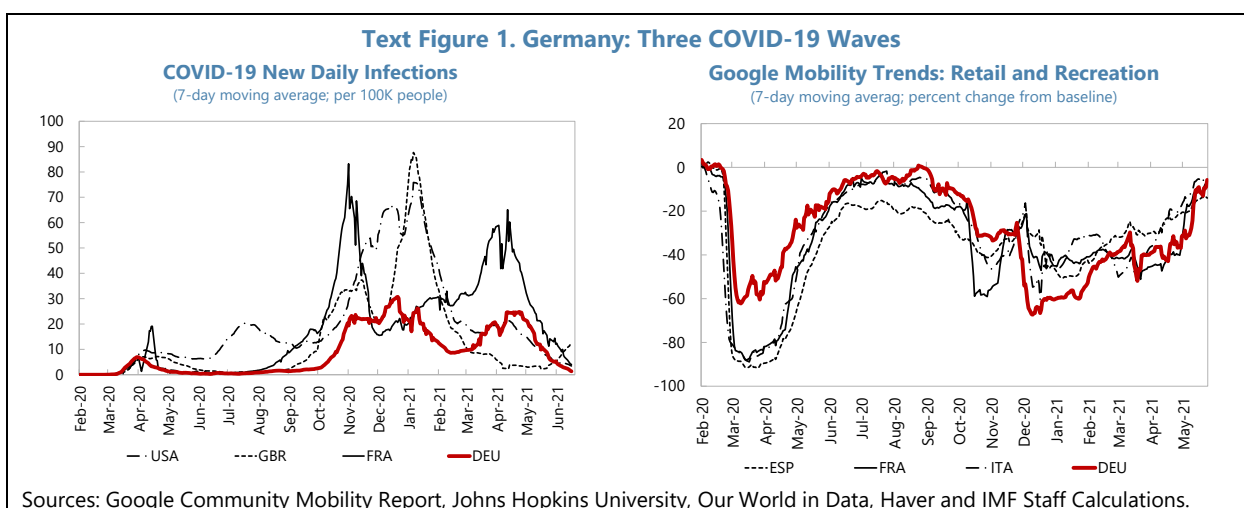
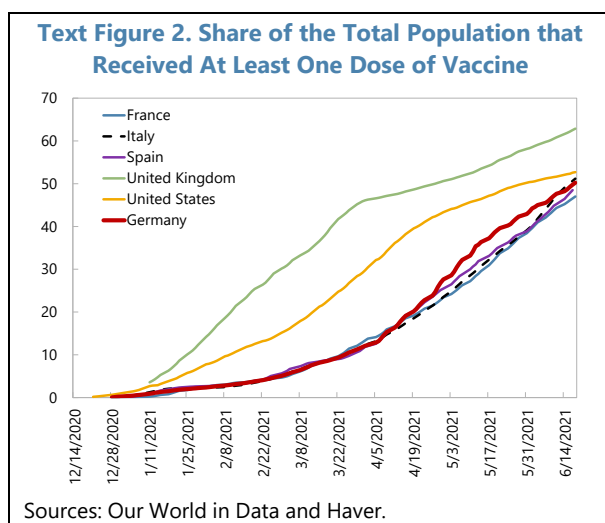


CONTEXT

1. Germany is recovering from repeated waves of COVID-19 infections. After having managed the first wave of infections in the spring of 2020 relatively well, the country staged a strong—albeit partial—recovery in Q3. But a second and larger wave of infections spread in the last quarter of 2020 (Text Figure 1, left panel). Federal and state-level authorities gradually tightened containment measures as infections gathered pace, with a complete lockdown ordered through 2021 Q1. Non-essential businesses were closed, although manufacturing and construction were allowed to continue operations. The German parliament passed amendments to the [Infection Protection Law](#) allowing containment measures to be temporarily centralized rather than left to individual states and municipalities. Transport bans from high-risk regions were implemented, together with mandatory testing for travelers. As a result, mobility fell well below normal levels (Text Figure 1, right panel). More recently, a third wave of infections has been abating, allowing a gradual re-opening of the economy since May.

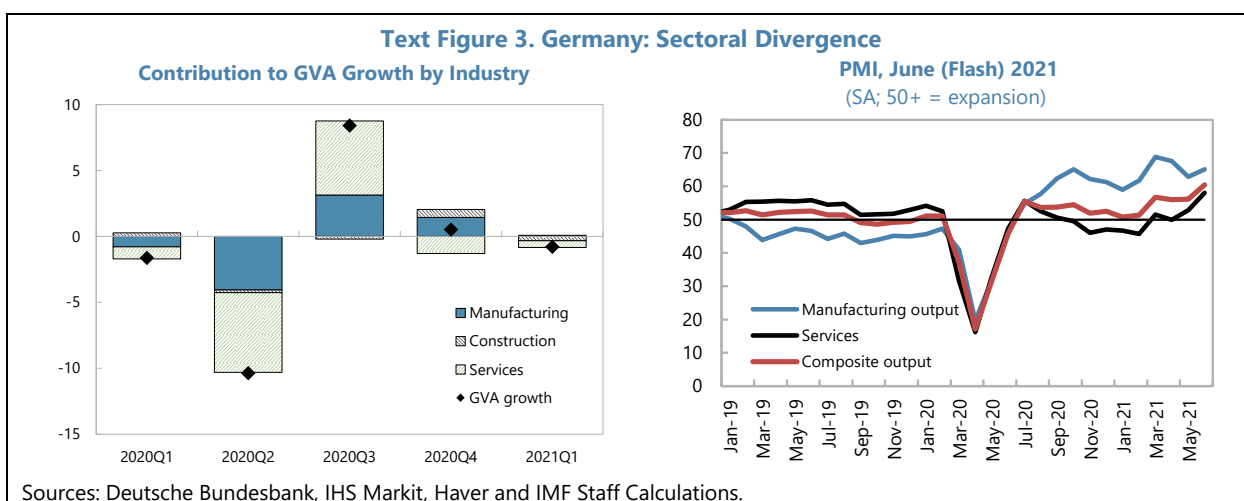


2. The mass vaccination effort has gained speed, but the path of the pandemic remains uncertain. Amid procurement delays at the EU level, and mixed messaging around the Astra-Zeneca vaccine, the vaccination campaign was rolled-out more slowly than in the U.S. and U.K., although the pace was in line with other large European countries. Vaccine supply and distribution has picked up markedly since the spring (Text Figure 2), and the authorities' goal is to cover the entire adult population by the end of summer 2021. However, the risk of disruptions to the vaccination program and the spread of more transmissible variants of the virus continue to cloud the prospects of recovery.

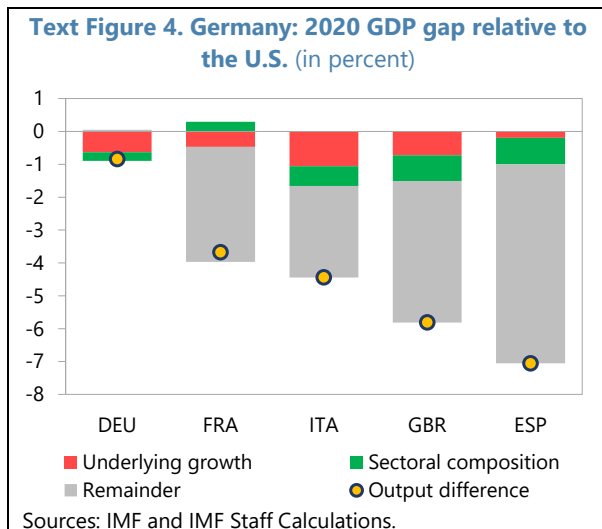


RECENT ECONOMIC DEVELOPMENTS

3. An uneven and choppy quarterly GDP growth path in 2020 culminated in an annual contraction of 4.8 percent. An unprecedented fall in output in Q2 was followed by a rebound in Q3, driven by a strong recovery in both private consumption and exports. However, consumption contracted again in Q4 with the emergence of the second wave and renewed lockdowns while exports continued growing. Overall, private consumption contracted by over 6 percent in 2020, a post-war record. The divergence between domestic and foreign demand deepened further in Q1 2021, as exports were buoyed by a faster than expected economic recovery in key trading partners (especially China and the US), while consumption continued to be weighed down by pandemic-related mobility restrictions and the expiration of last year's temporary VAT cut. Overall, GDP contracted by 1.8 percent in 2021 Q1, with anemic consumption more than offsetting robust exports. Activity indicators suggest that the divergence between manufacturing and services is now gradually narrowing, as economic restrictions are lifted (Text Figure 3).

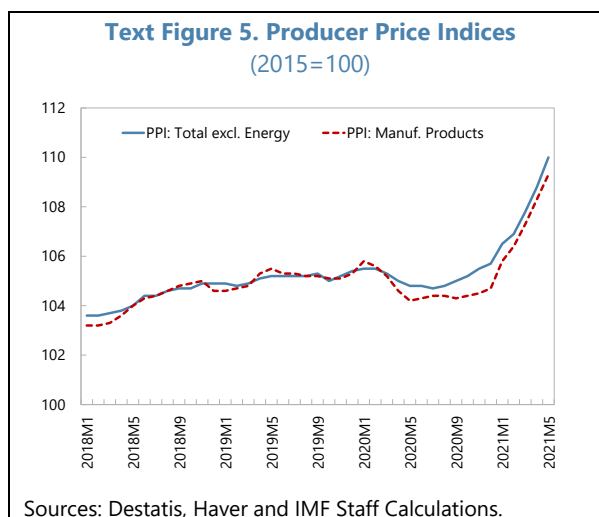


4. Notwithstanding the profound shock exerted by the pandemic, Germany outperformed many of its euro area peers in 2020. An analysis of the difference in output performance between the U.S. and some of the largest countries in Europe shows that Germany's performance last year was closer to that of the U.S. Moreover, the small performance gap between Germany and the U.S. can be largely explained by differences in pre-Covid trend growth—as countries were expected to grow at different rates even before the pandemic hit—as well as differences in the sectoral composition of the economy (Text Figure 4).¹



¹ See Box 1 and Online Annex in the Spring 2021 *Regional Economic Outlook Update* for Europe.

5. The economic contraction interrupted a decade-long decline in unemployment, stalling wage growth and further slowing inflation. Pandemic related demand shocks opened up a sizeable negative output gap in 2020. The unemployment rate—cushioned by extensive use of the short-time work program *Kurzarbeit* (see Paragraph 27)—rose modestly from 3.2 percent in 2019 to 4.2 percent in 2020. The economic slack slowed wage growth from 3 percent in 2019 to 0.6 percent in 2020. Headline inflation fell to an average of 0.4 percent in 2020, reflecting also sharply lower commodity prices, and even entered negative territory in H2 as a temporary VAT rate reduction took effect. Annual core inflation was similarly subdued at 0.9 percent (see Figure 3). So far this year unemployment has remained elevated, reflecting still weak macroeconomic conditions in Q1, and long-term unemployment has increased due to depressed hiring rates. In contrast, headline and core inflation have been rising sharply due to higher commodity and food prices, and several one-off factors in 2021, including new consumption weights in the HICP basket, the introduction of carbon pricing surcharges on energy prices (Box 2), and the expiration of the VAT rate cut. Higher inflation in 2021 is also driven by a strong base effect as prices had dropped to record lows during the height of the pandemic in 2020. Producer price pressures have risen sharply in recent months, driven by lingering supply constraints amid a strong global demand rebound for commodities and intermediate inputs (Text Figure 5).

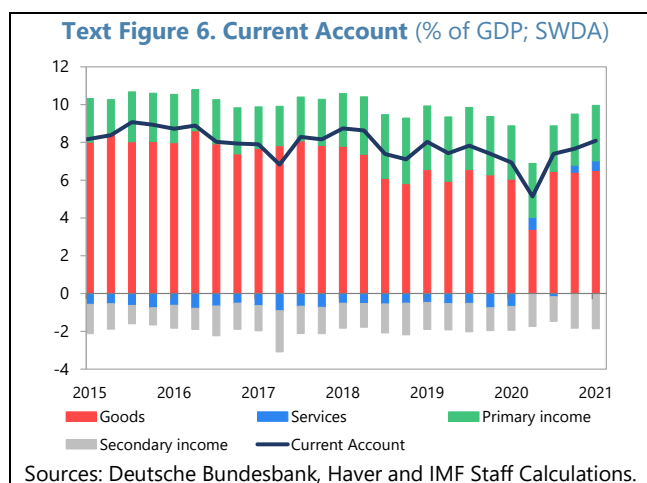


6. In 2020, Germany recorded its first fiscal deficit in eight years, reflecting unprecedented policy support to combat the COVID pandemic. Two fiscal packages were announced during the course of the year, comprising ramped-up public health spending, grants to firms, subsidies for the extended *Kurzarbeit* scheme, transfers to subnational governments, and additional public investment. The take-up of some measures, such as grants to firms and *Kurzarbeit* was lower than initially expected, due mainly to a smaller-than-forecast economic contraction and the liquidity buffers built up by firms at the outset of the pandemic. Nonetheless, the extraordinary fiscal measures reduced the structural balance to a deficit of 2.9 percent of GDP, an easing of 4.2 percent of GDP that was enabled by the activation of the escape clause of the constitutional debt-brake rule.² Public debt rose from under 60 percent of GDP at end-2019 to 70 percent of GDP in 2020.

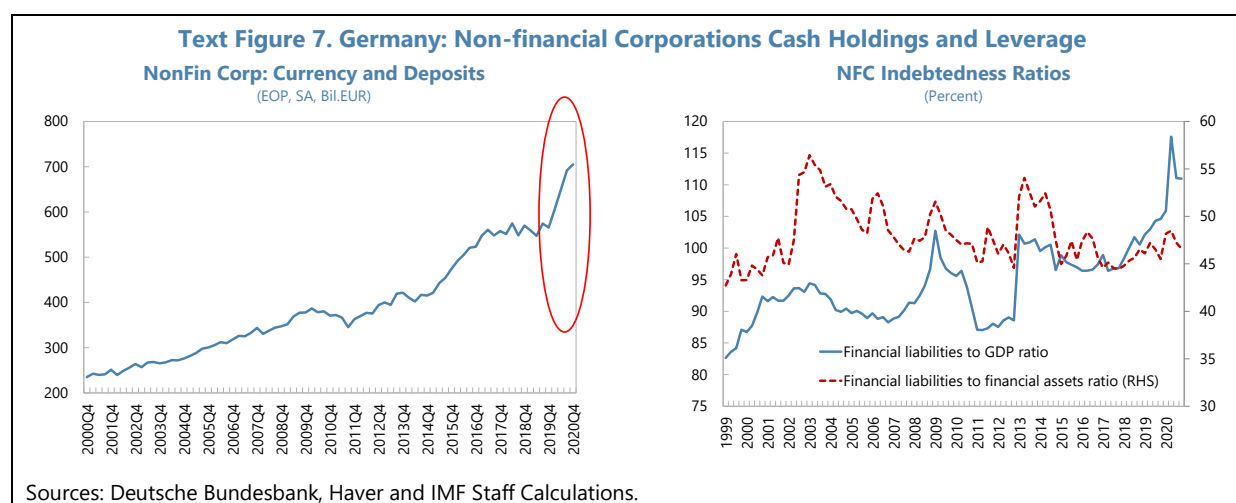
7. The current account surplus narrowed slightly in 2020, and the external position is assessed as stronger than the level implied by medium-term fundamentals and desirable policies. The COVID-19 pandemic led to a significant disruption in cross-border flows of goods and

² The debt brake rule sets a ceiling on “structural” new borrowing, of 0.35 percent of GDP by the federal government and zero by the state governments.

services, particularly in the second quarter. The contraction in Germany's goods trade balance, however, was largely offset by a commensurate decline in the services deficit—associated with a sharp reduction in net tourism outflows—and lower oil prices. The current account recorded a surplus of 7 percent of GDP in 2020, which is a 0.5 percent of GDP decline from the previous year, and noticeably lower than its most recent peak (8.6 percent) in 2015. Overall, the external position in 2020 was assessed to be between 2.4 and 4.4 percentage points of GDP higher than the estimated norm (see Annex I).



8. After rising at the onset of the pandemic, credit growth has eased, reflecting decreased new lending to non-financial corporates but stable lending to households. Much of the increased credit to firms at the onset of the crisis was used to boost liquidity buffers amid the uncertain economic environment (Text Figure 7). Although this precautionary demand for credit has eased, overall credit growth remains robust in historical context (Figure 6). Consequently, non-financial corporate debt ratios increased temporarily, but their leverage (debt to assets) remains relatively low in historical terms, despite the recent rise in the sector's overall indebtedness in relation to GDP (Text Figure 7). Since the onset of the pandemic, financial policies have been adjusted to support credit supply. In particular, the ECB and Bafin gave permission to use the capital conservation buffer—amounting to 2.5 percent of risk-weighted assets—while releasing the bank-specific Pillar II Guidance, allowing banks to use these buffers without requiring an imminent replenishment. At the same time, the countercyclical capital buffer (CCyB) was reduced to zero,³ deposits held with central banks were excluded from the leverage ratio, while the distribution of



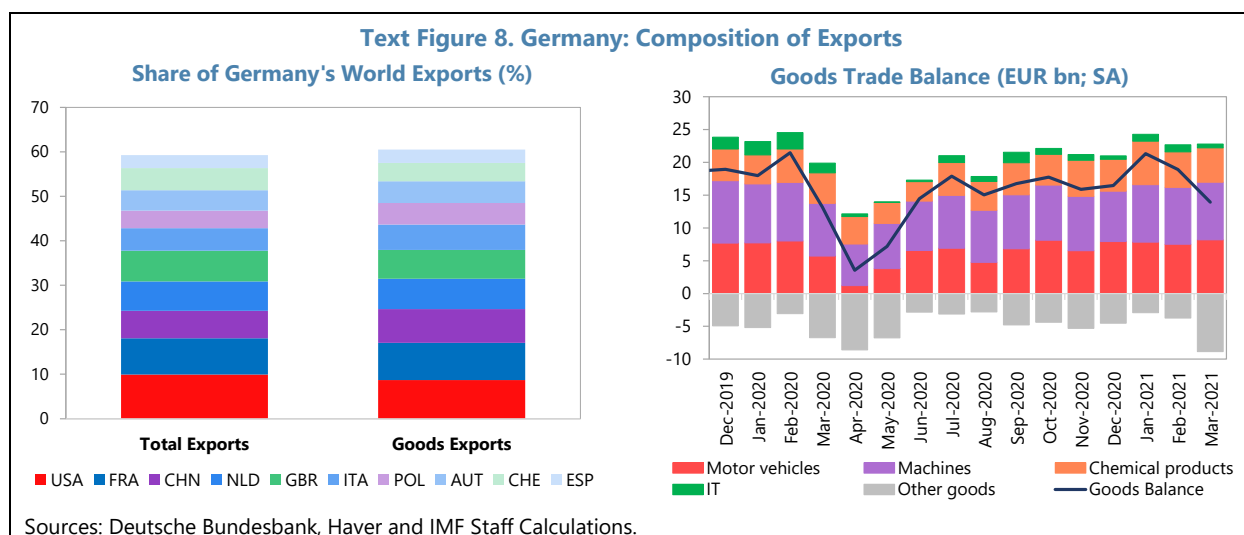
³ In July 2019, Bafin announced the activation of the CCyB for the first time, increasing it from zero to 0.25 percent of risk-weighted assets.

profits in the form of dividends and share buybacks was restricted. While lending standards have tightened moderately, interest rates and lending rates remain low, reflecting accommodative monetary policy and financial conditions (Figure 6).

OUTLOOK AND RISKS

9. Staff's baseline forecast is for a robust recovery in the second half of the year as mass vaccination accelerates and lockdowns are phased out. While GDP contracted again in 2021Q1, pulled down by weakened private consumption, forward-looking indicators (manufacturing orders, business expectations) suggest continued growth in exports and an improved outlook for services sector in line with re-opening plans and the expected release of some pent-up savings. In addition, the ongoing recovery in the US and Asia should continue to boost German exports. As containment measures are lifted, domestic demand should rebound quickly as household debt is relatively low, labor market conditions remained resilient, and household incomes were broadly stable.

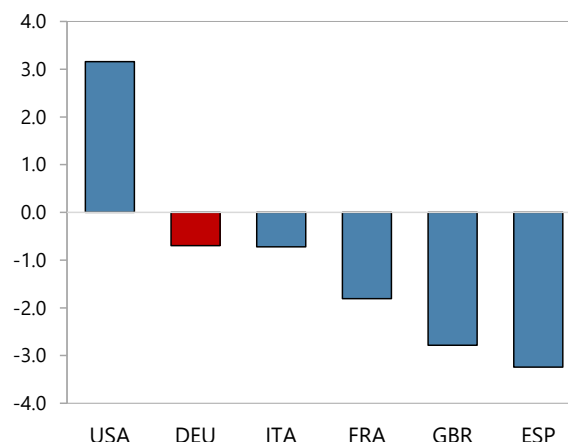
10. In the short term, a rebound in private consumption from H2 onward is expected to reinforce the positive export performance. The growing momentum of exports since 2020 Q4 has been strengthened by large policy support in the US and robust growth in both China and the U.S., which together account for over 16 percent of German exports (Text Figure 8). Growth is also likely to be spurred by investment in machinery and equipment (which tends to co-move with external demand) and by rapidly increasing capacity utilization. Although headwinds from supply chain bottlenecks have proved disruptive to industrial production since early 2021, these global supply bottlenecks are expected to ease as producers adjust to recovering demand. Since demand for housing remains strong, construction should continue to grow robustly. Overall, growth is projected to reach 3.6 percent in 2021. The recovery in demand will narrow the output gap considerably, although it is expected to remain negative until 2023. One-off factors in 2021 coupled with strengthening demand are expected to push headline inflation to 2.6 percent this year. The current account is forecast to rise on the back of strong goods exports and still subdued services imports, reaching 7.4 percent in 2021.



11. Over the medium term, the output level is expected to return to potential as crisis-affected demand and supply conditions normalize. However, as in previous recessions, some scarring effects on human and physical capital are likely, leaving output in 2025 almost 1 percent below the level envisaged before the pandemic.

This is not a negligible loss, but it is relatively small compared to other large European countries (Text Figure 9) and compared to the aftermath of previous recessions (see *April 2021 WEO* Chapter 2). The smaller scarring in Germany relative to European peers is largely due to smaller actual output and employment losses—and correspondingly smaller hysteresis effects—at the height of the crisis. Following the spike in 2021, headline and core inflation are projected to moderate in 2022, before picking up gradually over the medium term and reaching about 2 percent by 2026. Wage growth is also expected to pick up as demography-driven labor supply constraints become more binding over the medium-term amid slowing productivity growth. As the pandemic recedes and global demand patterns normalize, the current account balance is expected to resume its modest gradual narrowing, supported by a realignment of price competitiveness and solid domestic demand.

Text Figure 9. 2025 Real GDP Level Relative to Pre-COVID Baseline (pct difference)



Note: Pre-covid baseline corresponds to the projections in the January 2020 WEO Update. Sources: IMF and IMF Staff Calculations.

12. There is unusually large uncertainty around the baseline forecast, with the balance of risks tilted to the downside. The main source of uncertainty remains the evolution of the pandemic, which will depend on epidemiological factors, the pace and reach of vaccination, and the success of, as well as adaptability to, containment measures, both mandated and voluntary. Staff sees the following major risks at different time horizons (see Annex II):

- In the short term, if the vaccine rollout fails to get ahead of infection dynamics, the authorities could be forced to prolong or re-impose costly lockdowns, delaying the recovery and deepening economic scarring. Ongoing supply shortages of intermediate inputs could last longer than expected, dampening the recovery in exports and investment, particularly for the automobile sector. On the other hand, domestic demand could rebound more swiftly due to the drawdown of pent-up savings. At the same time, external demand, exports, and the trade balance may recover more strongly than envisaged, driven by a sharper economic rebound and further policy support in key trading partners.
- Looking further ahead, failure to adapt to the post-COVID economy—which could be characterized by transformed ways of working and altered consumption preferences—coupled with lagging progress on long-standing structural challenges such as digitalization and dealing with the demographic transition, could weigh on potential growth. Germany's reliance on

exports amplifies the risk of eroding global market share if firms do not adapt nimbly to new technologies and consumer preferences.

Authorities' Views

13. The authorities shared staff's general assessment of the macroeconomic outlook but saw risks as broadly balanced at this juncture. They project a strong economic rebound in 2021H2, driven by continued robust external demand and rebounding domestic demand. As lockdown measures are lifted and vaccination becomes widespread, private consumption and investment are expected to recover, supported by stable household incomes and pent-up savings. The pre-crisis GDP level is expected to be attained by the end of 2021. The authorities pointed to the resilient labor market and so far, contained corporate bankruptcies, as indications that the extent of economic scarring would be small, at around 1 percent of GDP in the medium term. While concurring with staff on the various sources of risks in the near term, the authorities see risks as largely balanced. They pointed to the abnormally large amount of household savings accumulated so far as a major upside risk to the near-term forecast for domestic demand, and view the risk stemming from the epidemiological development as increasingly contained thanks to accelerating vaccinations. The authorities acknowledged that the current account surplus remains high, but emphasized that it is affected by many non-policy variables.

POLICIES FOR A STRONG AND SUSTAINABLE RECOVERY

Multi-pronged policy support has been crucial to cushion the shock to the economy and should be maintained until the recovery is well underway. If the recovery falters, additional measures should be implemented as fiscal space remains ample. Looking ahead, the phasing out of supportive policies should be carefully calibrated to the progress of the pandemic and the economic recovery, and accompanied by targeted measures to encourage post-crisis resource reallocation. Over the medium-term, Germany should focus on promoting a greener, smarter, and more inclusive economy; a structural transformation that lifts potential growth and reduces external imbalances.

A. Fiscal Policy

14. Fiscal policy is projected to remain appropriately expansionary in 2021, with a supplementary budget announced in March, and the escape clause to the debt brake rule remaining in effect. Faced with new infection waves and corresponding lockdowns, the government has extended several COVID-19 measures. Notably, the unused grants to firms from the 2020 budget have been reallocated to 2021 rather than being phased out. This is appropriate as the expiration of the insolvency moratoria at end-April may generate a need for further public support. The government has also announced a number of new measures, including: increased corporate tax

loss carry-back;⁴ additional support for firms, the self-employed, basic income recipients, and the cultural sector; another round of one-off child benefits (€150/child); an extension of the VAT cut on restaurant services through end-2022; increases in the apprenticeship subsidy (from June 1, 2021 through the end of the

Text Table 1. Germany: COVID-19 Fiscal Packages				
(Percent of GDP)				
	2020	2021	2022	Total 1/
	Actual	Allocation	% of 2020 GDP	
Direct budget support	3.4	6.3	1.6	13.9
Total revenue	0.8	0.9	0.6	3.3
Sales	0.0	0.0	0.0	
VAT and import taxes	0.4	0.4	0.1	
Income and wealth tax	0.2	0.3	0.5	
Social contributions	0.2	0.2	0.0	
Total expenditure	2.6	5.4	1.0	10.5
Compensation of employees	0.1	0.0	0.0	
Goods and services (e.g., vaccine, PPE)	0.6	1.0	0.3	
Social benefits (e.g., Kurzarbeit, unemployment benefits)	0.9	0.5	0.2	
Subsidies (e.g., grants to firms)	0.6	2.9	0.2	
Other current transfers	0.1	0.3	0.0	
Public investment	0.1	0.2	0.1	
Capital transfers	0.1	0.4	0.2	
Others	0.3	0.7	0.2	

1/ Including the amount that is expected to be disbursed beyond 2022.

2021/2022 academic year); and frontloading some investment projects.⁵ These policies—in conjunction with some measures already planned before the pandemic⁶—imply a more than 3 percent of GDP increase in the structural primary deficit in 2021 (Text Table 2). The continued expansionary fiscal stance is appropriate given the still sizable negative output gap and considerable uncertainties regarding the pace of recovery. Demand support at a time when interest rates remain at the zero lower bound is particularly effective as fiscal multipliers are relatively large.

Text Table 2. Germany: General Government Operations, 2019–26								
(Percent of GDP)								
	2019	2020 2/	2021	2022	2023	2024	2025	2026
			Proj.	Proj.	Proj.	Proj.	Proj.	Proj.
Headline Balance	1.5	-4.2	-7.2	-1.8	-0.4	0.0	0.5	0.5
<i>Change from the previous year</i>		-5.7	-3.0	5.5	1.3	0.4	0.5	0.0
Primary Structural Balance	2.1	-2.3	-5.7	-1.1	0.1	0.5	0.9	0.9
<i>Implied fiscal impulse 1/</i>		4.3	3.4	-4.6	-1.2	-0.3	-0.5	0.0
Structural Balance	1.3	-2.9	-6.2	-1.6	-0.4	0.0	0.5	0.5
Public Gross Debt (Maastricht definition)	59.7	69.7	73.0	70.9	69.3	67.3	64.7	62.3

Sources: Ministry of Finance, Bundesbank, Federal Statistical Office, and IMF staff estimates and projections.

1/ Negative of the difference between the primary structural balance in each year and that of the year before.

2/ Data on fiscal balances are as of February 24, 2021.

⁴ In 2020, the applicable tax loss carry-back was increased to a maximum of €5 million. In February 2021, the maximum amount was further raised to €10 million.

⁵ As part of the COVID-19 mitigation measures in 2020, the VAT rate for restaurants and catering services was lowered to 7 percent, from 19 percent, through end-June 2021. This measure has now been extended through end-2022.

⁶ From 2021 the solidarity surcharge will be phased out for the majority of taxpayers, and a basic pension will provide an additional payment to pensioners who had contributed to the social security system for at least 33 years with annual income less than 80 percent of the average wages throughout the entire period. Both measures will boost disposable income for low- and middle-income households.

15. The pace of withdrawal of policy support should be carefully calibrated to the progress of the pandemic and the economic recovery. Adequate support should remain in place while the economy is still weak so as to minimize scarring effects. Given considerable uncertainty about the progress of the pandemic and the shape of the recovery, it is preferable to err on the side of doing too much rather than too little. If the recovery falters, additional measures should be implemented as fiscal space remains ample. In particular, support should continue for households and firms; and the social safety net should be kept flexible and generous, protecting the most vulnerable groups, such as marginal workers, the self-employed and women. Further frontloading public investment in 2022-23 would also be appropriate to help Germany close its digital and infrastructure gaps while helping to rebalance its external position.

16. Once the recovery firms up, policies should become more targeted and focus on facilitating the necessary resource re-allocation. In this context, the government's decision to extend subsidies for firm-sponsored apprenticeships is welcome. The government can also consider additional measures to strengthen incentives for job search while reducing hiring costs for viable firms (e.g., hiring subsidies, job training).⁷ While encouraging the smooth exit of unviable firms, the authorities could maintain solvency support for viable firms through a variety of instruments, (see [Ebeke et al., 2021](#)).⁸ The pandemic—and associated changes to work practices and consumer preferences that are likely to persist well past the crisis—has also crystalized the need for strengthening Germany's digital and climate infrastructure (Sections B and D below). The authorities' plan to scale up targeted public investment in these areas is therefore appropriate.

17. Looking further ahead, Germany should use its ample fiscal space to lift potential growth, facilitate structural transformation, and reduce external imbalances. Fiscal policy should be deployed to address long-standing structural challenges such as boosting growth potential through greater physical and human capital investment (including a focus on life-long learning to support the structural changes after the pandemic); incentivizing innovation; bolstering the labor supply; and increasing disposable income for low-income households. Making progress towards these goals would also help with external rebalancing. Fiscal space remains substantial. The structural deficit is expected to shrink to about 1.6 percent of GDP in 2022 as COVID-19 measures gradually phase out, with the escape clause to the constitutional debt brake expected to remain activated. Over the medium term, the structural balance is expected to return to a surplus of about 0.5 percent. Public debt is projected to resume its downward trajectory from 2022 (Annex III). Therefore, there should be substantial fiscal resources available to encourage the needed structural transformation. Staff analysis suggests that a permanent 1 percent of GDP expansion of public investment from 2022 onwards would increase real GDP by more than 2 percent relative to the

⁷ A viable firm is one for which the present discounted value of future profits is greater than the liquidation value of current assets ([Diez et al., 2021](#)). Assessing viability is a complex task (see paragraph 40 for some details).

⁸ On December 1, 2020, the European Commission approved the "[Umbrella scheme](#)," under which the government can provide support to firms in the form of (i) subordinated loans, and (ii) recapitalization instruments, in particular equity instruments (i.e. acquisition of newly issued ordinary and preferred shares, or other forms of shareholding) and hybrid capital instruments (namely convertible bonds and silent participations).

baseline in the long run. This would more than compensate for the expected pandemic scarring while Germany's debt-to-GDP ratio would still trend down over time (Box 1).⁹

Box 1. The Impact of Fiscal Expansion in Germany

Germany's public debt is expected to decline rapidly over the medium term as the extraordinary fiscal support extended during the pandemic is phased out. Germany can use its ample fiscal space to lift its growth potential by expanding physical and human capital investment, incentivizing innovation, bolstering the labor supply, and increasing disposable income for low-income.

Using the Fund's Global Integrated Monetary and Fiscal model (GIMF), this Box simulates the macroeconomic implications of a fiscal expansion of 1 percent of GDP that is fully financed by debt.¹

The GIMF is a multi-region, forward-looking, dynamic stochastic general equilibrium model. The simulations consider a three-year temporary fiscal expansion over 2022-24, and a permanent expansion from 2022 onwards. Households and firms are assumed to have full information about the size and duration of fiscal expansions. The fiscal instruments considered are an increase in public investment and targeted transfers to liquidity-constrained households on the spending side, and a reduction in corporate tax and labor tax on the revenue side. For temporary expansions, the fiscal balance is assumed to revert back to its baseline after the shock, as the temporary measures phase out while general transfers are cut to pay for the increasing interest payments associated accumulating debt.

The results suggest that public investment has the largest and longest-lasting impact. While all four measures considered generally have a positive impact on GDP, the multiplier is largest for public investment, because it raises the marginal product of capital and labor, thus crowding-in private investment. Temporary reductions in labor or corporate taxes, and temporary targeted transfers do not have a large impact, because agents realize that the fiscal measures are temporary, and smooth their behavior accordingly. The current account falls sharply for a permanent fiscal expansion—with the impact on domestic demand dominating the impact on export competitiveness provided by greater productivity—helping with external rebalancing. However, external rebalancing is short-lived if the fiscal expansion is temporary, since the improvement in the current account persists only as long as the increase in domestic demand. For all the scenarios considered, the debt-to-GDP ratio trends down, suggesting that concerns about public debt should not stand in the way of even a permanently looser—and growth enhancing—fiscal stance.

The spillover effect on the rest of the euro area is generally positive but small. A fiscal expansion in Germany affects the rest of the euro area primarily through the trade channel (i.e., an increase in imports). As with the domestic impact, the spillover effects are strongest for public investment.

^{1/} Results are similar using the Fund's G20MOD.

Text Table 1.1 Real GDP Impact of 1% of GDP Fiscal Expansion in Germany

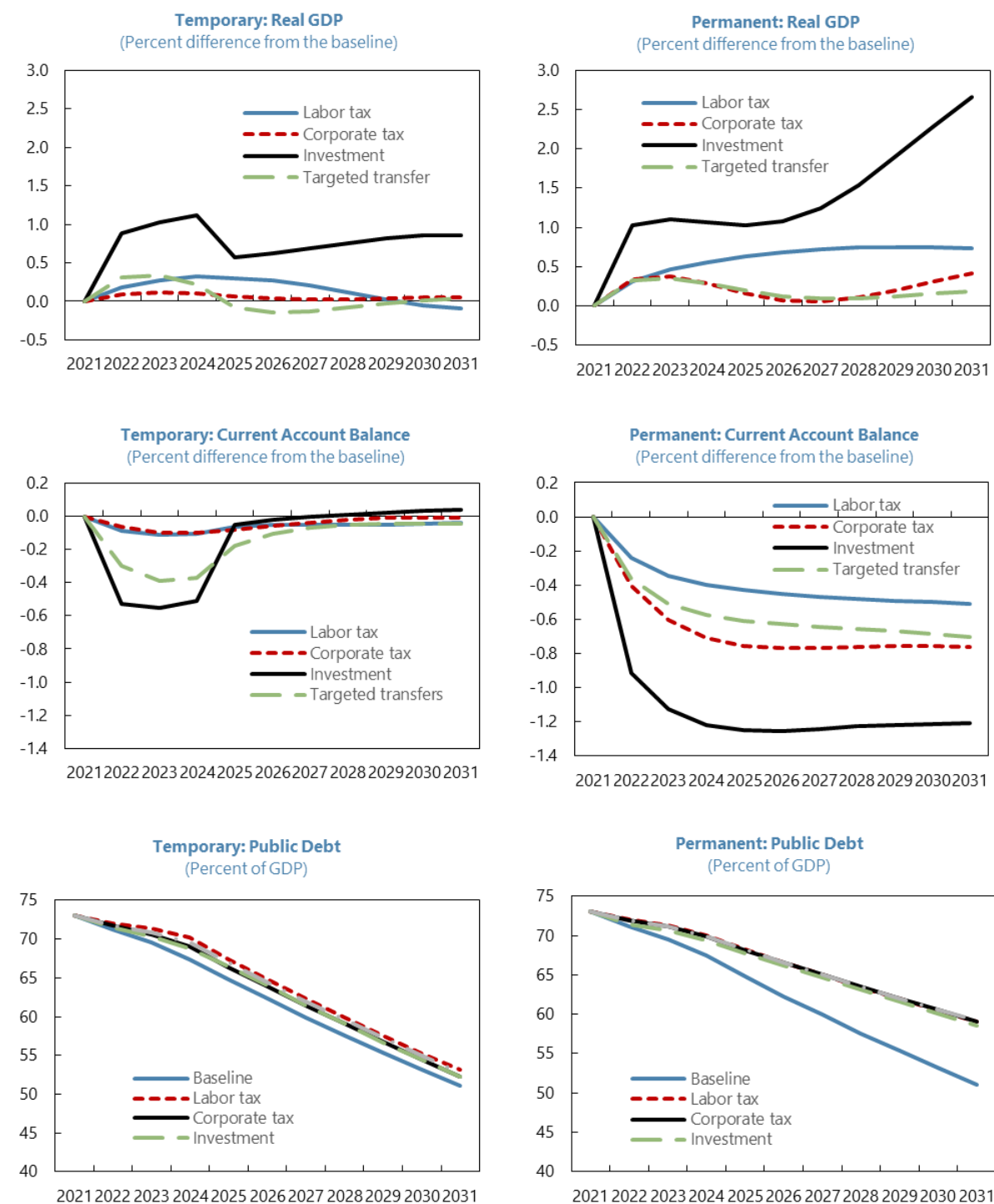
(Percentage points deviations from the baseline)

	Temporary			Permanent	
	Year 1	Peak	Cumulative 1/	Year 1	Cumulative 2/
Germany					
Labor tax	0.2	0.3	1.5	0.3	6.3
Corporate tax	0.1	0.1	0.6	0.3	2.3
Public investment	0.9	1.1	8.2	1.0	15.0
Targeted transfers	0.3	0.3	0.5	0.3	1.9
Euro area exc. Germany					
Labor tax	0.04	0.05	0.03	0.04	0.22
Corporate tax	0.00	0.01	0.02	-0.07	0.06
Public investment	0.18	0.19	0.39	0.04	0.53
Targeted transfers	0.02	0.03	0.05	-0.02	0.09

1/ 10-year cumulative impact of a 1% of GDP fiscal expansion for three years.

2/ 10-year cumulative impact of a 1% of GDP permanent increase in fiscal expansion.

⁹ The spillover effect on the rest of the euro area is generally positive but small.

Figure 1. Germany: Impact of 1 Percent of GDP Fiscal Expansion

18. Infrastructure governance reforms and additional federal government support could help overcome capacity constraints in implementing public investment. Municipalities' revenues have been hit hard by the COVID-19 crisis. The federal government has been providing sizable financial support to compensate for shortfalls, but it may be inadequate to make up the backlog of municipal investment in transport infrastructure and schools. The federal government should consider providing additional financing support, if needed, while also further streamlining planning processes, enhancing cooperation between agencies, and allowing for more attractive employment conditions for public sector planners. Staff welcome the introduction of the mandatory use of the e-procurement system, started in 2020, for all public supply and service contracts awarded by federal authorities and increasingly at the state (Länder) level. This should result in cost reductions to bidders and improvements in project quality. Streamlining Germany's decentralized, complex legal system for public procurement would also facilitate further efficiency gains.

Authorities' Views

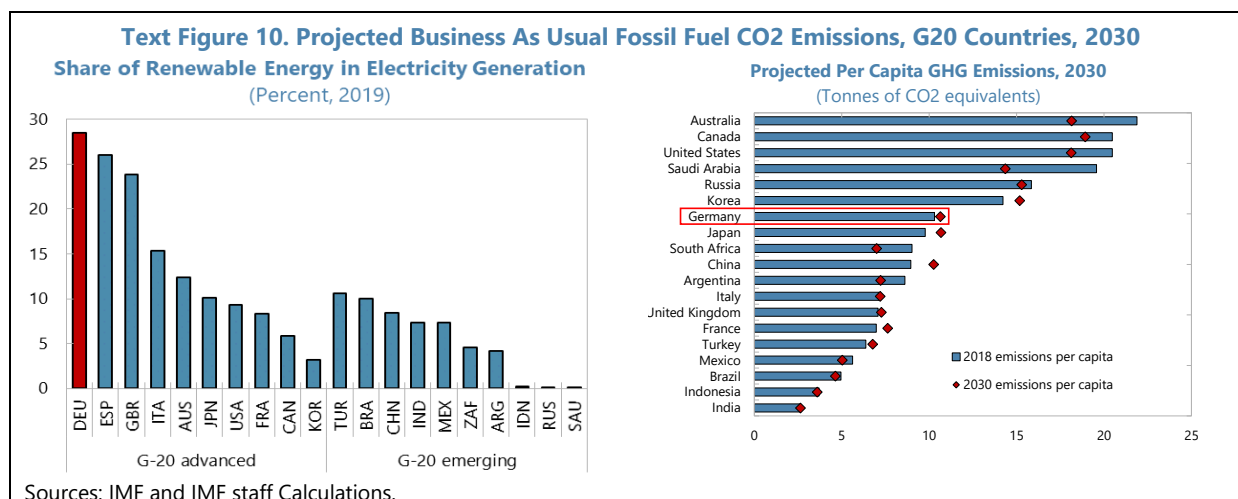
19. The authorities broadly agreed with staff's assessment of fiscal policy and recommendations in relation to managing the COVID-19 crisis. They emphasized that the COVID measures were timely, targeted, and transformative, aiming to save jobs and lives while facilitating economic recovery. The combined fiscal packages were among the largest in the world. The authorities agreed that public debt is sustainable, and that fiscal space remains available for additional support if needed. Over the medium term, the government is committed to returning to the debt brake rule. Germany's debt dynamics do not require fiscal surplus for a reduction of the debt ratio. However, the government points out that Germany's fiscal balance could return to surplus given the requirements of the national debt brake to pay down the debt accumulated to finance exceptional deficits during the pandemic, which exceeded the limits of the debt brake.

20. The government is ramping up public investment to support a green and digital transformation, while continuing efforts to alleviate execution bottlenecks. The COVID measures provide sizable financial relief for the municipalities. This, together with ongoing efforts to speed up planning and procurement through e.g., Partnerschaft Deutschland and the Bund/Länder Commission, has helped municipal governments continue to execute public investment during the pandemic. Within the context of Germany's Recovery and Resilience Plan (RRP) the government reinforces its efforts to further accelerate the implementation of public investment. Among others, the government is assessing remaining bottlenecks, with key findings to be published in 2022. To make public procurement during the COVID-19-pandemic smoother and easier, the federal government has adopted detailed guidelines for public contracts. The new nation-wide procurement statistics were launched in October 2020, which will enable analysis for strategic procurement and future legislation. An initial evaluation of the statistics is scheduled for the second half of 2021.

B. Mitigating Climate Change

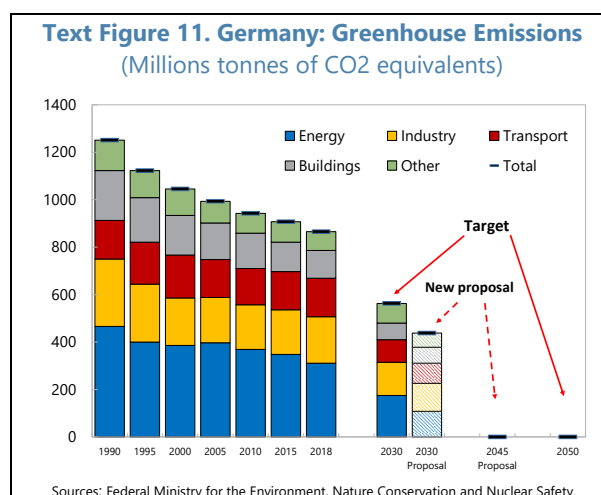
21. Germany has made significant progress in reducing greenhouse gas (GHG) emissions, yet per capita emissions remain high. GHGs have fallen by 41 percent from 1990 levels. The reduction was driven largely by the energy and industry sectors, the largest two sectors in terms of

GHG emissions. Indeed, Germany's share of renewable energy in electricity generation is the highest among G20 countries (Text Figure 10, left panel). Meanwhile, the transport sector, the third-largest emission sector, has barely reduced its emissions from 1990 levels. In a business-as-usual scenario—with no new, or tightening of existing, mitigation policies—Germany is expected to remain among the top ten global emitters in 2030, both in terms of absolute and per capita carbon dioxide (CO₂) emissions (Text Figure 10).



22. Germany is set to tighten its reduction targets for CO₂ and other GHGs emissions.

Germany's Climate Change Act (CCA) 2019 stipulates nationwide legally binding targets that are in line with the targets adopted at the EU level, namely at least a 55 percent reduction in GHGs below 1990 levels by 2030 and net zero emissions by 2050. The CCA also sets legally binding emissions targets for six sectors that become stricter each year up to 2030 (Text Figure 11). Following a constitutional court [ruling](#) in May 2021, the cabinet has approved amendments to the CCA with stricter emissions targets: a 65 percent reduction in GHGs below 1990 levels by 2030 and net zero emissions by 2045.¹⁰ The revised CCA, if approved by the parliament, will set an annual path for aggregate emissions through 2040 and revised annual sectoral targets through 2030.¹¹



¹⁰ The constitutional court ruled that the Climate Change Act 2019 violates the constitutional right of German citizens, especially of the youth, as emissions reduction targets are overly backloaded and not sufficiently well specified beyond 2030.

¹¹ The draft bill indicates that by 2032 the government must present a legislative proposal to set the annual reduction targets for the years 2041 to 2045.

23. A number of additional measures could enhance the cost-effectiveness and acceptability of the mitigation strategy.¹² The elasticity of carbon emissions to carbon pricing differs greatly across sectors, with the sectors covered by the EU ETS being more elastic than those covered by the national ETS. This suggests that meeting the emissions targets solely with carbon pricing would require very high carbon prices in some sectors. Price-based measures, therefore, should be complemented with sectoral instruments and further stepped-up public investment in green infrastructure and technologies.

Box 2. The Climate Action Program (CAP) 2030

The Climate Action Program (CAP) 2030 contains multi-pronged policy measures to achieve emissions targets. The program includes four major components.

- **Introduction of a national Emission Trading System (ETS).** On January 1, 2021, a national ETS covering CO₂ emissions from transportation and heating fuels became operational, with a price of €25/tonne of CO₂. Carbon pricing is scheduled to increase to €55 by 2025 in a step-wise manner. From 2026 onwards, an emissions cap will be set, which will decline over time in line with 2030 emissions targets, but with an initial price range of €55 to €65 per tonne. The path of carbon prices can be amended once the parliament has approved the revised CCA. The national ETS supplements the EU ETS, which covers energy and industries. Revenue from carbon pricing will be re-invested in climate measures or returned to taxpayers.
- **Measures to encourage GHG reductions in buildings, transportation, energy, agriculture, and industry.** Policies include tax incentives for energy-efficient modernization of buildings, increasing the number of electric vehicles (EVs) and public charging points, expanding renewable energy generation and increasing its use in industry, phasing out coal, encouraging climate-friendly agriculture, and exploring options for carbon storage.
- **Compensation for households and firms for the expected price increase.** The renewable energy surcharge and electricity prices have been reduced, while tax relief for long-distance commuters and higher housing allowances have also been provided.
- **Monitoring and correction mechanism.** Each year, the government will assess progress towards the 2030 climate targets in individual sectors. If a particular sector is not complying with its statutory targets, the ministry with lead responsibility will present the climate cabinet, with a remedial action plan.¹

1/ As part of the [CAP2030](#), the government set up a “climate cabinet” in April 2019, tasked with reviewing annually the effectiveness, efficiency, and targeting of climate measures.

- **Further strengthen carbon pricing.** A more well-specified schedule of carbon prices over a longer time horizon would provide a critical signal for ensuring that new investment is efficiently allocated to clean technologies. In particular, the domestic ETS could incorporate an automatically escalating price floor after the expiration of the price collar.
- **Reduce gaps in the marginal cost of abatement across sectors.** Higher carbon pricing in sectors with a relatively low cost of abatement, such as power and industry, could help reduce

¹² See Chen, R., A. Mineshima, S. Black, V. Mylonas, I. Parry, and D. Prihardini, “Enhancing Climate Mitigation Policy in Germany.” IMF Working Paper, forthcoming.

aggregate emissions in an economically efficient way. In this context, at the EU level, Germany should push for a robust price floor under the EU ETS through reform of the Market Stability Reserve and extension of the ETS to transportation and buildings. Alternatively, carbon pricing could be strengthened by applying a domestic carbon surcharge to emissions covered by the EU ETS.

- **Introduce feebates.** Feebates apply a revenue-neutral, sliding scale of fees on products or activities with above average emission rates and a sliding scale of rebates on products or activities with below average emission rates. These could complement existing sectoral policies.
- **Look for ways to frontload public investment in green infrastructure and further support green technologies.** While the bulk of green investment will come from the private sector, the public sector has a catalytic role through infrastructure investment, providing co-funding for projects with large upfront investment costs, and sharing risks through insurance and guarantees. In this context, for example, upgrading infrastructure (e.g., the electricity grid system, charging stations for electric vehicles) can support the expansion of green energy supply and usages.

24. The government could consider enhancing measures to cushion the impact of higher carbon prices on households. Higher carbon prices affect households directly by raising the price of fuels and energy and indirectly through higher input prices for other consumption goods and services. The overall distributional impact of carbon price increases is estimated to be broadly neutral in Germany: while the direct effect on fuel prices is regressive, the indirect effect via other goods and services is expected to be progressive and thus to mitigate the distributional impact. The CAP 2030 already contains several measures to mitigate the adverse impact on households (see Box 2). If needed, these measures could be supplemented by reducing high social security contributions for lower-income earners, which would provide compensation to the neediest while also encouraging labor supply.

Authorities' Views

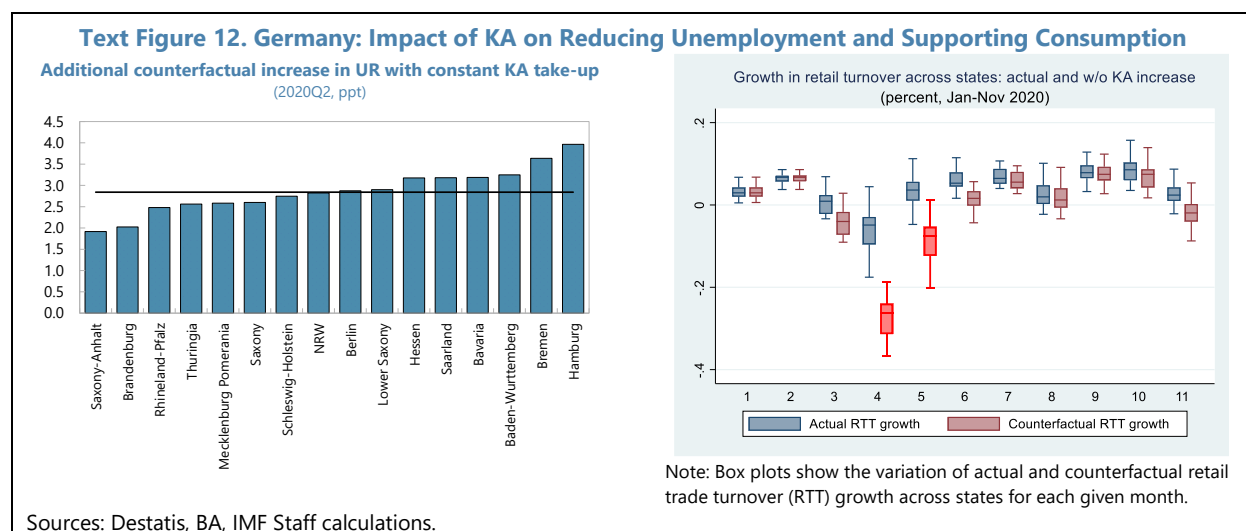
25. The authorities noted that climate protection is at the forefront of national policy and that further climate action measures are needed to meet the envisaged stricter emissions targets. The "Future Package (Zukunftspaket)" from the June 2020 stimulus program allocates €26.2 bn to the Energy and Climate Fund, and an additional €8 bn from the Energy and Climate Fund has been allocated for an immediate action program to meet the stricter emissions targets. The government indicated that achieving the climate targets solely with carbon pricing would be difficult, and advocated supporting sectoral measures, such as stricter regulations, especially where pricing measures are less effective. In this context, the government emphasized the importance of its support for green infrastructure and technologies. To cushion the impact of higher carbon prices on households, the government has committed to re-distributing revenues raised through selling emission rights. Although the current action plan does not contain income-based climate protection measures, the government emphasized that reducing costs for long-distance commuters, lowering the renewable energy surcharge, and increasing housing allowances would tend to benefit lower-

income households more. The government is not considering altering social security contributions as a distributional measure for the purpose of climate policy at this juncture.

C. Labor Market Policies

26. Germany's long-established job-retention scheme, Kurzarbeit, was made more flexible and generous in response to the crisis. As during the Global Financial Crisis (GFC), the scheme was adjusted from the onset of the pandemic to ease access for firms: the requirement to exhaust work-time accounts was waived, employers' social security contributions on reduced hours were waived, and the threshold for participation was lowered. For workers, benefits were made more generous by providing higher replacement rates on lost income. Take-up of Kurzarbeit benefits increased sharply (see Figure 3) across most sectors of the economy, reflecting the sheer magnitude and reach of the pandemic shock, as well as the significant program expansion.

27. Staff analysis suggests that Kurzarbeit was crucial in keeping unemployment in check and supporting aggregate demand. Comparing data on Kurzarbeit take-up across the 16 German states against state-specific exposure to the COVID shock suggests that absent the increase in take-up, the unemployment rate would have been almost 3 percentage point higher on average during Q2 2020, at the height of the crisis (Text Figure 12, left panel). The extent of the additional increase in unemployment would have been particularly pronounced in states with a large share of employment in contact-intensive sectors. By providing substantial income support and helping with job retention, the expansion of Kurzarbeit also boosted disposable income and reduced the need for precautionary saving. This, in turn, played an important role in supporting private consumption and stabilizing aggregate demand. Without the expansion of Kurzarbeit, the growth of retail trade turnover (a proxy for private consumption) in April-May would have declined by over 20 percentage points instead of only 1.1 percentage points on average (Text Figure 12, right panel).¹³



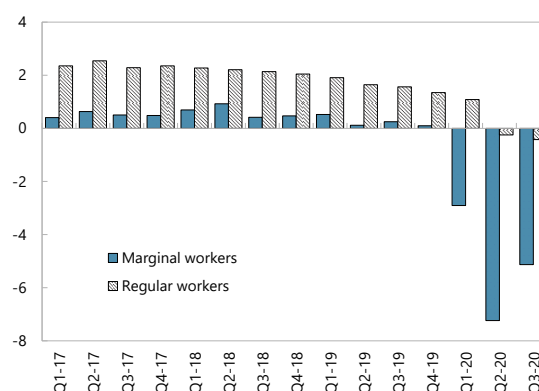
¹³ See Box 3 and Aiyar and Dao (2021), forthcoming, for details.

28. The parameters of the KA program will be normalized in stepwise fashion over the course of 2021; an appropriate strategy under the baseline. Workers will receive benefits under the expanded program parameters until end-2021, but these expanded benefits only apply to those starting Kurzarbeit before end-September 2021. Full reimbursement of employers' social security contributions on reduced hours will only be granted until end-September 2021, decreasing to half thereafter. This pace of policy normalization is appropriate under the baseline assumption of a robust recovery starting in Q2 and strengthening through the remainder of 2021. Given the uncertainty over whether new infections will lead to more prolonged lockdowns, policymakers should stand ready to extend the expanded Kurzarbeit program beyond this year to limit job destruction and support domestic demand if such downside risks materialize. As the recovery takes hold, a normalization of Kurzarbeit parameters will be important so as not to inhibit labor reallocation from shrinking to growing firms and industries. Staff analysis suggests that an expansion of short-time work could be associated with larger misallocation of labor across industries if the underlying need for reallocation is relatively high.

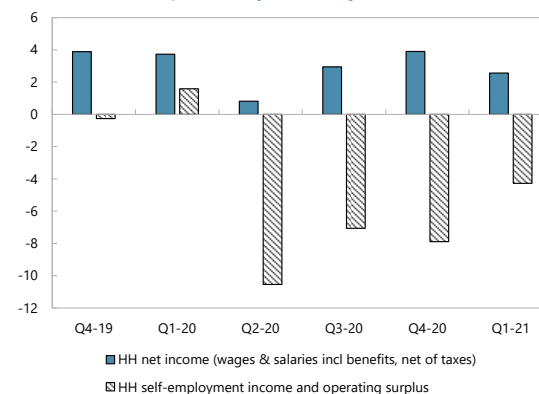
29. Marginal workers and the self-employed are bearing the brunt of job and income losses during the pandemic and will require additional policy support to withstand the income shock and re-integrate into the labor market.

Marginally employed workers, 60 percent of whom are women, make up only 18 percent of total employment but account for almost 74 percent of the jobs lost through Q3 2020 (see Text Figure 13).¹⁴ At the same time, they--and the self-employed--do not have access to Kurzarbeit and thus suffered the largest income losses even as aggregate household disposable income did not decline (Text Figure 14). The expanded access to the basic income currently in place should therefore be maintained until the job market has recovered sustainably for these most vulnerable groups of workers.¹⁵ To facilitate their transition back into post-pandemic jobs and help with

Text Figure 13. Germany: Employment Growth by Job Status
(percent, year-on-year)



Text Figure 14. Germany: Household Income Growth by Source
(percent year-on-year)



Sources: Destatis, Federal Employment Agency, Haver and IMF Staff Calculations.

¹⁴ These numbers include workers who hold marginal employment in addition to a regular one.

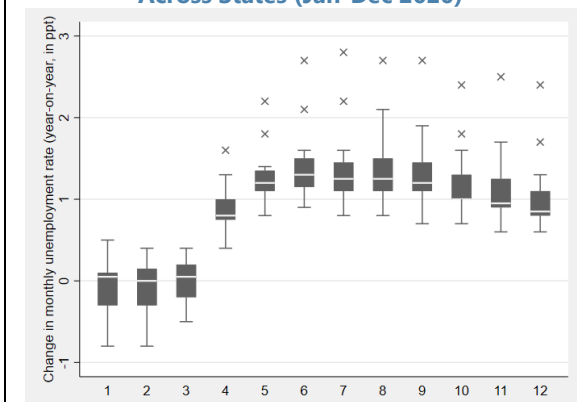
¹⁵ Access to basic income is temporarily [made more flexible](#) primarily by waiving asset means testing and lifting limits to eligible rent and utility costs for benefit recipients.

Box 3. The Effectiveness of Kurzarbeit During the COVID-19 Pandemic

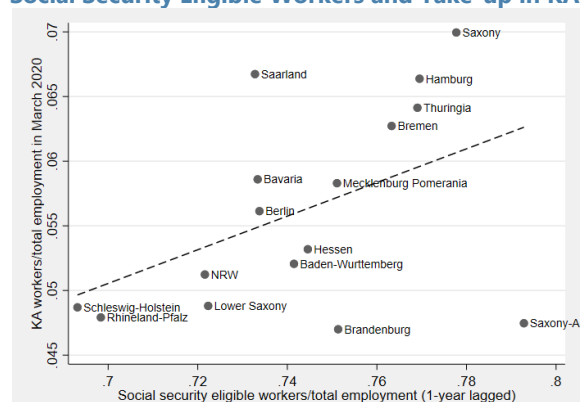
Germany's short-time work program, Kurzarbeit (KA), with over 60-year track record, is the world's oldest and best known job retention scheme. The main objective of Kurzarbeit is to facilitate employment adjustment during a temporary downturn along the intensive margin, i.e. a reduction in hours per worker, instead of layoffs. The government temporarily subsidizes employers' wage payments for lost hours of work, helping the firm retain its workers, bridge its liquidity shortage, and provide income support to workers. Importantly, amid steep recessions, key parameters of the KA program are relaxed to encourage take-up and stabilize the labor market. The discretionary expansion of KA occurred faster during the COVID-19 crisis than during the Great Recession. Eligibility criteria were relaxed, and benefits were enhanced for workers and employers as early as March 2021 (see 2020 Art. IV SR). The number of workers under KA accelerated to a record 6 million in May, with the uptake widely distributed across sectors.

Staff analysis of the effectiveness of the program during the pandemic exploits regional variation in economic performance, sectoral composition and KA eligibility.^{1/} Using monthly state-level variation in unemployment dynamics and KA take-up, combined with a shift-share measure of state-level exposure to the pandemic shock, Aiyar and Dao (2021) estimate the impact of the program on unemployment. Identification is complicated by the fact that KA take-up is highly endogenous to regional labor demand conditions; hence an instrumental variable is created that captures the pre-existing variation in program eligibility across states. The same instrumental variables approach is then used to estimate the impact of KA on state-level retail trade turnover. This provides novel evidence of the impact of the short-time work scheme on domestic demand.

Text Figure 2.1. Change in Unemployment Rate Across States (Jan-Dec 2020)



Text Figure 2.2. Correlation Between Share of Social Security Eligible Workers and Take-up in KA



The results suggest that the expanded KA scheme contributed substantially and significantly to containing unemployment and stabilizing domestic demand. Absent an increase in KA take-up, the unemployment rate during the trough of the crisis, i.e. 2020Q2, would have been on average 2.9 percentage points higher across German states, and as much as 4 percentage points higher in the most affected states. Similarly, without KA, retail trade turnover would have been on average 15 percent lower in 2020Q2, and the contraction in turnover would have been on average more than three times as large in April 2020 during the first lockdown (see Text Figure 12).

1/ Aiyar, S. and M. Dao (forthcoming), "The effectiveness of job-retention schemes: Covid-19 evidence from the German states", IMF Working Paper.

structural transformation from increased automation (see [April 2021 WEO Chapter 3](#)), workers should be able to benefit from appropriate training programs and job search assistance. Finally, marginally employed workers are predominantly low-income earners. The ongoing pandemic is therefore disproportionately affecting low-income workers, exacerbating underlying inequality

trends (see [IMF, 2019](#); [Dao, 2020](#)). Targeted policies will be needed to redress these dynamics. For example, a reduced labor tax wedge on lower incomes would help ameliorate income inequality and support aggregate demand given the high marginal propensity to consume among lower income households. Reduced social security contributions for low-income workers would also spur hiring of workers most at risk of long-term unemployment.

Authorities views

30. The authorities credited the expanded Kurzarbeit program with stabilizing the labor market and domestic demand amid the large output contraction. They saw the main strength of the program lying in its over 60-year-old track record, as well as its adaptability. They highlighted that unemployment and short-time work increased by much less during subsequent waves of infections and lockdowns compared to the first wave, suggesting some learning effects. The authorities are aware of the potentially adverse side-effects of prolonged Kurzarbeit on post-crisis resource reallocation but saw the envisaged pace of normalization as appropriate, with the benefit of saving jobs currently still outweighing any risk for misallocation. They acknowledged the disproportionate job and income losses suffered by groups not covered by Kurzarbeit, but highlighted the expanded access to the basic income and a special program for the self-employed (“Neustarthilfe”) as providing an essential safety net.

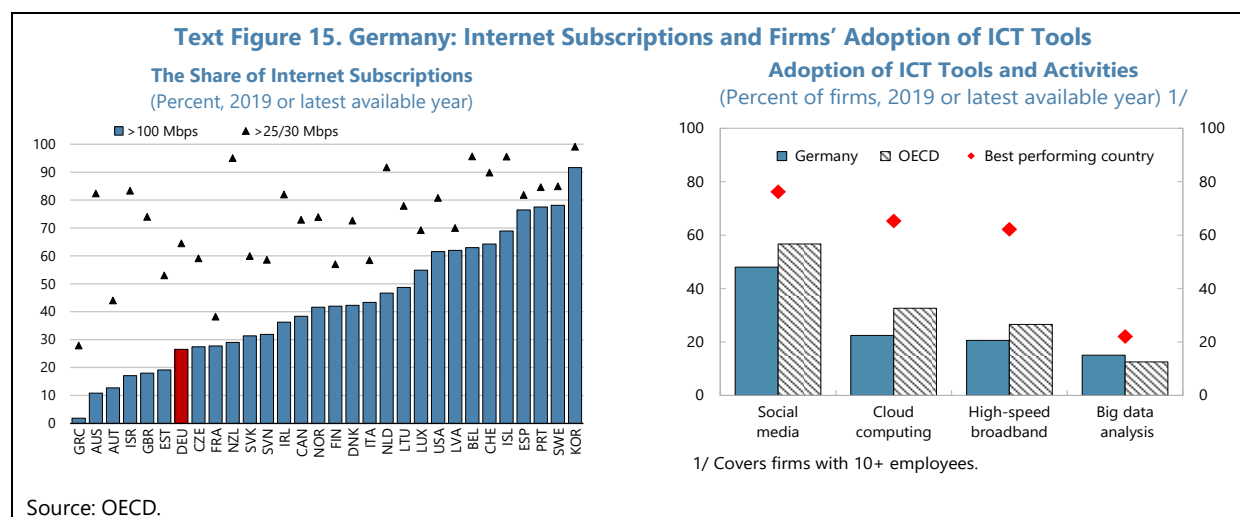
31. Going forward, young graduates, students and apprentices are viewed as most in need of re-integration support. While Kurzarbeit was an effective tool to contain a surge in job separation rates, hiring rates have seen a strong decline during the pandemic. Absent a strong recovery in hiring rates, the employment and career prospects of young labor market entrants and apprentices will be particularly affected. However, the authorities expect hiring to pick up as the economy recovers under the baseline scenario. Additional hiring subsidies would only be needed should downside risks to the macroeconomic outlook materialize. They saw merit in considering staff’s recommendation of lowering the labor tax wedge on low income earners as a policy to address structural challenges that go beyond the crisis response.

D. Digitization and Innovation

32. The pandemic has highlighted the urgency of a digital transformation. Germany is a world leader in technology and engineering, but trails peers on various metrics of information and communications technology (ICT). The share of high-speed (> 100 Mbps) subscriptions is low in Germany compared to peers (Text Figure 15, left panel), especially in rural areas. Germany’s mobile broadband subscriptions are also low, due to higher prices for faster 4G data packages relative to comparator countries and still limited 4G coverage.¹⁶ Furthermore, German firms are laggards in adopting key ICT tools required to create value with data (Text Figure 15, right panel). These gaps in

¹⁶ In May 2020, German consumers paid around PPP USD 34 for a 10 GB data plan, while consumers paid PPP USD 22 in Spain, PPP USD 24 in France, PPP USD 27 in Italy, and PPP USD 29 in Sweden (OECD 2020).

the digital infrastructure could hold back potential growth even more in the future if the economy emerges from the pandemic with a shift towards greater online working and consumption.



33. To expand connectivity, enhance the diffusion of ICT tools, and promote effective use of data by firms that hold important potential for innovation, Germany should:

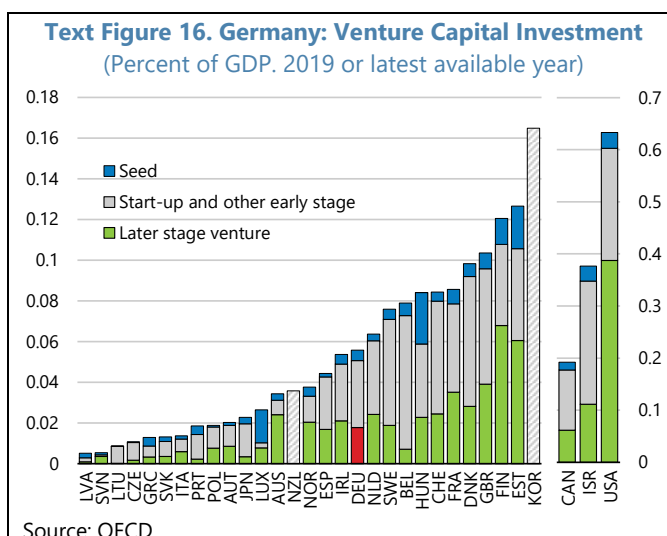
- Improve access to high-speed broadband networks, particularly in rural areas. To this end, shortening administrative approval times for communication network deployment (particularly in relation to rights of way required to build infrastructure) and improving coordination among public authorities could accelerate the disbursement of public funds.
- Carefully monitor competitive dynamics in the fixed broadband market, and foster competition and investment in the connectivity of multi-dwelling buildings. For the mobile market, promote competition, for example through facilitating new entrants to a market currently dominated by three players.
- Increase ICT training for teachers to ensure effective use of ICTs at schools. Introduce computers and programming earlier in the school curriculum to enhance students' digital skills and engagement ([OECD 2020](#)).

34. Germany's declining productivity growth calls for policy measures to promote innovation. Policies that foster business dynamism have become even more important in the context of the COVID-19 crisis. This includes policies to facilitate reallocation and technology diffusion, improve access to finance, especially for young firms and for investment in intangible assets, while expediting the restructuring of established firms and the exit of nonviable firms. In addition, digital government can facilitate firm creation by reducing administrative costs.

- *Raise the cap for R&D tax incentives.* Germany introduced R&D tax incentives in 2020, subsidizing 25 percent of up to €2 million R&D expenditure per year, limited to €15 million in total (direct and tax) support per firm. As part of the COVID-19 recovery package, the cap has been increased to €4 million per firm through end-2025. While this measure is expected to

benefit SMEs, further raising the cap could help incentivize R&D at larger “Mittelstand” firms. To spur private investment, the government has recently introduced a faster depreciation schedule for digital goods.

- Promote venture capital (VC).* VC investment in Germany grew by 19 percent per year between 2014 and 2019, and some German cities have become hot spots for start-up funding in Europe, notably Berlin (OECD 2020). However, Germany continues to trail many peers, especially for later stage funding (Text Figure 16). The government should further explore ways to encourage later stage (scale-up) capital, especially promoting the participation of institutional investors in venture capital markets. The creation of an EU-wide Capital Market Union would enhance arm’s-length cross-border finance using tradable instruments, allowing firms to tap into a broader investor base and improving young firms’ access to venture capital.¹⁷
- Reduce administrative red tape and lower compliance cost.* Cumbersome procedures to start businesses and high compliance cost are among the key challenges to entrepreneurship (see 2018 Article IV Staff Report). A third Bureaucracy Relief Act was adopted in 2019, but more can be done to reduce red tape and legal compliance costs. Completing the roll-out of e-Government for the center and states by end-2022, as planned, would also help reduce businesses’ administrative burden.¹⁸



Authorities’ Views

35. The authorities shared staff’s view that providing support for innovation and facilitating private investment are essential, and highlighted a range of ongoing supportive measures. The appropriateness of the ceiling for R&D tax incentives is to be assessed within a broad evaluation in 2025. The government fully recognizes the importance of R&D, while indicating that tax incentives are just one element in addition to numerous targeted as well as generic (technology-neutral) support measures. To further support start-ups at the growth stage, the government will provide €10 bn through KfW for an investment fund for technologies of the future (“Future Fund (Zukunftsfonds)”). Together with private and public partners, this fund is expected to

¹⁷ See [Bhatia et al. 2019](#).

¹⁸ Germany ranks 24th in the EU for digital public services, well below the EU average (European Commission, 2019). Under the Online Access Act in 2017, the digitization of 575 services at the federal and Laender levels should be completed by end-2022.

facilitate at least €30 bn in venture capital for start-ups in Germany. Meanwhile, the second Open Data Act and Data Use Act, which are expected to come in force in 2021, will improve the availability of public-sector data in machine-readable formats in a timely manner, supporting the development of key technologies, such as Machine Learning and Artificial Intelligence.

36. The authorities acknowledged the increased urgency of digitalization and highlighted a number of measures taken. The fixed broadband and high-speed mobile networks are expanding. For the mobile network, a newly-created state-owned company, “Mobile Infrastructure mbH,” is expected to facilitate the closure of remaining “white spots” by administering existing funding programs, accelerating approval process, and supporting municipalities in the search for new cell towers. The authorities are monitoring competitiveness dynamics in the fixed broadband and mobile network markets. A fourth player is set to enter the mobile market, and will be allowed to use the infrastructure platforms developed by incumbents. The implementation of eGovernment is proceeding, and 315 out of 575 proposed services are already available online. To accelerate the process, especially the integration of existing ICT systems developed at the Länder level, an additional €3 bn has been allocated. Digitalization of schools is a key priority, highlighted also in the RRP, for which the government has earmarked €1.5 bn.

E. Financial Sector Policies

37. German banks have so far weathered the COVID shock relatively well, but their capital could diminish significantly if the economic recovery falters. Staff analysis suggests the aggregate CET1 capital ratio of large German banks could decline going forward as insolvencies pick-up (see paragraph 39).¹⁹ Even though capital buffers remain sufficient to absorb this hit without triggering any regulatory capital shortfall in the banking system, capital erosion could curb new lending just when it is most needed to support the economic recovery. While most capital relief measures (e.g. reduction of the counter-cyclical capital buffer and permission to use the capital conservation buffer) have been extended through at least year-end, it is not clear how long banks will have to rebuild any buffers that are depleted. The authorities should maintain a multi-pronged policy approach to safeguard financial stability during the nascent recovery. First, borrower support (e.g., grants to firms, loan guarantees, Kurzarbeit, tax deferrals) should remain in place until there is good evidence of a sustained recovery. Second, clear supervisory guidance should be issued allowing banks to build back capital buffers gradually to preserve lending capacity, coupled with restrictions on dividend payouts and share buybacks until the recovery is well underway.

38. The crisis has exacerbated long-standing profitability problems in the financial sector, underscoring the urgent need for innovation in business models. As policy support is unwound, rising loan impairments and provisions will add to the pre-existing challenge of low profitability during a prolonged period of very low interest rates. Saving and co-operative banks stand most

¹⁹ Based on a stress test of 26 large German banks; part of a broader analysis of the pandemic’s impact on European banks in [Aiyar and others \(2021\)](#). The initial capital position is as of end-2019.

exposed to a weak economic environment and low interest rates due to their exposure to domestic SMEs and reliance on retail deposits (Text Figure 17). However, they entered the pandemic with higher capital buffers than commercial banks and in the pre-pandemic years, had been able to expand lending volumes and non-interest income in response to the pressure from low interest rates.

Commercial banks and Landesbanken, on the other hand, are more exposed to rising funding costs as they rely more heavily on hybrid capital and wholesale funding. Even though the pressure points vary, all banks need to streamline operations to improve

their cost structures, including through consolidation and greater use of digital technologies, and enhance non-interest revenues (e.g. fees and commissions). Completing the financial architecture of the EU—including finalizing the European Deposit Insurance Scheme (EDIS) and the Capital Market Union (CMU)—would facilitate cross-border financial flows and remove impediments to cross-border bank consolidation. Insurance sector profitability has also been compressed by low interest rates and relatively flat yield curves. In this environment, there is relatively limited scope for reallocation on the asset side, particularly since German insurers have a relatively low home bias compared to peers. On the product side, insurers have started to sell products without guarantees, and there has been a shift towards ‘hybrid’ and ‘unit-linked’ products.

39. To date bankruptcies and financial losses have been limited, but lingering risks warrant close monitoring.

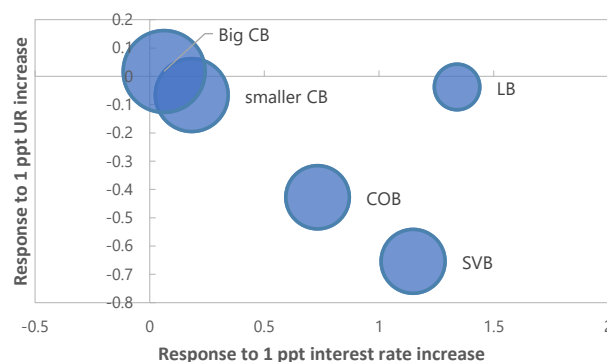
Aided by borrower support measures and insolvency moratoria

introduced in response to the crisis, the number of both business and household insolvencies remained near record lows at end-2020. But bankruptcies, concentrated in hard-hit sectors, have already started to pick up visibly since early this year, and are expected to rise further in the wake of the insolvency moratorium’s expiry (Text Figure 18). At the same time, supervisors should closely monitor asset quality and challenge banks’ own credit risk assessments as support measures expire. While the lifting of the insolvency moratorium is necessary to facilitate a post-crisis reallocation of resources,

it should be accompanied by adequate liquidity and solvency support targeted at viable firms.

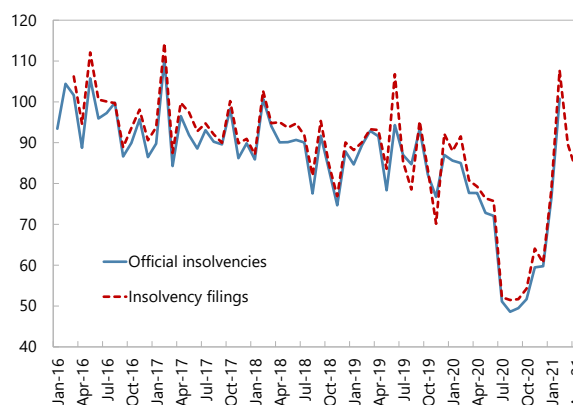
Insolvency procedures should be geared towards facilitating efficient restructuring or liquidation

Text Figure 17. Germany: ROA Sensitivity to Unemployment Rate and Interest Rate by Bank Type



Notes: CB=Commercial banks, COB=Co-operative banks, SVB=Saving banks, LB=Landesbanken. Big CB refer to the largest five commercial banks. Bubble size proportionate to total assets. Source: Fitch Connect and IMF staff calculations.

Text Figure 18. Germany: Insolvency Filings (2015=100)

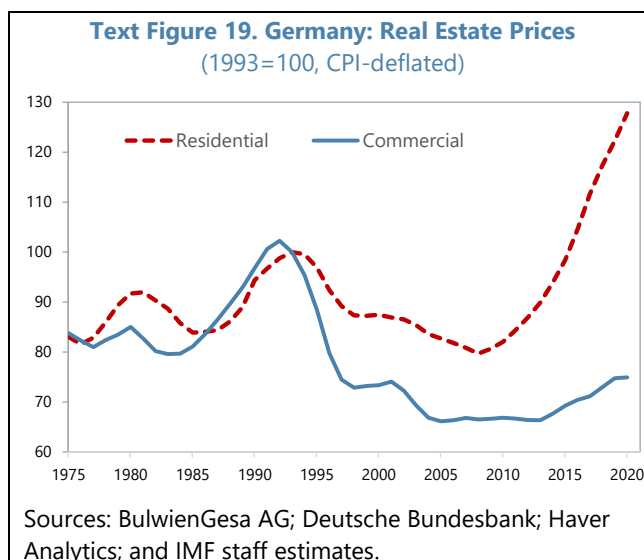


Source: Destatis.

where appropriate (see [IMF, 2021](#)). The recent transposition into national law of the EU Directive on Preventive Restructuring Frameworks provides a new mechanism to further reduce disruptive insolvencies, allowing companies that are currently in distress but can still demonstrate a sound business model to avoid insolvency. This is a welcome step towards facilitating timely restructuring to avoid costly bankruptcies and loss of firm-specific human capital.

40. Going forward, solvency support for viable firms could become increasingly necessary, but needs to be well-targeted and its design tailored to different firm types. To safeguard financial stability, short-term liquidity support, e.g., in the form of loan guarantees, should remain available as long as the recovery remains fragile. At the same time, support programs will need to adapt to evolving circumstances. As more firms experience capital depletion resulting from the revenue shock and increased borrowing to tide over liquidity needs, solvency support could become increasingly necessary. Such support will need to be carefully designed to cater to different types and sizes of firms and to minimize risks to taxpayer money (see [Kammer and Papi, 2021](#)). For micro firms where information asymmetries are typically the largest, grants are often the only feasible option to effectively strengthen the equity positions, and viability assessments would need to rely on backward-looking indicators that reflect pre-pandemic financial health. The EU now allows conversion of publicly guaranteed loans into grants and has [prolonged the State Aid temporary framework](#) to end-2021.²⁰ For larger SMEs, in addition to grants, solvency support could take the form of hybrid equity, coupled with government incentives for private investors participation, while viability assessment should rely on a mix of forward and backward-looking indicators. Finally, for large publicly-listed firms, especially those of strategic importance, equity injections by the government could be warranted and viability assessments should incorporate market views of long-term profitability prospects.

41. Vulnerabilities in real estate markets call for close monitoring and addressing remaining data gaps. The COVID-19 pandemic has elevated risks related to the real estate market, which was marked by significant price increases in the years prior to the crisis. Commercial Real Estate (CRE) remains susceptible to lower demand following behavioral changes engendered by the pandemic, increasing vulnerabilities of German banks which are among Europe's most exposed to CRE. Residential real estate prices have been rising rapidly over the past decade, especially in major cities (Text Figure 19, Figure 8). However, there is little evidence that this trend has been either exacerbated or reversed by the pandemic. Although household indebtedness remains



²⁰ Germany has not yet transposed this rule into a law.

relatively low, the continued build-up of vulnerabilities in real estate lending warrants close monitoring. The lack of granular data—which hinders a full assessment of potential risks to financial stability—should be quickly remedied. The authorities took an important step in this direction recently, providing a legal framework for the Bundesbank for more comprehensive data collection on residential real estate loans. An assessment of the adequacy of supervisory data should be conducted following initial data collection, and any remaining gaps promptly closed. Germany should also expand its macroprudential toolkit for real estate lending, including income-based instruments such as debt-to-income or debt-service-to-income caps, while recognizing that the CRE sector is characterized by considerable heterogeneity in financing structures.

42. The oversight of nonbank operations should be strengthened. The recent Wirecard scandal underscored the need for reforms to Germany’s auditing framework and accounting enforcement. In December 2020, the cabinet approved a draft law that aims to combat accounting fraud by strengthening BaFin’s investigative powers over financial statements and outsourced financial activities, while reducing procedural delays by discontinuing the “two-stage” framework.²¹ The law also tightens audit regulation to strengthen the independence of auditors in relation to corporate clients and increases auditor’s maximum civil liabilities for breaching fiduciary duties. Information exchanges between BaFin and the Auditor Oversight Body—the government entity responsible for auditor supervision—will also be mandated. In addition, a range of measures has been taken to enhance AML/CFT enforcement. However, better demarcation of the regulatory perimeter of nonbank operators, particularly in terms of financial reporting and AML/CFT activities, is still needed.

43. The 2022 FSAP for Germany is underway and will carry out a comprehensive analysis of the financial sector. Findings and recommendations from the FSAP will be presented in conjunction with the 2022 Article IV for Germany.

Authorities’ Views

44. The authorities view the German banking sector as resilient but agreed that rising loan impairments stemming from a potential surge in insolvencies remain a key risk. They stressed that most banks’ capital and liquidity buffers remain ample, and that NPL ratios are still among the lowest in Europe. Negative changes in valuation of financial assets reduced bank profits in 2020, but buoyant trading activities in 2020H2 and strong borrower support measures, especially for SMEs, helped stabilize profits over the course of 2020. Going forward, they view existing facilities for solvency support to firms (Wirtschaftsstabilisierungsfonds, state-level equity participation funds, grants, short-time work allowance, federal and state-level guarantees for bank loans) as likely to be sufficient, with take-up remaining comparatively low. The authorities agreed that, with the expiration of the insolvency moratoria, potentially growing credit risks from rising corporate insolvencies

²¹ Under the “two-stage” framework, two entities were in charge: the Financial Reporting Enforcement Panel (“DPR”) at the first stage, and BaFin at the second stage. The DPR was a private-sector entity bringing together national employers’ associations, trade unions, and industry associations of banks, insurers, and accountants, among other members. BaFin was only empowered to step in when the DPR failed to resolve a problem, resulting in long delays.

warrant close monitoring. The same applies to vulnerabilities in residential real estate lending, given the robust price and credit dynamics and continued overvaluations in major cities.

45. The authorities highlighted recent legislations to reduce data gaps, address auditing shortcomings, and strengthen oversight of nonbanks. They view the data collection process, kickstarted with the February 2021 statutory order providing the legal framework for the Bundesbank to collect data—from banks and non-banks—on residential real estate loans, as a key step in closing existing data gaps. While acknowledging that no loan-by-loan data will be collected, the authorities judge that data are sufficiently granular for a fuller assessment of real estate lending risks. The German parliament passed a bill to strengthen financial market integrity ("*Finanzmarktintegritätsstärkungsgesetz, FISG*"), which includes reforms to financial reporting enforcement, reinforces the independence of auditors (in relation to audited companies), and strengthens Bafin supervisory activities and powers. The Ministry of Finance (BMF) is preparing a Parliamentary report evaluating the legal basis for the use of existing instruments (e.g., LTV cap and amortization requirement) which also covers the question of expanding the toolbox to income-based instruments. The authorities have also undertaken several measures to enhance the effectiveness of AML/CFT supervision in the financial sector in Germany, including through initiatives at the European level, such as the creation of a Europe-wide AML/CFT database.

F. Governance and Transparency

46. The extraordinary policy measures and public resources deployed to combat the crisis warrant high governance standards and careful monitoring. To support the economy while safeguarding public resources, all support schemes should be implemented in a transparent manner (April 2021 Fiscal Monitor). Germany's fiscal support schemes rely on institutions and programs that have long-standing track records and established governance standards (see ¶25, 2020 Article IV Staff Report). Nevertheless, a number of fraudulent claims have been identified, especially with grants provided during the first lockdown period. The government has been reporting the usage of various programs in a transparent and timely manner.

47. Germany has maintained a leading role in detecting, investigating, and prosecuting foreign bribery cases. The 2021 follow-up report of the OECD Working Group on Bribery in International Business Transactions (WGB)²² recognized that Germany remained one of the highest enforcers of the OECD's Anti-Bribery Convention, having sanctioned 378 individuals and 21 companies in 78 foreign bribery cases since 1999. The WGB also acknowledged that Germany has developed tools to improve the authorities' internal collection of case information.

48. The OECD WGB encouraged the authorities to continue efforts to strengthen enforcement against legal persons involved in foreign bribe cases. The WGB noted that Germany's enforcement of its corporate liability regime remained low. This is due to the

²² Information relating to supply-side corruption in this section draws on the WGB's [Phase 4 Report of Germany](#) (2018) and the WGB's Summary of and Conclusions on the [Phase 4 Written Follow-Up Report of Germany](#) (2021).

discrepancies in the prosecutorial approach to holding natural, as opposed to legal, persons liable across Länder; a fragmented investigative approach; and the heterogeneous use of forfeiture orders. The WGB encouraged Germany to adopt the draft Corporate Liability Act as it would improve the investigation and prosecution of legal persons. In addition to legal reforms, the WGB recommended that Germany enhance its effort to foster experience and knowledge sharing across the Länder to ensure a consistent approach in foreign bribery cases, notably concerning corporate liability and the use of non-trial resolutions. The WGB also noted that Germany has yet to amend its legislation to provide clear and comprehensive protection for public- and private-sector whistleblowers. Germany should also ensure that regional courts' specialized economic chambers have the same jurisdiction over foreign bribery cases as for commercial bribery cases, as proposed by a government bill in January 2021. Fund staff agrees with these recommendations and urges the authorities to move forward with implementation.

Authorities' Views

49. The authorities highlighted recent efforts in limiting frauds and implementing key recommendations of the WGB. Frauds related to the COVID measures were concentrated in the Länder's grant programs, especially during the first lockdown period. Drawing lessons from the experience, the authorities have tightened requirements to confirm identity of recipients and expanded audits. Germany welcomes the recommendations by the OECD WGB, which aim at strengthening the legal framework for enforcing the OECD Anti Bribery Convention in Germany even further. Hence, the German Government has already taken concrete steps to address the recommendations, in particular by submitting a comprehensive draft Corporate Liability Act to parliament (Bundestag) in September 2020.

STAFF APPRAISAL

50. The German economy is emerging from recurrent waves of COVID-19 infections and associated lockdowns. GDP fell by just under 5 percent in 2020, a smaller contraction than in most European peers. Subsequently a new wave of infections, together with a global shortage of intermediate inputs, held back economic activity in the first half of this year. The authorities have maintained appropriately accommodative fiscal and financial policies, and most measures supporting households and firms have been extended through 2021. The expanded Kurzarbeit program has helped Germany contain the pandemic's impact on unemployment and support aggregate demand. The current account surplus narrowed slightly in 2020 but the external position is assessed as stronger than the level implied by medium-term fundamentals and desirable policies.

51. A rebound is expected in the second half of the year, but the outlook remains highly uncertain, with the balance of risks tilted to the downside. Growth is expected to gather strength as vaccinations become widely available and lockdowns are phased out. Forward-looking indicators suggest a continued pick-up in exports and an improved outlook for services sector activity, in line with the expected re-opening of the economy and the release of some pent-up savings. However, if the vaccine rollout fails to durably outpace new infections—including mutant

variants—lockdowns may need to be prolonged or reimposed, delaying the recovery and amplifying economic scarring. On the other hand, domestic demand could rebound more swiftly due to the release of pent-up savings, and exports may grow more strongly than envisaged, driven by a sharper economic rebound in key trading partners.

52. The pace of withdrawing fiscal support should be dictated by progress on containing the pandemic and revitalizing the economy. Given considerable uncertainty about the dynamics of the pandemic, it is preferable to err on the side of doing too much so as to minimize scarring effects, rather than too little. Support for households and firms should be continued until there is clear evidence of a sustained recovery, while frontloading public investment to the extent possible. Additional measures should be implemented if the recovery falters. Public debt remains sustainable and fiscal space is ample. As the recovery firms up, a carefully calibrated withdrawal of support should be accompanied by targeted measures to facilitate post-crisis resource re-allocation.

53. Looking ahead, Germany should use its fiscal space to lift potential growth and facilitate structural transformation. Fiscal policy should be deployed to address long-standing structural challenges such as boosting Germany's growth potential through greater physical and human capital investment; incentivizing innovation; bolstering labor supply; and increasing disposable income for low-income households. Making progress towards these goals would also help reduce still large external imbalances.

54. Labor market policies—underpinned by Kurzarbeit—should remain protective until there is evidence of a sustained recovery, while continued support is needed for more vulnerable population groups. The expanded Kurzarbeit has helped Germany contain the impact on unemployment and support aggregate demand. As the recovery takes hold, a normalization of Kurzarbeit parameters will be important so as not to inhibit labor reallocation to growing firms and industries. Job search assistance and appropriate training programs should be made available to workers to facilitate their transition into post-pandemic jobs. Expanded access to the basic income program currently in place should be maintained until the job market has recovered sustainably for workers not covered by Kurzarbeit. To arrest widening inequality, the government could consider reducing social security contributions on lower incomes, which would also spur hiring and labor supply.

55. Several measures could be considered to further strengthen Germany's climate action plan. A more well-specified schedule of carbon prices over a longer time horizon would provide a critical signal for ensuring that new investment is efficiently allocated to clean technologies. Higher carbon pricing in sectors with a relatively low cost of abatement could help reduce aggregate emissions in an economically efficient way. Introducing feebates could reinforce mitigation incentives at the sectoral level. Price-based measures will need to be complemented with government investment in green infrastructure and technologies. To mitigate the potential adverse impact of higher carbon prices on households, existing measures could be complemented by additional relief targeted at lower-income earners.

56. The pandemic has increased the urgency of the long-standing need for a digital transformation and increased innovation. Changes to ways of working and consuming will likely persist well past the pandemic, underlining the importance of improved connectivity and greater diffusion of ICT tools, including in schools. To accelerate the provision of high-speed broadband networks, the government should carefully monitor competitive dynamics in internet and mobile markets and facilitate new entrants if warranted. Germany should consider further raising the cap for R&D tax incentives, as a complement to the recently introduced faster depreciation schedule for digital goods. Promoting venture capital, reducing administrative red tape, and lowering compliance costs for businesses would help raise investment in promising new technologies.

57. Financial stability should be safeguarded during the nascent recovery. Bankruptcies and financial losses have been contained through early 2021, aided by various borrower support measures and insolvency moratoria. However, bankruptcies have started rising as some of these measures are phased out. Insolvency procedures should facilitate efficient restructuring or liquidation where appropriate, while targeted liquidity and solvency support for viable firms in the form of grants, loan guarantees, and equity support should remain available. To mitigate the risk that bank lending will be curtailed when it is needed most, the authorities should specify an appropriate timetable for banks that find their capital reduced as a result of the crisis to rebuild buffers.

58. The banking sector should accelerate plans to bolster its chronic low profitability. Banks need to improve their cost structures, including through greater use of digital technologies and consolidation, and enhance non-interest revenues (e.g., fees and commissions). Supporting reforms to the financial architecture at the European level—including the creation of a common deposit insurance scheme—would spur greater cross-border financial flows and remove impediments to cross-border bank consolidation.

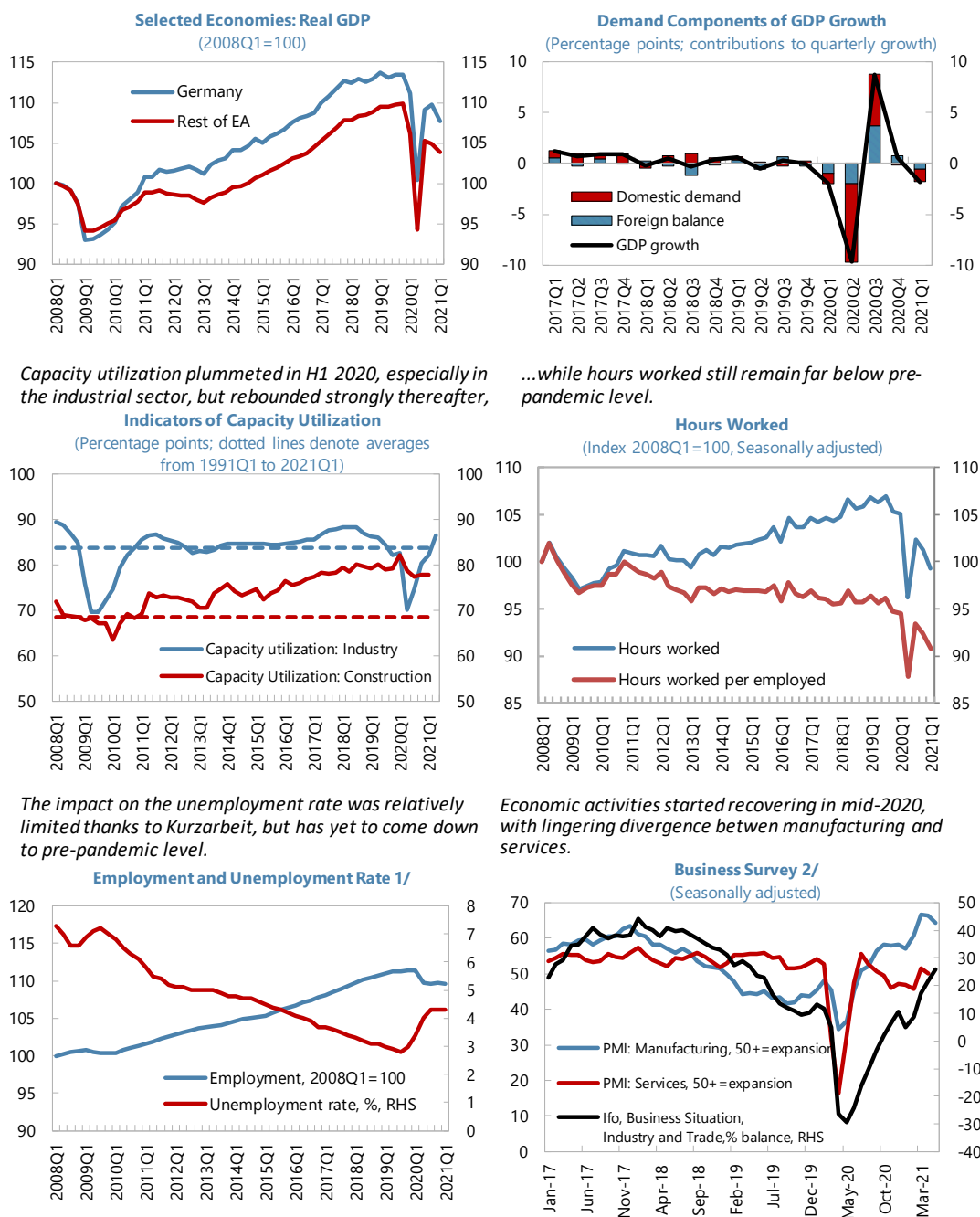
59. Vulnerabilities in real estate markets should be closely monitored, and remaining data gaps filled. Commercial Real Estate (CRE) remains susceptible to lower demand following behavioral changes engendered by the pandemic. The rapid increase in residential real estate prices in recent years warrants vigilance, although the risk is mitigated by the relatively low level of household indebtedness. The authorities should complete as soon as possible the ongoing process of closing data gaps, to allow for a full assessment of potential risks to financial stability. Germany should also consider expanding its macroprudential toolkit for real estate lending, including income-based instruments such as debt-to-income or debt-service-to-income caps.

60. It is recommended that the next Article IV consultation take place on the regular 12-month cycle.

Figure 2. Germany: Growth Developments

The COVID-19 pandemic caused an unprecedented economic contraction in H1 2020, followed by a strong rebound in Q3 which then stalled again in Q4.

While both external and domestic demand rebounded in 2020 Q3, only external demand continued growing in Q4 while domestic demand contracted again.



Sources: Destatis, Haver Analytics, IFO Institute, INS, IMF *World Economic Outlook*, Markit, and IMF staff calculations.

1/National Accounts Concepts.

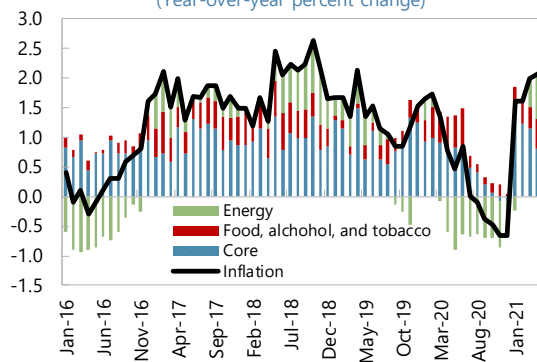
2/PMI shows the final estimates. Manufacturing PMI indicates the Overall Manufacturing PMI, which is a composite index based on a weighted combination of new orders, output employment, suppliers' delivery times, and stocks of materials purchased.

Figure 3. Germany: Prices and Labor Market

After declining into negative territory through H2 2020 on the back of temporary VAT cuts, headline and core inflation rebounded sharply early 2021.

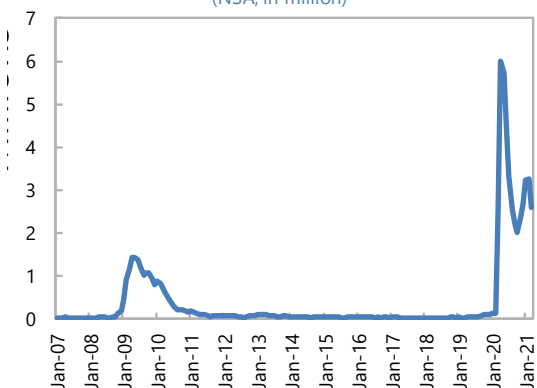
The pandemic has reduced the tightness of labor market conditions...

Contributions to Headline Inflation
(Year-over-year percent change)



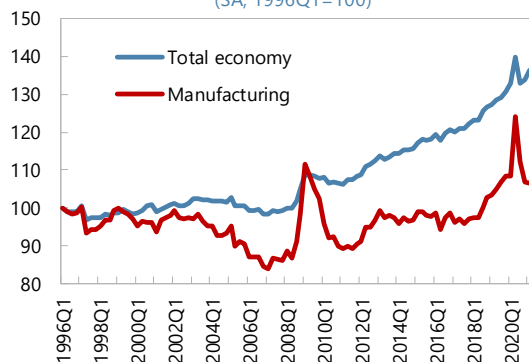
... and led to skyrocketing number of workers under Kurzarbeit,

Number of workers on Kurzarbeit
(NSA, in million)

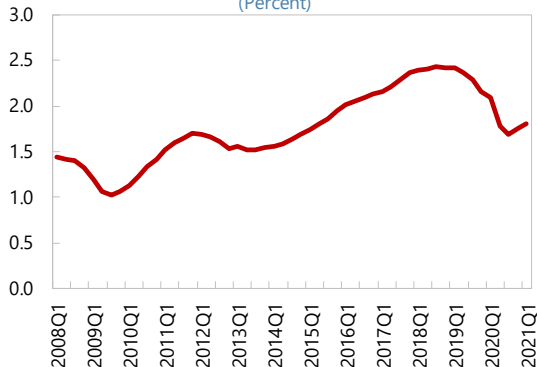


Unit labor costs spiked in H1 2020 on the back of job retentions through Kurzarbeit, but has since reversed to pre-pandemic trend level.

Unit Labor Costs
(SA, 1996Q1=100)

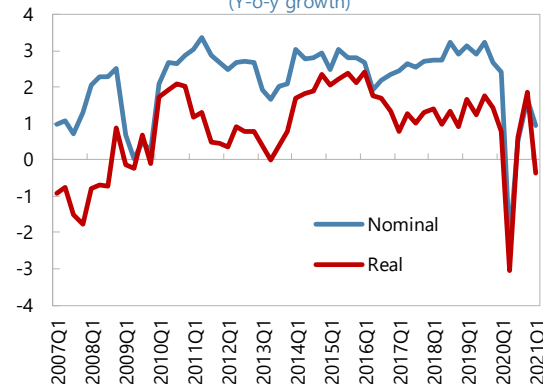


Job Vacancy Rate 1/
(Percent)



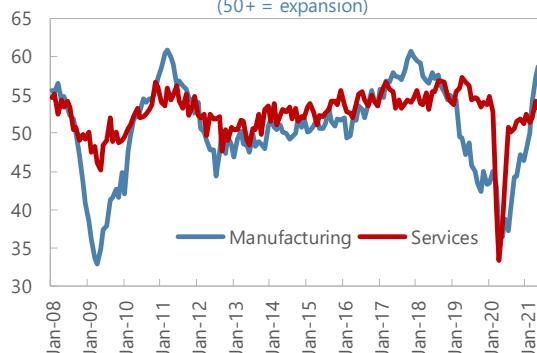
... while wage growth fell sharply.

Compensation Per Employee
(Y-o-y growth)



The sentiment for employment has improved since mid-2020, especially in manufacturing.

PMI Employment
(50+ = expansion)



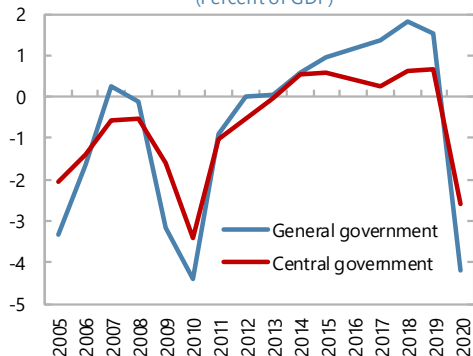
Sources: Bundesbank, Federal Statistical Office, Eurostat, Haver Analytics, Markit, and IMF staff calculations.

1/ The number of vacancies divided by the number of employees subject to full social security payments.

Figure 4. Germany: Fiscal Developments and Outlook

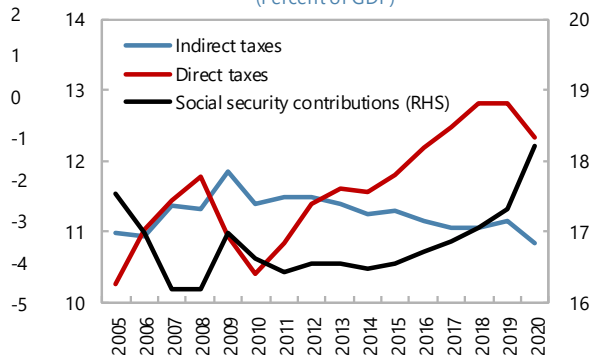
In 2020, Germany recorded its first fiscal deficit in eight years...

General and Central Government Balances
(Percent of GDP)



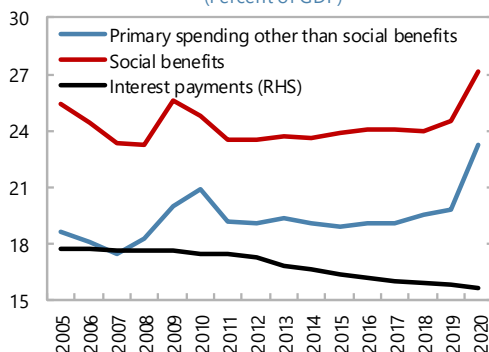
... on the back of declines in tax revenues...

Tax Revenue and Social Security Contributions
(Percent of GDP)



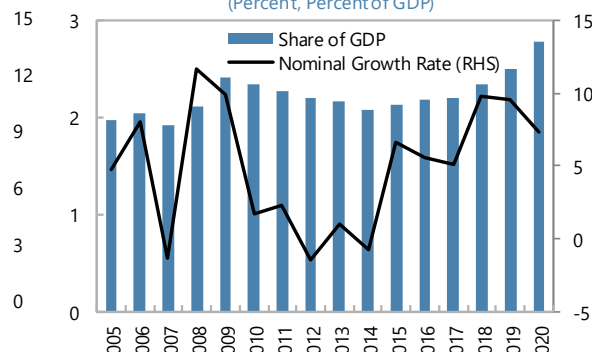
... combined with a surge in pandemic-related spending.

General Government Spending
(Percent of GDP)



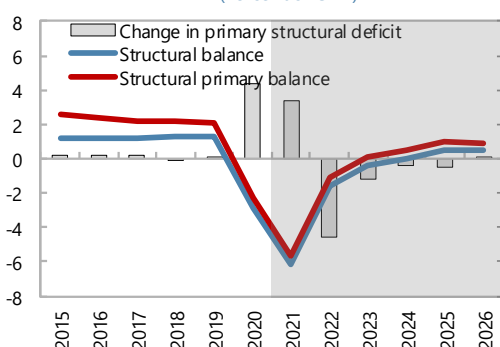
Public investment has been on a rise in recent years.

General Government Gross Fixed Capital Formation
(Percent, Percent of GDP)



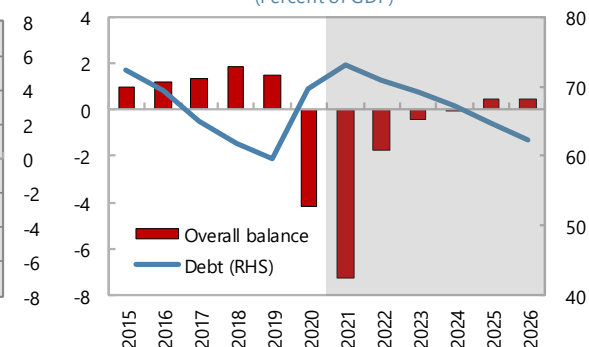
On the back of the renewed infection waves and lockdown, the fiscal stance is projected to be appropriately expansionary in 2021...

General Government Structural Balances, Staff Projection
(Percent of GDP)



...but, as the crisis measures are phased out, the public debt ratio will fall back to the pre-crisis level over the medium term.

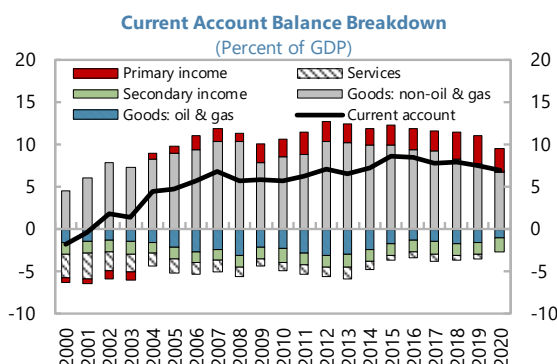
General Government Fiscal Outlook, Staff Projection
(Percent of GDP)



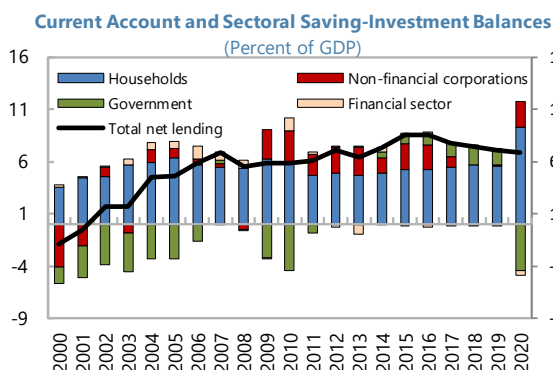
Sources: Federal Statistical Office, Ministry of Finance, and IMF staff calculations and projections.

Figure 5. Germany: Balance of Payments

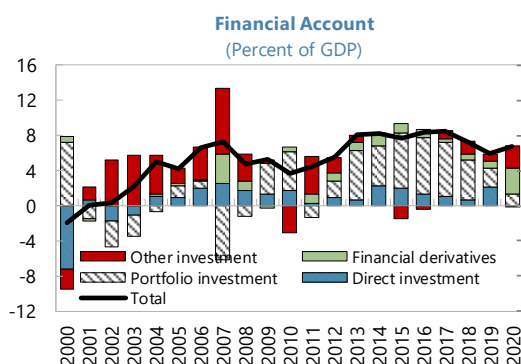
The current account (CA) continued to edge down in 2020 to 7.0% of GDP.



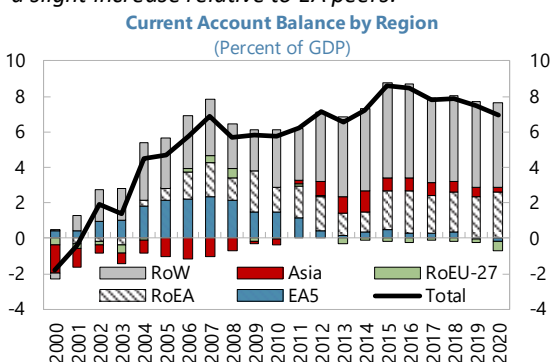
The increase in private sector savings was largely offset by a widening government deficit



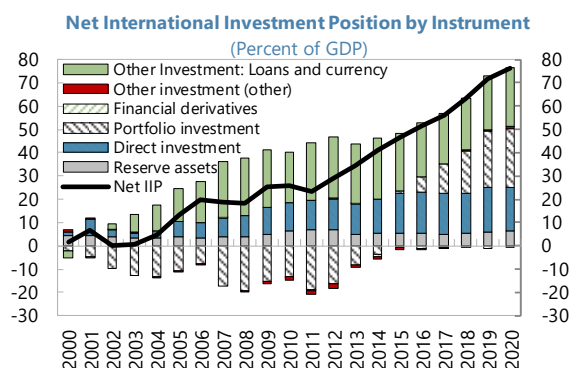
The decline in direct and portfolio investments in 2020 was offset by an increase in financial derivative and other investment flows.



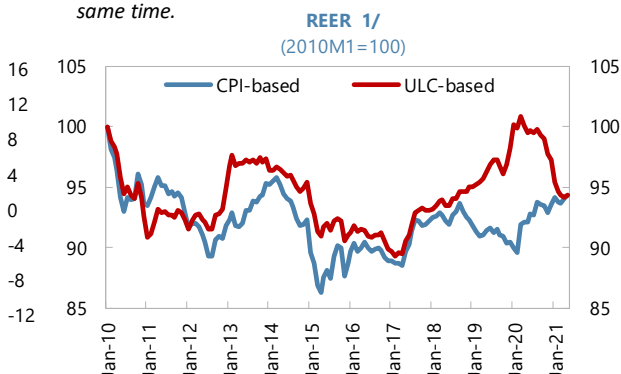
The CA narrowing was broad based, despite a slight increase relative to EA peers.



The Net International Investment Position exceeded 75 percent of GDP by end-2020.



The CPI-based REER appreciated through early 2021 with the strengthening of the Euro, mirroring the U.S. dollar weakening, while the ULC-based REER depreciated at the same time.



Sources: Bundesbank, DOTS, GDS, Haver Analytics, IMF *World Economic Outlook*, and IMF staff calculations.

1/ The ULC-based REER is measured using ULC statistics for the manufacturing sector in Germany and 37 trading partners, using the OECD System of Unit Labor Cost Indicators.

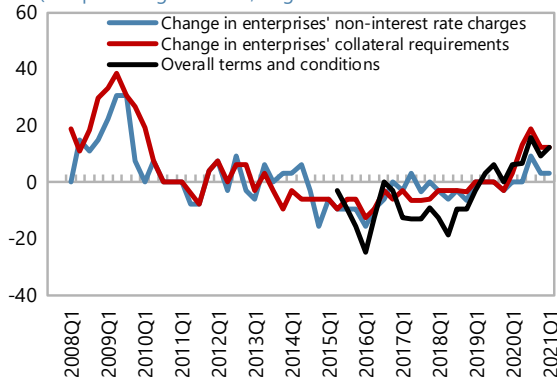
Note: EA5= Euro area economies (Greece, Ireland, Italy, Portugal, Spain) with high borrowing spreads during the 2010-11 sovereign debt crisis.

Figure 6. Germany: Credit Conditions and Asset Prices

Since the onset of the pandemic, lending standards have tightened moderately...

Change in Bank Lending Standards, past 3 months

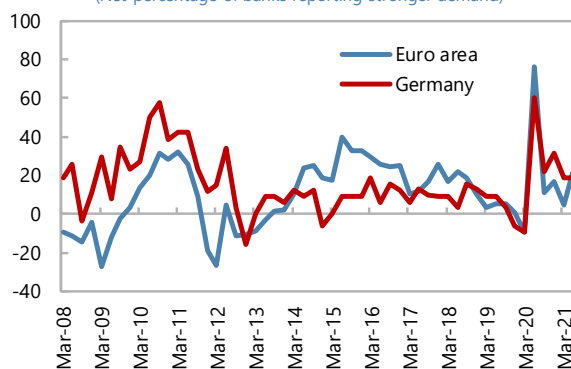
(Net percentage balance; negative indicates looser standard)



Demand for corporate credit surged in Q2 2020 but eased thereafter...

Change in Credit Demand by Enterprises in the Next 3 Months

(Net percentage of banks reporting stronger demand)



After hovering around -40 to -60 bps, German government bond yields have picked up, though remaining negative.

10-year Bond Yield

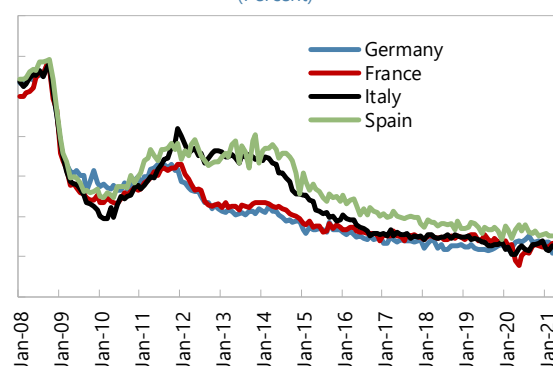
(Percent per year)



... but lending rates barely changed at very low levels.

Lending Rates on New Loans to Non-financial Corporations

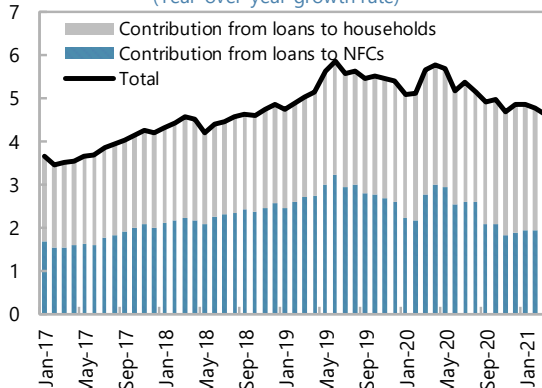
(Percent)



... slowing credit growth in 2020 H2.

Lending by Monetary Financial Institutions

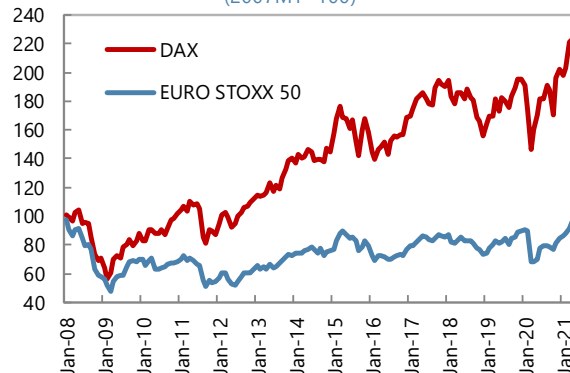
(Year-over-year growth rate)



After losing a quarter of value in March, from December 2019, German equities have exceeded pre-pandemic levels.

Stock Market Indices

(2007M1=100)

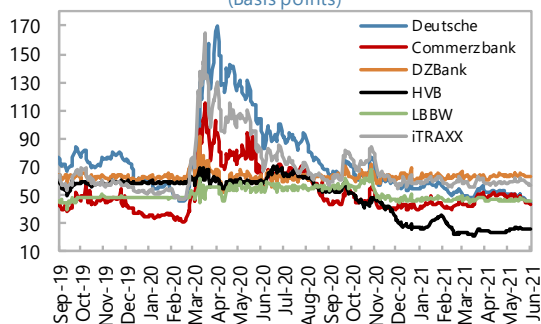


Sources: Bundesbank, Bloomberg Finance L.P., ECB, Haver Analytics, and IMF staff calculations.

Figure 7. Germany: Recent Developments in the German Banking Sector

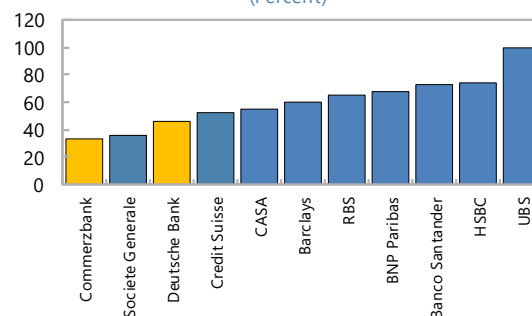
Credit spreads have narrowed across the board, as overall financial conditions remain favorable and risk aversion retrenches.

German Banks 5-Year CDS Spreads
(Basis points)



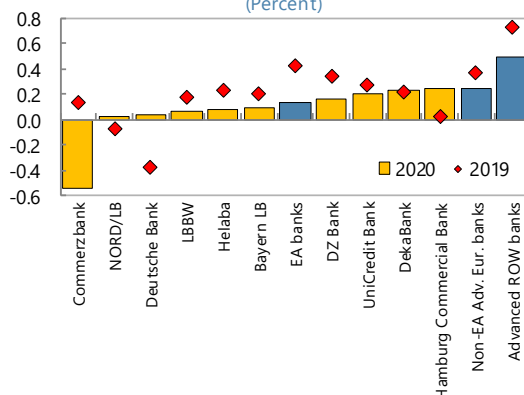
The two largest banks keep trading at a discount relative to European peers...

Price to Book Ratio, June 2, 2021
(Percent)



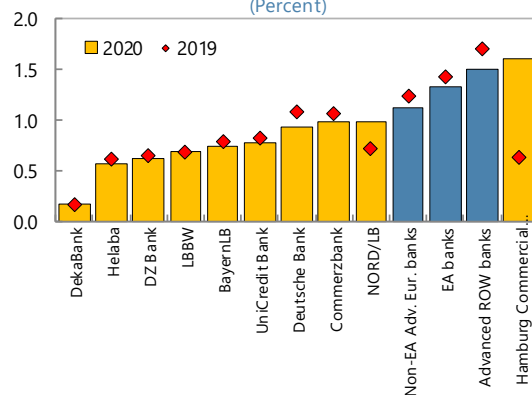
...on the back of low profitability...

Return on Assets
(Percent)



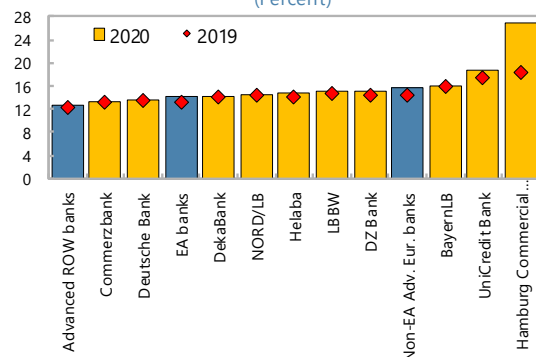
...reflecting low interest rate margins and high cost compared to European peers.

Net Interest Margin
(Percent)



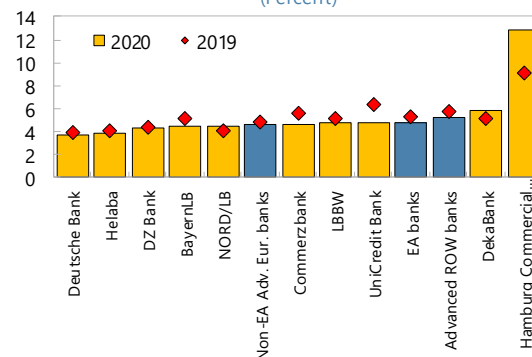
Despite the unprecedented economic contraction, German banks maintained generally comfortable risk-weighted capital buffers in H1 2020...

(Phase in) Common Equity Tier 1 Ratio
(Percent)



...yet some German banks' leverage remains higher than European peers.

Leverage Ratio 1/
(Percent)



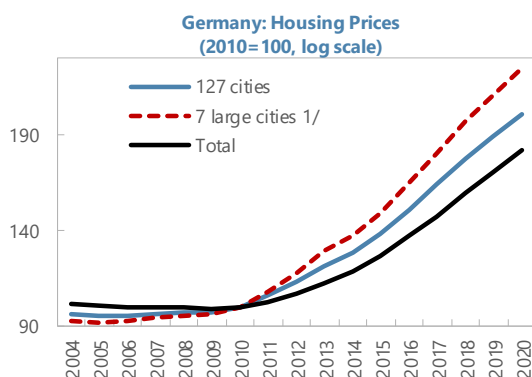
Sources: Bloomberg Finance L.P., ECB, IFS, S&P Global Market Intelligence, and IMF staff calculations.

1/ Leverage ratio is defined as common equity net of intangibles as a percent of total assets net of intangibles.

Figure 8. Germany: Housing Market Developments

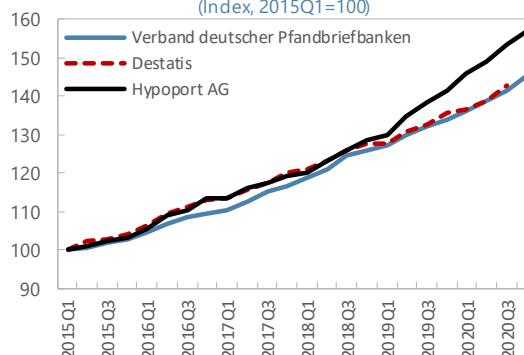
Residential real estate prices have been rising rapidly in the past decade, especially in major cities...

...and there is no evidence that this trend has been exacerbated or reversed by the pandemic...



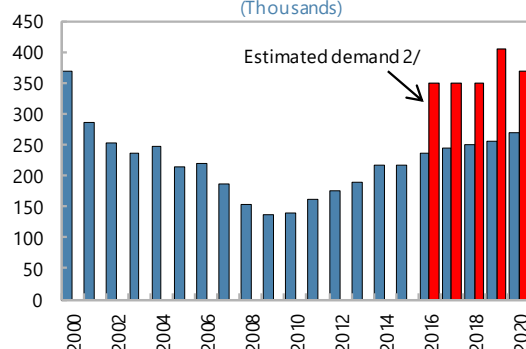
... due in part to supply shortages owing to the persistent under-supply of new housing since the refugee surge in 2015, combined with the government's extraordinary income support during the pandemic.

Residential Housing Prices (Index, 2015Q1=100)



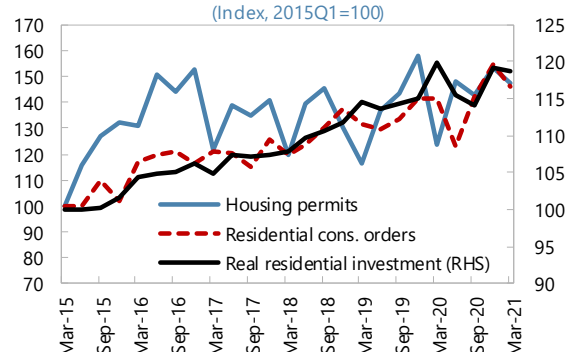
Following a temporary dip in mid-2020, residential investment recovered in late-2020...

New Residential Housing Units (Thousands)



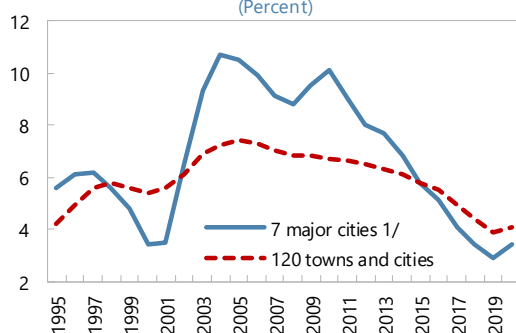
After several years in decline, office vacancy rates edged up in 2020...

Real Estate Supply Indicators, 2021Q1 (Index, 2015Q1=100)

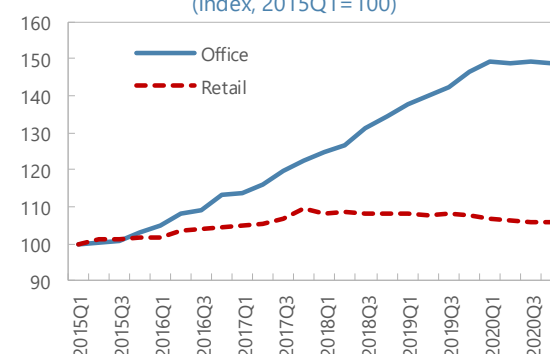


... with office prices broadly flat throughout 2020, as the pandemic put an end to their upward trend.

Vacancy Rate for Offices, by Town Category (Percent)



Commercial Real Estate Prices (Index, 2015Q1=100)



Sources: bulwiengesa AG, Destatis, Deutsche Bundesbank, Federal Ministry of the Interior, Building and Community, vdpResearch, Local Real Estate Surveyor Commission, HaverAnalytics, and IMF staff calculations.

1/ Berlin, Dusseldorf, Frankfurt am Main, Hamburg, Cologne, Munich, and Stuttgart.

2/ The estimate by the Federal Ministry for the Environment for 2016-18 and by the Federal Ministry of Interior for 2019-20.

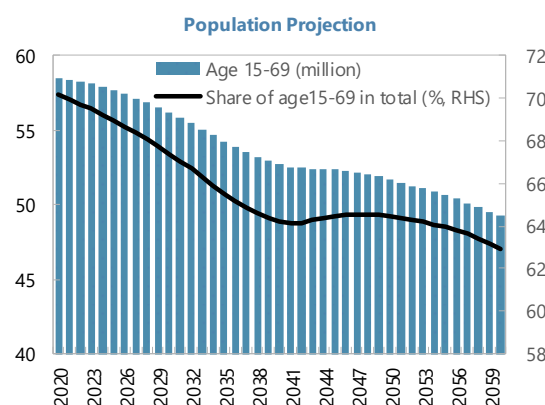
Figure 9. Germany: Structural Reforms

Germany's labor productivity growth has declined since the early 1990s, and it remains low.

At the same time, population aging will start weighing on Germany's growth potential.

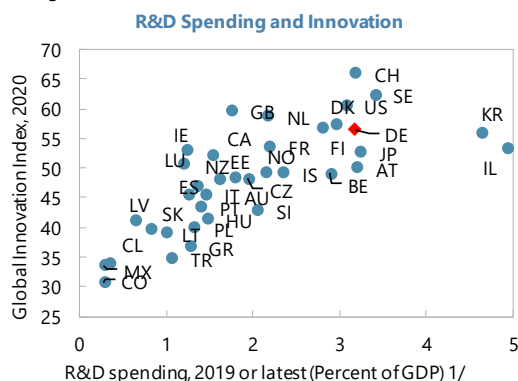


1/ Labor productivity is calculated as real GDP divided by the number of employment at age 15-74.

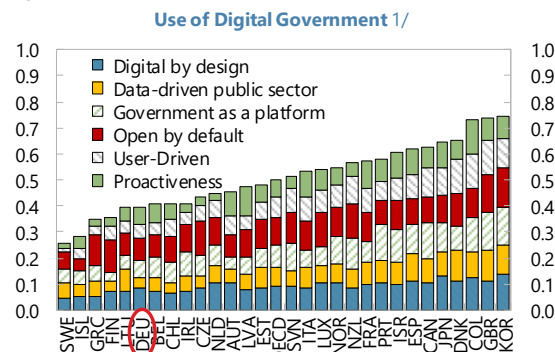


With its relatively high R&D spending, Germany is one of the global innovation leaders...

...but Germany trails peers in the use of digital government...



1/ Including R&D spending financed by the private and public sectors.

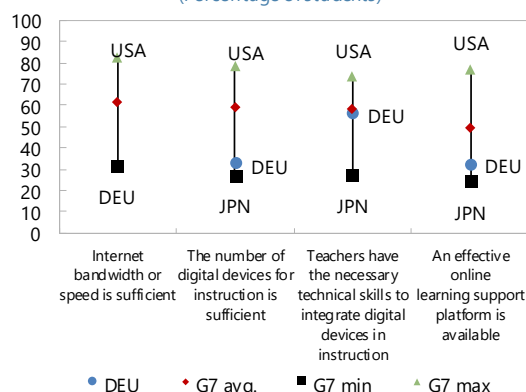


1/ OECD Digital Government Index, which takes a value between 0 and 1 with 1 being more advanced in digital government.

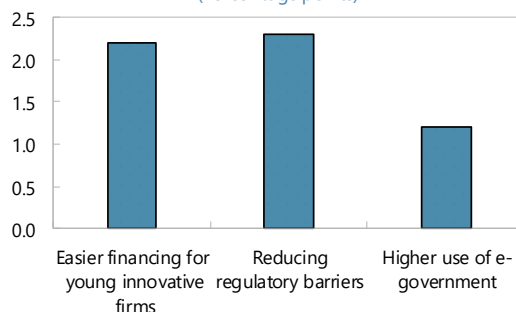
...and ICT tools in schools.

Easing financing for young innovative firms, cutting red tape, and promoting e-government can increase Germany's productivity.

G7 Use of ICT Tools in Schools and Teachers' Preparedness
(Percentage of students)



Impact of Reforms on Productivity 1/
(Percentage points)



1/ Estimated effect on multi-factor productivity of the average firm after three years.

Source: Sorbe et al. (2019).

Sources: Destatis; OECD; PISA (2018); Sorbe, Gal, Nicoletti, and Timiliotis, "DIGITAL DIVIDEND: POLICIES TO HARNESS THE PRODUCTIVITY POTENTIAL OF DIGITAL TECHNOLOGIES" (OECD Economic Policy Paper No. 26, February 2019); and World Intellectual Property Organization, and IMF staff calculations.

Table 1. Germany: Selected Economic Indicators, 2018–22

	2018	2019	2020	Projections	
				2021	2022
National accounts	(Percent change, working-day adjusted)				
GDP	1.3	0.6	-5.1	3.6	4.2
Private consumption	1.5	1.6	-6.2	1.0	7.0
Public consumption	1.2	2.7	3.7	2.6	-0.3
Gross fixed investment	3.6	2.5	-3.8	5.2	4.5
Construction	2.7	3.8	1.5	4.6	3.9
Machinery and equipment	4.5	0.7	-12.6	8.2	5.5
Final domestic demand	1.9	2.1	-3.5	2.3	4.7
Inventory accumulation 1/	-0.1	-0.7	-0.7	0.8	0.0
Total domestic demand	1.8	1.3	-4.3	3.1	4.7
Exports of goods and services	2.5	1.0	-10.2	9.6	5.4
Imports of goods and services	3.8	2.6	-9.0	9.2	6.7
Foreign balance 1/	-0.4	-0.6	-1.1	0.7	-0.3
	(Percent change, non-adjusted)				
GDP	1.3	0.6	-4.8	3.6	4.1
Private consumption	1.5	1.6	-6.0	1.2	6.8
Public consumption	1.2	2.7	3.7	2.6	-0.4
Gross fixed investment	3.5	2.5	-2.7	4.8	4.4
Construction	2.6	3.8	2.3	4.5	3.8
Machinery and equipment	4.4	0.5	-11.6	8.2	5.4
Final domestic demand	1.9	2.0	-3.1	2.3	4.6
Inventory accumulation 1/	-0.1	-0.7	-0.9	0.8	0.0
Total domestic demand	1.8	1.2	-4.1	3.1	4.6
Exports of goods and services	2.3	1.0	-9.4	9.6	5.3
Imports of goods and services	3.6	2.6	-8.4	9.2	6.6
Foreign balance 1/	-0.4	-0.6	-0.9	0.7	-0.3
Output gap (percent of potential GDP)	1.2	0.4	-2.9	-2.1	-0.3
Unemployment	(Percent)				
Unemployment rate 2/	3.4	3.2	4.2	4.1	3.7
Unemployment rate 3/	3.2	2.9	4.0		
Prices and incomes	(Percent change)				
GDP deflator	1.7	2.2	1.6	2.3	1.4
Consumer price index (harmonized)	1.9	1.4	0.4	2.6	1.2
Consumer price index (harmonized), core	1.5	1.4	0.9	2.1	1.5
Compensation per employee (total economy)	2.9	3.0	0.6	1.5	2.4
Unit labor cost (total economy)	3.0	3.3	4.6	-1.1	-0.8
Real disposable income 4/	1.9	1.5	0.0	-0.4	2.6
Household saving ratio (percent)	10.9	10.9	16.2	14.8	11.3

1/ Contribution to GDP growth.

2/ ILO definition.

3/ National Accounts Concepts.

4/ Deflated by national accounts deflator for private consumption; not SWDA.

Table 1. Germany: Selected Economic Indicators, 2018–22 (concluded)

				Projections	
	2018	2019	2020	2021	2022
Public finances	(Percent of GDP)				
General government					
Overall balance 5/	1.8	1.5	-4.2	-7.2	-1.8
Structural balance	1.3	1.3	-2.9	-6.2	-1.6
General government debt	61.8	59.7	69.7	73.0	70.9
Federal government					
Overall balance 5/	0.6	0.7	-2.6	-1.1	0.3
Balance of payments	(Percent of GDP)				
Current account	7.9	7.5	7.0	7.4	7.3
Trade balance 6/	6.7	6.3	5.7	6.4	6.4
Services balance	-0.5	-0.6	0.0	-0.4	-0.5
Primary income balance	3.1	3.2	2.8	2.9	2.9
Secondary income balance	-1.5	-1.4	-1.5	-1.5	-1.5
Monetary data	(Percent change)				
Money and quasi-money (M3) 7/ 8/	4.5	4.6	8.2		
Credit to private sector 7/	4.9	5.4	4.9		
Interest rates	(Period average in percent)				
Three-month interbank rate 7/	-0.3	-0.4	-0.4		
Yield on ten-year government bonds 7/	0.4	-0.2	-0.5		
Exchange rates					
Euro per US\$	0.85	0.89	0.88		
Nominal effective rate (2005=100) 9/	102.5	101.4	103.8		
Real effective rate (2005=100) 10/	97.0	95.4	96.7		
<i>Memorandum Items:</i>					
Nominal GDP (billions of euros)	3356.4	3449.1	3336.2	3536.1	3731.2
Population growth (percent)	0.3	0.2	0.1		
GDP per capita (thousands of euros)	40.5	41.5	40.1		

Sources: Deutsche Bundesbank, Federal Statistical Office, IMF staff estimates and projections.
5/ Net lending/borrowing.
6/ Excluding supplementary trade items.
7/ Data refer to end of December.
8/ Data reflect Germany's contribution to M3 of the euro area.
9/ Nominal effective exchange rate, all countries.
10/ Real effective exchange rate, CPI based, all countries.

Table 2. Germany: General Government Operations, 2017–26
(Percent of GDP)

	2017	2018	2019	2020 1/	Projections					
					2021	2022	2023	2024	2025	2026
Revenue	45.6	46.3	46.7	46.8	46.2	46.3	46.5	46.4	46.4	46.4
Taxes	23.5	23.9	24.0	23.2	22.7	23.2	23.3	23.3	23.4	23.4
Indirect taxes	11.1	11.1	11.2	10.8	10.9	11.0	11.1	11.1	11.2	11.2
Direct taxes	12.5	12.8	12.8	12.3	11.8	12.2	12.2	12.2	12.2	12.2
Social contributions	16.9	17.1	17.3	18.2	18.0	17.6	17.6	17.6	17.6	17.6
Grants	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.1	0.1	0.1
Other current revenue	5.1	5.3	5.3	5.3	5.1	5.2	5.3	5.3	5.3	5.3
Expense	44.2	44.5	45.2	51.1	53.2	47.9	46.8	46.3	45.9	45.9
Compensation of employees	7.7	7.7	7.9	8.5	8.1	8.0	8.0	8.0	8.0	8.0
Goods and services	5.2	5.2	5.3	6.1	6.5	5.8	5.7	5.5	5.4	5.4
Interest	1.0	0.9	0.8	0.7	0.5	0.5	0.5	0.5	0.5	0.5
Subsidies	0.8	0.9	0.9	2.1	3.5	1.0	0.9	0.9	0.9	0.9
Social benefits	24.0	24.0	24.5	27.1	26.7	26.4	25.9	25.4	25.2	25.2
Social benefits in kind	8.5	8.5	8.7	9.3	9.2	9.2	9.0	8.9	8.8	8.8
Social transfers	15.5	15.5	15.8	17.8	17.5	17.2	16.9	16.5	16.4	16.4
Pensions	8.9	8.9	9.1	9.8	9.6	9.6	9.4	9.3	9.3	9.3
Child benefits	0.6	0.6	0.6	0.8	0.7	0.8	0.8	0.8	0.7	0.7
Unemployment benefits	1.3	1.2	1.3	1.9	1.8	1.5	1.4	1.3	1.3	1.3
Other social transfers	4.7	4.8	4.9	5.2	5.5	5.4	5.4	5.2	5.0	5.0
Other expense	5.5	5.8	5.8	6.6	7.8	6.1	5.9	5.9	5.9	5.9
Gross public investment	2.2	2.3	2.5	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Net acquisition of nonfinancial assets	-0.1	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.1	0.1
Net lending/borrowing	1.4	1.8	1.5	-4.2	-7.2	-1.8	-0.4	0.0	0.5	0.5
Primary balance	2.4	2.8	2.3	-3.5	-6.7	-1.3	0.1	0.5	0.9	0.9
<i>Memorandum items:</i>										
Structural balance	1.1	1.3	1.3	-2.9	-6.2	-1.6	-0.4	0.0	0.5	0.5
<i>Change in structural balance</i>	<i>-0.1</i>	<i>0.1</i>	<i>0.0</i>	<i>-4.2</i>	<i>-3.3</i>	<i>4.6</i>	<i>1.2</i>	<i>0.3</i>	<i>0.5</i>	<i>0.0</i>
Structural primary balance	2.2	2.2	2.1	-2.3	-5.7	-1.1	0.1	0.5	0.9	0.9
<i>Change in structural primary balance</i>	<i>-0.2</i>	<i>0.0</i>	<i>-0.1</i>	<i>-4.3</i>	<i>-3.4</i>	<i>4.6</i>	<i>1.2</i>	<i>0.3</i>	<i>0.5</i>	<i>0.0</i>
Public gross debt (Maastricht definition)	65.1	61.8	59.7	69.7	73.0	70.9	69.3	67.3	64.7	62.3

Sources: Bundesbank, Federal Statistical Office, Ministry of Finance, and IMF staff estimates and projections.

1/ Data on fiscal balances and their components are as of February 24, 2021.

Table 3. Germany: Medium Term Projections, 2017–26

					Projections					
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Real sector										
	(Percentage change unless otherwise indicated, working-day adjusted)									
Real GDP	2.9	1.3	0.6	-5.1	3.6	4.2	1.7	1.4	1.1	1.1
Total domestic demand	2.9	1.8	1.3	-4.3	3.1	4.7	1.6	1.4	1.3	1.2
Private consumption	1.8	1.5	1.6	-6.2	1.0	7.0	1.6	1.3	1.2	1.2
Households saving ratio (in percent)	10.6	10.9	10.9	16.2	14.8	11.3	11.3	11.3	11.3	11.1
Foreign balance (contribution to growth)	0.2	-0.4	-0.6	-1.1	0.7	-0.3	0.2	0.1	-0.1	-0.1
	(Percentage change unless otherwise indicated, non-adjusted)									
Real GDP	2.6	1.3	0.6	-4.8	3.6	4.1	1.6	1.4	1.1	1.1
Total domestic demand	2.7	1.8	1.2	-4.1	3.1	4.6	1.5	1.4	1.3	1.2
Private consumption	1.5	1.5	1.6	-6.0	1.2	6.8	1.5	1.3	1.2	1.2
Households saving ratio (in percent)	10.6	10.9	10.9	16.2	14.8	11.3	11.3	11.3	11.3	11.1
Foreign balance (contribution to growth)	0.1	-0.4	-0.6	-0.9	0.7	-0.3	0.2	0.1	-0.1	-0.1
Output gap (percent of potential GDP)	1.0	1.2	0.4	-2.9	-2.1	-0.3	-0.1	0.0	0.0	0.0
	(Percentage change unless otherwise indicated)									
Employment (millions of persons)	41.5	41.7	42.2	42.3	42.5	42.7	42.8	42.8	42.7	42.6
Labor productivity (per employed person)	1.2	-0.1	-0.3	-3.8	2.7	3.2	1.1	1.1	1.0	1.0
Consumer prices	1.7	1.9	1.4	0.4	2.6	1.2	1.4	1.6	1.8	2.0
Consumer prices (core)	1.6	1.5	1.4	0.9	2.1	1.5	1.5	1.6	1.8	2.0
Compensation per employee	2.5	2.9	3.0	0.6	1.5	2.4	2.9	3.2	3.5	3.7
External sector										
	(Percent of GDP)									
Current account balance	7.8	7.9	7.5	7.0	7.4	7.3	7.2	7.1	6.9	6.7
Trade balance (goods and services)	7.1	6.2	5.7	5.7	6.0	5.9	5.8	5.7	5.5	5.4
Net international investment position	56.3	63.1	71.9	76.2	78.8	81.1	85.4	89.7	93.5	97.2
General government										
Overall balance	1.4	1.8	1.5	-4.2	-7.2	-1.8	-0.4	0.0	0.5	0.5
Gross debt	65.1	61.8	59.7	69.7	73.0	70.9	69.3	67.3	64.7	62.3

Sources: Federal Statistical Office, Bundesbank, and IMF staff estimates.

Sources: Federal Statistical Office, Bundesbank, and IMF staff estimates.

Table 4. Germany: Balance of Payments, 2017–26 1/
(Percent of GDP)

	2017	2018	2019	2020	Projections					
					2021	2022	2023	2024	2025	2026
Current account	7.8	7.9	7.5	7.0	7.4	7.3	7.2	7.1	6.9	6.7
Trade balance	7.1	6.2	5.7	5.7	6.0	5.9	5.8	5.7	5.5	5.4
Trade in goods	7.8	6.7	6.3	5.7	6.4	6.4	6.4	6.3	6.1	6.0
Exports	38.6	38.5	37.8	35.7	37.9	37.5	37.6	37.8	37.8	37.7
Imports	30.7	31.8	31.5	30.0	31.5	31.1	31.3	31.5	31.7	31.8
Trade in services	-0.7	-0.5	-0.6	0.0	-0.4	-0.5	-0.5	-0.6	-0.6	-0.6
Exports	8.7	8.9	9.1	8.2	7.8	8.1	8.3	8.5	8.6	8.8
Imports	9.4	9.5	9.7	8.1	8.2	8.6	8.8	9.1	9.2	9.3
Primary income balance	2.3	3.1	3.2	2.8	2.9	2.9	2.9	2.9	2.9	2.9
Secondary income balance	-1.6	-1.5	-1.4	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Capital and Financial Account	8.4	7.4	5.9	6.8	7.4	7.3	7.2	7.1	6.9	6.7
Capital account	-0.1	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0
Financial account	8.5	7.3	5.9	6.9	7.4	7.3	7.2	7.1	6.9	6.7
Direct Investment	1.0	0.6	2.2	0.0	0.9	1.0	0.7	0.9	0.9	0.8
Abroad	4.0	4.6	4.0	2.9	3.8	3.6	3.4	3.6	3.5	3.5
Domestic	3.0	4.0	1.7	2.9	2.9	2.5	2.8	2.7	2.7	2.7
Portfolio investment balance	6.2	4.6	2.1	1.3	3.0	2.3	2.2	2.4	2.2	2.2
Financial derivatives	0.3	0.7	0.7	3.0	1.1	0.7	0.9	0.8	0.8	0.8
Other financial transactions	0.9	1.5	0.9	2.7	2.4	3.2	3.5	3.0	3.0	3.0
Change in reserve assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net errors and omissions	0.8	-0.5	-1.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0

Sources: Bundesbank, Federal Statistical Office, IMF Statistics Department, and IMF staff estimates.

1/ Based on Balance of Payments Manual 6.

Table 5. Germany: International Investment Position, 2012–20 1/
(Percent of GDP)

	2012	2013	2014	2015	2016	2017	2018	2019	2020
Assets	266.0	247.1	261.7	260.8	264.2	259.7	257.7	274.9	308.3
Direct investment	53.3	54.0	56.2	59.4	60.3	61.1	62.9	66.1	70.3
Portfolio investment	76.2	79.5	86.5	88.2	90.1	91.2	86.9	96.9	106.6
Equity and investment fund shares	20.6	23.7	26.4	28.9	30.5	33.7	30.5	37.2	42.2
Debt securities	55.6	55.8	60.1	59.3	59.6	57.5	56.4	59.7	64.3
Financial derivatives (other than reserves) and employee stock options	34.8	22.4	27.0	22.0	19.5	14.6	12.7	18.1	25.1
Other investment	94.9	86.1	86.6	85.9	88.7	87.6	90.0	88.0	99.7
Reserve assets	6.9	5.1	5.4	5.3	5.6	5.1	5.2	5.8	6.6
Liabilities	237.3	212.5	221.0	214.2	212.9	203.4	194.6	203.0	232.0
Direct investment	40.0	41.3	41.3	42.2	42.9	43.9	45.6	46.8	51.7
Portfolio investment	92.7	87.7	90.3	87.1	83.3	78.3	68.5	72.6	81.3
Equity and investment fund shares	19.4	22.2	21.4	22.2	21.8	22.7	17.0	19.1	19.4
Debt securities	73.4	65.4	68.9	64.9	61.5	55.5	51.5	53.5	62.0
Financial derivatives (other than reserves) and employee stock options	34.5	22.0	27.8	22.5	20.4	15.0	13.3	19.1	25.4
Other investment	70.0	61.6	61.5	62.4	66.2	66.2	67.3	64.5	73.6
Net International Investment Position	28.7	34.7	40.8	46.6	51.4	56.3	63.1	71.9	76.2
Direct investment	13.3	12.7	14.8	17.2	17.4	17.3	17.3	19.3	18.6
Portfolio investment	-16.5	-8.1	-3.8	1.1	6.7	12.9	18.4	24.3	25.2
Financial derivatives (other than reserves) and employee stock options	0.2	0.4	-0.8	-0.5	-0.9	-0.4	-0.6	-0.9	-0.3
Other investment	24.8	24.6	25.1	23.6	22.6	21.5	22.7	23.5	26.2

Sources: Deutsche Bundesbank, IMF Statistics Department, and IMF staff calculations.

1/ Based on Balance of Payments Manual 6.

Table 6. Germany: Core Financial Soundness Indicators for Banks, 2015–20

(Percent)

	2015	2016	2017	2018	2019	2020
Capital adequacy						
Regulatory capital to risk-weighted assets	18.3	18.8	19.4	18.9	18.6	19.2
Commercial banks	17.3	17.9	18.8	18.1	18.3	19.8
Landesbanken	19.4	21.4	22.3	20.2	20.0	19.9
Savings banks	16.7	16.9	17.4	17.6	17.3	17.6
Credit cooperatives	17.6	17.7	17.6	17.5	17.1	17.2
Regulatory Tier I capital to risk-weighted assets	15.7	16.3	16.9	16.6	16.5	17.2
Commercial banks	15.5	16.0	16.7	16.0	16.4	17.6
Landesbanken	15.6	16.6	17.5	15.6	15.7	15.8
Savings banks	14.8	15.2	15.8	16.2	16.1	16.4
Credit cooperatives	14.1	14.5	14.8	15.0	14.9	15.4
Asset composition and quality						
Sectoral distribution of loans to total loans						
Loan to households	29.0	28.5	28.6	29.1	29.5	28.4
Commercial banks	22.2	20.9	20.8	21.4	22.2	21.1
Landesbanken	5.5	5.4	5.0	4.2	4.0	3.8
Savings banks	58.2	57.8	57.1	55.3	54.5	51.6
Credit cooperatives	68.8	68.2	67.0	66.0	64.7	61.5
Loans to non-financial corporations	15.2	14.9	15.1	15.7	16.1	15.4
Commercial banks	12.0	11.0	11.4	12.6	13.1	11.9
Landesbanken	23.5	24.1	23.3	22.2	21.9	20.9
Savings banks	22.4	23.1	24.0	25.1	25.2	24.2
Credit cooperatives	16.8	17.4	18.3	19.0	19.6	19.6
NPLs to gross loans	2.0	1.7	1.5	1.2	1.1	1.7
Commercial banks	1.2	1.2	1.1	1.1	1.0	2.1
Landesbanken	4.5	3.6	3.2	1.7	0.9	0.9
Savings banks	1.9	1.6	1.3	1.2	1.1	1.5
Credit cooperatives	2.0	1.8	1.6	1.4	1.2	1.7
NPLs net of provisions to capital	17.4	14.7	11.9	9.1	6.8	6.2
Commercial banks	6.9	9.2	5.5	6.1	3.0	9.3
Landesbanken	42.2	30.7	30.1	10.6	4.9	5.9
Savings banks	19.7	16.3	13.6	11.9	10.4	3.0
Credit cooperatives	19.5	17.3	15.9	14.4	12.5	5.2

Table 6. Germany: Core Financial Soundness Indicators for Banks, 2015–20 (concluded)

(Percent)

	2015	2016	2017	2018	2019	2020
Earnings and profitability						
Return on average assets (after-tax)	0.2	0.2	0.2	0.2	0.0	...
Commercial banks	0.1	0.1	0.1	0.1	-0.5	...
Landesbanken	0.1	-0.1	0.1	-0.2	0.1	...
Savings banks	0.5	0.6	0.6	0.4	0.4	...
Credit cooperatives	0.6	0.7	0.6	0.5	0.6	...
Return on average equity (after-tax)	4.0	4.3	4.1	2.4	-0.4	...
Commercial banks	2.2	3.2	2.8	1.5	-9.0	...
Landesbanken	1.9	-2.0	1.0	-3.9	1.6	...
Savings banks	6.5	7.4	6.7	4.8	4.8	...
Credit cooperatives	7.4	8.4	7.1	5.5	6.6	...
Interest margin to gross income	75.0	71.2	69.5	72.3	69.5	...
Commercial banks	67.0	63.4	60.7	67.8	61.8	...
Landesbanken	82.5	74.9	73.9	74.2	73.0	...
Savings banks	78.2	76.4	73.9	71.7	71.4	...
Credit cooperatives	78.4	76.5	75.3	74.6	73.5	...
Trading income to gross income	2.9	2.4	4.5	2.9	2.1	...
Commercial banks	5.3	2.6	8.0	4.9	3.2	...
Landesbanken	5.4	10.2	11.5	8.8	6.4	...
Savings banks	0.0	0.0	0.0	0.0	0.0	...
Credit cooperatives	0.0	0.0	0.0	0.0	0.0	...
Noninterest expenses to gross income	70.4	69.3	71.9	73.1	76.0	...
Commercial banks	75.6	74.3	79.4	79.3	84.9	...
Landesbanken	69.1	63.6	72.5	76.6	78.5	...
Savings banks	68.9	67.8	67.1	68.3	71.4	...
Credit cooperatives	66.6	66.6	65.7	66.2	67.2	...
Liquidity						
Liquid assets to total short-term liabilities	146.5	146.6	151.3	151.7	161.2	169.6
Commercial banks	128.4	127.9	131.4	140.3	147.4	157.4
Landesbanken	139.2	146.4	150.8	126.0	152.6	178.4
Savings banks	246.3	253.7	263.6	198.6	186.0	187.2
Credit cooperatives	241.7	246.9	242.2	162.2	169.9	158.6
Sensitivity to market risk						
Net open positions in FX to capital	4.6	4.0	3.7	3.2	3.7	3.4
Commercial banks	1.8	1.9	2.1	2.2	2.6	2.4
Landesbanken	10.6	6.4	4.0	3.1	2.6	3.2
Savings banks	4.8	4.4	4.3	3.5	4.0	3.6
Credit cooperatives	7.9	7.9	8.2	7.4	7.6	7.4

Source: Deutsche Bundesbank. The authorities provide annual data only and disseminate them once a year.

Table 7. Germany: Additional Financial Soundness Indicators, 2015–20
(Percent, unless otherwise indicated)

	2015	2016	2017	2018	2019	2020
Deposit-taking institutions						
Capital to assets	5.9	6.0	6.3	6.5	6.3	5.9
Commercial banks	5.2	5.1	5.6	5.7	5.5	4.8
Landesbanken	5.4	5.7	5.4	5.0	4.8	3.7
Savings banks	8.3	8.6	9.0	9.1	9.1	8.7
Credit cooperatives	7.7	7.9	8.2	8.3	8.4	8.2
Geographical distribution of loans to total loans						
Germany	75.9	76.6	78.7	78.0	77.6	79.8
EU-member countries	15.1	14.0	12.6	13.2	14.2	9.4
Others	9.0	9.4	8.7	8.8	8.2	10.9
FX loans to total loans	11.4	11.2	9.8	9.7	9.4	7.6
Personnel expenses to noninterest expenses	51.1	50.3	50.4	50.2	49.3	...
Commercial banks	42.8	42.7	42.5	41.5	40.8	...
Landesbanken	50.6	45.1	46.0	50.4	49.0	...
Savings banks	63.1	62.6	63.3	62.2	61.7	...
Credit cooperatives	60.3	60.0	59.7	59.0	57.3	...
Trading and fee income to total income	25.0	28.8	30.5	27.7	30.5	...
Commercial banks	33.0	36.6	39.3	32.2	38.2	...
Landesbanken	17.5	25.1	26.1	25.8	27.0	...
Savings banks	21.8	23.6	26.1	28.3	28.6	...
Credit cooperatives	21.6	23.5	24.7	25.4	26.5	...
Funding						
Customer deposits to total (non-interbank) loans	85.0	82.1	80.6	81.8	82.1	82.2
Commercial banks	101.7	90.5	84.9	88.3	91.1	83.6
Landesbanken	43.7	39.8	40.0	32.8	35.8	42.6
Savings banks	109.5	109.5	108.0	107.5	105.1	105.9
Credit cooperatives	116.9	117.7	116.2	115.2	112.8	114.7
Deposits/total assets	65.8	66.8	68.8	69.1	66.5	67.9
Commercial banks	66.2	68.5	72.9	73.3	67.7	68.5
Landesbanken	58.6	58.4	60.3	59.9	57.5	60.0
Savings banks	86.6	86.5	86.2	85.9	86.2	86.9
Credit cooperatives	87.1	87.2	87.1	87.1	87.2	87.6
Interbank assets/total assets	33.7	34.9	36.2	35.6	33.9	35.5
Commercial banks	36.4	39.3	41.0	39.4	35.6	37.3
Landesbanken	30.8	30.7	35.5	38.2	36.2	36.9
Savings banks	18.2	17.9	17.3	17.7	17.9	20.9
Credit cooperatives	21.6	21.2	20.4	20.2	20.3	22.4
Interbank liabilities/total assets	21.6	21.9	21.9	21.2	20.1	22.1
Commercial banks	23.9	26.0	26.8	25.3	23.1	25.5
Landesbanken	28.1	27.0	27.5	30.8	27.8	31.1
Savings banks	11.9	11.1	10.7	10.2	10.3	11.6
Credit cooperatives	12.7	12.3	12.6	12.4	12.4	13.9
Loans/assets	41.1	41.6	42.8	44.3	43.3	41.6
Commercial banks	29.3	29.7	32.0	34.7	32.8	30.8
Landesbanken	43.9	46.1	44.9	44.6	43.9	42.6
Savings banks	65.1	65.5	66.1	66.0	66.2	63.7
Credit cooperatives	61.8	62.0	62.6	63.1	63.5	61.8
Securities holdings/assets	18.5	17.4	16.7	16.2	15.3	14.1
Commercial banks	12.6	11.9	11.3	10.7	9.7	8.6
Landesbanken	19.9	18.2	16.9	15.7	15.1	13.3
Savings banks	25.2	24.6	23.7	23.2	22.2	20.8
Credit cooperatives	26.9	26.8	26.0	25.4	24.2	23.3
Spread between highest and lowest interbank rates 1/	8.90	3.51	4.13	...	49.4	59.3
Spread between reference loan and deposit rates 2/	301	280	260	242	225	208

Table 7. Germany: Additional Financial Soundness Indicators, 2015–20 (concluded)
(Percent, unless otherwise indicated)

	2015	2016	2017	2018	2019	2020
Insurance sector						
Solvency ratio, Life	159.3	343.7	393.7	461.2	386.8	373.6
Solvency ratio, Non-life (without reinsurance and health insurance)	311.1	285.5	291.8	288.8	285.1	277.4
Return on average equity, Life 3/	3.1	2.2	3.6	5.4	4.8	...
Return on average equity, Non-life 3/ (without reinsurance and health insurance)	3.3	3.9	4.6	4.1	3.9	...
Market liquidity						
Average bid-ask spread in the securities market (government bills)	0.005	0.005	0.005	0.005	0.002	0.004
Corporate sector						
Total debt to equity 4/	90.0	91.0	83.9	101.2	96.3	98.0
Earnings to interest and principal expenses 4/ 5/	1583.1	1875.1	2137.5	2330.2	2278.9	2217.5
Number of applications for protection from creditors 4/ 6/	13056	12056	11967	11434	11434	10566
Households						
Household debt to GDP 4/	52.4	52.5	51.9	52.4	53.5	56.9
Household debt service and principal payments to income 4/ 5/	1.5	1.3	1.2	1.0	0.9	0.9
Real estate markets						
Real estate prices, new dwellings 7/	92.3	100.0	109.7	118.9	127.4	134.3
Real estate prices, resale 7/	91.7	100.0	108.7	118.0	125.3	133.2
Real estate prices, new and resale 7/	91.8	100.0	108.8	118.2	125.6	133.4
Real estate prices, long time series 8/	117.1	126.0	133.7	142.5	150.8	161.9
Real estate prices, commercial property 9/	129.5	139.8	154.6	163.1	171.7	166.4
Residential real estate loans to total loans	19.2	18.5	18.6	19.4	20.4	19.9
Commercial real estate loans to total loans	5.8	5.6	5.6	5.9	6.3	6.2

Source: Deutsche Bundesbank. The authorities provide annual data only and disseminate them once a year.

1/ Spread between highest and lowest three month money market rates as reported by Frankfurt banks (basis points). The value for 2018 is missing due to the methodology in Q4 2018.

2/ Spread in basis points.

3/ Profits after tax divided by equity.

4/ Indicator compiled according to definitions of the Compilation Guide on FSIs.

5/ Excluding principal payments.

6/ Resident enterprises that filed for bankruptcy.

7/ Residential property price index (yearly average, 2016 = 100); source: Bundesbank calculations based on price data provided by bulwiengesa AG for 127 towns and cities, weighted by transactions.

8/ Residential property price index (yearly average, 2010 = 100, long time series); source: Bundesbank calculations based on varying data providers (until 2005: bulwiengesa AG, from 2006 onwards: vdpResearch, from 2014 onwards: Federal Statistical Office); varying composition of regions and housing types.

9/ Commercial property price index (office and retail property, yearly average, 2010 = 100), source: capital growth data provided by bulwiengesa AG for 127 towns and cities; separate indices are calculated for office property and retail property.

Annex I. External Sector Assessment

Overall Assessment: *The external position in 2020 was stronger than the level implied by medium-term fundamentals and desirable policies. The assessment accounts for certain transitory factors owing to the COVID-19 crisis impact on global trade flows.* The current account surplus is projected to return to pre-pandemic levels as the current shock recedes—with the recovery in the goods trade surplus more than offsetting the lower services balance—and to resume its modest gradual narrowing over the medium term, supported by a gradual realignment of price competitiveness and solid domestic demand. As Germany is part of the euro area, the nominal exchange rate does not flexibly adjust to the country's external position, but stronger wage growth relative to euro area trading partners is expected to contribute to realigning price competitiveness within the monetary union. However, the projected adjustment is partial, and additional policy actions will be necessary for external rebalancing.

Potential Policy Responses: Policies aimed at promoting investment and diminishing excess saving would support external rebalancing and a further reduction of the current account balance towards its norm. In particular, the sizeable fiscal stimulus in response to the COVID crisis is a welcome use of Germany's ample fiscal space. In the near term, policies should continue mitigating the outbreak, while supporting households and businesses in a way that minimizes economic scarring effects and facilitates a swift recovery. If imbalances and policy distortions that existed prior to the COVID-19 outbreak persist in the medium term, a growth-oriented fiscal policy, with greater public sector investment in areas such as, digitization, infrastructure and climate mitigation, would help crowd in private investment, promote potential growth and make the economy more resilient. Structural reforms to foster entrepreneurship (for example, by expanding access to venture capital, and stronger tax incentives for research and development) would also stimulate investment and reduce external imbalances. Additional tax relief for lower-income households, boosting their purchasing power, and pension reforms prolonging working lives would help reduce excess saving and ameliorate external imbalances.

Foreign Asset and Liability Position and Trajectory	<p>Background. Germany’s positive NIIP reached 76 percent of GDP by end-2020, more than doubling its level over the last five years. The net rise in foreign assets over this period has, however, still fallen short of the accumulation of CA surpluses. The NIIP of financial corporations other than monetary financial institutions is large and positive (65 percent of GDP), whereas that of the general government is large and negative (26 percent of GDP), partly reflecting Germany’s safe-haven status. The NIIP is expected to exceed 80 percent of German GDP by 2022, as the projected CA surplus remains large through the medium term but is expected to be partly offset by valuation changes. Foreign assets are well diversified by instrument. The stock of Germany’s TARGET2 claims on the Eurosystem has increased during the pandemic and associated quantitative easing (QE) operations of the ECB, exceeding €1.1 trillion at the end of 2020 (32 percent of GDP).</p> <p>Assessment. With continued implementation of QE measures by the ECB, Germany’s exposure to the Eurosystem remains large.</p>				
2020Q4 (% GDP)	NIIP: 76.2	Gross Assets: 308.3	Debt Assets: 183.4	Gross Liab.: 232.0	Debt Liab.: 165.2
Current Account	<p>Background. The CA surplus has widened significantly since 2001, peaking at 8.6 percent of GDP in 2015 and falling gradually since then. At 7.0 percent of GDP in 2020, the CA surplus narrowed slightly from 2019, despite an improved balance on oil and gas as well as services (driven in turn by a sharp fall in global oil prices and in outbound tourism). The bulk of the CA surplus reflects the large saving-investment surplus of households. The saving investment balance of the government is expected to turn strongly negative due to the unprecedented fiscal stimulus, while the NFC balance is also projected to be negative due to lower profits.</p> <p>Assessment. The cyclically adjusted CA balance is estimated by the EBA model to reach 6.9 percent of GDP. Staff assesses the CA norm at 2 to 4 percent of GDP, with a midpoint 0.35 percent of GDP above the 2.6 percent CA norm implied by the EBA model. This upward adjustment reflects uncertainty over the demographic outlook and the impact of recent large-</p>				

	scale immigration on national savings. Staff also assesses the cyclically adjusted CA balance to be 0.6 percent of GDP lower than estimated by the model to account for the temporary sharp drop in outbound travel (-0.7 percent of GDP) and in the volume of oil trade associated with the pandemic (-0.1 percent of GDP), partially offset by larger net imports of medical goods (0.2 percent of GDP). Taking these factors into account, staff assesses the 2020 CA gap to be in the range of 2.4 to 4.4 percent of GDP with a midpoint of 3.4 percent of GDP. ¹						
2020 (% GDP)	Actual CA: 7.0	Cycl. Adj. CA: 6.9	EBA Norm: 2.6	EBA Gap: 4.4	COVID-19 Adj.: -0.6	Other Adj.: -0.35	Staff CA Gap: 3.4
Real Exchange Rate	<p>Background. The yearly average CPI-based REER appreciated by 1.3 percent in 2020 relative to 2019, reflecting primarily the appreciation of the euro against the currencies of key trading partners—notably the US dollar.</p> <p>Assessment. The staff CA gap implies a REER gap of -9.2 percent in 2020 (applying an estimated elasticity of about 0.4) The EBA REER Level and Index models suggest an undervaluation of 15.5 percent and an overvaluation of 5.5 percent, respectively.² Consistent with the staff CA gap, staff assesses the REER to be undervalued in the range of 4.2 to 14.2 percent, with a midpoint of 9.2 percent.</p>						
Capital and Financial Accounts: Flows and Policy Measures	<p>Background. In 2020, net derivatives and other investment outflows comprised the bulk of the capital and financial accounts balance. Reversing a long-standing trend, net portfolio investment outflows shrank due to increased foreign purchases of domestic debt. Net FDI outflows remained positive but declined due to higher inflows.</p> <p>Assessment. Safe-haven status and the strength of Germany's current external position limit risks.</p>						
FX Intervention and Reserves Level	<p>Background. The euro has the status of global reserve currency.</p> <p>Assessment. Reserves held by euro area countries are typically low relative to standard metrics. The currency floats freely.</p>						

¹ For Germany, the bulk of the EBA-estimated gap for 2020 reflects the regression's residual rather than gaps in the policy variables included in the EBA model.

² The EBA REER Index model has an unusually poor fit for Germany.

Annex II. Risk Assessment Matrix¹

Source of Risks	Relative Likelihood	Impact	Policy Response
Global conjunctural and structural risks			
I. Unexpected shifts in COVID-19 pandemic. <ul style="list-style-type: none"> Asynchronous progress. Limited access to, and longer-than-expected deployment of, vaccines in some countries—combined with dwindling policy space—prompt a reassessment of their growth prospects (for some Emerging and Frontier Markets triggering capital outflows, depreciation and inflation pressures, and debt defaults). Prolonged pandemic. The disease proves harder to eradicate (e.g., due to new virus strains, short effectiveness of vaccines, or widespread unwillingness to take them), requiring costly containment efforts and prompting persistent behavioral changes rendering many activities unviable. For countries with policy space, prolonged support—while needed to cushion the economy—exacerbates stretched asset valuations, fueling financial vulnerabilities. For those with limited space, especially EMs, policy support is insufficient Faster containment. Pandemic is contained faster than expected due to the rapid production and distribution of vaccines, boosting confidence and economic activity. 	<p>M</p> <p>M</p> <p>M</p>	<p>M/H</p> <p>External demand is lower than expected in some trade partners.</p> <p>M/H</p> <p>Demand in contact-intensive services remains low for longer amid dwindling support for continued large fiscal measures.</p> <p>M/H</p>	<ul style="list-style-type: none"> Maintain and intensify if needed public health measures, in particular large-scale testing and contact tracing, and measures to expand mass vaccination as rapidly as possible. Extend COVID-19 fiscal measures, with additional support for households and businesses. Carefully calibrate capital relief measures to the progress of the pandemic, in order not to impede bank lending.

¹ The Risk Assessment Matrix (RAM) shows events that could materially alter the baseline path. The relative likelihood is the staff's subjective assessment of the risks surrounding the baseline ("low" is meant to indicate a probability below 10 percent, "medium" a probability between 10 and 30 percent, and "high" a probability between 30 and 50 percent). The RAM reflects staff views on the source of risks and overall level of concern as of the time of discussions with the authorities. Non-mutually exclusive risks may interact and materialize jointly. The conjunctural shocks and scenario highlight risks that may materialize over a shorter horizon (between 12 to 18 months) given the current baseline. Structural risks are those that are likely to remain salient over a longer horizon.

Source of Risks	Relative Likelihood	Impact	Policy Response
II. Accelerating de-globalization. Despite renewed efforts to reach multilateral solutions to existing tensions, geopolitical competition leads to further fragmentation. Reshoring and less trade reduce potential growth.	M	H With its high degree of trade openness, Germany is especially susceptible to fluctuations in global demand.	<ul style="list-style-type: none"> Continue support for the multilateral rules-based trading system, trade liberalization, and free trade agreements. Let automatic stabilizers fully operate.
III. Intensified geopolitical tensions and security risks. (Geo)political tensions in selected countries/regions cause socio-economic and political disruption, disorderly migration, higher commodity prices (if supply is disrupted), and lower confidence.	H	H Loss of social cohesion, amplifying the negative impact on labor markets and firms.	<ul style="list-style-type: none"> Extend temporary support for the most vulnerable groups (through a strengthened social safety net).
IV. Cyber-attacks on critical infrastructure, institutions, and financial systems trigger systemic financial instability or widespread disruptions in socio-economic activities and remote work arrangements.	M	H With increased remote work and digitalization, Germany's economic activity would be severely disrupted, and confidence weakened by cyber-attacks.	<ul style="list-style-type: none"> Strengthen governance and risk management of large public and private organizations, including in the financial system, and scale up investment in cyber resilience.
Regional Risks			
V. A shift in market sentiment against some high-debt euro area countries. Policy slippages with weak growth outturns in some high-debt euro area countries could raise concerns over debt sustainability, while disregard for the common fiscal rules and rising yields test the euro area policy framework in the medium term.	H	M A rise in sovereign yields may have knock-on effects on the broader financial sector and affect German banks.	<ul style="list-style-type: none"> The authorities should ensure that banks' liquidity and capital buffers are adequate, and engage in contingency planning.
Domestic Risks			
VI. Deeper scarring of corporate balance sheets and labor markets. The downturn and structural changes triggered by the crisis leads to waves of bankruptcies despite temporary liquidity support. Job losses in affected firms/sectors become permanent.	M/L	M/H Loss of firm-specific human capital triggered by a rise in unemployment. Adverse spillovers to other sectors through lower incomes and intermediate input demand. Further pressure on bank capital adequacy triggering credit tightening.	<ul style="list-style-type: none"> Stand ready to implement further policy support measures for firms and workers if needed. Maintain the flow of credit by making sure financial policies are adequately targeted and effectively deployed (e.g., loan guarantees, grants, equity support).

Source of Risks	Relative Likelihood	Impact	Policy Response
VII. Key sectors fail to adjust in a timely fashion to technological change and digitalization. Lack of progress in adapting to the technological and digital revolution, as well as pandemic-related change in production and consumption preferences, could undermine Germany's position as an innovation leader.	M	H Loss of competitiveness and shrinking market shares for Germany's key export products (automobiles and machinery) threaten the country's growth model, increasing structural unemployment and lowering potential growth.	<ul style="list-style-type: none"> • Greater public investment in digitalization, helping crowd-in private investment and boost digital infrastructure. • Ensure that the energy transition (from coal to green energy) proceeds as planned. • Provide incentives for electric vehicle ownership, including public upgrades to e-mobility.
VIII. Increase in the share of "zombie" firms. Prolonged untargeted policy support could prevent exit of fundamentally unviable firms.	M/L	M/H Distortion of competition lowers productivity and further slows the adjustment to technological change.	<ul style="list-style-type: none"> • Phase out policy support as the recovery gains hold. • Shift to targeted support to encourage resource reallocation toward growing sectors.
IX. Faster economic rebound in Germany's trading partners. Demand acceleration in key trading partners due in part to additional policy support—combined with increased demand for German goods, as global consumers substitute services spending for goods consumption—could potentially boost Germany's net exports.	M	H	<ul style="list-style-type: none"> • Shift to targeted support to encourage resource reallocation toward growing sectors.

Annex III. Public Debt Sustainability Analysis

On the back of the sharp economic contraction and extraordinary COVID-19 fiscal support measures, Germany's public debt rose by around 10 percent of GDP to 70 percent of GDP in 2020, after falling below 60 percent mark 2019. Due to the temporary nature of the COVID-19 policy measures and the expected economic recovery, Germany's public debt sustainability will not be jeopardized. The debt ratio is projected to fall to 62 percent of GDP over the medium term. A negative growth shock and a combined macro-fiscal shock represent the largest risk to the debt outlook. However, in both cases, debt would return to a downward trajectory after the shock.

A. Baseline Scenario

- 1. Macroeconomic assumptions.** Real GDP is projected to grow by 3.6 percent in 2021, after shrinking by 4.8 percent in 2020. Growth will converge to its potential over the medium run, estimated at 1.1 percent per year, and inflation—measured by the GDP deflator—will reach around 2 percent. Sovereign interest rates remain low and are currently negative up to a 12-year maturity. Average interest rates on public debt are expected to continue falling, from 1.1 percent in 2020 to 0.8 percent in 2026.¹
- 2. Germany's temporarily high level of public debt warrants use of the high scrutiny framework.** Public gross debt in 2021 is expected to be above the indicative DSA threshold (60 percent of GDP) for high scrutiny. Debt is projected to increase further in 2021, reaching 73 percent of GDP, reflecting continued extraordinary fiscal support to combat the economic fallout from and support recovery. Due to the temporary nature of the policy measures and the expected economic recovery, the debt ratio will fall back to 62 percent of GDP by 2026. Estimated gross financing needs will decline from 25 percent of GDP in 2021 to below 7 percent of GDP in 2026.
- 3. The realism of baseline assumptions.** Previous forecasts of macro-fiscal variables have been conservative. The median forecast error for real GDP growth during 2011–19 is close to zero. The median forecast error for inflation (GDP deflator) is 0.33 percent, suggesting that the staff underestimated inflation in the past (particularly post-2010). The median forecast bias for the primary balance is 0.53 percent of GDP, relatively conservative for surveillance countries.
- 4. The projected fiscal adjustment is feasible.** The maximum 3-year adjustment of the cyclically-adjusted primary balance (CAPB) lies in the top quartile of historical and cross-country experience. However, this adjustment mainly reflects the phasing-out of the sizable and temporary fiscal measures adopted in response to the pandemic.

¹ The interest rate on new borrowing is derived from forecasts of the real interest rate and inflation, and it does not necessarily match market-based interest rate forecasts. Using market-based forecasts would make little difference to the debt sustainability analysis.

B. Shocks and Stress Tests Through the Medium Term

5. Germany's government debt should remain below the elevated level of 2021 over the medium term under plausible macro-fiscal shocks, while gross financing needs should fall below 10 percent of GDP. Under all considered macro-fiscal stress tests, both the debt-to-GDP ratio and gross financing needs either continue to drop or return to a downward path after the shock. Temporary shocks to real GDP growth or a combined macro-fiscal shock would drive a temporary increase in debt. At the same time, gross financing needs would continue to decrease throughout the projection period. Given the historical variability of growth, Germany's debt dynamics are most sensitive to growth shocks (detailed results below).

List of Shocks and Stress Tests²

- **Growth shock.** Under this scenario, real output growth rates are lower than in the baseline by one standard deviation over 2022–23 (i.e., by 2.4 percentage points). The assumed decline in growth leads to lower inflation (0.25 percentage points per 1 percentage point decrease in GDP growth), and the interest rate on new debt is assumed to increase 25 basis points for every 1 percent of GDP worsening of the primary balance. Debt would peak at 78 percent of GDP in 2023 in this case, but decline to 70 percent of GDP by 2026.
- **Primary balance shock.** This scenario examines the effect of a dual shock of lower revenues and a rise in the interest rate, leading to a cumulative 3.8 percent deterioration in the primary balance over 2022–26 (half of the planned fiscal adjustment is assumed to materialize). The shock would result in a modest deterioration of debt dynamics.
- **Interest rate shock.** This scenario assumes an increase of 314 basis points in debt servicing costs throughout the forecast horizon, mimicking the historical maximum interest rate experienced since 2010. The effect on public debt and gross financing needs would also be relatively modest.
- **Additional stress test.** Combined macro-fiscal shock. This test combines shocks to growth, the interest rate, and the primary balance; while avoiding double-counting the effects of individual shocks. The impact on debt dynamics is slightly worse than that of a growth shock.
- **Additional stress test.** Contingent fiscal shock. This scenario assumes a cumulative 3 percent of GDP (about 100 billion euros) additional fiscal cost for public guarantees called over 2022–23. This assumes that contracted guarantees will double from the level of end-2020, and about one-third of the guarantees contracted will be called. While a sizable shock, the impact on debt ratio is relatively limited, with debt-to-GDP continuing to fall rapidly.

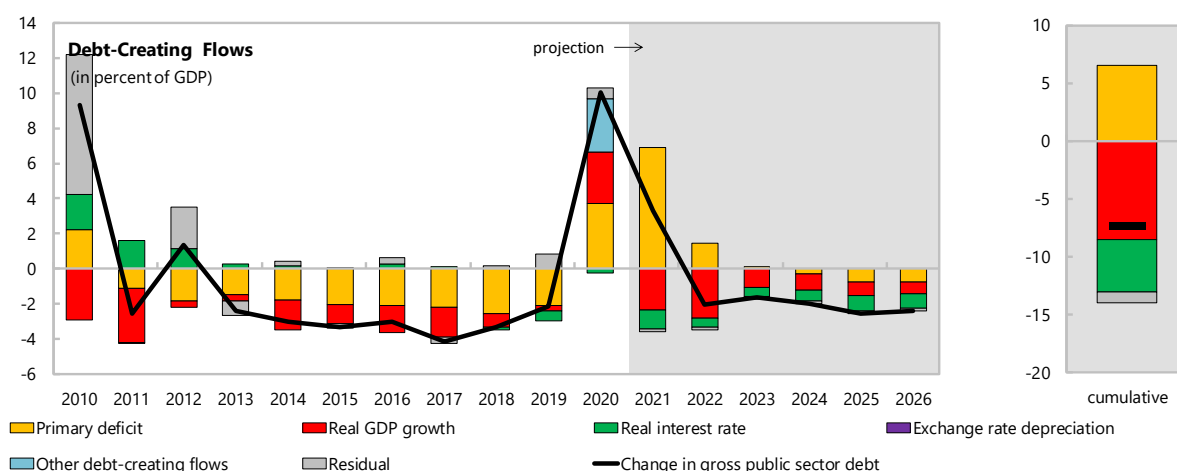
² Given that virtually all outstanding sovereign debt is denominated in euros, the scenario of a real exchange rate shock would not have a relevant effect on debt and is therefore not discussed.

Figure A1. Germany: Public Sector Debt Sustainability Analysis (DSA)—Baseline Scenario
(in percent of GDP unless otherwise indicated)

Debt, Economic and Market Indicators ^{1/}										As of May 26, 2021		
	Actual			Projections								
	2010-2018 ^{2/}	2019	2020	2021	2022	2023	2024	2025	2026	Sovereign Spreads	EMBIG (bp) ^{3/}	
Nominal gross public debt	74.1	59.7	69.7	73.0	70.9	69.3	67.3	64.7	62.3			0
Public gross financing needs	15.0	10.7	18.4	25.1	15.7	11.0	8.7	6.4	6.6	5Y CDS (bp)		11
Real GDP growth (in percent)	2.1	0.6	-4.8	3.6	4.1	1.6	1.4	1.1	1.1	Ratings	Foreign	Local
Inflation (GDP deflator, in percent)	1.5	2.2	1.6	2.3	1.4	1.5	1.6	2.1	2.1	Moody's	Aaa	Aaa
Nominal GDP growth (in percent)	3.6	2.8	-3.3	6.0	5.5	3.0	3.0	3.2	3.1	S&Ps	AAA	AAA
Effective interest rate (in percent) ^{4/}	2.3	1.3	1.1	0.8	0.7	0.7	0.7	0.7	0.8	Fitch	AAA	AAA
10-year bond yield	1.3	-0.2	-0.5	-0.3	-0.1	0.1	0.2	0.5	0.7			

Contribution to Changes in Public Debt

	Actual			Projections						cumulative	debt-stabilizing primary balance ^{9/}
	2010-2018	2019	2020	2021	2022	2023	2024	2025	2026		
Change in gross public sector debt	-1.3	-2.1	10.0	3.3	-2.0	-1.7	-2.0	-2.6	-2.4	-7.4	
Identified debt-creating flows	-2.3	-3.0	9.4	3.5	-1.9	-1.5	-1.8	-2.4	-2.3	-6.4	
Primary deficit	-1.4	-2.1	3.7	6.9	1.4	0.1	-0.3	-0.8	-0.8	6.6	
Primary (noninterest) revenue and grants	44.7	46.5	46.6	46.0	46.2	46.4	46.2	46.3	46.3	277.3	
Primary (noninterest) expenditure	43.3	44.4	50.4	52.9	47.6	46.5	45.9	45.5	45.5	283.9	
Automatic debt dynamics ^{5/}	-0.9	-0.9	2.7	-3.4	-3.3	-1.6	-1.5	-1.6	-1.5	-13.0	
Interest rate/growth differential ^{6/}	-0.9	-0.9	2.7	-3.4	-3.3	-1.6	-1.5	-1.6	-1.5	-13.0	
Of which: real interest rate	0.6	-0.5	-0.3	-1.1	-0.5	-0.5	-0.6	-0.9	-0.8	-4.5	
Of which: real GDP growth	-1.5	-0.3	2.9	-2.3	-2.8	-1.1	-0.9	-0.7	-0.7	-8.6	
Exchange rate depreciation ^{7/}	0.0	0.0	0.0	
Other identified debt-creating flows	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Privatization/Drawdown of Deposits (negative)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Contingent liabilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Please specify (2) (e.g., ESM and Euroarea loans)	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Residual, including asset changes ^{8/}	1.1	0.8	0.6	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-1.0	



Source: IMF staff.

1/ Public sector is defined as general government.

2/ Based on available data.

3/ Long-term bond spread over German bonds.

4/ Defined as interest payments divided by debt stock (excluding guarantees) at the end of previous year.

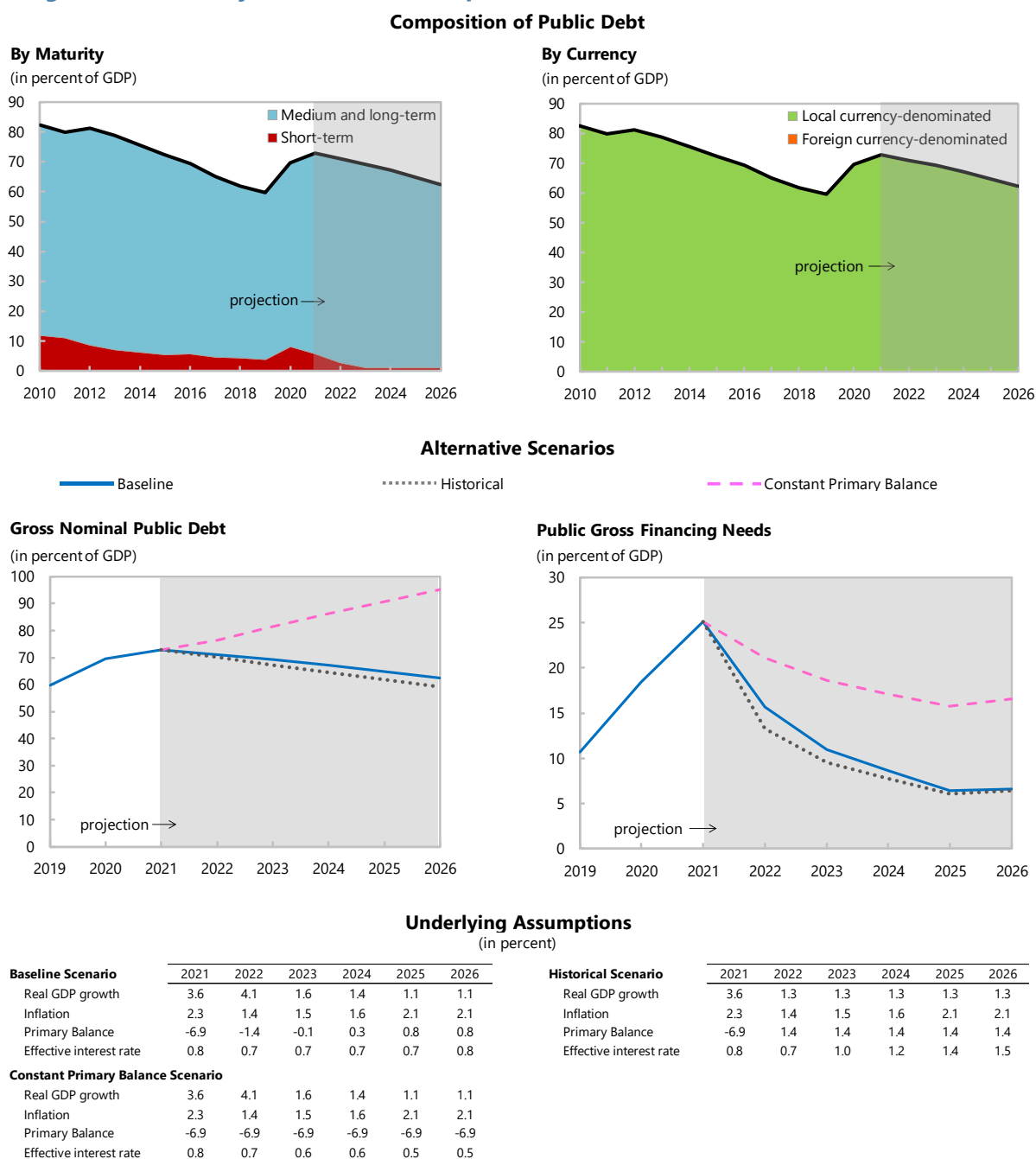
5/ Derived as $[(r - \pi(1+g) - g + ae(1+r))/(1+g+\pi+gr)]$ times previous period debt ratio, with r = interest rate; π = growth rate of GDP deflator; g = real GDP growth rate; a = share of foreign-currency denominated debt; and e = nominal exchange rate depreciation (measured by increase in local currency value of U.S. dollar).

6/ The real interest rate contribution is derived from the numerator in footnote 5 as $r - \pi(1+g)$ and the real growth contribution as $-g$.

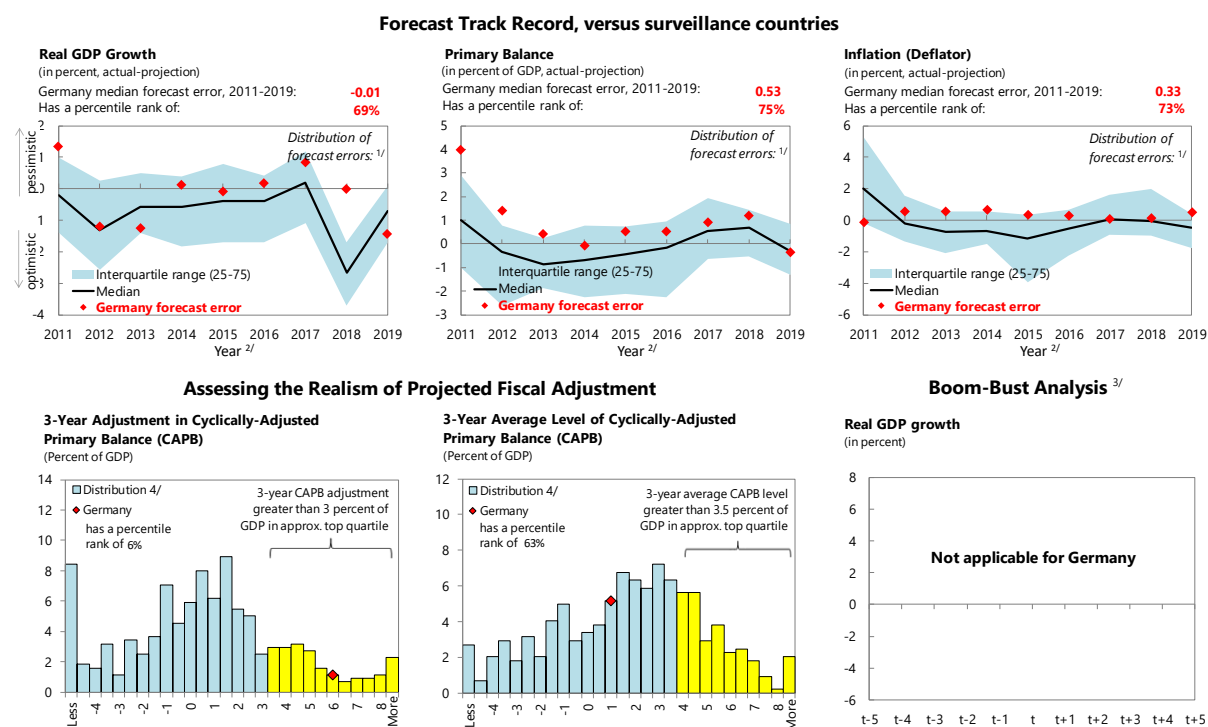
7/ The exchange rate contribution is derived from the numerator in footnote 5 as $ae(1+r)$.

8/ Includes asset changes and interest revenues (if any). For projections, includes exchange rate changes during the projection period.

9/ Assumes that key variables (real GDP growth, real interest rate, and other identified debt-creating flows) remain at the level of the last projection year.

Figure A2. Germany: Public DSA—Composition of Public Debt and Alternative Scenarios

Source: IMF staff.

Figure A3. Germany: Public DSA—Realism of Baseline Assumptions

Source : IMF Staff.

1/ Plotted distribution includes surveillance countries, percentile rank refers to all countries.

2/ Projections made in the spring WEO vintage of the preceding year.

3/ Not applicable for Germany, as it meets neither the positive output gap criterion nor the private credit growth criterion.

4/ Data cover annual observations from 1990 to 2011 for advanced and emerging economies with debt greater than 60 percent of GDP. Percent of sample on vertical axis.

Figure A4. Germany: Public DSA—Stress Tests



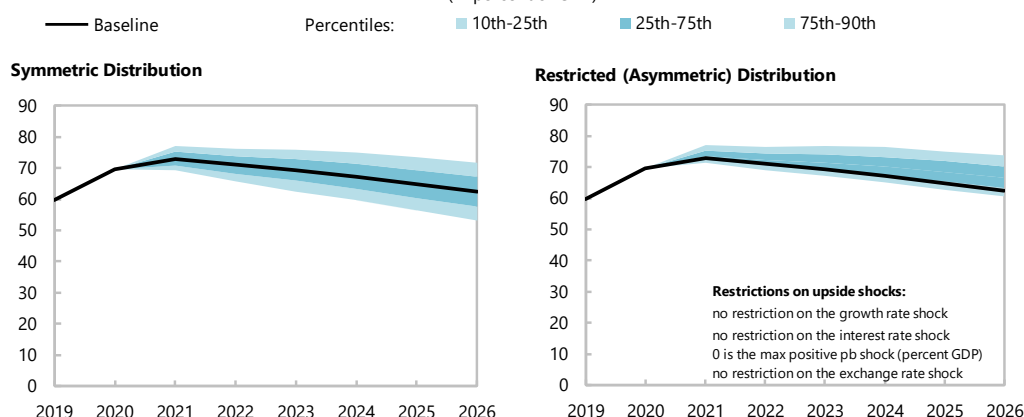
Source: IMF staff.

Figure A5. Germany: Public DSA Risk Assessment**Heat Map**

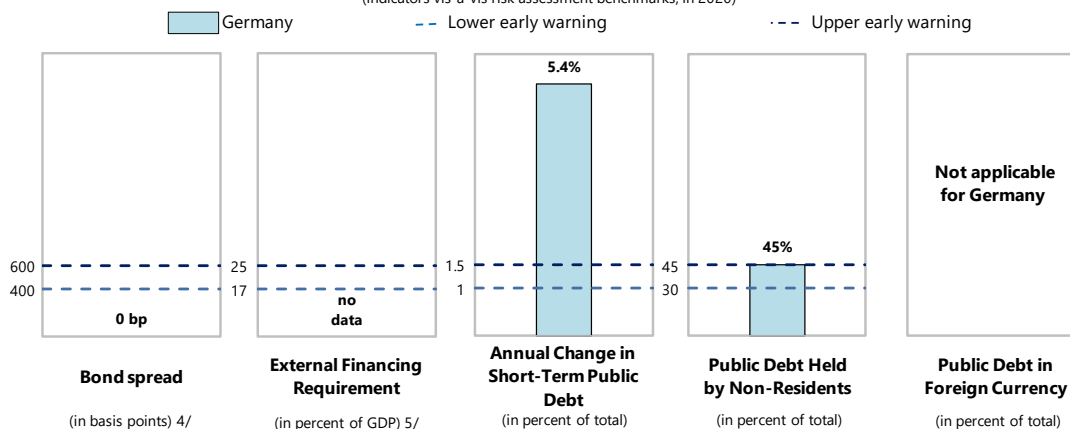
Debt level ^{1/}	Real GDP Growth Shock	Primary Balance Shock	Real Interest Rate Shock	Exchange Rate Shock	Contingent Liability shock
Gross financing needs ^{2/}	Real GDP Growth Shock	Primary Balance Shock	Real Interest Rate Shock	Exchange Rate Shock	Contingent Liability Shock
Debt profile ^{3/}	Market Perception	External Financing Requirements	Change in the Share of Short-Term Debt	Public Debt Held by Non-Residents	Foreign Currency Debt

Evolution of Predictive Densities of Gross Nominal Public Debt

(in percent of GDP)

**Debt Profile Vulnerabilities**

(Indicators vis-à-vis risk assessment benchmarks, in 2020)



Source: IMF staff.

1/ The cell is highlighted in green if debt burden benchmark of 85% is not exceeded under the specific shock or baseline, yellow if exceeded under specific shock but not baseline, red if benchmark is exceeded under baseline, white if stress test is not relevant.

2/ The cell is highlighted in green if gross financing needs benchmark of 20% is not exceeded under the specific shock or baseline, yellow if exceeded under specific shock but not baseline, red if benchmark is exceeded under baseline, white if stress test is not relevant.

3/ The cell is highlighted in green if country value is less than the lower risk-assessment benchmark, red if country value exceeds the upper risk-assessment benchmark, yellow if country value is between the lower and upper risk-assessment benchmarks. If data are unavailable or indicator is not relevant, cell is white. Lower and upper risk-assessment benchmarks are:

400 and 600 basis points for bond spreads; 17 and 25 percent of GDP for external financing requirement; 1 and 1.5 percent for change in the share of short-term debt; 30 and 45 percent for the public debt held by non-residents.

4/ Long-term bond spread over German bonds, an average over the last 3 months, 25-Feb-21 through 26-May-21.

5/ External financing requirement is defined as the sum of current account deficit, amortization of medium and long-term total external debt, and short-term total external debt at the end of previous period.