whether structural changes have affected inflation dynamics in recent years. It also tests whether the welfare policy contributed to the further slowdown of inflation.

Figure A1.1 Consumer Price Inflation and the Policy Rate



Source: Bank of Korea; Statistics Korea; and AMRO's staff calculations
Note: The Bank of Korea changed the inflation target from a target range to only a target point in 2016.

Korea's Inflation Performance and Hypothesis of Inflation Drivers

1. **Historical data show that inflation in Korea has undergone structural changes since 2012.** Consumer price inflation started trending downward in 2012, despite accommodative monetary policy. Average headline inflation declined from around 3.1 percent between October 1998[17] and December 2011 to 1.3 percent from January 2012 to December 2019. In terms of components, average core inflation[18] fell from 2.5 percent to 1.6 percent between the same two periods. Food inflation softened on average from 2012, albeit with the occasional spike in fresh food prices due to severe weather. Oil inflation also weakened from 2012, although geopolitical risks in major oil exporting countries sometimes drove up global energy prices. The other structural change is in the dispersion of inflation. Both consumer price inflation and core inflation posted smaller variations during 2012-2019 compared with 1998-2011. The standard deviation of consumer price inflation declined from 1.18 during 1998-2011 to 0.68 during 2012-2019, while that of core inflation went from 1.03 to 0.51.

[16] Prepared by Wanwisa May Vorranikulkij. This selected issue is a part of the upcoming working paper on Inflation Dynamics in Korea.
[17] The BOK adopted an inflation targeting regime as the monetary policy framework in September 1998.
[18] Core inflation is the price inflation of consumer goods excluding food and oil products.

2. **This study aims to analyze the impacts of domestic demand and global inflation on domestic inflation before and after the GFC, and whether welfare policies have underpinned the further lowering of inflation in recent years.**

- *Weaker domestic demand* may lower inflation pressure. The scatter plots of headline inflation and output gap suggest that the Phillips curve is valid both before and after 2012, and a simple regression between both indicators signals that the slope might be steeper after 2012 (Figure A1.2.A). After 2012, the dispersion of output gap and consumer price inflation narrowed, meaning that the magnitude of the business cycle became smaller. Consumer price inflation has also been persistently low in the post-2012 period (Figure A1.2.B). Therefore, low inflation in this period could be led by lessening demand pressure.

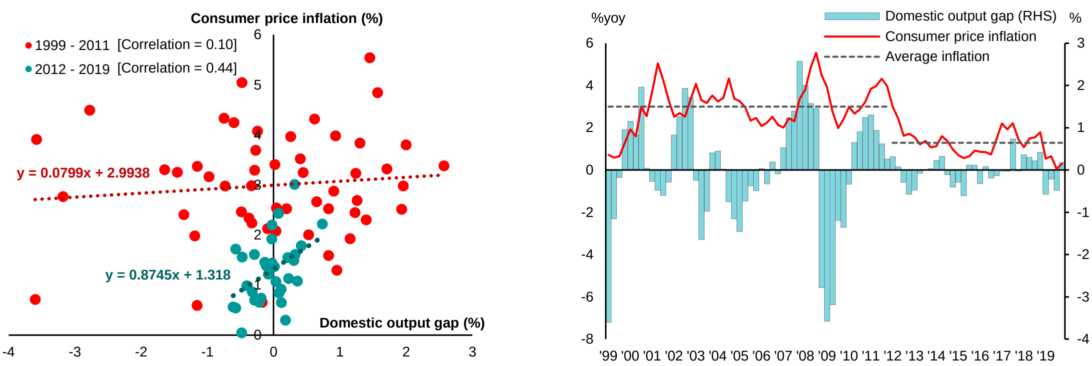
- *Low global inflation*, which has been persistent since the GFC, will most likely become more influential in the inflation dynamics of Korea, as the country has integrated into global value chains (Figure A1.3). Relocation of production facilities to countries with competitive labor costs lowers the prices of products sold in the domestic market, which could put downward pressure on Korea's inflation. According to a study by Bems et al in 2018, greater integration into global value chains, particularly combined with a relocation of production facilities overseas, makes domestic consumer prices more sensitive to external conditions.

- *Lower administrative prices* may impose a dampening pressure on consumer price inflation. The government has rolled out many welfare policies, such as education subsidies, to lower the cost of living for households (Figure A1.4).

- *Structural changes* in Korea's economy may influence determinants of inflation, which could lead to a downward trend in consumer price inflation from 2012. Examples of these changes are the expansion of e-commerce and changes in Korea firms' price setting behavior.

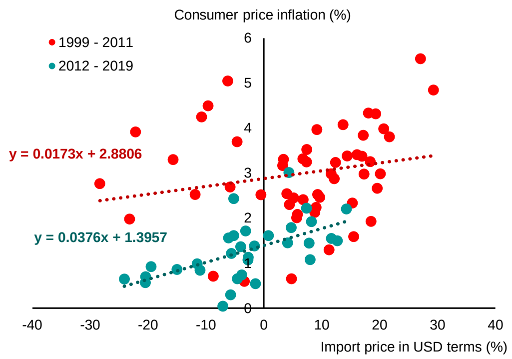
Figure A1.2 Headline Inflation and Output Gap

A. Scatter Plot B. Time Series



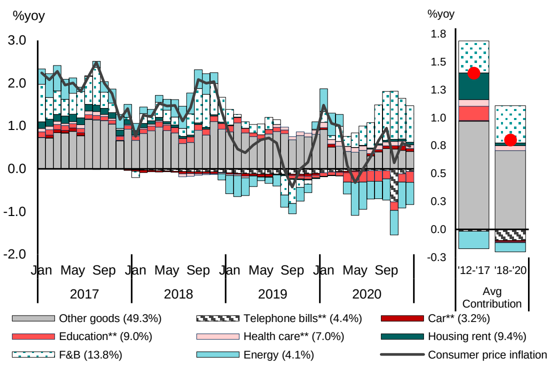
Source: Bank of Korea; Statistics Korea; and AMRO's staff calculations

Figure A1.3 Global Inflation and Korea's Inflation



Source: Statistics Korea; and International Monetary Fund

Figure A1.4 Contribution of Administrative Prices



Source: Statistics Korea; and AMRO staff calculations
Note: ** shows administrative prices.

Determinants of Korea's Inflation Dynamics: An Empirical Test

3. **The augmented Phillips curve is estimated to analyze the key drivers of headline inflation in Korea.** We follow the methodology suggested by Borio and Filardo (2007) and Kamber et al. (2020), which investigated global factors by including a global output gap in the Phillips curve. However, in this study, we tweak the Borio and Filardo model by replacing the global output gap with an import price index to estimate the direct impacts of global inflation on Korea's domestic inflation (Model 1). To gauge the effects of the Korean government's welfare policies, a dummy for the expansion of welfare policies from Q1 2018 under the current administration, is included in Model 2. Moreover, following the model suggested by Chang et al. (2016), a dummy for structural break starting from 2012 is also included in Model 2. The dummy on structural changes will test whether the Phillips curve shifted downward after 2012. Finally, to test the impact of structural change in a more holistic manner, Model 3 is constructed to assess the impacts of structural changes not only on the constant term but also on the coefficient of the independent variables.

$$\pi_t = \beta_0 + \beta_1 \pi_t^e + \beta_2 \tilde{y}_t + \beta_3 \Delta_4 p_t^{import} + \beta_4 \Delta_4 FX_t + \varepsilon_t \qquad (1)$$

$$\pi_t = \beta_0 + \beta_1 \pi_t^e + \beta_2 \tilde{y}_t + \beta_3 \Delta_4 p_t^{import} + \beta_4 \Delta_4 FX_t + \alpha_1 D_{welfare} + \alpha_2 D_{structure} + \varepsilon_t \qquad (2)$$

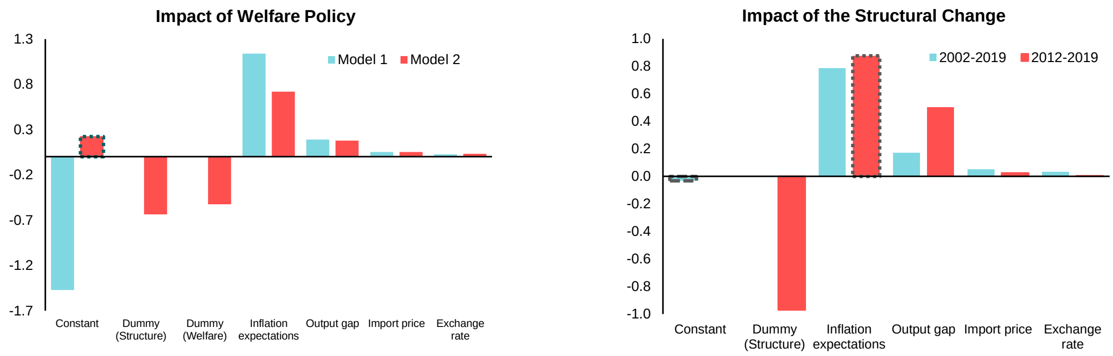
$$\pi_t = \beta_0 + \beta_1 \pi_t^e + \beta_2 \tilde{y}_t + \beta_3 \Delta_4 p_t^{import} + \beta_4 \Delta_4 FX_t + \alpha_2 D_{structure} + \alpha_3 \pi_t^e \cdot D_{structure} + \alpha_4 \tilde{y}_t \cdot D_{structure} + \alpha_5 \Delta_4 p_t^{import} \cdot D_{structure} + \alpha_6 \Delta_4 FX_t \cdot D_{structure} + \varepsilon_t \qquad (3)$$

where π_t is the inflation rate at time t; π^e represents inflation expectations; $\tilde{y}_t$ is the domestic output gap; $\Delta_4 p_t^{import}$ is an annual inflation of imported input prices; $\Delta_4 FX_t$ is an annual change in the exchange rate; $D_{welfare}$ is a dummy for welfare policies implemented by the current administration; $D_{structure}$ is a dummy for structural factors; and ε is a random error.

Empirical Results[19]

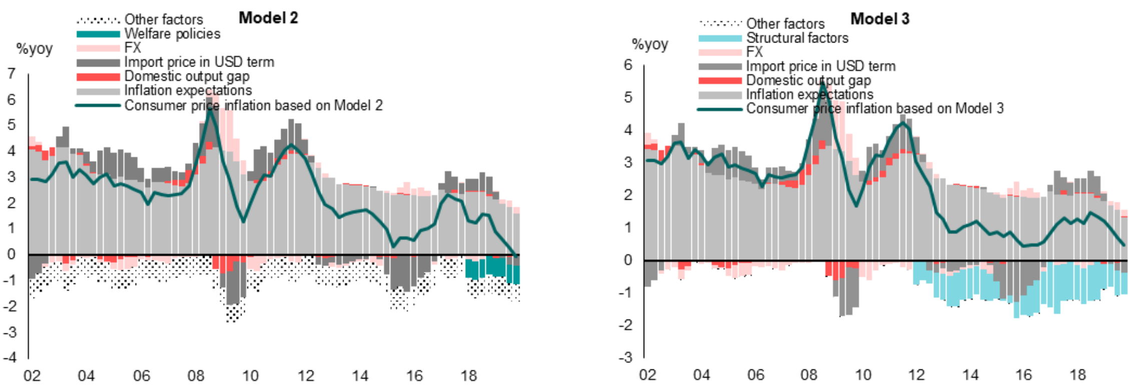
4. **The regression results show that the softening of inflation pressure in recent years is primarily due to subdued inflation expectations, weaker domestic demand and global factors.** The result of Model 1 indicates that inflation expectations, domestic output gap and global inflation (as reflected in changes of the import price index as a proxy) have significant impacts on headline inflation of the whole sample period. Meanwhile, Model 2 shows that the current administration's welfare policies have weighed down on inflation by about 0.5 percentage point since mid-2018 (Figures A1.5, A1.6 and Annex Table).

Figure A1.5 Coefficient Estimations



Source: AMRO staff estimation
Note: A dashed border indicates that a coefficient is not statistically significant at a 10-percent level of significance.

Figure A1.6 Drivers of Korea's Consumer Price Inflation



Source: AMRO staff estimation

5. **Structural changes in the economy have weighed on headline inflation since 2012.** To gauge the impacts of structural factors, we introduce an independent dummy for the structural factors and its interaction terms with other economic variables. The result of Model 3 indicates that the structural factors have since 2012 significantly reduced consumer price inflation, as represented by the shift in the intercept. The structural factors have also influenced the inflation, mainly through the coefficients of the output gap, import price and exchange rate in the post-2012 period. In particular, the coefficient of the output gap is higher during 2012 to

[19] The study focuses on the period after the BOK adopted the inflation targeting regime. Inflation targeting has been Korea's monetary policy framework since September 1998; however, our sample period starts from Q2 2002 due to data availability. The sample period ends in Q4 2019, before the outbreak of the COVID-19 pandemic. In terms of data, consumer price inflation is calculated from the consumer price index published monthly by Statistics Korea. Inflation expectations are drawn from a survey by the BOK. To get the output gap, a long-term trend of real GDP is calculated by applying the Hodrick-Prescott (HP) filter (λ=1,600) to seasonally adjusted real GDP. The average price of import products is taken from the BOK's import price index in U.S. dollar terms. The exchange rate is that of the Korean won against the U.S. dollar.

2019 compared with the period from 2002 to 2019. This result is consistent with the scattered graph in Figure A1.2 A, which shows that the Phillips curve is steeper after 2012. Meanwhile, the coefficients of the import price and exchange rate are slightly lower during 2012 to 2019, which implies the pass-through effects of low global inflation and exchange rate to domestic inflation have diminished after 2012 (Figures A1.5, A1.6 and Annex Table).

Conclusion and Policy Implications

6. **The results of this study suggest inflation in Korea has undergone structural changes since 2012, but inflation expectations and domestic demand continues to be the main factors explaining consumer price inflation**. In tandem, household support policies, rolled out by the Korean government and leading to price reduction of the subsidised products, have also reduced inflation pressure since 2018. The policies were aimed to lower households' cost of living and increase domestic demand. Our empirical results show the policies have lowered consumer price inflation further since 2018, which implies that the impact of policies increasing inflation pressure via boosting household demand was less. Meanwhile, structural changes in the Korean economy over the past 10 years have affected inflation dynamics significantly. The empirical results indicate that the impact of structural changes on inflation dynamics is effected primarily through shifting the Philipps curve down, while the sensitivity of inflation to shifts in domestic demand has increased (as reflected by increasing coefficient of output gap from 2012). This paper does not identify what types of structural changes are affecting Korea's inflation, thus further study may be needed in this area, including the impact of growing e-commerce and changes in Korean firms' price-setting behaviors. Moreover, the studies about the impacts of global inflation need to be revisited, as this selected issue indicates a diminishing influence of global inflation, albeit marginally, on Korea's inflation, which does not align with the greater integration of Korea into global trade and global supply chains in the past decade. One way is to introduce a smooth transition technique into the methodology, rather than a dummy variable which represents a discrete transition.

7. **Given the pivotal role of the output gap in driving consumer price inflation in Korea, monetary policy can still affect inflation.** In principle, accommodative monetary policy would stimulate aggregate domestic demand, increase the output gap and thus raise consumer price inflation. Besides, according to this study, global disinflation, policy-induced price reductions of some goods, and structural changes in the Korean economy also influence inflation in Korea. That said, since 2012, headline inflation has fluctuated within a narrow range and stayed persistently low over an extended period. While further study may be needed to identify why headline inflation has stabilized at a lower level and the implications for the economy, this development has been beneficial to the authorities in the sense that they can prioritize other policy agendas such as economic growth and financial stability.

Annex Table: Coefficient Estimations

Variable	Consumer Price Inflation		
	Whole Sample (1)	**Impact of Welfare Policies (2)**	**Impact of Structural Changes (3)**
Constant term (β_0)	-1.471***	0.221	-0.033
	(0.368)	(0.393)	(0.487)
Inflation expectations for the next one year (β_1)	1.140***	0.719***	0.787***
	(0.116)	(0.097)	(0.120)
Domestic output gap (β_2)	0.190**	0.178***	0.171**
	(0.092)	(0.060)	(0.068)
Lagged import price in USD terms (β_3)	0.052***	0.051***	0.052***
	(0.007)	(0.005)	(0.007)
Lagged USD/KRW (β_4)	0.027***	0.032***	0.032***
	(0.007)	(0.005)	(0.006)
$D_{Welfare}$ (α_1)		-0.526***	
		(0.151)	
$D_{Structure}$ (α_2)		-0.637***	-0.971*
		(0.122)	(0.566)
$D_{Structure}$ * Inflation expectations (α_3)			-0.089
			(0.148)
$D_{Structure}$ * Domestic output gap (α_4)			0.333*
			(0.181)
$D_{Structure}$* Lagged import price in USD term (α_5)			-0.027***
			(0.010)
$D_{Structure}$* USD/KRW (α_6)			-0.027**
			(0.012)
R-Squared	0.866	0.923	0.920
Adjusted R-squared	0.857	0.916	0.909

Note: Standard errors, reported in parentheses, are calculated using HAC estimators with Newey-West automatic bandwidth. Significance is based on two-tailed t tests (*** significant at 1 percent, ** significant at 5 percent, and * significant at 10 percent).

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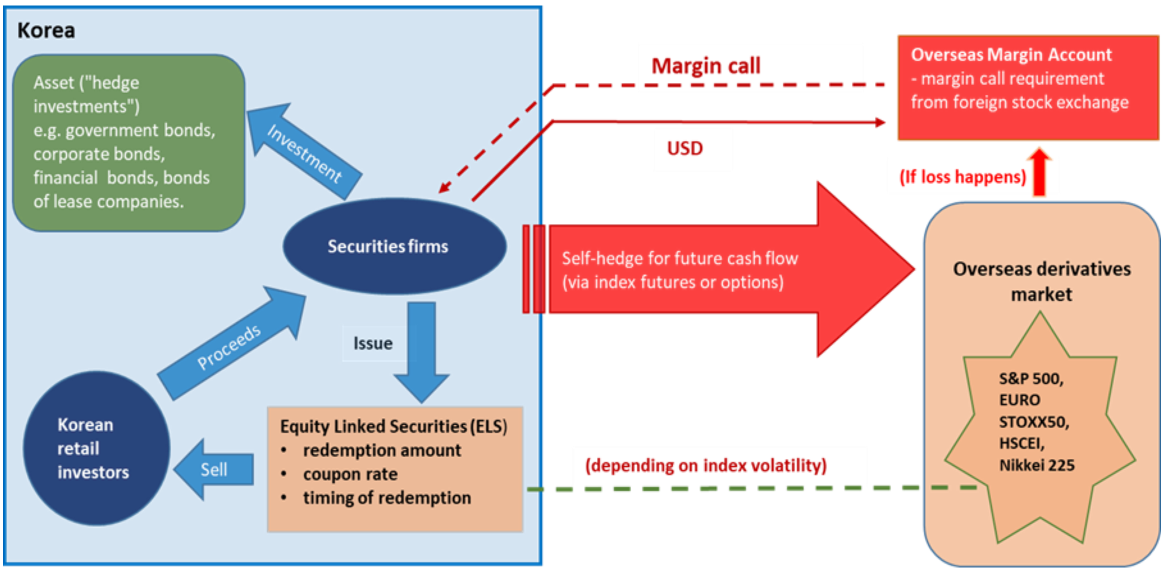
2. Development of Equity-linked Securities and New Policy Measures[20]

The COVID-19 outbreak resulted in global stock prices plummeting in March 2020, triggering massive margin calls for Korean securities firms, relating to equity-linked securities (ELS) that they had issued for domestic investors. The margin calls were in U.S. dollars, thus exacerbating the shortage of USD liquidity in the Korean FX market in March 2020 and resulting in the sharp depreciation of the won vis-à-vis the U.S. dollar. This Selected Issue explains the development and features of the ELS that are popular in the Korean market. Second, it discusses how securities firms manage hedge assets (or portfolio investment) using the proceeds of the ELS, and how they use derivatives to generate extra profits while managing the volatility risk of the stock indices. Lastly, it summarizes the policy responses rolled out by the authorities recently.

1. **ELS refers to a security whose return and/ or timing of redemption is linked to stock indices**. ELS track the performance of global stock indices, while the derivative-linked securities (DLS) track those of interest rates, exchange rates, crude oil, gold and the like (Figure A2.1).[21] ELS is a type of hybrid debt that combines both debt and equity characteristics. For example, depending on the performance of the underlying stock indices, it has a feature of ordinary debt that guarantees the principal and a feature of equity that does not. Some bond types of ELS/ DLS, such as equity-linked bonds (ELB) and derivative-linked bonds (DLB), guarantee the principal while other mezzanine types[22] do not guarantee the principal under certain conditions (Table A2.1). On the other hand, some ELS allow auto-callable, earlier redemptions, if the price of the underlying asset stays above a certain level.

Figure A2.1 Main Stakeholders of ELS and Margin Calls



Source: AMRO staff illustration
Note: This chart shows the main stakeholders and their relationships, including domestic securities firms, domestic investors, counterparties in the derivative markets and the investment destination using the proceeds of the ELS/ DLS.

[20] This selected issue was prepared by Yang-Hyeon Yang.
[21] The Korean Capital Act categorizes the ELS as a part of DLS, but some define the ELS differently from the DLS.
[22] For example, the step-down type ELS does not guarantee principal while convertible bonds (CB) and exchangeable bonds (EB) can be changed into equity if investors execute their rights.

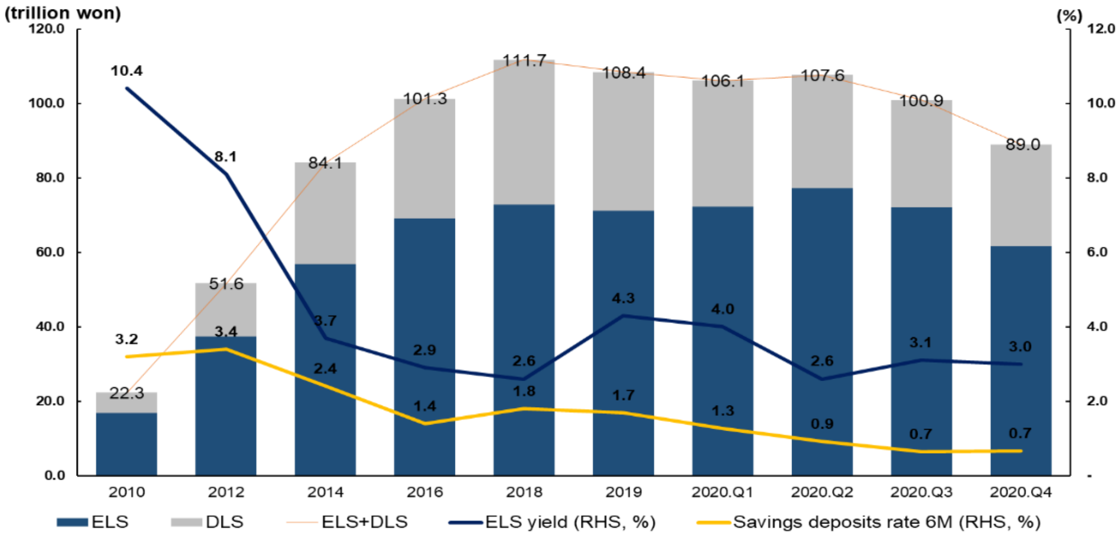
Table A2.1. ELS/ DLS Outstanding (Net Issuance as of the End of Period; Trillion KRW)

	2010	2012	2014	2016	2018	2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
ELS	16.9	37.3	37.9	52.4	54.5	48.3	49.0	77.2	72.0	61.6
DLS	5.4	14.3	15.7	17.2	16.3	16.1	14.5	30.4	28.9	27.4
ELB	..	..	18.9	16.8	18.3	22.8	23.2	-	-	-
DLB	..	..	11.6	14.9	22.6	21.2	19.4	-	-	-
(total)	**22.3**	**51.6**	**84.1**	**101.3**	**111.8**	**108.2**	**106.1**	**107.6**	**100.9**	**89.0**

Source: FSS
Note: Since Q2 2020, ELB outstanding and DLB outstanding have been included in ELS and DLS respectively.

2. **Korean securities firms have issued ELS/ DLS for domestic investors since the early 2000s, with the outstanding issuance surging up to 2018.** The outstanding issuance reached KRW111.8 trillion, or about 5.9 percent of GDP, in 2018 and stayed at that level until 2019 (Figure A2.2). The ELS yield was high at about 8-10 percent before 2012, but declined sharply from 2012 to 2018 and has stayed at around 3-4 percent in recent years. The ELS yield, as a middle-risk and middle-return investment product, continued to be higher than the saving deposit rate, having attracted around 1 million retail investors as of the end of 2019. In 2020, the outstanding issuance declined to KRW89 trillion as early redemptions increased due to the strong equity market rally in Q4 2020, and new issuance has declined due to stagnant demand from investors who expect a stock price correction in the near future. Some ELS are linked to multiple stock indices and ELS linked to three stock indices account for two-third of total ELS issuance. The issuances of ELS by underlying assets in H1 2020 were related to S&P500 (KRW 20.1 trillion), EURO STOXX50 (KRW 19.3 trillion), HSCEI (KRW 12.7 trillion), KOSPI (KRW 10.7 trillion), and Nikkei225 (KRW 8.1 trillion).[23]

Figure A2.2 Outstanding Issuance of ELS/ DLS and ELS Yield

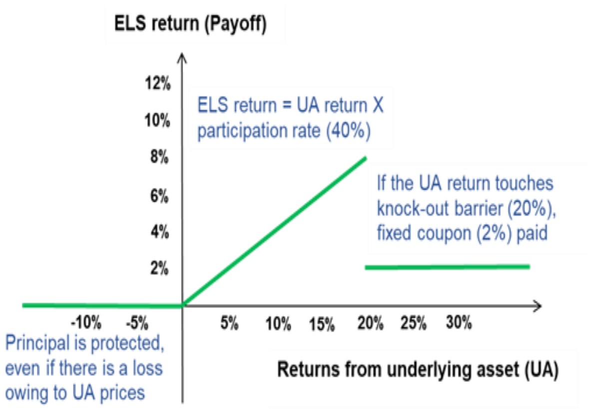


Source: FSS; KSD; BOK; AMRO calculations
Note: The outstanding refers to the net issuance amount, which is the new issuance minus redemption. ELS includes principal protected ELB, and DLS includes principal protected DLB. As of end-April 2020, ELS/ DLS with principal non-protected comprised 60 percent of total ELS/ DLS.

[23] For example, for an ELS issuance linked to two or more stock indices, the amounts of each stock index issuance can be duplicated.

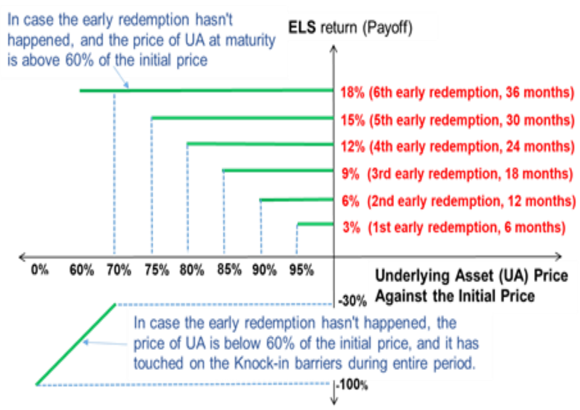
3. **The knock-out type ELS, which protects the principal, was dominant in the early 2000s; the step-down type ELS, which does not, has become more prevalent in recent years, and comprises around 80 percent of total ELS.**[24]

Figure A2.3 Payoff of Knock-out Type ELS (Illustrative Example)



Source: AMRO staff illustration
Note: The participation rate is 40 percent, and fixed coupon rate in case of the knock-out barrier (20 percent) is 2 percent.

Figure A2.4 Payoff of Step-down Type ELS (Illustrative Example)



Source: AMRO staff illustration
Note: Knock-in barrier is 60 percent of the initial price.

- **The knock-out type (Figure A2.3):** Investors enjoy a proportionately higher return when the underlying stock indices are higher than certain levels and reach another reference price, called the knock-out barrier. If the stock indices surge higher than the level of the knock-out barrier, a fixed coupon rate will be granted. In this type, the principal is guaranteed.
- **The step-down type (Figure A2.4)**: This type allows auto-callable (early repayment) and the conditions of auto-callable[25] ease gradually over time. In this type, the auto-callable will be made if the price of underlying stock indices remain above reference prices for six months (until the next observation date). At the same time, the return incurred before the observation date will be paid fully at the observation date. In the step-down type, the reference prices will be lowered over time, which means the condition for early redemption will be relaxed. Another feature of the step-down type is that it does not guarantee principal at maturity, usually three years from the issuing date, under the following three conditions:
    1. Early redemption has not been made prior to maturity;
    2. The stock indices fall below the knock-in barrier at any time during the entire maturity period; and
    3. The stock indices at maturity are lower than reference prices.[26]

  For instance, as shown in Figure A2.4, at the first observation date, six months from the initial date, the auto-callable will be made if the price of underlying stock indices are above the reference price (95 percent of the initial price). On the same

[24] Based on the pay-off structure, redemption terms, and barrier conditions (knock-in, knock-out), ELS could be classified into various types such as knock-out, step-down, bull-spread, digital, and lizard ELS.
[25] On the observation dates (early redemption dates which come every six months), if the price of underlying assets meets certain conditions, the return will be paid and early repayment will be made automatically (auto-callable). However, if the conditions are not met, the repayment will not be made and will be carried forward to the next observation date.
[26] If the stock indices are above the reference prices at maturity, full repayment will be made even if the indices fell below the knock-in barrier during the entire maturity period. The reference price is usually higher than the knock-in barrier.

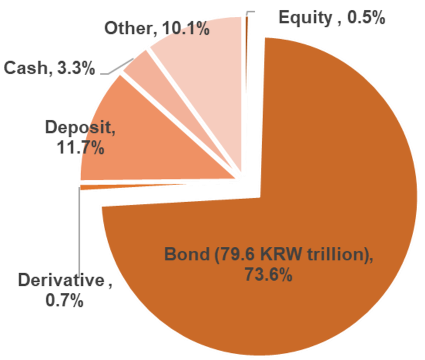
date, a return of 3 percent will be given. At the second observation date, 12 months from the initial date, the auto-callable will be made if the prices of underlying stock indices are above 90 percent and a return of 6 percent will be given. At maturity, the principal will be fully repaid if there was no early redemption prior to that and the stock indices are above 70 percent (reference price) even if the stock indices fell below 60 percent (knock-in price) at any point in the entire maturity period. On the other hand, the principal will be repaid partially at maturity if the stock indices fall below 60 percent (knock-in price) and fail to revert to 70 percent at maturity. In this case, ELS investors will lose over 30 percent.

4. Securities firms make portfolio investments (hedge asset management) and trade stock index derivatives to meet future cash flow obligations stemming from the ELS. As ELS issuers, securities firms need to pay coupon interest as well as principal at maturity or early redemption. ELS issuers invest about 74 percent of their total hedge assets in bonds, including government, corporate and financial institution bonds. The remaining portion is used to trade derivatives, or for deposits, loans, and mutual funds (Figure A2.5). The cash flow obligation should be met by returns from the hedge asset management. The main operational agenda for the securities firms is ensuring higher profits than the returns from their bond investments. To manage the underlying risk of the return gap, securities firms conduct 'back-to-back hedging' or 'self-hedging' activities. According to the Financial Supervisory Service (FSS), self-hedging accounts for 57.8 percent of total ELS/ DLS outstanding as of Q3 2020.

- In back-to-back hedging, ELS issuers outsource the hedging activity by signing OTC derivative contracts with counterparties—mainly foreign investment banks—that have the same terms and conditions as the ELS.

- In self-hedging, ELS issuers indulge in hedging activity by themselves through derivatives transactions. This may lower the hedging costs than in the case of back-to back hedging and consequently help generate higher returns. ELS issuers utilize the proceeds from the ELS to invest in safer assets such as bonds and deposits, and to trade stock index derivatives such as futures and options to earn additional profit and, at the same time, to manage the volatility risk of underlying stock indices.

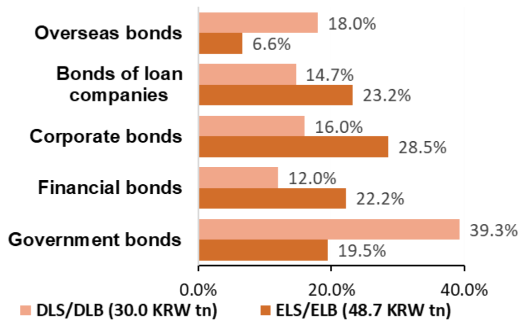
Figure A2.5 Securities Firms' Hedge Assets, by Product



Total hedge assets: KRW108.1 trillion (as of the end of Q3 2020)

Source: FSS
Note: 'Other' includes loans, beneficiary securities (mutual funds).

Figure A2.6 Share of Hedge Assets by Bond Type

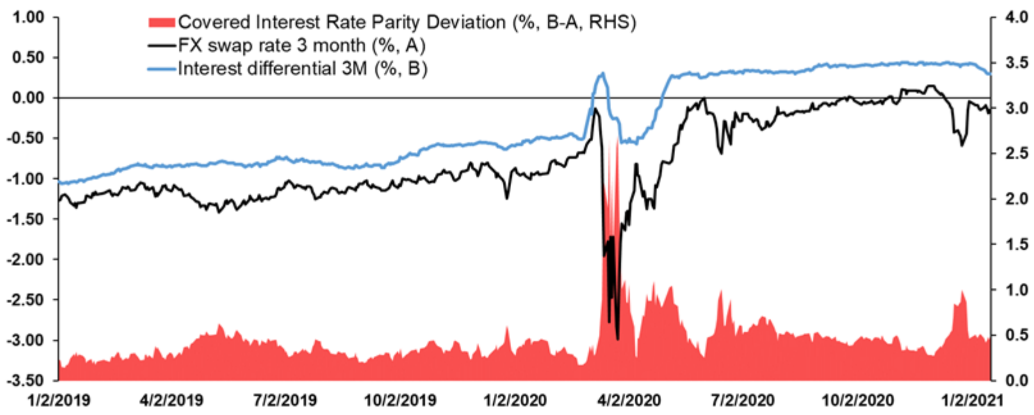


Total bond assets: KRW 78.7 trillion (as of the end 2019)

Source: FSS

5. **A sharp drop in global stock indices in March 2020 led to a large margin call on domestic securities firms as their futures positions increased.** The securities firms adopted the dynamic delta hedging strategy, increasing their futures positions in accordance with the sharp drop in stock indices[27] (Box A2.1). As the futures market typically uses a high degree of leverage, the larger futures position led to a large margin call on Korea's securities firms. Amid tightened liquidity conditions stemming from the COVID-19 outbreak, securities firms increased the issuance of CP and bought USD to meet these margin calls. This triggered a surge in short-term borrowing rates, abrupt fall in FX swap rates and a sharp depreciation in the KRW/USD exchange rate (Figure A2.7). According to the FSS, the demand for USD for the margin calls was estimated to be about USD10 billion in March 2020, which was sizable given that the daily turnover of the spot interbank market was about USD 9 billion in 2020. To ease the liquidity crunch, the authorities unveiled a bond market stabilization fund worth of KRW20 trillion to buy corporate bonds and financial notes of designated financial institutions. The BOK expanded the scope of RP operations for securities firms and injected USD liquidity using the FX currency swap line with the Fed.

Figure A2.7 FX Swap Market in March 2020



Source: BOK; Bloomberg

6. **The authorities recently rolled out pre-emptive measures to contain systemic risk arising from the securities firms' ELS issuance.** Security firms' derivatives transactions relating to the self-hedging strategy could be a channel of spillover from global stock volatility to the domestic FX liquidity market. As of the end of 2019, the ELS/ DLS accounts for 24 percent of security firms' liabilities and the step-down type ELS are expected to be a mainstream product going forward. Investors' demand for ELS will continue to remain high given the low interest rate environment. Moreover, derivatives trading relating to ELS issuance has been an important source of revenue for securities firms. Foreigners continue to pay a premium to buy put options to hedge against stock indices falling.[28] In this context, the authorities should continue monitoring securities firms' self-hedging activities in order to minimize the spillover risks that may arise from volatility in global stock indices. We welcome

[27] From Feb 21 to Mar 19 2020, DJIA fell by -35.9 percent, S&P 500 -30.9 percent, KOSPI -32.6 percent, Nikkei 225 -29.2 percent.
[28] Securities firms generate higher revenue from the premium they receive through selling the put options for overseas stock indices. Option premiums are higher as there is a strong demand for purchasing put options. The demand for options comes from foreign financial companies that want to hedge against the stock index falling. In other words, through the ELS, domestic Korean retail investors provide insurance to foreign financial companies against the fall in stock prices. This means Korean investors shoulder the burden when stock indices are falling.

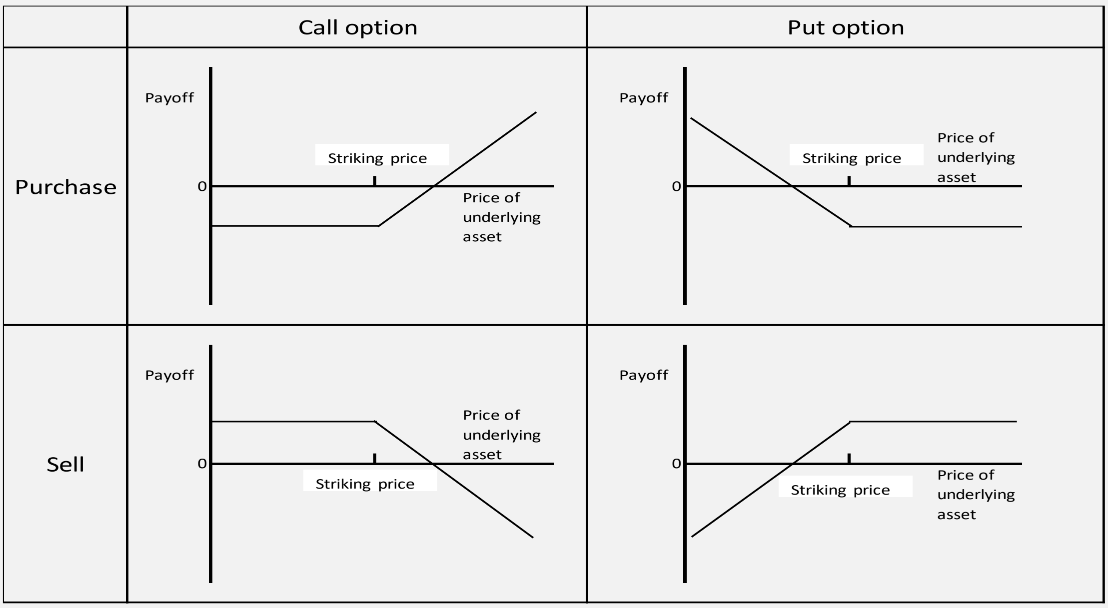
the following pre-emptive policy measures rolled out by the authorities in July 2020 and January 2021:

- **Strengthening regulations relating to leverage**: Assigning a higher weight to ELS issuance in calculating the leverage ratio when issuance exceeds 50 percent of the total capital (the new leverage rule will be effective in July 2021).
- **Diversification of hedge assets:** Securities firms need to build foreign currency liquid assets to cover 20 percent of the ELS self-hedging balance. There is also a 10 percent cap on buying bonds of loan companies (Loan companies include credit card and lease companies).
- **Mandatory submission of stress tests reports:** Securities firms are required to submit reports when asked on FX liquidity needs and to conduct FX liquidity stress tests on a daily basis.
- **Preparing foreign currency liquidity back-up facilities for domestic securities firms:** The facility will be executed through the Korean Stock Financing Company.

Box A2.1 ELS Issuers' Payoff Structure and Self-Hedging Strategy

ELS issuers will have a similar payoff structure to investors who purchase put options, without considering derivative positions of ELS issuers. In the case of step-down type ELS, there is no full redemption if the stock indices fall below the knock-in barriers. In reality, this rarely happens as stock indices likely return to a level above the reference price after the three years' maturity period. However, ELS issuers will have a higher payoff in the unlikely event if it happens. Conversely, they need to pay higher coupon interest when the stock indices are higher than the knock-in barriers. Therefore, their payoff structures are similar to how the purchase of a put option is structured (Figure A2.8). On the other hand, ELS investors have the inverse payoff structure, similar to what happens in the selling of a put option, as the full redemption will not be made if the stock index is below the knock-in price while receiving fixed coupon interest with higher stock indices.

Figure A2.8 Payoff Structure of Call and Put Options



Source: AMRO staff illustration

ELS issuers adopt a self-hedging strategy to complement the payoff structure embedded in the ELS. In the step-down type ELS, ELS issuers need to pay coupon interest and respond to the auto-callable when the stock indices are higher than the reference prices. Therefore, ELS issuers need to trade stock index derivatives (futures and options) to prepare for such cash flow liabilities linked to the

ELS. They can improve their payoff structure, for example, by selling put options. They continuously change their positions of options and futures by observing the movement of option premiums as well as underlying stock indices.

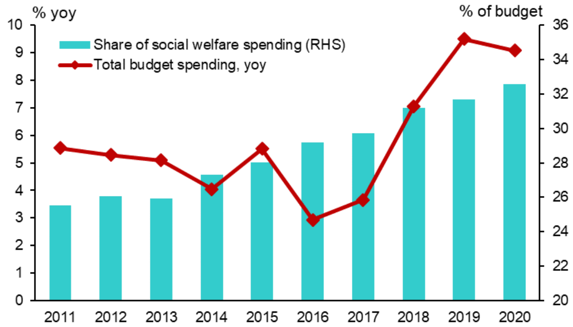
The dynamic delta hedging strategy is used and ELS issuers constantly adjust their positions of options and futures—in particular increasing their futures positions—when the stock indices are falling. The dynamic delta hedging strategy is commonly used by derivative traders to isolate the impact of the underlying stock indices' movement on their payoffs. The price of options will move in accordance with the movement of the underlying stock indices. The delta is the ratio of the change in the price of derivatives against the change of in the price of underlying stock indices. In the dynamic delta hedging strategy, traders constantly adjust the positions of put/ call options and futures to reach delta-neutral positions. When global stock indices were falling in March 2020, ELS issuers with a dynamic delta hedging strategy continued to purchase futures.

3. Assessing Medium-term Fiscal Policy Direction of Korea[29]

Korea has traditionally maintained to take a conservative stance in utilizing its ample fiscal space. The government's heightened emphasis to strengthen social safety nets, followed by the COVID-19 outbreak, has shifted its policy direction toward more expansionary stance in the coming years. This selected issue explores key drivers of Korea's fiscal constraints, reflected in the government's medium-term fiscal management plan. It also assesses the implication of the shift in fiscal policy direction on subsequent fiscal adjustments under the recently proposed fiscal rule framework.

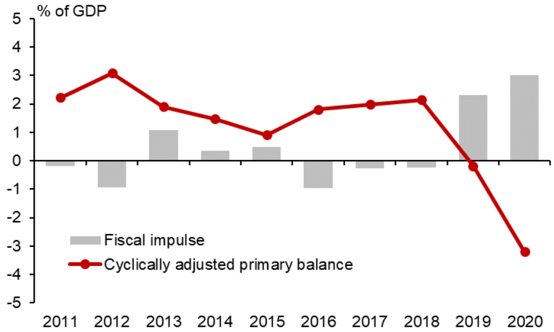
1. The active role of fiscal policy in Korea was already pronounced even before the outbreak of the COVID-19 pandemic. Since taking office in May 2017, the administration of President Moon Jae-in has declared a paradigm shift in its economic strategy toward more inclusive and sustainable growth. To this end, the important role of fiscal policy has been highlighted in fulfilling four key policy objectives, namely, income-driven growth, a job-centered economy, innovative growth and fair competition. Against this backdrop, government spending has accelerated since 2018, mainly driven by social welfare spending (Figure A3.1). Supplementary budgeting became more frequent, being formulated each year from 2017-2020 for short-term economic stimulus and other purposes. Korea's cyclically adjusted primary balance recorded a deficit in 2019 and widened further in 2020, reflecting the sizable economic stimulus packages taken to combat the COVID-19 pandemic (Figure A3.2).

Figure A3.1 Government Budget Growth and Social Welfare Spending



Source: Ministry of Economy and Finance; AMRO staff calculations
Note: Based on the respective year's initial budget.

Figure A3.2 Fiscal Policy Stance



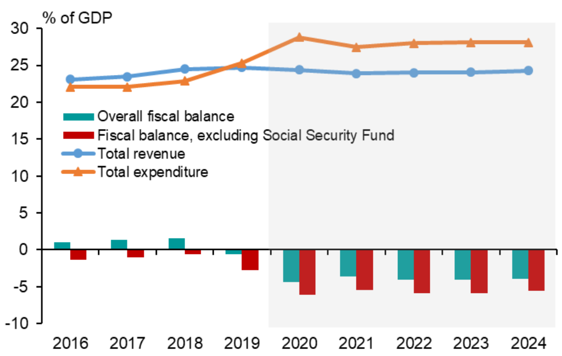
Source: Ministry of Economy and Finance; AMRO staff estimates
Note: Based on the overall fiscal balance.

2. The official medium-term fiscal outlook indicates that sizable fiscal deficits will continue in the coming years. The government's latest National Fiscal Management Plan[30] (NFMP) for 2020-2024 projects that total revenues will increase at an average of 3.5 percent each year broadly in line with the nominal GDP growth rate, while total expenditures will expand faster at an average of 5.7 percent during the period. Under this projection, the fiscal deficit will see a substantial increase to around 4 percent of GDP, with total spending-to-GDP ratio picking up to 28 percent from 2022 onward and the revenue-to-GDP ratio staying at around 24 percent (Figure A3.3). This would lead to the steepest expansion in government

[29] This selected issue was prepared by Jinho Choi.
[30] Since 2004, Korean government has formulated and released the National Fiscal Management Plan (NFMP) annually to provide the objectives and directions of its medium-term fiscal management over the next five years, including the publishing year. The NFMP is regularly updated every year, i.e. a rolling five-year plan. Since 2007, the NFMP has been submitted to the National Assembly, which is mandated by the National Finance Act.

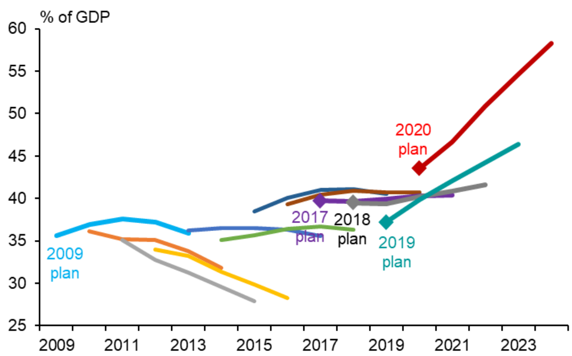
debt to be incurred among the government's rolling five-year fiscal plans over the last several years (Figure A3.4).

Figure A3.3 Government's Fiscal Projection under the 2020-2024 NFMP



Source: Ministry of Economy and Finance
Note: The shared area indicates the 2020-2024 NFMP, released in September 2020.

Figure A3.4 Changes in Government Debt Projections Under Rolling 5-Year Fiscal Plans



Source: Ministry of Economy and Finance (cited from the National Assembly Budget Office)
Note: Based on each year's five-year NFMP.

Key Drivers of Fiscal Constraints in 2021-2024

3. Major drivers of the high and rising fiscal spending in the medium term will include the government's firm policy orientation toward strengthening the social safety net (Table A3.1)**.**

- **Ensuring basic standards of living.** The Basic Living Security Program (BLSP) aims to help low-income earners receive livelihood, health, housing and education benefits, and its coverage is expanding as the qualification criteria are eased in stages.
- **Coping with demographic changes**. To support the government's policy initiative on addressing the aging society ("Policy Roadmap to Address Low Fertility & Aging Society", December 2018), the basic pension scheme for low-income seniors will distribute higher amounts from 2021, while child support benefits, including child allowances and childcare support, will be expanded further.
- **Expanding health insurance coverage.** The National Health Insurance System (NHIS) will continue to widen its coverage into new areas, such as elective services, fees for higher-grade hospital beds, and care services[31]. The government's fiscal burden will rise in tandem with the expanded coverage, as it is mandatory to subsidize the NHIS with the maximum amount of 20 percent of the expected insurance premiums to be received from the contributors.

[31] In August 2017, the government announced a set of policy measures to strengthen the health insurance system and reduce the burden from health costs. According to the plan, the NHIS medical coverage rate will be raised from 63 percent in 2015 to 70 percent by 2022, and further to 80 percent in the long term. As of 2019, the coverage ratio had reached to 64.2 percent.

Table A3.1 Selected Policy Measures in the 2020-2024 NFMP

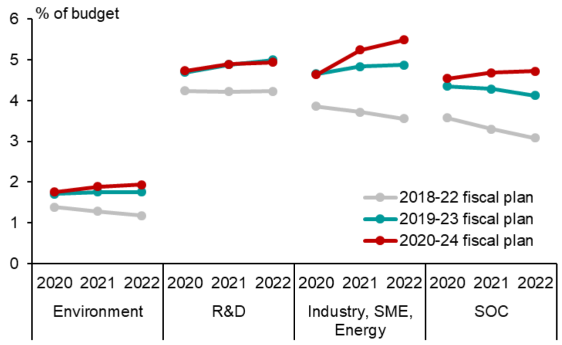
Area of Support	Policy Measure
Basic Livelihood Security Program (BLSP)	• Increase BLSP benefits, consisting of help for livelihood, health, housing and education, to ensure basic standards of living for all citizens; ease requirements for livelihood benefits; and expand emergency assistance
Elderly support	• Raise basic pension for low-income seniors aged 65+ from KRW250,000 in 2018 to KRW300,000 in 2021 • Create 800,000 jobs for seniors
Child support benefits	• Expand coverage of child allowances (KRW100,000/month) to families with children aged 0-6 (previously aged 0-5) from September 2019 • Introduce subsidy for after-hours childcare fees • Expand share of public childcare facilities to reach 40 percent target by March 2022
Disability pensions	• Provide disability pensions of KRW300,000/month to all beneficiaries
National Health Insurance System (NHIS)/Long-term elderly care	• Continue to subsidize 20 percent of expected insurance premiums • Expand coverage for areas not covered by the current NHIS program, such as elective services, fees for higher-grade hospital beds, and care services • Ensure equity for all by reducing the burden on lower-income households to contribute to health insurance; expand support for the elderly
National Pension System	• Partially subsidize contribution payments; improve enrollment conditions for low-wage and part-time workers
Employment safety nets	• Expand employment insurance system and industrial accident compensation insurance to low-income workers in culture, music and performing arts (from December 2020) and freelancers (from 2021) • Partially subsidize insurance contribution payments to be made by low-income artists and independent workers (from 2021) • Expand unemployment benefits; improve public employment services and job training programs (from 2021)

Source: Ministry of Economy and Finance; Ministry of Health and Welfare; AMRO staff compilation

4. The manufacturing, SME, energy, environment and Social Overhead Capital (SOC) sectors are getting renewed focus in line with the Korean New Deal initiative, beefing up the government's medium-term spending plan. In the 2019-2023 NFMP, the government increased budget allocations to the manufacturing and SME sectors to improve competitiveness in the materials, parts and equipment industries, in particular, to enhance the localization of core technology (Figure A3.5). This shift was partially triggered by Japan's tightening of export controls in July 2019. Subsequently, the Korean New Deal initiative was unveiled in July 2020 to build a digitalized and eco-friendly economy, boosting the infrastructure investment plan[32] in the areas of environment, R&D and SOC in the 2020-2024 NFMP (Table A3.2).

[32] For the details of the Korean New Deal's key projects and implementation plans, see the https://english.moef.go.kr/pc/selectTbPressCenterDtl.do?boardCd=N0001&seq=4948

Figure A3.5 Changes in Selected Sectors' 2020-2022 Budget Contributions in 5-Year Fiscal Plans



Source: Ministry of Economy and Finance
Note: The three lines indicate the respective sector's share of the 2020-2022 budget from the rolling 5-year NFMPs. released in September 2018, 2019 and 2020

Table A3.2 Investment Plan for Korean New Deal

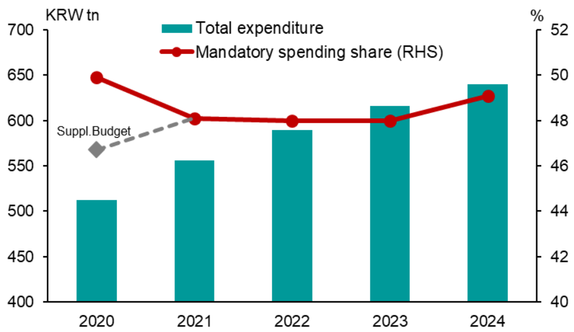
	In trillions of KRW	Budgeted	Investment Plan	
		2021	2020-22	2020-25
Digital New Deal	Strengthening D.N.A. ecosystem	5.4	12.5	31.9
	Digitalizing education infrastructure	0.1	0.6	0.8
	Fostering the 'untact' industry	0.5	1.1	2.1
	Digitalizing SOC	1.9	4.4	10
	Sub-total	7.9	18.6	44.8
Green New Deal	Green transition of infrastructures	2.4	6.1	12.1
	Low-carbon and decentralized energy	4.3	10.3	24.3
	Innovation in the Green industry	1.3	3.2	6.3
	Sub-total	8.0	19.6	42.7
Stronger Safety Net	Employment and Social Safety Net	4.7	9.3	22.6
	Investment in Human Resources	0.7	1.5	4.0
	Sub-total	5.4	10.8	26.6
	Total	**21.3**	**49.0**	**114.1**

Source: Ministry of Economy and Finance
Note: 'D.N.A.' refers data, network, and artificial intelligence (AI), the three innovative industries selected by the Presidential Committee on the Fourth Industrial Revolution.

5. Mandatory spending will increase in tandem with total expenditure, mainly driven by ballooning welfare-related support and debt servicing costs.

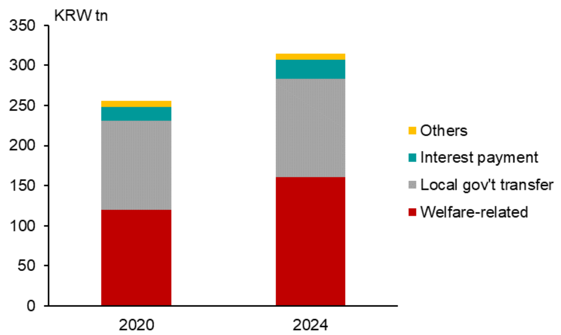
- Mandatory spending, required by specific legislations, has limited room for adjustment once initiated. According to the 2020-2024 NFMP, mandatory spending is expected to grow 5.3 percent per annum, while discretionary spending will increase 6.2 percent. The contribution of mandatory spending to total expenditure will stay below 50 percent during the 2021-2024 projection period (Figure A3.6).
- By component, welfare-related spending and debt servicing costs are forecast to see sharper growth of 7.6 percent and 8.2 percent per annum respectively, while local government transfers are set to increase by 2.4 percent (Figure A3.7).

Figure A3.6 Total Expenditure and Mandatory Spending Share



Source: Ministry of Economy and Finance
Note: The red line indicates the 2020-2021 original budgets and the 2020-2024 NFMP.

Figure A3.7 Breakdown of Mandatory Spending



Source: Ministry of Economy and Finance
Note: Based on the 2020-2024 NFMP.

- A deep dive of welfare-related items in mandatory spending (Table A3.3) indicates that fiscal spending will balloon across the board, particularly in the areas of supporting lower-income earners, health insurance, public pensions[33], the elderly, and the

[33] Mandatory spending for public pensions, as included in total expenditure, is financed by the respective Social Security Fund reserves rather than the General Budget. The government is responsible for filling reserve fund deficits in the Government Employees Pension and Military Pension only.

unemployed. The only exception is childcare-related spending which is projected to decline, reflecting falling fertility rates.

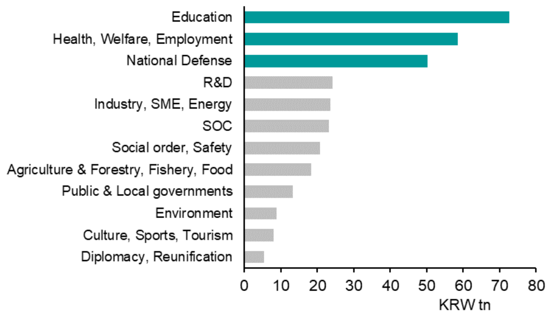
Table A3.3 Welfare-related Expenditure in Mandatory Spending

In trillions of KRW, unless specified	2020 (A)	2024 (B)	Cumulative growth (B/A, %)	Cumulative growth (% contrib.)	Avg. growth %
○ Basic Livelihood Security Program (BLSP)	**13.7**	**18.5**	**34.9**	**4.0**	**7.8**
- Livelihood benefits	4.3	5.5	27.2	1.0	6.2
- Medical benefits	7.0	10.0	42.2	2.5	9.2
- Housing benefits	1.6	2.2	32.5	0.4	7.3
- Education benefits	0.7	0.8	13.9	0.1	3.3
○ Health Insurance	**9.9**	**13.1**	**33.0**	**2.7**	**7.4**
- Subsidies to the NHIS contributions	9.0	11.9	32.6	2.4	7.3
- Contribution to the payment for gov't employees & teachers	0.9	1.2	36.4	0.3	8.1
○ Public Pensions	**51.3**	**69.3**	**34.9**	**15.0**	**7.8**
- National Pension System (NPS)	26.6	37.7	41.7	9.3	9.1
- Government Employees Pension	17.4	22.3	27.9	4.1	6.3
- Teachers' Pension	3.8	5.3	37.4	1.2	8.3
- Military Pension	3.5	4.0	14.7	0.4	3.5
○ Elderly Support	**14.6**	**20.2**	**38.5**	**4.7**	**8.5**
- Basic Pension	13.2	17.5	33.0	3.6	7.4
- Long-term Elderly Care	1.4	2.7	89.0	1.1	17.3
○ Child Support	**5.7**	**5.2**	**-9.2**	**-0.4**	**-2.4**
- Monthly vouchers for childcare services (aged 0-5)	3.4	3.2	-5.4	-0.2	-1.4
- Child allowance	2.3	1.9	-15.0	-0.3	-4.0
○ Employment support	**17.8**	**26.9**	**51.5**	**7.6**	**10.9**
- Unemployment benefits	9.5	15.9	67.1	5.3	13.7
- Industrial accident compensation insurance benefits	5.9	8.0	35.3	1.7	7.9
○ Veterans support	**4.7**	**5.0**	**7.2**	**0.3**	**1.8**
○ Others	**2.0**	**2.5**	**22.7**	**0.4**	**5.1**
Total	**119.7**	**160.6**	**34.2**	**34.2**	**7.6**

Source: Ministry of Economy and Finance; AMRO staff calculations
Note: Based on the 2020-2024 NFMP.

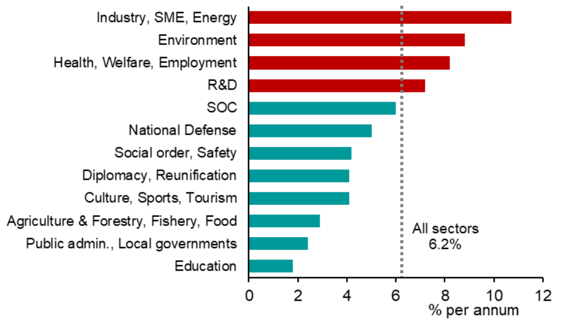
6. Discretionary spending is set to be deployed to support core industries and sectors in the Korean New Deal initiative. Discretionary spending tends to give policymakers greater flexibility than mandatory spending. In 2020, the budget allocations for education, health, welfare[34] and employment, and national defense constituted about 55 percent of total discretionary spending (Figure A3.8). The industry, SME and energy, environment, health, welfare and employment, and R&D sectors, spurred by the Korean New Deal initiative, will see rapid growth in discretionary spending by 2024 (Figure A3.9).

Figure A3.8 Breakdown of Discretionary Spending in 2020 Budget



Source: Ministry of Economy and Finance

Figure A3.9 Sectoral Growth Rates in Discretionary Spending for 2020-2024 Fiscal Plan



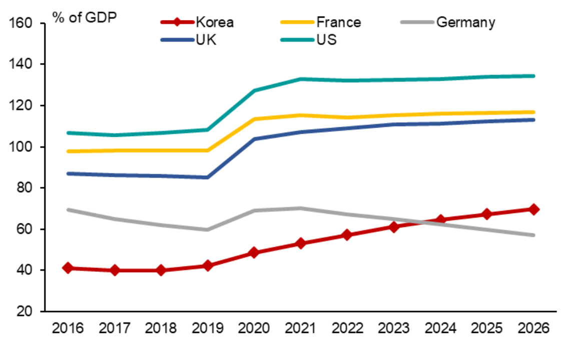
Source: Ministry of Economy and Finance; AMRO staff calculations

[34] Discretionary welfare-related spending excludes mandatory spending (see Table A3.3), which is stipulated by the National Finance Act. It includes current expenditure (including salary and goods purchasing costs) for welfare-related public sectors, as well as social security-related spending not stipulated in the National Finance Act but budgeted on the back of the government's policy measures.

Assessment and Policy Implications

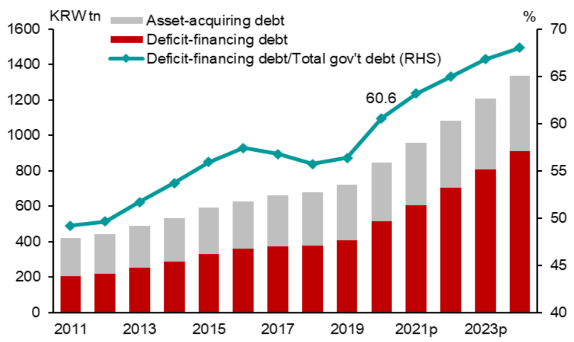
7. Government debt is expected to expand, mainly driven by structural factors in the post-pandemic period. Among advanced economies, Korea is somewhat unique in the sense that it will likely see persistently large debt expansion even after the pandemic subsides (Figure A3.10). Strengthening social safety nets and undertaking preemptive investment for sustainable growth would be the rationale to justify the proactive use of Korea's ample fiscal space as reflected in the 2020-2024 NFMP. That said, the composition of government debt is also expected to deteriorate along with the steep debt increase. In Korea, debt has been issued not only to finance the fiscal deficit but also to acquire government asset such as the FX Market Stabilization Fund. As of 2019, deficit-financing debt accounts for only 56.4 percent of total debt. Assuming a moderate increase in asset-acquiring debt, the share of deficit-financing debt in total government debt is expected to surge in the next few years after moderating from 2016 to 2019 (Figure A3.11). As the issuance of deficit-financing debt is not accompanied by a rise in the government's assets, unlike its asset-acquiring debt, the increased debt repayment burden would be shouldered by taxpayers, which would pose a challenge to maintaining fiscal soundness amid the modest revenue outlook.

Figure A3.10 General Government Debt Projection



Source: IMF WEO (April 2021) via Haver Analytics
Note: Based on general government debt.

Figure A3.11 Breakdown of Government Debt by Purpose of Debt Issuance



Source: Ministry of Economy and Finance
Note: The 2020 and 2021 figures reflect the settled amount and the initial budget, respectively. The 2022-2024 projections are based on the 2020-2024 National Government Debt Management Plan.

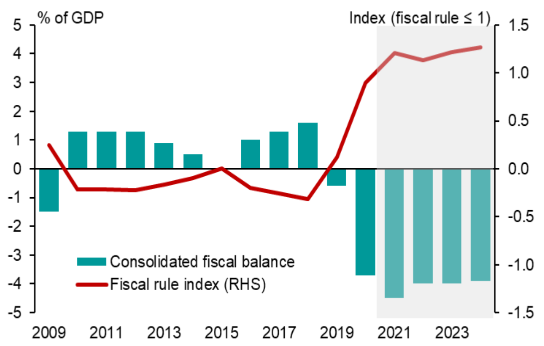
8. A preemptive and gradual adjustment of the current medium-term fiscal program is warranted to avoid a fiscal cliff that may emerge in 2025 when the proposed fiscal rule takes effect. The AMRO mission commends the government's initiative on establishing the National Fiscal Rule[35], for anchoring fiscal discipline amid the anticipated government debt expansion. However, if the rule is implemented as scheduled, a fiscal cliff is likely to emerge in 2025, as a substantial fiscal consolidation will be required in 2025 to avoid breaching the fiscal deficit or debt ceilings under the fiscal rule (Figure A3.12).To understand the magnitude of the cliff effect, we consider two scenarios (Figure A3.13). A sudden fiscal adjustment scenario assumes that there is no adjustment during 2022-2024 and a sudden adjustment will be made in 2025 to satisfy the fiscal rule. This scenario will require the fiscal deficit to be reduced sharply from 3.9 percent of GDP in 2024 to 2.8 percent in 2025, while the debt level will remain significantly above the threshold level of 60 percent. In contrast, a gradual

[35] In September 2019, the government proposed a new fiscal rule that would take effect from 2025 after a transition period of three years from 2022 to 2024. The new rule is assessed with the following formula:

$$\left(\frac{\mathit{Government\ debt\ to\ GDP\ ratio}}{60\%}\right) \times \left(\frac{\mathit{Consolidated\ fiscal\ balance}}{-3\%}\right) \leq 1.0$$

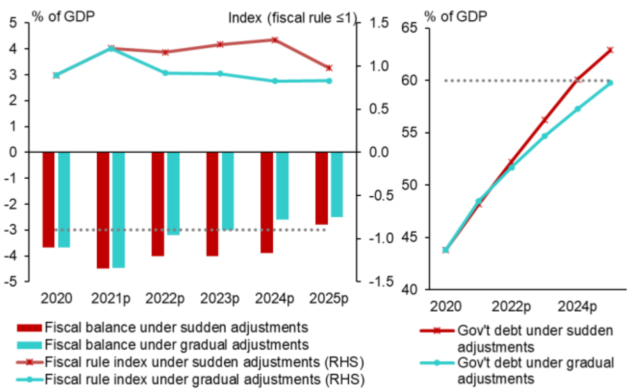
adjustment scenario assumes that fiscal adjustments will be made during 2022-2024, so that a large consolidation will not be required in 2025. Under this scenario, the fiscal rule will be met during 2022-2024 and the debt-to-GDP ratio will show a less steep increase, reaching about 60 percent of GDP by 2025. Hence, to avoid the fiscal cliff scenario, the fiscal deficits should be reduced preemptively in the coming years by cutting back on excessive tax reductions, broadening the tax base, and enhancing spending efficiency, including budget reallocations. However, strong policy efforts to mobilize additional tax revenues or reduce discretionary spending may be needed in order to adhere to the fiscal rule. The government should recalibrate the medium-term fiscal management plan to make it consistent with the proposed new fiscal rule during the transition period.[36]

Figure A3.12 Fiscal Rule Assessment under 2021-2024 NFMP



Source: Ministry of Economy and Finance
Note: The shaded area indicates the projection period.

Figure A3.13 Fiscal Adjustment Scenarios and Implication on the Fiscal Rule



Source: Ministry of Economy and Finance; AMRO staff calculations
Note: The dotted lines indicate the proposed fiscal rule's thresholds for fiscal deficit (3 percent of GDP) and government debt (60 percent of GDP).

[36] The Korean government stated that, in order to implement the fiscal rule properly in 2025 as planned, the NFMP 2021-2025 will include stronger management of fiscal aggregates and other sustainability efforts, i.e. expenditure increase rate being stabilized in line with economic recovery trend. The Plan will be submitted to the National Assembly in September 2021.

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