
THE ECONOMIC OUTLOOK IN THE CORONAVIRUS PANDEMIC

Special Report

22 March 2020

This is a translation of the original report published in German,
which is the sole authoritative text.

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PREFACE

1. The spread of the coronavirus presents a new and an in its magnitude unprecedented challenge for society and politics in Germany and Europe. At the same time, the pandemic has a significant impact on the economic development not least due to the introduced public health measures. On this account, the German Council of Economic Experts (GCEE) sees the obligation to prepare a special report, according to § 6 Section 2 Sentence 1 of the GCEE Act, that discusses the possible effects of the pandemic on the economic development as well as the measures that could contribute to the recovery of the German economy.

The special report is entitled:

THE ECONOMIC OUTLOOK IN THE CORONAVIRUS PANDEMIC

2. In effort to contain the virus many countries have introduced extensive public health measures which widely restrict social contacts. The purpose of these measures is to slow the spread of the virus and avoid overwhelming the health system. It is currently difficult to foresee, how long these public health measures need to remain in place and when social life is going to normalize. These measures are associated with significant economic impacts. In this Special Report the GCEE analyses those impacts and discusses suitable economic policy measures to overcome the crisis. In this context, the degree of uncertainty about future development is currently very high since data is scarce and the circumstances are exceptional.
3. On 29 February 2020, the appointment period of Prof. Dr. Dr. h.c. Christoph M. Schmidt ended. In the past eleven years, seven of them as chairman, he has significantly shaped the GCEE and showed enormous commitment in further developing the GCEE, particularly in expanding the evidence based political consulting and the internationalisation of the Council's work. The GCEE is greatly indebted to him.
4. At the end of the year 2019, Prof. Dr. Isabel Schnabel has left the GCEE to dedicate herself to new tasks as member of the executive board of the European Central Bank, in the future. The GCEE would like to thank her for her significant impulses and energetic, tireless effort over the past six years and wishes her all the best in her new responsibility for monetary policy.
5. Until two new members are appointed by the Federal President, the GCEE consists of three members. Prof. Dr. Dr. h.c. Lars P. Feld has been elected as new chairman on 16 March 2020.
6. Georg Licht, Jürgen Egelund and Sandra Gottschalk from the Research Data Centre of the Leibniz Centre for European Economic Research (ZEW) provided the GCEE with data from a special evaluation of the Mannheim Enterprise Panel (MUP).

7. The GCEE would like to thank the Federal Statistical Office for its excellent cooperation and valuable support. The scientific staff exchanged views with different units of the Federal Statistical Office about the current data availability and its evaluation. The chapter supervisors Angela Pätzelt, Max Georg and Jens Ruthard from the Federal Statistical Office made an exceptionally valuable contribution to the quality assurance of this special report.
8. Marcel Brambeer, Pia Molitor and Dominik R. Wehr actively supported the GCEE and its scientific staff during their internships.
9. We extend special thanks to the staff of the liaison office of the GCEE, for their extraordinary commitment in preparing this special report. We would like to thank Dipl.-Volkswirtin Birgit Hein as well as Dipl.-Betriebswirtin (FH) Adina Ehm, Jasmin Frey, Waldemar Hamm, M.Sc., Maximilian Lüke, M.Sc., Laura Messter, Volker Schmitt and Esther Thiel.
10. This special report is essentially based on the support of the scientific staff, which has supplemented the work of the GCEE with outstanding technical expertise. Given that the commitment was necessary on such a short notice, the employees of the GCEE shouldered an enormous work load and committed themselves tirelessly to complete this Special Report under the hindering conditions of the Corona-pandemics. Our sincere thanks therefore go to Sebastian Weiske, Ph.D. (Deputy Secretary General), Dr. Kai Brücknerhoff (until 15 March 2020), Dr. Jan Fries, Niklas Garnadt, M.Sc., Dr. Jens Herold, Dr. Florian Kirsch, Lukas Nöh, Ph.D., Dr. Malte Preuß, Felix Rutkowski, M.Sc., Dr. Milena Schwarz, Dipl.-Betriebswirtin (FH) Nadine Winkelhaus and Dipl.-Volkswirt Mustafa Yeter. Very special thanks shall be due to the Secretary General, Dr. Wolf Heinrich Reuter, who coordinated the work on this special report with an outstanding overview and leadership competence and shaped the content of large parts of the special report.

All remaining errors in this report should only be attributed to the authors mentioned below.

Wiesbaden, 22 March 2020

Lars P. Feld

Achim Truger

Volker Wieland

Note: Published on 30 March 2020; concerning the time of publication an understanding has been reached with the Federal Ministry for Economic Affairs and Energy according to Article 6 Section 2 Sentence 3 of the Act on the Appointment of a Council of Experts on Economic Development.

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Abbreviations

| | | |
|-----------------|---|---|
| AR | - | Annual Report of the German Council of Economic Experts |
| BAAINBw | - | Federal office for information technology equipment and use of the federal armed forces |
| BMF | - | Federal Ministry of Finance |
| BMWi | - | Federal Ministry for Economic Affairs and Energy |
| CBO | - | Congressional Budget Office |
| CEPR | - | Center for Economic and Policy Research |
| CO ₂ | - | Carbon dioxide |
| COVID-19 | - | Corona Virus Disease 2019 |
| CPI | - | Consumer price index |
| CRD | - | Capital Requirements Directive |
| CSPP | - | Corporate Sector Purchase Programme |
| DAX | - | German stock index |
| DIW | - | German Institute for Economic Research |
| ECB | - | European Central Bank |
| ECCL | - | Enhanced Conditions Credit Line |
| EEG | - | German Renewable Energy Sources Act |
| ERP | - | European Recovery Program |
| ESM | - | European Stability Mechanism |
| EU | - | European Union |
| EU-ETS | - | European Union Emissions Trading System |
| Fed | - | U.S. Federal Reserve |
| GDP | - | Gross Domestic Product |
| GM | - | General Motors |
| HICP | - | Harmonised Index of Consumer Prices |
| IAB | - | Institute for employment research |
| ifo | - | ifo Institute for economic research |
| IMF | - | International Monetary Fund |
| IW | - | German Economic Institute |
| KfW | - | Kreditanstalt für Wiederaufbau |
| KuG | - | Short-time allowance |
| LTRO | - | Longer-Term Refinancing Operations |
| MDK | - | Health Insurance Medical Service |
| MERS | - | Middle East Respiratory Syndrome |
| OECD | - | Organization for Economic Co-operation and Development |
| OMT | - | Outright Monetary Transactions |
| PAT | - | Production Activity Tracker |
| PCCL | - | Precautionary Conditioned Credit Lines |
| PEPP | - | Pandemic Emergency Purchase Programme |
| RKI | - | Robert-Koch Institute |
| RWI | - | RWI – Leibniz Institute for Economic Research |
| SARS | - | Severe acute respiratory syndrome |

Abbreviations

| | | |
|------------|---|--|
| SARS-CoV-2 | - | Severe acute respiratory syndrome Coronavirus 2 |
| Soffin | - | Financial Market Stabilisation Fund |
| SR | - | Special Report of the German Council of Economic Experts |
| TLTRO | - | Targeted Longer-Term Refinancing Operations |
| WHO | - | World Health Organization |
| WSF | - | Economic stabilization fund |
| WTO | - | World Trade Organization |
| ZEW | - | ZEW – Leibniz Centre for European Economic Research |

EXECUTIVE SUMMARY

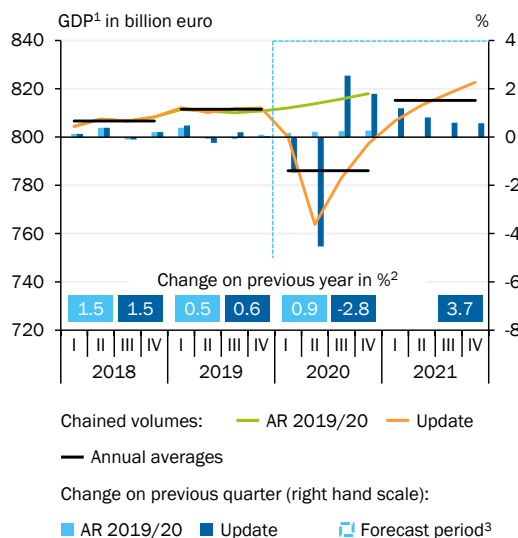
1. The outbreak of the novel **coronavirus** (SARS-CoV-2) presents a significant and unprecedented challenge for the entire world. Since it was first detected in China in December 2019, the virus has spread across the globe. In efforts to contain the virus, many countries have introduced rigorous public health measures that significantly limit social contact. The purpose of these measures is to slow the spread of the virus and avoid overwhelming the health systems. At present, it is difficult to say how long the public health measures will need to remain in place and when society will return to normality.

1. Economic impacts

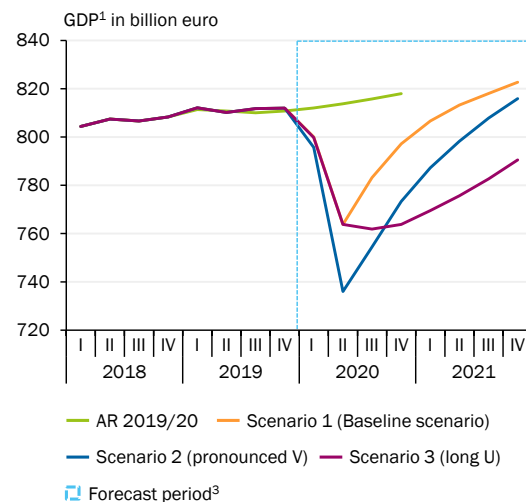
2. The public health measures are associated with significant economic impacts worldwide. In this Special Report, the German Council of Economic Experts (GCEE) analyses these impacts and discusses suitable economic policy measures to tackle the crisis. In this context, the degree of **uncertainty surrounding the future development** is currently very high because data is scarce for the brief span of time since the crisis began and because of the exceptional circumstances. The GCEE therefore presents three scenarios for the German economy in 2020 and 2021. These are based on different assumptions regarding the scale and duration of the restrictions as a result of the virus and the speed of the subsequent recovery.
3. In the **baseline scenario** – the most likely scenario given currently available information – the GCEE assumes that the economic situation will normalise over

Expected development in Germany

Positive GDP growth starting in 3rd quarter 2020
Baseline scenario



Different scenarios for the GDP forecast
seasonally and calendar-adjusted



1 – Chained volumes (Reference year 2015), seasonally and calendar-adjusted. 2 – Not calendar-adjusted. 3 – Forecast by the GCEE.

Sources: Federal Statistical Office, own calculations

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the summer, similar to the pattern emerging in China. In this case, GDP would grow by -2.8% in 2020. In 2021, catch-up effects and a large carry-over effect could drive growth to 3.7% .

4. One **risk scenario (pronounced V)** estimates the economic consequences that could result if there was widespread stoppage of production or if the restrictive measures remained in place longer than currently planned. In this case, economic output in the second quarter could be up to 10% lower than the current level. The sharper downturn in the first half year of 2020 would result in a drop in GDP of -5.4% on an annual average. As in the baseline scenario, catch-up effects could, however, ensure a return to economic output that is close to potential as the year progresses, as suggested in the baseline scenario. In 2021, the economy would then grow by 4.9% ; the large carry-over effect of 1.1 percentage points must be taken into consideration here, however.
5. If the measures to contain the coronavirus last beyond the summer, this will delay economic recovery until 2021. In this **risk scenario (long U)**, the policy measures taken may not be enough to prevent far-reaching damage to the economy resulting from bankruptcies and layoffs. Deteriorating financing conditions and increased and entrenched uncertainty could also curb investment and result in restrained household spending. Ultimately in such a scenario there is a risk of negative feedback loops through the financial markets or the banking system. Growth in 2020 could amount to -4.5% in this scenario. Next year, economic output would only grow at a very slow pace of 1.0% .

2. Economic policy measures

6. First and foremost, the priority is to enable the **health system** to provide adequate care to patients and to limit the spread of the virus by implementing suitable measures, particularly measures to reduce the risk of contagion through social contact. The health system must be given sufficient financial resources to do so. At the same time, channels should be used to mobilise personnel reserves and emergency capacities.
7. **Clear communication** of essential measures and plans can promote acceptance of public health interventions and help reduce uncertainty in the population and the business sector. This could help limit the economic costs of the crisis. Policy-makers should communicate their criteria and timeline for public health restrictions in a kind of normalisation strategy. Evidence-based decisions and the right timing of measures require a reliable and broad data base. This includes broadening the virus-testing and providing real-time data on economic activities, for example.

If the Member States of the euro area send a clear signal to provide additional fiscal resources immediately, if needed, via existing instruments, such as the European Stability Mechanism (ESM), they will be able to **stabilise expectations on the financial markets**. The conditions for the use of the instrument could be reduced to the necessary minimum for the subsequent reduction in the debt

ratio. The European Central Bank (ECB) has already done its part to stabilise expectations. It has guaranteed a sufficient supply of liquidity and additional asset purchases. A link to the ESM would also enable the ECB in extreme cases to specifically buy bonds of individual Member States even on a large scale within the framework of Outright Monetary Transactions (OMT). Standard demand stimulus measures that aim to boost economic activity in the short term do not hold much promise as long as the various restrictions on social and economic activities continue. Nevertheless, the expectations of households and businesses can be positively influenced by announcing economic policy stimuli for the time after the restrictions at an early stage.

8. To support economic recovery after the downturn, policy-makers can focus activities in three specific areas. Firstly, economic **capacities** should be **maintained** as much as possible beyond the downturn. The Federal Government's broad package of measures that is designed to protect businesses and workers from the impact of the crisis is therefore welcome. It comes at the right time. Liquidity support, tax deferrals and guarantees aim to help businesses avoid having to file for

Economic Policy Measures in Response to the Corona-Pandemic

| | |
|---------------------------------|---|
| Protection of Health | Provision of sufficient resources for health and prevention |
| | Activation of reserves in personnel |
| Clear Communication | Improvement of basis of data |
| | Normalisation strategy for public health measures |
| | Assurance of availability of fiscal resources at the European level |
| | Assurance of liquidity supply for financial markets |
| | Early announcement of planned economic impulses after the end of the restrictions |
| Maintaining economic capacities | Provision of liquidity through loans and debt guarantees for companies |
| | Possibility of tax deferral and loss compensation |
| | Access to short-term work allowance, Introduction of Corona-parental allowance |
| | Transition to flexible working hours and work |
| | Support through temporary public shareholdings |
| | Securing free movement of goods and supply chains |
| Stabilisation of income | Strengthening the automatic stabilisers |
| | Continuation of payments in case of quarantine, illness, absence |
| | Providing direct benefits, damage claim through the Infection Protection Act |
| | Setting economic policy stimuli for aggregate demand |
| Making Use of the time | Further training and continuing education at home |
| | Prioritising constructions projects to make use of low utilisation |
| | Testing and developing mobile work and digital administration |
| | Preparing investments projects and law changes |

Source: own illustration

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bankruptcy due to the abrupt fall-off in demand or bottlenecks in supply chains for intermediate products. The same applies for measures taken by the ECB to ensure lending by banks. With easier access to short-time working allowance and more flexible working time arrangements, businesses can avoid having to let go workers whom they will likely need again urgently once the epidemic subsides. All actions should ensure that the drop in economic output is contained quickly and effectively and that the "pronounced V" risk scenario does not materialise.

If the recovery takes longer – as depicted in the "long U" risk scenario, for instance – **public involvement** could also ensure the survival of **selected businesses**. In this context it is important to ensure that government participation in ownership remains temporary, and that the Federal Government and the Länder have an exit strategy from the outset. Silent participations may be a solution to enable a subsequent exit. During the entire time, the free movement of goods should be maintained to the greatest extent possible and the cross-border movement of persons should resume once the public health measures come to an end.

9. Secondly, economic policy measures serve to **stabilise income**. In Germany, this involves well-established institutions that act as automatic stabilisers, such as the tax system, unemployment insurance, the health insurance system, the continued payment of wages in the event of quarantine or illness, and the social partnership between employers and trade unions. The Federal Government has also agreed to provide direct grants for households or self-employed persons particularly hard hit by the crisis.

If the economy develops more along the lines of the "long U" risk scenario, **fiscal demand stimuli** can increase the income of households and businesses and therefore help bring about a faster recovery. Different temporary and permanent options – with advantages and disadvantages – are available for this, such as a larger investment program, corporate tax cuts, the abolition of the solidarity surcharge, transfers, simplified depreciation rules or an increase in spending on education and research. Not least against the backdrop of this scenario, it is important to bear in mind that fiscal resources are not unlimited and it is therefore vitally important to concentrate on effective measures at the given time.

10. Thirdly, **optimum use** should be made of the **time** during which the public health measures are in place in order to support the recovery and long-term economic development. The period in which people are at home and not in the workplace can be used for further training and continuing education that is important for structural change. Relevant offerings could be supported and incentives provided.

As long as the construction sector remains unaffected by restrictions on production, priority could be given to projects by which faster progress can be made when utilisation is low, such as in the case of schools, the public transport system or roads. The time could also be used to plan investment projects that could be implemented when the restrictions are lifted. Furthermore, the restrictions make **fast progress on digitalisation** imperative for businesses and public administration.

I. INTRODUCTION

1. The **spread** of the novel **coronavirus** (SARS-CoV-2) presents a **significant and unprecedented challenge** for the entire world. Since it was first detected in China in December 2019, the virus has fanned out across the globe. The virus causes the lung disease COVID-19. The World Health Organisation (WHO) declared the outbreak a pandemic on 11 March 2020. According to current estimates, the case fatality rate is higher than that of seasonal flu. While the number of new infections is beginning to decline in countries of Southeast Asia, a significant increase is being reported in almost every Member State of the European Union (EU). The virus has been spreading throughout the EU since early March. Initial hotspots were concentrated in Italy; but the number of new infections has also increased exponentially in Spain, Germany and France since then.
2. In efforts to contain the virus, many countries have introduced **rigorous public health measures** that significantly limit social contact. The purpose of these measures is to slow the spread of the virus and avoid overwhelming the health systems. Together with the increased level of uncertainty, these measures are associated with **severe economic impacts worldwide**. Share prices have plummeted, for example, and there are severe restrictions on the consumption and production of goods and services. At present, it is difficult to say how long the public health measures will need to remain in place and when society will return to normality.
3. Current data and analyses concerning the future development are an important basis for public policy decisions and can reduce uncertainty and help establish expectations among the population. In this **Special Report**, the GCEE analyses these developments and discusses suitable economic policy measures to overcome the crisis. The Special Report examines three different scenarios for economic development in 2020 and 2021 in consideration of the current events unfolding. In this context, the degree of uncertainty surrounding the future development is currently especially high, particularly due to the exceptional circumstances and because complete and reliable data are not yet available.

The three scenarios are based on different assumptions regarding the scale and duration of the public health measures and the subsequent recovery. In all three scenarios, the GCEE expects the **economic output** of the German economy to **contract significantly in 2020**.

4. Worldwide, **economic policy** is taking **extraordinary measures** to cushion the economic impact of the coronavirus pandemic. In March 2020, central banks, including the European Central Bank (ECB) and the U.S. Federal Reserve (Fed), announced broad measures to strengthen the liquidity supply of the banking system and the extension of credit. Many governments in Europe have quickly adopted vigorous support measures. First and foremost are the public health activities to reduce social contact and strengthen the health system. Additionally, the economic policy focus is initially on safeguarding liquidity of businesses,

bridging lost revenue and maintaining jobs. Taking the various scenarios into consideration, this Special Report discusses these economic policy measures and explores other useful economic policy steps that could be taken, not least at the European level.

5. A **challenge** on the scale of the coronavirus pandemic calls for **resolute action from policy-makers and society**. The public health policy measures taken are crucial in order to save lives and to minimize the number of serious courses of disease. Economic policy is called upon to keep the resulting costs to the economy as low as possible.

In the past, it has been possible to achieve new record highs in global prosperity even after major crises. A recovery is contingent upon a return to normal economic and social life. If we manage to **contain the further spread of the coronavirus on a lasting basis**, a swift return to growth can be expected. This must be the goal of economic policy in this crisis.

6. The current crisis brings major challenges for the economy, policy-makers and society. If we can successfully overcome these challenges, this could have other positive effects **beyond the period of the crisis**. Health and the health system are currently the primary focus. It is clear that health - particularly in an aging population - is not only important for each individual but also for society and the economy as a whole. At the same time, the crisis could provide new stimulus for international cooperation and the future development of the EU. Businesses and workers are forced to be open to the digitisation of the workplace. Coping with these changes could strengthen social cohesion and cooperation.

II. THE SPREAD OF THE CORONAVIRUS AND COVID-19

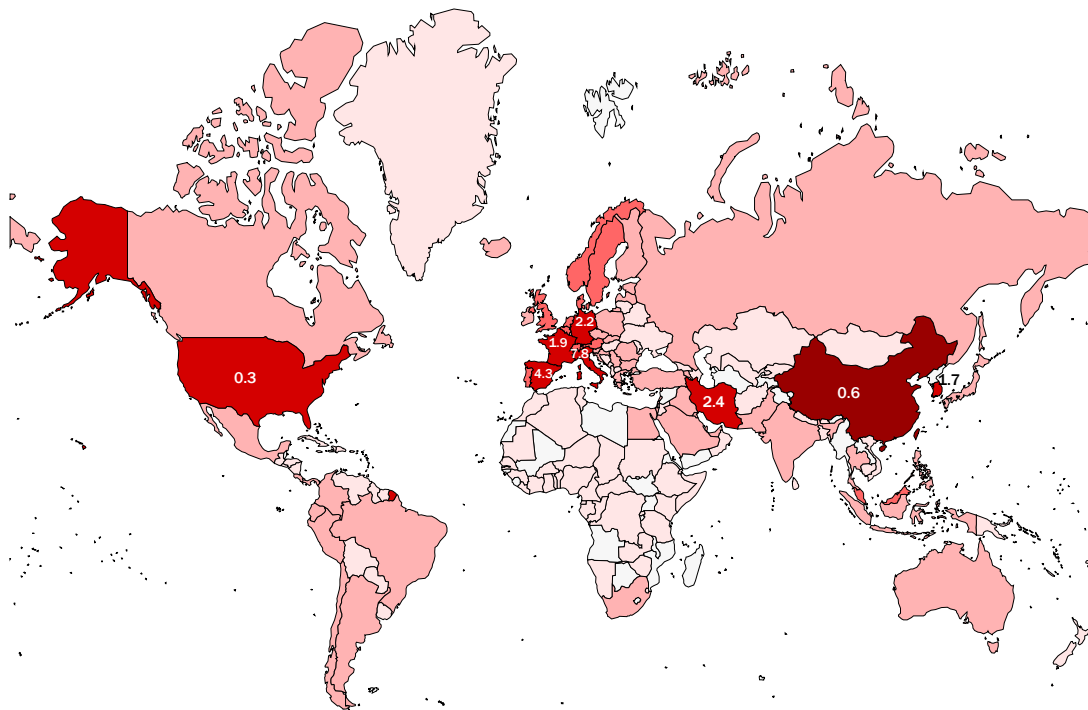
KEY MESSAGES

- As a priority the health system must be enabled to provide adequate care to patients; the spread of the virus must be effectively contained.
- Experiences from other countries and former pandemics suggest that with early and comprehensive measures a containment of the infections can be achieved.
- The pandemic and the measures to tackle it constrain both the macroeconomic supply and demand. Estimations of the impacts are subject to high uncertainty

1. Spread and public health measures

7. The current **pandemic** traces back to an outbreak of the COVID-19 lung disease, which is caused by the novel SARS-CoV-2 coronavirus. The disease was first detected in December 2019 in the Chinese city of Wuhan. Since then, the pathogen has evidently spread, particularly in China, South Korea, Iran, Europe and the

➤ CHART 1
Spreading of COVID-19¹



Cumulative number of registered infections

□ None □ 1 to 100 □ 101 to 1,000 □ 1,001 to 5,000 □ 5,001 to 50,000 □ > 50,000

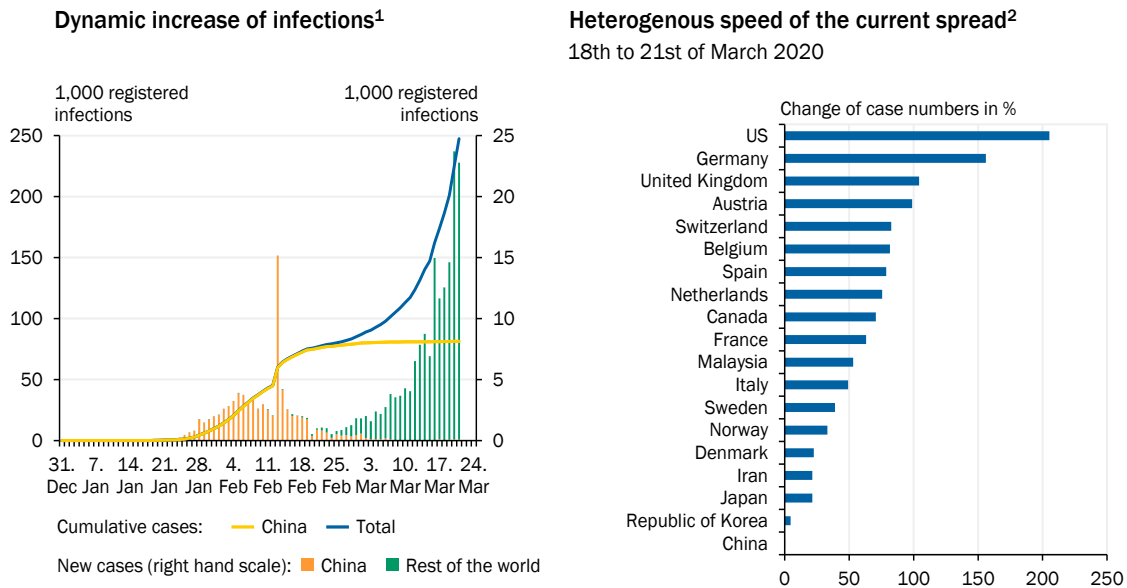
1 – Status: 21.03.2020. Colouring of overseas territory in colour of the home country. The indicated figure states the number of infections per 10,000 inhabitants.

Sources: EuroGeographics for the administrative boundaries, WHO

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↘ CHART 2

Speed of the spread of the coronavirus pandemic



1 – On 13th and 20th of February 2020 adjustment of the definition to the clinical testing for COVID-19. Including the cases from 31st December 2019 onwards. 2 – Growth rate between 18th and 21st of March 2020. Only those countries are included where the cumulative number of infections was at least 500 in total until 18th of March 2020.

Sources: European Centre for Disease Prevention and Control, own calculations

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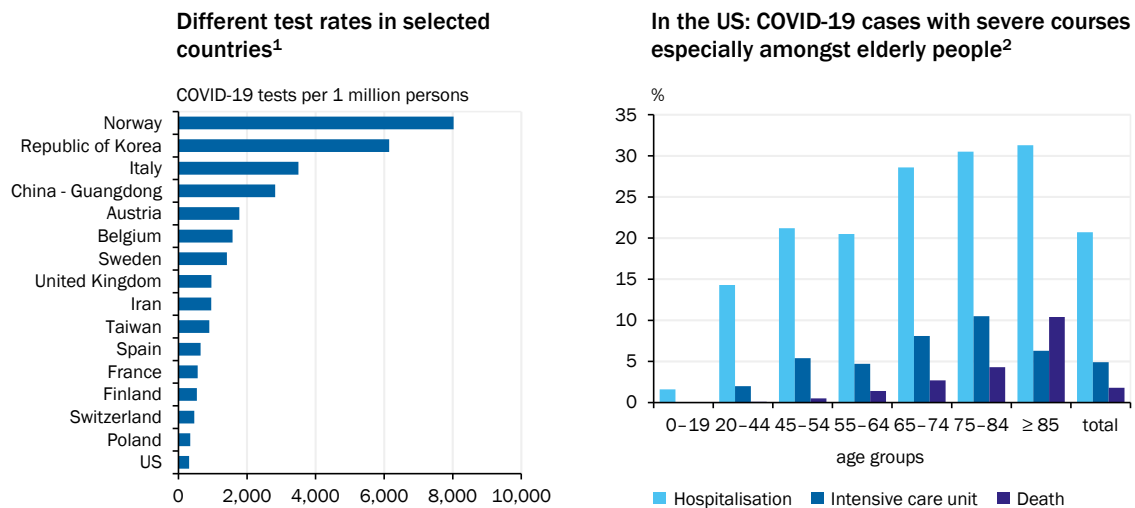
United States. ↘ CHART 1 While the number of reported new infections in entire China has declined, other countries are currently seeing a significant increase. ↘ CHART 2 LEFT In Wuhan from where the Coronavirus pandemic originated, the National Chinese Health Commission (NHC, 2020) announced on March 19 that there were no new infections. In Europe, Italy and Spain are the countries hardest hit, followed by Germany, France and Switzerland. The rate of spread appears to vary from country to country. ↘ CHART 2 RIGHT

Case fatality and speed of spread

- Medical research into the disease and the pathogen is still in its infancy. Forecasts on the further spread and the consequences of the disease are based on data on the pattern of infection observed so far and therefore involve much **uncertainty**. Furthermore, there are significant differences in the testing approaches taken by the various countries, wherefore a uniform data basis is lacking. ↘ CHART 3 LEFT The Robert Koch Institute (RKI, 2020a) assumes that **symptoms are mild in 80 % of the identified cases** of COVID-19. Around 2 to 5 % of cases that have been observed so far require intensive care treatment (DGEpi, 2020). The disease presents a particular risk for **older persons** and **persons with preexisting conditions**. ↘ CHART 3 RIGHT Wu et al. (2020) have evaluated data from Wuhan and confirm the clear correlation between age and the case fatality rate of COVID-19. According to this analysis, children mostly experience very mild symptoms but can transmit the infection.

↘ CHART 3

International comparison of test rates and how COVID-19's courses of disease depend on age



1 – Data according to official sources on 20th of March 2020. Official numbers for test rates are not available for Germany. 2 – Number of cases per 100 registered infection cases. The sample contains cases in which the current state (hospitalisation, intensive care, or death) is unknown. The observation period is 12th of February to 16th of March 2020 (2,449 cases).

Sources: Centers for Disease Control and Prevention, World in Data

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9. A central parameter for the spread of the coronavirus is the **basic reproduction number R_0** , which tells us the average number of people who will catch a disease from one infected person in a population where all individuals are susceptible to infection. On the basis of studies conducted so far, the RKI (2020a) identifies a basic reproduction number of 2.0 to 3.3 across countries. The case fatality rate (CFR) is the ratio of the number of fatalities to the number of infected persons. According to current estimates of the WHO (2020a), the global **case fatality rate** for COVID-19 appears to be around 4.2% (by March 20).
10. Epidemiological indicators are particularly significant because they are important for the choice of appropriate countermeasures. ↘ ITEMS 22 FF. At the same time, they are fraught with much uncertainty. The number of persons actually infected often does not tally with the number of confirmed and statistically measured cases, as many cases are not diagnosed. This can be expected particularly if a disease only presents very **mild symptoms** overall or for individual demographic groups, or if only limited testing is performed. As a result, **many infections could go undetected** in the current coronavirus pandemic. The RKI (2020a) assumes that the actual number of diseased cases could be underestimated by a factor of 4.5 to 11.1. Furthermore, epidemiological indicators for novel infectious diseases tend to fluctuate greatly owing to pathogen mutation, hygiene conditions and treatment success.
11. The number of reported infections depends greatly on when and how intensively testing is performed. ↘ ITEM 12 For example, Butler (2006) and Stone (2006) demonstrate that limited opportunities for lab testing in developing and emerging countries can, to some extent, explain the high case fatality rates of epidemics caused by the H5N1 influenza A virus ("bird flu"). This suggests that regional differences in epidemiological indicators are likely attributable, in part, to **differ-**

ences in the rate of testing in the individual countries. There are large differences internationally in the number of laboratory tests performed for the coronavirus. [↘ CHART 3 LEFT](#) For example, South Korea administers a high number of tests per capita. There the numbers show a relatively high number of infected persons and, at the same time, a relatively low case fatality rate of 1.2 % (data as of 20th March 2020).

In the **Republic of Korea**, 27 % of those infected are aged between 20 and 29 (KCDC, 2020). According to the test results coming out of Italy, on the other hand, only 25 % of those infected in the country are aged between 19 and 50 (National Institute for Health, Istituto Superiore di Sanità, ISS, 2020). This is likely due in part to the relatively high average age of the population in the regions of Italy hardest hit. That said, the difference is probably not least due to the fact that Italy tends to test on the basis of existing symptoms, while the Republic of Korea administers **area-wide testing**.

12. In **Germany**, no official data are currently available on the number of tests performed. In contrast to other countries, negative laboratory tests are not directly fed into an accessible system. The Deutsches Ärzteblatt (2020a) assumes that until March 17 approximately 100,000 people were tested on an outpatient basis in Germany, which would equate to a test rate of 1,219 tests per 1 million persons for this period. [↘ CHART 3 LEFT](#) However, this figure does not include tests that were performed in clinics. It therefore constitutes the absolute minimum number of tests carried out in Germany during this period. By international standards, therefore, Germany is likely to be among the countries that perform the highest number of laboratory tests for the coronavirus.
13. There are **large regional differences** in the statistics on infections and fatalities in connection with COVID-19. For the capital of the Hubei region, Wuhan, where the pandemic originated and where most infections have been counted so far, the case fatality rate during the pandemic was 4.5 %, and 0.9 % for the rest of China. In more recent studies the reported case fatality rate for Wuhan is significantly lower at 1.4 % (Wu et al., 2020). A high case fatality rate of 8.6 % (data as of 20th March 2020) is currently being reported in Italy (WHO, 2020b). At this stage, Italy has overtaken China as the country with the most fatalities linked to COVID-19. However, the ISS assumes that 99 % of the fatalities witnessed in Italy in connection with COVID-19 up to March 17 were among people with preexisting conditions (ISS, 2020). According to the ISS (2020), the average age of persons who have died from the disease in Italy is about 79.

According to the RKI, 55 people have died from COVID-19 in Germany so far, with a total of over 18,610 infections nationwide (data as of 22nd March 2020). Compared with other countries, this equates to a low case fatality rate of 0.3 %. According to Rhodes et al. (2012), in 2012 Germany was the country in Europe with the highest number of hospital beds, intensive care beds and ventilators in relation to population size. [↘ ITEM 123](#) Combined with the high rate of testing by international standards, this could at least partly explain the **currently low case fatality rate in Germany**.

14. In a direct comparison, diseases like SARS (10 %), MERS (34 %) or Ebola (50 %) have much **higher case fatality rates than the coronavirus** (Shultz et al., 2016; Munster et al., 2020; WHO, 2020a), while the seasonal flu (approx. 1 %) or various strains of the influenza A virus have lower rates. Wilder-Smith and Freedman (2006) demonstrate that in previous pandemics, such as SARS for instance, case fatality is often underestimated in the early stage, which underlines the uncertainty of epidemiological indicators during a pandemic.
15. The **speed of spread of the coronavirus** appears to be **relatively high**. The RKI (2020a) assumes that one infected person will transmit the virus to roughly two to three other persons on average. However, Wu et al. (2020) show a basic reproduction number of 1.9, which is significantly lower than in early estimates. During the epidemic involving the influenza A virus subtype H1N1 in 2009 ("swine flu"), the basic reproduction number was between 1.4 and 1.6, meaning that one infected person spread the virus to another one to two people on average (Fraser et al., 2009). For measles - one of the most infectious diseases ever - this number is between 12 and 18 (Anderson and May, 1982). To contain the exponential growth of an epidemic, the reproduction number must be brought below 1. In the case of the swine flu, this took around nine months after the outbreak. China managed to break the exponential spread of the SARS coronavirus in 2002 and 2003 after around seven months and Canada after around eight months. Since 2012, the transmission of the MERS coronavirus has been mainly sporadic from animal to human; and as a result the spread did not follow an exponential curve. While these figures may be useful to help classify the scale of the disease, it will only be possible to reliably compare the coronavirus pandemic with other epidemics and pandemics once the pandemic is over. Furthermore, virus epidemics do not follow a consistently exponential curve ex-post. Rather, as a result of various countermeasures, the number of new cases will decline at some point (Schanzer et al., 2010; Anderson et al., 2020).

Previous epidemics and pandemics

16. In past decades, **outbreaks of infectious diseases have repeatedly occurred to varying degrees** and with different regional spread patterns. According to the U.S. Centers for Disease Control and Prevention CDC (2019), the **Spanish flu** – caused by the H1N1 virus – claimed the lives of approximately 50 million people worldwide in 1918 and to date is considered one of the most fatal pandemics of all time. The Spanish flu was able to spread rapidly as a result of the First World War and the consequent poor state of health of the world's population.

Influenza pandemics were responsible for the deaths of one million people in both 1957 and 1968. Having originated in China and Hong Kong, respectively, they are referred to as the **Asian flu** or **Hong Kong flu**, respectively.

17. Virologically related to COVID-19, the **SARS pandemic** (Severe Acute Respiratory Syndrome) **of 2002 and 2003** was one of the first fatal infectious diseases of the 21st century. It originated in November 2002 in the Chinese province of Guangdong. By August 2003, SARS had spread to 29 countries, with over 8,000

people infected and roughly 700 fatalities; apart from China, the countries most badly affected were Taiwan, Canada and Singapore. No new cases have been identified since 2003, and the WHO announced the end of the international public health emergency in May 2004.

18. The Middle East Respiratory Syndrome (**MERS**) was identified in Saudi Arabia for the first time in 2012; outside the Arabian Peninsula, however, only isolated cases occurred. Since the discovery of the virus, around 2,500 people have become infected and 866 people have died from the disease according to the WHO (2020c) until January 2020. In contrast to the SARS-virus, however, the virus has not been beaten and 151 new cases were still reported in 2019. Like SARS, MERS can be transmitted through droplets; this transmission pathway has, however, primarily been proven for animal to human transmission. SARS, MERS and the influenza virus are **zoonoses**, i.e. infectious diseases that are transmitted from animals to humans and vice versa through viruses.
19. According to the RKI, each year between 2 and 14 million people in Germany contract the seasonal flu (**influenza**), sometimes even more. Influenza viruses spread again each year because they mutate, making prevention more difficult. In the 2017/18 season, more than 25,000 people in Germany died from this infection (RKI, 2018).
20. The **swine flu** in 2009 was caused by a strain of the influenza A virus H1N1. During the pandemic phase, infections were confirmed in 214 countries overall. The US Centers for Disease Control and Prevention CDC estimates that up to 570,000 people died from the virus worldwide. In China, a strain of the influenza A virus resulted in infections in humans in the form of the **bird flu** in February 2013. Since then, confirmed cases have been reported time and again, primarily in Asia and North Africa. The exact circumstances that lead to infection are still not fully understood. WHO statistics report 861 confirmed cases and 455 fatalities for the repeated outbreaks of the disease since 2003.
21. Aside from influenza viruses, there have been many other, partly novel, pathogens in recent years. The **Zika virus** was first isolated from a monkey in Uganda in 1947; since 2015 it has been spreading across Central and South America. It is carried by infected mosquitoes. While most people only experience a mild form of infection, the virus can affect brain development in unborn babies.

Ebola has received worldwide attention since an outbreak of the disease in Central Africa in the 1970s. The disease is transmitted from person to person through body fluids. According to the WHO (2016), the last outbreak of the Ebola virus in West Africa in 2014 claimed the lives of over 11,000 people.

Measures against uncontrolled spread

22. To contain the spread of the coronavirus, many countries around the world are implementing public health measures that significantly restrict social contact. The WHO's **Pandemic Plan** (2017) identifies three primary phases of a global pandemic:

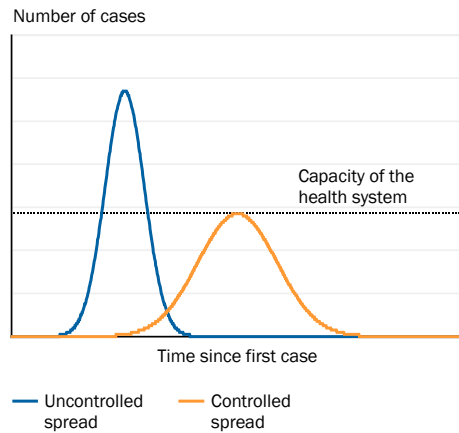
- Alert phase: In February, the WHO warned that the coronavirus could develop into a global pandemic. In response, Germany deployed a **crisis unit** set up for this situation.
 - Pandemic phase: **Transition to the pandemic phase** can start very suddenly. The WHO's risk assessment is based on current virological, epidemiological and clinical data. During this phase, Germany follows the National Pandemic Preparedness Plan issued by the RKI (2017). Furthermore, the pandemic plans of the individual *Länder* were also activated in order to implement measures in the federal states.
 - Transition phase: While the pandemic begins to subside, **delayed waves of infection** can occur. Coordinated de-escalation is initiated.
23. Particularly in the case of a virus with a high basic reproduction number and a high number of cases that require hospitalisation, the number of patients requiring medical attention can exceed the **capacities of the health system**. [↘ CHART 4 LEFT](#) In this case, it would no longer be possible to provide adequate care to all patients and there is the risk of higher fatality rates due to the shortage of medical care, also outside the actual risk groups. With regard to the coronavirus pandemic, data from the U.S. Centres for Disease Control and Prevention CDC for the United States indicate that while mortality is far higher for people in older age brackets than for younger people [↘ CHART 3 RIGHT](#), a significant percentage of cases of people in the younger age brackets – who account for a higher share in the total population – also involved hospitalisation and intensive care treatment.
24. Countries are pursuing a wide variety of approaches to contain the coronavirus pandemic and avoid overloading the healthcare system. One strategy consists of containing the spread of the virus (Suppression). So, the reproduction number shall be quickly brought below the value 1 by strict measures as a broad restriction of the freedom of movement and assembly. In the long run, thereby a containment of the pathogen is achieved. In particular, countries in Southeast Asia, such as like Singapore, the Republic of Korea, Taiwan and Vietnam, reacted relatively quickly and could therefore largely **prevent the introduction of the virus**. In Taiwan, for example, border checks were immediately introduced as soon as the first case of infection was reported in the country. In this strategy however, the restrictions must remain active and the external borders would need to be controlled meticulously for the entire time the global pandemic is still ongoing as long as no therapy or vaccination is available.
25. The strategy of another approach is to take targeted action to slow down the **spread of the virus (mitigation)**. Here it is also about the reduction of the reproduction number. The focus is albeit not on bringing the value below 1, but to slow down the spread.

Thus, the measures could at least slow the rise in the number of new cases so that they are spread over a much longer period. [↘ CHART 4 LEFT](#) Ultimately, actions to win time should specifically result in a **flattening of the curve** and a reduction in the burden on the health system around the peak of the infection. This is designed to ensure that appropriate medical treatment with intensive care facilities and

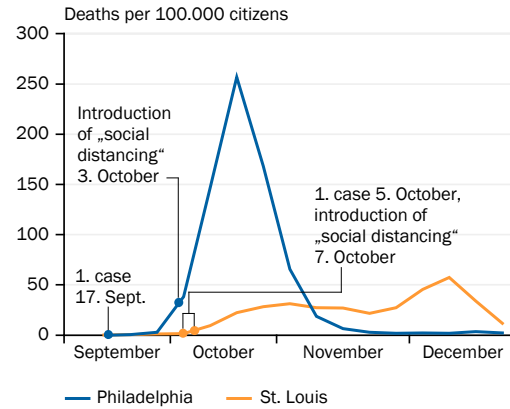
↘ CHART 4

Social distancing during epidemics¹

Uncontrolled spread overwhelms the health system²



Early measures slowed the increase of number of cases during flu epidemic in the USA in 1918



1 – Social distancing: Precautionary measures including washing hands, home office, avoiding large gatherings, reducing travel, etc.. 2 – Stylized depiction.

Sources: Hatchett et al. (2007), own calculations

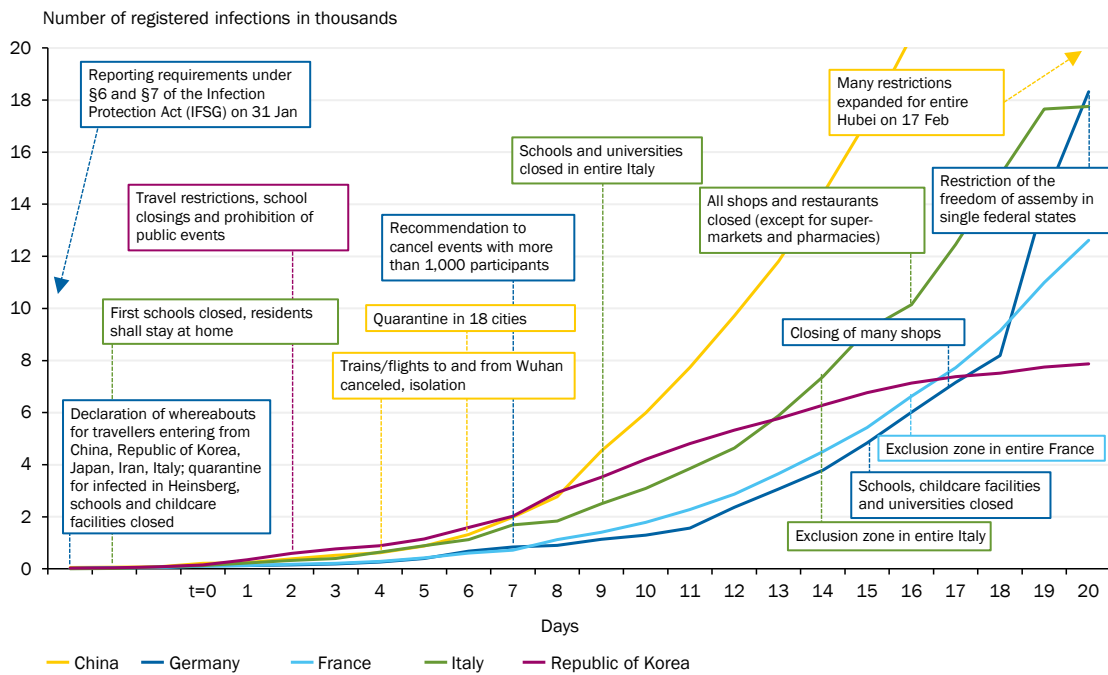
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ventilation capacities is available (RKI, 2020b). A mitigation strategy can potentially reduce the peak load by two-thirds (Ferguson et al., 2020). The aim is therefore to stretch the number of infections over a long period and that the number of fatal cases is lower than if the virus were allowed to spread unhindered.

26. Possible **measures to delay or to prevent the spread** of the virus include the restriction of the individual freedom of movement and assembly, quarantine, cancellation of large events, such as sporting events or concerts and events in enclosed spaces where a minimum distance of one to two meters cannot be guaranteed, and the closure of public facilities, particularly schools, childcare facilities, swimming pools and museums. Another way to slow the spread of the virus is not to use local public transport. Furthermore, employers could allow their staff to work from home to some extent. The effectiveness of the measures described above depend crucially on the timing of the interventions and the cooperation of everyone involved.
27. **Measures to reduce contact** have helped to slow the waves of a disease in the past. In many countries, the Spanish flu saw the closure of schools, theatres and places of worship, public transport restrictions and the quarantining of travellers at ports and train stations. Hatchett et al. (2007) compare the introduction of corresponding measures in St. Louis and Philadelphia in the USA. While authorities in Philadelphia only began isolating sick persons when the city health system was already significantly overwhelmed, St. Louis introduced a broad range of social distancing measures two days after the first cases were reported. Hatchett et al. (2007) document that the early and extensive implementation of measures to reduce contact during the outbreak of the Spanish flu resulted in a significant reduction of the case fatality rate by around 50 %. ↘ CHART 4 RIGHT

↘ CHART 5

Countries react with different measures¹



1 - Including all cases since 31 Dec 2019. t=0 is set as the day on which the cumulative number of cases of disease is higher than 100 in each country. China: 19 Jan, Republic of Korea: 21 Feb, Italy: 24 Feb, Germany and France: 01 Mar.

Sources: European Centre for Disease Prevention and Control, own research

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28. To contain the SARS pandemic in 2002 and 2003, the health authorities of the countries affected in Southeast Asia ordered the closure of education institutions. In Hong Kong, all education institutions were shut for four weeks; Peking's schools, theatres and entertainment venues closed their doors for around two weeks. Cities that were hardest hit introduced **quarantine measures** by isolating infected persons and up to 100 contact persons for each infected person. The WHO issued travel warnings. In Toronto, many conventions and conferences were cancelled. Cowling et al. (2008) and Riley et al. (2003) demonstrate that the measures to reduce social contact substantially contributed to containing the SARS pandemic.
29. In the course of the current outbreak of the coronavirus, a number of countries in Asia managed to bring the growth in the number of cases under control, as far as possible. ↘ CHART 5 Quarantine measures placed serious **constraints on economic activity** in China. Airports, bus and railway stations and roads were closed within a matter of days. Lockdowns were imposed, apartment blocks were cordoned off, restaurants and theatres were closed and school and university holidays were extended. In each family, only one member should leave the house to purchase necessities a maximum of three times per week.

A number of **countries in Southeast Asia** have already had experience with virus outbreaks in the past. As soon as the first infections were reported, the Republic of Korea and Taiwan, in particular, undertook major efforts to contain the spread of the coronavirus. With just one confirmed case, Taiwan already took action in January 2020 and implemented immediate entry checks on all passengers

arriving from China or the Wuhan region respectively. School holidays were extended and quarantine ordered for suspected cases of infection, where compliance was monitored by tracking the individuals' smartphones.

Unlike China and Taiwan, the approach taken by the Korean government did not focus on isolation. While school holidays were extended and large events were cancelled, the city of Daegu – the epicentre of the coronavirus epidemic in the Republic of Korea – has not been completely isolated so far and there have been no restrictions on citizens' freedom of movement. Instead, the Republic of Korea's approach was the precise documentation of cases from the very beginning. It started large-scale testing as early as 11 January. So far, hardly any other country has conducted as many coronavirus tests as the Republic of Korea. [↘ CHART 3 LEFT](#) Hotlines were set up and drive-through test centres were established where people could drive by car and get tested. The movement profiles of infected cases are published and the population is notified of potential hotspots via smartphone apps. People in public authorities and businesses are measured for fever to be able to identify and isolate sick employees.

30. Various **European countries** have also already implemented numerous **measures to contain the pandemic**. Stay-at-home orders currently apply for the entire population of France, Spain, Italy, Belgium, the Czech Republic and Austria. People in these countries are only allowed to leave their homes to travel to work, for medical reasons or to buy groceries. In other countries there are no official stay-at-home orders, but similar recommendations to the citizens to restrict themselves. Public life has largely come to a standstill. Schools, universities and childcare facilities are closed. Public gatherings and sporting events may not take place. Most shops are closed, as are restaurants and bars. For example, in Austria, travellers arriving from the UK, the Netherlands, Russia and Ukraine may only enter the country if they voluntarily quarantine at home for two weeks.
31. **Public life** in Germany has also been **severely restricted**. Schools and childcare facilities have been shut across the country. Most retail units are no longer allowed to operate as walk-in stores. Up to now, a full lockdown has only been introduced in a few Länder and municipalities (data as of 21 March 2020). Many external borders are only being kept open for commuting workers and the movement of goods.

Exiting coronavirus-related public health policies

32. The existence of a **vaccine** or effective specific **treatment therapies** and the **achievement of herd immunity** could help end the various strategies for containing or slowing the spread of the virus. Herd immunity is achieved when a significant proportion of the population has developed antibodies to a pathogen through previous infection, thereby preventing the illness from spreading over time. While no definitive information is currently available on whether patients, once infected, are immune to the coronavirus, initial studies suggest that this is the case (Bao et al., 2020). The research on the coronavirus and the COVID-19 disease has just started, which is why the infection of large swathes of the popula-

tion is always associated with uncertain consequences. Ultimately, the implementation of concrete measures will decide whether an epidemic is gradually stopped or whether herd immunity is developed over a longer period of time.

33. There is a trade-off between the duration and the intensity of restriction of public life. On the one hand, there is the danger that **acceptance of measures among the population** will decline and some will resist and not cooperate. On the other hand, containment can only work if the measures implemented are not rolled back too early. Experience from the time of the Spanish flu attests to the **danger** that can arise from **a second wave of infection**. Using the example of the US city of Denver and other cities in the Midwest, Markel et al. (2007) demonstrate that second waves of infection are linked to the early lifting of adopted measures. Hatchett et al. (2007) also show that no city in the sample experienced a second wave of infection while the adopted measures were in place; rather the second wave of infection only came once measures were eased.
34. Initial experience from China suggests that the local containment of the disease is possible with consistent measures - a strict system of quarantine in China's case. [↘ CHART 5](#) On 23 January 2020, the government imposed a lockdown on Wuhan and neighbouring cities in Hubei province. These measures were quickly rolled out to other provinces in China. Travel within the city was also limited and restrictions on social contact imposed. The implementation of these measures was associated with a significant drop in the number of reported new cases (Lai et al., 2020). On 19 March 2020, **China** reported **no new local infections** for the first time. The government has been gradually easing the extensive measures over the past few days. Schools in Qinghai and Guizhou have already announced they would re-open mid-March (Reuters, 2020a). In Wuhan, work in factories is also being resumed.

Thanks to its extensive documentation of cases as a result of wide-spread testing, the Republic of Korea has flattened the curve of new cases without having to issue stay-at-home orders (Normile, 2020). [↘ CHART 3 LEFT](#) Overall, Singapore, Hong Kong and Taiwan have managed to keep the curve flat through surveillance and early intervention measures. That said, the number of new cases in these countries is still rising.

2. Economic effects

35. Public health measures such as quarantine and other interventions to reduce contact are likely to decrease the pressure on the health system in connection with COVID-19. At the same time, the measures are associated with **substantial economic burdens**. This affects economic activity in the countries concerned and the global economy.
36. The coronavirus pandemic has **implications for both aggregate supply and aggregate demand**. For example, in the short-term the absence of workers due to sickness and quarantine results in direct loss of production. Halder et al. (2011)

estimate that around 90 % of total economic costs that are generated by pandemics is attributable to lost production due to the absence of workers. At the same time, there is a slowdown in demand because services cannot be used and purchases cannot be made. Uncertainty regarding the future development could also result in restrained consumption and investment. The drop in demand spills over to our trading partners in the form of lower imports (Eickmeier, 2007).

Loss of production and restrictions of the movement of goods can cause disruptions in international value chains. Through this link, the shock in supply spreads globally, as well. While the drop in demand tends to put downward pressure on prices, shortages in supply could have the opposite effect, i.e. driving up prices. Epidemics can also have **longer-term effects**. For example, companies may consider it necessary to adjust international supply chains and bring production back home. The underlying idea here is the development of redundancy for fundamental intermediate inputs. This can reduce the advantages from the international division of labour on a lasting basis (Jonung and Roeger, 2006).

37. One way to estimate the economic costs in connection with the coronavirus pandemic is to analyse other events that were associated with a **reduction in the supply of labour** or a **breakdown in production chains** in the past. For example, three-week strikes in France in December 1995 were associated with a 0.2 percentage point drop in the rate of growth of quarterly GDP (INSEE, 2019). In summer 1998, two General Motors (GM) plants in the United States with over 3,400 workers were closed for two months due to strike action. This not only had significant implications for GM's earnings but also affected other companies waiting for deliveries, with the overall result that production, consumer spending and the trade balance were reduced (Coon, 1999). Temporary reductions in the supply of labour can therefore have transregional implications.

Upstream value chains play a central role in the **transmission of economic shocks** (Acemoglu et al., 2012). In this connection, many studies have been conducted on the impact of the earthquake in Japan including the Fukushima nuclear disaster. Carvalho et al. (2016) estimate that the loss of production in the affected regions due to supply chain disruptions accounted for a 1.2 % drop in Japan's annual GDP. A simulation study by Inoue and Todo (2019) finds that the indirect effects of the accident caused by supply chain disruptions are a hundred times larger than the direct effect of the earthquake on the economy. Furthermore, Boehm et al. (2019) document that the drop in import volume from Japanese supply chains is matched by a same-scale decline in the production volume of affected US companies.

38. Initial **quantitative estimates** of the economic costs of the **coronavirus pandemic** involve a high degree of uncertainty. Simulations and experience from past epidemics and pandemics could provide clues as to the scale of the total cost to the economy. [↪ BOX 1](#)

A variety of studies try to quantify the **economic costs** that could be associated with future outbreaks of disease. In this context, it must be noted that ex-ante model estimates for SARS indicated far more serious effects than those that ultimately materialised (Keogh-Brown and Smith, 2008). The Congressional Budget

Office (CBO, 2005) assesses the economic effects of a global influenza epidemic on the basis of two scenarios and, depending on the severity of the outbreak in the scenario presented, calculates impacts of between -4.25% and -1% on global income compared to what would have happened in the absence of a pandemic. The WHO and the World Bank estimate that a global influenza pandemic could cost the economy between 2.2% and 4.8% of global GDP (GPMB, 2019). Jonung and Roeger (2006) put the macroeconomic effects of a severe pandemic in Europe as high as 4% of GDP, assuming a mortality rate of 2.5% and a morbidity rate of 30% .

McKibbin and Fernando (2020) describe different scenarios of how the coronavirus pandemic might evolve. [↪ BOX 1](#) The model puts the damage to the global economy at 2.7% to 10.6% of global GDP. For Germany, the estimated costs are US\$99 billion to US\$390 billion, or a drop in GDP in 2020 of 2.0% to 8.7% . That said, the results vary greatly depending on how the pandemic evolves, i.e. its severity (McKibbin and Fernando, 2020).

39. To what extent analyses based on former pandemics provide meaningful information for the current situation is questionable on account of the different pre-conditions and courses of the disease. In contrast to the time of the SARS pandemic, the Chinese economy now accounts for a **significant share in the global economy** following its dynamic development of the last decades. [↪ CHART 16 RIGHT PAGE 41](#) In addition, many more countries are currently affected by the outbreak than in previous epidemics. Accordingly, the effects on global economic growth and on other countries could be larger. As container ships take around six weeks to travel from China to Europe, the **supply effect**, e.g. production stoppages in a region particularly affected, will **only be noticeable after some delay**.

[↪ BOX 1](#)

Model calculations for COVID-19 and previous pandemics

Simulation approaches on the basis of structural, macroeconomic equilibrium models can be used to calculate the **economic effects** of COVID-19. These offer the advantage of being able to quantify counterfactual scenarios. Combined with data material gathered from previous pandemics, a range of possible economic impacts can be estimated.

Barro et al. (2020) quantify the economic impact of a possible extreme scenario of the coronavirus pandemic with case fatality rates like those at the time of the Spanish flu. If case fatality rates of 2% of the global population in the 1918-1920 period are applied to the current global population of roughly 7.5 billion people, this would result in around 150 million fatalities worldwide. According to Barro et al. (2020), this is likely to coincide with an average GDP slowdown of 6% or an average drop in consumption of 8% in 2020. These numbers are more or less comparable with the downturns in growth last observed during the Great Recession of 2008 and 2009 (Barro et al., 2020).

Lee and McKibbin (2004) present a **model simulation for the SARS pandemic** in 2003. The model contains various mechanisms that can play an essential role in the transmission of a pandemic to the financial system and the real economy: sectoral interdependencies, international markets for capital, raw materials and labour, and agents whose behaviour is based on rational expectations with regard to future events. Within this framework, the outbreak of the SARS pandemic is modelled as both a

financial market shock and a supply shock in the countries affected. Direct damages were initially incurred in the tourism, transport and wholesale and retail sectors (Lee and McKibbin, 2004; Beutels et al., 2009). The model specifies an increase in country risk premiums of 200 basis points, a 15 % drop in demand and a 5 % increase in production costs in selected activities in the service sector in China and Hong Kong. The shocks principally concentrated in China and Hong Kong affect other economies in the Pacific area via the modelled external trade relations and the reactions of the international capital markets.

For example, Lee and McKibbin (2004) calculate that the SARS pandemic in 2003 was linked to an average drop in GDP growth of 0.07 percentage points in the case of Australia, Japan and the United States, and of 0.08 percentage points in the case of New Zealand, relative to the baseline scenario. The model estimates economic costs of 0.05 % of GDP for the remaining OECD countries in 2003. China, Hong Kong and Taiwan were particularly hard hit by the pandemic. As a result of the slowdown in growth, Lee and McKibbin (2004) estimate a loss of GDP of 1.05 % for China, 0.49 % of GDP for Taiwan and 2.63 % of GDP for Hong Kong in 2003. The simulation by Lee and McKibbin (2004) puts the total cost of the relatively mild SARS epidemic to the economy at approximately US\$40 billion.

In a more in-depth study, McKibbin and Sidorenko (2006) simulate the **effect of a global influenza epidemic**, with Asia as the epicentre. In addition to the basic model applied by Lee and McKibbin (2004), heterogeneous case fatality rates of the epidemic are modelled depending on the strength of the health system and geographical factors of a particular country. In this case, the national central banks also play an important role, taking measures in this model - particularly in the Asian region - to keep the currency pegged to the US dollar. Assuming a pandemic on the scale of the Hong Kong flu of 1968 with approximately 1.4 million deaths worldwide, the damage to the global economy amounts to 0.8 % of GDP, or US\$330 billion, in 2006 (McKibbin and Sidorenko, 2006) relative to a growth of 4.4% actually achieved that year.

A recently published report by McKibbin and Fernando (2020) builds on earlier work conducted on the SARS pandemic and explicitly models the effects of various scenarios for the development of the coronavirus pandemic. The **three modelled pandemic scenarios** are based on various assumptions regarding the rate of infection and fatality in China. They vary between infection rates of 10 %, 20 % and 30 % of the total Chinese population and case fatality rates of 2.0 %, 2.5 % and up to 3.0 %. The model identifies the severity of the epidemic in other countries as a function of an index of vulnerability, which is constructed by aggregating the population density, the openness of tourism relative to China, health expenditure and the Global Health Security Index of the individual country. Depending on the severity, the various pandemic scenarios suggest that the number of fatalities in Germany alone would be 79,000, 198,000 and 357,000, respectively, which corresponds to a respective share of 0.1 %, 0.24 % and 0.44 % in relation to Germany's total population.

In keeping with Lee and McKibbin (2004), the shock is primarily transmitted through an increase in country risk premiums, a cost shock for businesses and a decline in consumer demand. Impacts on the supply of labour are also observed. Furthermore, the model simulates an increase in government spending through automatic stabilizers in response to the outbreak of the pandemic. Depending on the underlying scenario, the model projects annual GDP loss in Germany in 2020, expressed as a negative percentage change from the baseline - the simulated growth in the absence of the Coronavirus pandemic outbreak - of 2.2 %, 5 % and 8.7 % respectively. The simulated calculation for the euro area produces similar results. The model puts the damage to the global economy at US\$2.3 trillion, US\$5.3 trillion or US\$9.2 trillion and therefore estimates a percentage change of global GDP from the 2020 baseline of 2.7 %, 6.2 % and 10.6 %, respectively (McKibbin and Fernando, 2020).

Several existing studies assume a pandemic to be concentrated in China and the Pacific area. This assumption must be seen as problematic considering the geographic distribution of new cases. Keogh-Brown and Smith (2008), on the other hand, examine the impact of an influenza pandemic in selected European countries in a model with trade linkages across sectors. This study is based on the assump-

tion of a pandemic that infects between 35% and 50% of the population of a particular country, depending on the scenario. The authors distinguish between the reduction in the labour supply as a result of illness and death, and the effects of multi-week **school closure and a 34% rate of work absenteeism** as a result of individual precautions taken against illness. For the four countries studied - Belgium, France, the Netherlands and the United Kingdom - the economic costs of preventive absenteeism are several times higher than the costs caused directly by absence due to illness. This result applies for case fatality rates of 0.04%, and for the scenario of a high-end pandemic with infection rates of 50% and a case fatality rate of 2.5%. According to Keogh-Brown and Smith (2008), the total costs in these countries are between 0.5 % and 2 % of GDP in 2003. In this context, the intensity of the economic disruptions depend greatly on the duration of measures like school closure or absenteeism as a precautionary measure.

How quickly the economy can recover after a pandemic outbreak and to what extent depends particularly on how long the pandemic lasts and therefore on the timing and scale of the public health measures implemented. ↘ [ITEMS 22 FF](#). The recovery can follow a V-shaped, U-shaped or even L-shaped curve depending on the duration. ↘ [ITEMS 36 FF](#) Jonung and Roeger (2006) estimate the economic consequences of a future pandemic for the EU on the basis of the **simulation model of the European Commission** (QUEST, Roeger and in 't Veld, 2004). In this study, they assume a morbidity rate of 30 % and a mortality rate of 2.5 %, and also assume that the number of weeks off work due to the pandemic is on average 3 weeks. For 2006, Jonung and Roeger (2006) estimate a GDP slowdown of 1.6 %. For an extreme scenario with an additional drop in aggregate demand, for example more subdued consumer spending, the authors expect GDP to contract by 3.3 %.

At the same time, Jonung and Roeger (2006) assume a **V-shaped – i.e. swift – economic recovery** in their simulated calculation. According to the authors, GDP in 2007 is only 0.5 % below the starting-point value. This result, based on the assumption that the pandemic is contained quickly, is consistent with experience from previous epidemics and pandemics. In the wake of the SARS pandemic, for example, Hong Kong's GDP – after declining significantly in the second quarter of 2003 – had already recovered appreciably in the third quarter (Jonung and Roeger, 2006). Similar experiences are reported from studies on the economic recovery following the Spanish flu. James and Sargent (2006) document that the sharp drop in sales figures in US retail of –2 % in November and –6 % in December 1918 was followed by a jump to 8 % in January 1919.

III. CONSEQUENCES FOR THE MACROECONOMIC DEVELOPMENT IN GERMANY

KEY MESSAGES

- The spread of the coronavirus has brought the commencing economic recovery to an abrupt stop. The German gross domestic product will decrease considerably in 2020.
- The most likely scenario, given currently available information as well as the pattern emerging in China, assumes that the economic situation will normalise starting in summer.
- The risk scenarios (“pronounced V”, “long U”) differ in the scale and duration of the restrictions as a result of the virus and the speed of the subsequent recovery.

40. While the economic consequences of the coronavirus were initially limited to China and other countries in East Asia, the **coronavirus pandemic** is now impacting **virtually all national economies**. The impacts for Germany are likely to be substantial, involving a complex economic shock whose effects are transmitted through various channels. Both the demand side and the supply side of the economy are affected.

On the supply side, the impacts range from absences from work to delayed deliveries and factory closures. The global industrial downturn of the past two years (GCEE Annual Report 2019 items 7 ff.) is likely to intensify. In addition, there are more and more restrictions or even bans on social activities. This hurts Germany's domestic economy, which was robust up to this point and, prior to the coronavirus pandemic, managed to remain largely unaffected by the weak performance of industry.

The coronavirus shock also entails **effects on the demand side**. In addition to lost income of businesses and workers, deteriorating financing conditions and the sharp increase in risk premiums play a role here. In March, financial and commodity markets were in turmoil, not least reflecting the heightened degree of uncertainty worldwide. This uncertainty is likely to additionally hamper investment activity, which is already weak.

1. Spread of coronavirus brings possible economic recovery to abrupt end

41. The **economic indicators published so far** cannot capture the **impacts of the coronavirus pandemic, either at all or in full**. Given the current state of data availability, it is therefore difficult to estimate the consequences of the measures that have been gradually tightened over the past few weeks. In addition to the cancellation of events, the measures implemented in Germany include restrictions on all kinds of travel, the temporary closure of cultural and educational

facilities as well as severe restrictions for brick-and-mortar retail and the hospitality sector. The first *Bundesländer* have also issued stay-at-home orders, and a prohibition of contact is also considered. As these measures are likely to last for a number of weeks, a significant drop in economic activity can be expected, particularly in the second quarter.

42. The first indicators most recently published already show signs of the wide-ranging effects of the **coronavirus pandemic**, however. The ifo business climate index plummeted in March to the lowest value since August 2009. In March, the ZEW Indicator of Economic Sentiment showed the biggest fall since surveys began in December 1991 and was at its lowest since 2012. At this stage, considerable restrictions on economic activity can be seen everywhere in the world as a result of the coronavirus pandemic. Increasing quarantine measures in almost all of Germany's main trade partners, particularly in Europe, is likely to significantly reduce growth in these countries, and therefore demand for German goods, in the first half year.

Recession in industry continues

43. In addition to the impacts for many service sectors, the coronavirus shock is likely to hit the industrial sector, which is already in recession. An amplified **impact on international value chains** can be expected as soon as bottlenecks in supply can no longer be offset by inventories. The manufacturing sector, in particular, **is interconnected to the countries hardest hit by the coronavirus so far** due to its dependence on intermediate inputs. Intermediate inputs from these regions only account for between 4 % and 10 % of total intermediate inputs in the largest economic areas of the manufacturing sector. [↘ CHART 7 LEFT](#) These can, however, include **specific intermediate inputs** that are not easy to replace with intermediate inputs from other countries. In this case, disruptions in intermediate inputs from these countries would impact production far more than the comparatively low value content would suggest. As more and more countries are cutting back production, alternatives are likely to be quite limited anyway.
44. Using a simple econometric analysis, an attempt can be made to **estimate the effects of the suspension of production in China on the German economy**. According to this analysis, the fall in the Chinese Purchasing Managers' Index (PMI) in February 2020 is likely to cause the German PMI to drop by up to 8 points. In this estimate, the situation is expected to bottom out in June 2020. This delay not least reflects indirect effects along the value chain and transport times from China to Germany, where around 16 days are required to cover the distance between Shanghai and Hamburg by rail. At least twice as much time is required to cover the same distance by sea (Schramm and Zhang, 2018). The impacts on industrial output are very similar. If these values are applied to simple bridge equation models, the result is a negative effect on GDP growth in Germany of roughly one percentage point for the second quarter. A further drop in growth of 0.5 percentage points can be expected in the third quarter.

By way of qualification, it must be said that an analysis of this kind cannot fully isolate the structural effects and therefore probably exaggerates the actual effects

of a shock originating in China. Nonetheless, the calculations provide an **indication of the scale and timing** of the economic consequences in Germany.

Coronavirus shock strikes at the very heart of the economy

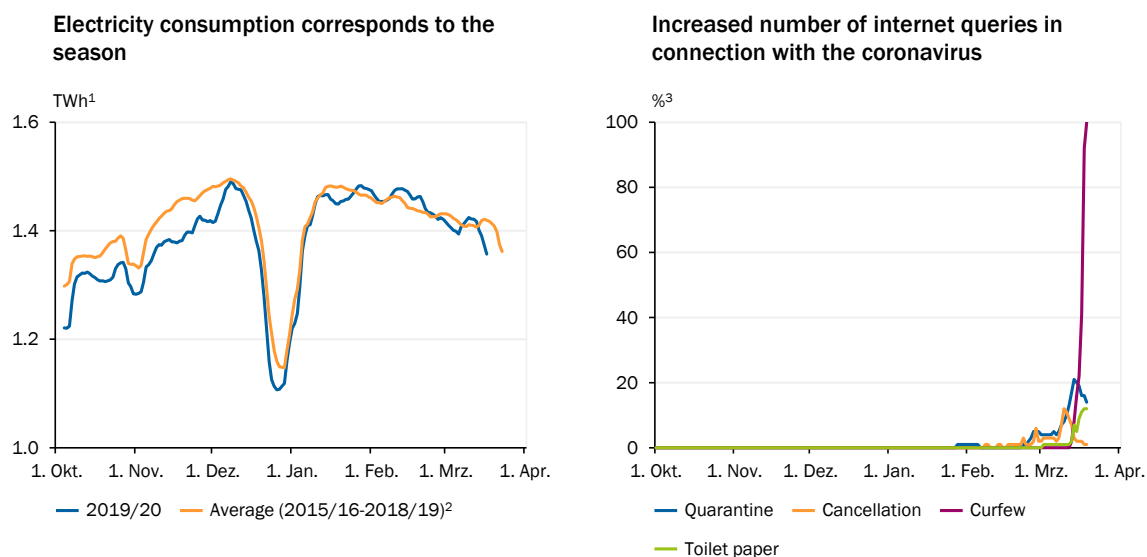
45. Since the **coronavirus has continued to spread across Germany**, the consequences for the economy in this country are becoming increasingly apparent. Ever since the end of February, businesses and consumers have been taking **preventive measures**, such as the cancellation of events or business trips, in response to the increasing spread of the disease. The start of March saw a dramatic surge in the number of Internet searches for terms in connection with the coronavirus. [↪ CHART 6 RIGHT](#) By mid-March, the government had banned various economic activities for the time being. [↪ ITEM 31](#)

46. Using a variety of indicators that are available in real-time, an attempt can be made to estimate the impact on macroeconomic activity. One important indicator could be electricity consumption, which still appears to be relatively normal, [↪ CHART 6 LEFT](#) unlike during the financial crisis, for instance, when electricity consumption fell sharply with the drop in industrial output (AGEB, 2009). However, in the observed data the industrial domestic generation is not included. It represents about 20% of the industrial electricity consumption. **The suspension of production** - as recently announced by companies in the car industry - **will likely be reflected in electricity consumption** in the coming days and weeks, however.

Numerous automotive production plants were gradually shut down temporarily during the third week of March (Börsen-Zeitung, 2020a). The measures

[↪ CHART 6](#)

Electricity consumption and internet queries between October 2019 and March 2020



1 – Terrawatt hours; moving 7-day-average. 2 – Average of the months October to March of years 2015/16 until 2018/19. 3 – Interest for the respective search term relative to the search term with the highest interest in the period. A value of 0 indicates that not enough data was available for this term.

Sources: Federal Network Agency, Google Trends, own calculations

will initially apply for approximately two to four weeks. In addition to the protection of workers, concerns about supply bottlenecks were cited as the reasons. Various suppliers also announced the closure of their plants, and significant production cutbacks are probably imminent in the steel and metal industry (Reuters, 2020b).

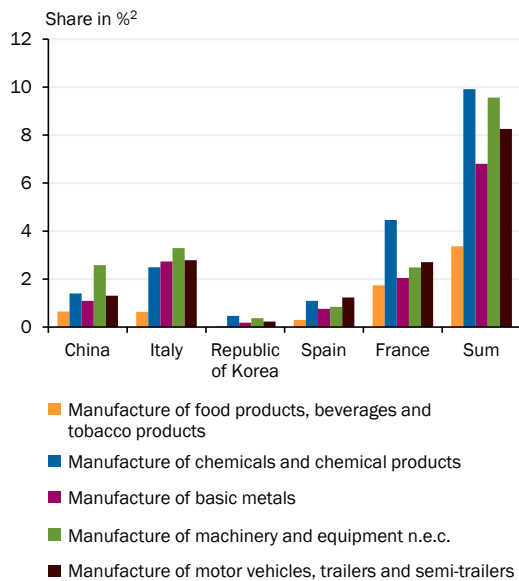
47. The **service industries, which are probably suffering the most from the drop in demand**, together account for around 3.5 % of gross value added. [↪ CHART 7 RIGHT](#) In addition to leisure and cultural service providers and the hospitality sector [↪ CHART 8 BOTTOM LEFT](#), the transport sector is particularly hard hit by the coronavirus pandemic. **Aircraft movement** numbers have shown a sharp **downward trend since the end of February**. [↪ CHART 8 TOP LEFT](#) For example, the number of arrivals and departures at Frankfurt airport has fallen by more than 45 % this year since the start of March. A similar trend can be observed in Munich and Düsseldorf. The drop in passenger numbers is even more pronounced (Börsen-Zeitung, 2020b), and an even sharper fall can be expected in light of the stricter travel bans and closing of borders. Since the end of January, 185,000 passenger flights have been cancelled on account of the coronavirus pandemic, with countries in Asia particularly affected (IATA, 2020).

For the first week of March, Deutsche Bahn already reported a 25 % **drop in passenger volumes** (Deutscher Bundestag, 2020). The effect of the coronavirus, particularly expectations of a deep economic impact, are also reflected in the share price development of companies affected the most. [↪ CHART 8 TOP RIGHT](#)

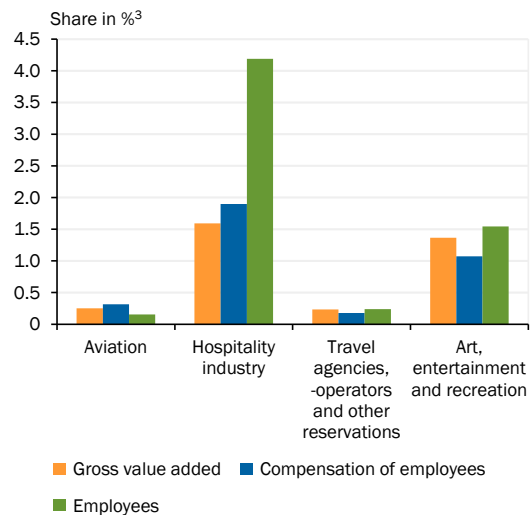
[↪ CHART 7](#)

Intermediate services linkage and affected service sectors

How large is the share of intermediate goods and services from countries affected by the coronavirus¹?



How important are the economic sectors that are probably affected the most?

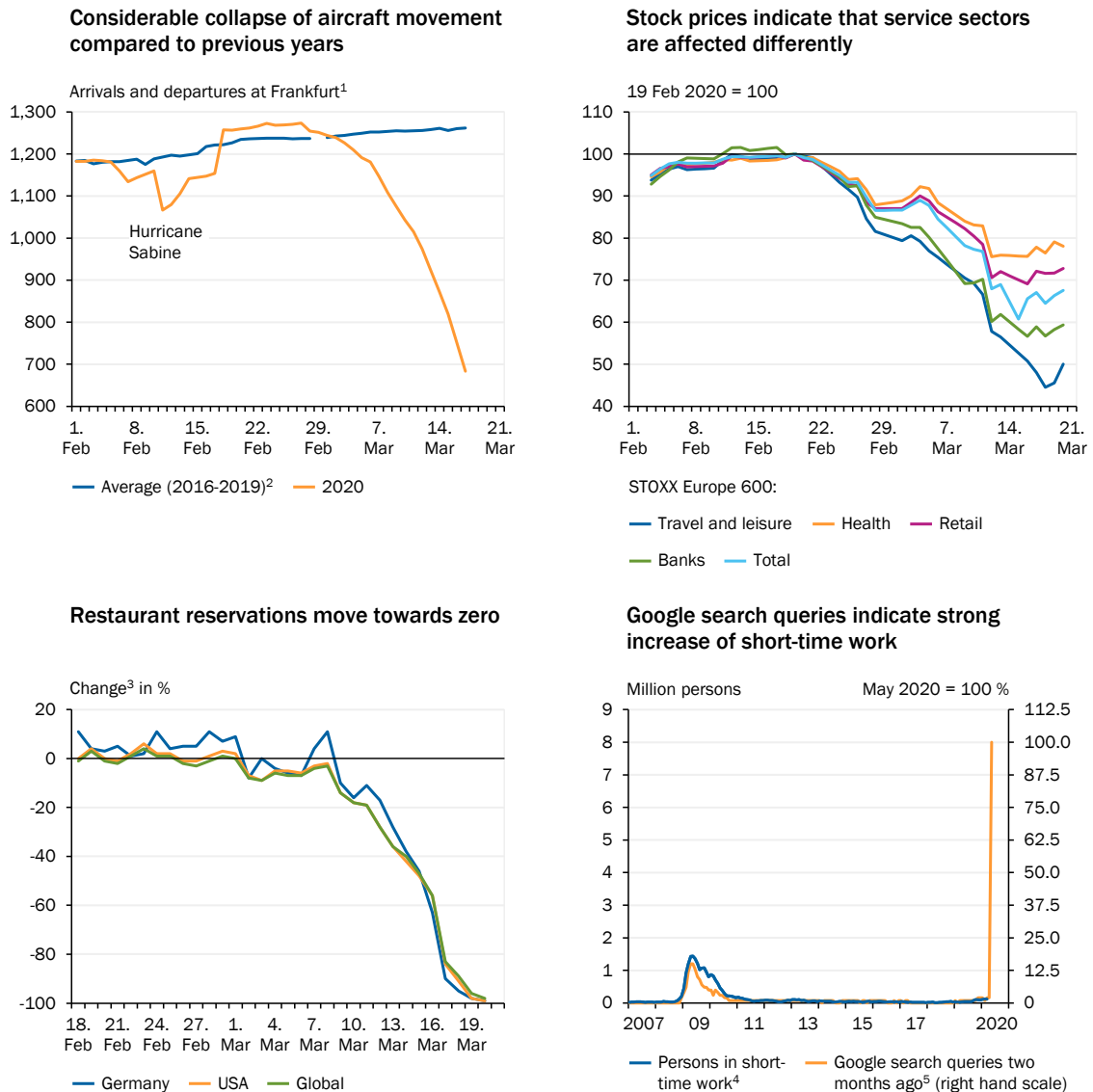


1 – Countries with the highest number of coronavirus cases on 12th of March 2020 that are included in the World Input Output Database.
 2 – Share of intermediate services, which are obtained by the economic sector in each country, in the overall intermediate services obtained by this economic sector. 3 – Share of each economic sector in all economic sectors in 2017.

Sources: Federal Statistical Office, World Input Output Database, own calculations

↘ CHART 8

Real-time indicators for the current economic development



1 – Moving 7-day-average. Only flights which are tracked by the system of the German Aircraft Noise Service. 2 – Average of the years 2016 to 2019, without 29th of February 2016. 3 – Change compared to the same weekday in the same calendar week of the previous year. 4 – Number of persons with cyclical short-time work allowance. 5 – Google search queries for the terms short-time work or short-time work allowance. Values are shown with a two month lag. Data status: 22 Mar 2020.

Sources: Federal Employment Agency, German Aircraft Noise Service, Google Trends, Kühnlenz (2020), OpenTable Datacenter, own calculations

48. The option of introducing **short-time work** is designed to make it easier for companies in the coming months to flexibly reduce the volume of work without having to resort to layoffs. This instrument was very successful during the 2008/2009 recession. The surge in Internet searches on the topic of short-time work indicates that there will be a significant increase in the numbers claiming short-time allowance in the coming weeks and months. Potentially, the number of short-time workers **could exceed the record level of 2009**. If we assume that Internet searches and actual claims of short-time allowance will be represented in the same proportions as in 2009 and 2010, the number of short-time workers might drastically increase this year. The implicatedimplicatedimplicated increase in short-time work on the basis of Internet

searches could, however, be exaggerated, as the early easing of conditions for short-time allowance may have piqued public interest and led to increased searches for the topic. [↘ ITEMS 65, 113](#)

2. Recession in the first half of the year

49. The January figures for output, revenue and incoming orders in **industry** pointed to strong growth for the first quarter of 2020. **Since mid-March** at the latest, industry has likely been **substantially affected by** the containment measures implemented in the wake of the **coronavirus pandemic**. For one, there is an increasing risk of lack of supplies, and **value chains** will probably be **interrupted**. On the other hand, growing numbers of production plants in Germany are likely to close temporarily, as recently the case in the automotive industry. At the same time, the service sector is suffering considerable losses as a result of the measures to contain the virus in Germany.

Estimation of short-term developments

50. An attempt to roughly estimate the scale of the **drop in private consumption** can be made based on the restrictions on public life and economic activities that have already been adopted, the observed drop in consumption in China and reports from trade and industry associations. For this purpose, changes in demand in the individual consumption categories are estimated, multiplied by their share in GDP and then totalled (**bottom-up approach**). This produces the change in the level of GDP while restrictions persist. The impact on the GDP level per quarter can then be calculated based on the assumed **duration of the restrictions**. Many bans implemented by the government currently apply until the middle of April. It is, however, conceivable that restrictions will continue to apply beyond this date, at least to some extent. Furthermore, it is likely that many activities will not immediately be resumed on the same scale as before the coronavirus outbreak and that certain delays are likely to apply. Therefore, in order to **estimate** the consequences for **GDP growth**, the assumption is that restrictions will apply from mid-March to mid-May.
51. On today's basis, **travel services** and **catering, leisure and cultural services** are likely to be **hardest hit**, with an estimated drop in demand of 90 % and 75 % respectively. This takes into consideration that restaurants – while affected by severely limited opening times – can still offer take-away services. Durable goods, which account for one-fifth of consumer spending, are impacted to varying degrees. It is assumed that durable goods categories for which online retail accounts for a not insignificant proportion of sales, such as **clothing** and **electronic goods**, and categories of goods that are sold in the brick-and-mortar retail units that are still open, such as **building and gardening materials**, face a **more moderate drop in demand** in the amount of 30 %. The same decline is assumed for land transport services and services and goods for the operation of private vehicles. In contrast, a **more pronounced decline** of 60 % is assumed for the sale of consumer goods that involve a low proportion of online retail and are more affected by the closure of brick-and-mortar retail units, such as **vehicles**

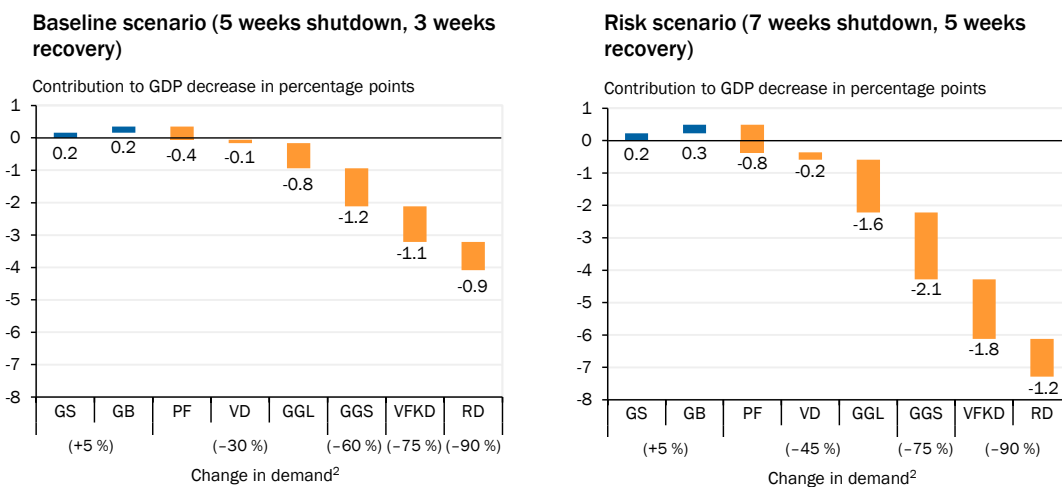
and **furniture** for instance. Slightly positive effects could result for medical services and goods, and owing to substitution effects for basic needs, for instance food.

52. According to this calculation, the drop in consumption alone would lead to a lower GDP level of around 4 % in the second quarter. ↘ CHART 9 LEFT In the first quarter, GDP would decrease by around 1.5 % compared with the counterfactual scenario in the absence of the coronavirus outbreak. Possible negative contributions of other expenditure components and indirect effects for GDP growth are not taken into consideration here. However, it can be expected that in the first half year **negative contributions to growth** will also come from **investment in machinery and equipment** and **foreign trade**, in particular.
53. An alternative way of estimating the anticipated drop in GDP in the first half year is by taking the **top-down approach**. Here, GDP is forecast directly **with the help of suitable indicators**. In addition to industrial output, sentiment indicators or retail sales are fed into the forecast. As data on industrial output, for example, are currently only available up to January, **assumptions must again be made**.

If we assume slowdowns along the lines of those observed in China during the outbreak of the coronavirus pandemic, industrial output, retail sales (including vehicles) and PMI are likely to drop by 15 %, or 15 points, in the second quarter of 2020 compared with the data last available. The **lowest point** of the downturn would be reached **in April** in each case. According to these estimates, GDP could contract by up to 5 % in the first half year, with the far larger contraction occurring in the second quarter.

↘ CHART 9

Impact of changes in consumption on the GDP-level in the second quarter¹



1 – GS-health, GB-basic demand, PF-goods and services for operating private vehicles, VD-traffic services (without shipping and aviation), GGL-slightly affected commodities, GGS-strongly affected commodities, VFKD-catering, recreational and cultural services, RD-travel services. 2 – Implied change of demand through quarantine measures.

Sources: Federal Statistical Office, own calculations

3. Scenarios for the further development

54. In light of the extraordinary situation, there is a substantial amount of uncertainty associated with the forecast. How much **GDP actually does contract depends on the progress of the coronavirus pandemic** in Germany **and the countermeasures** taken.

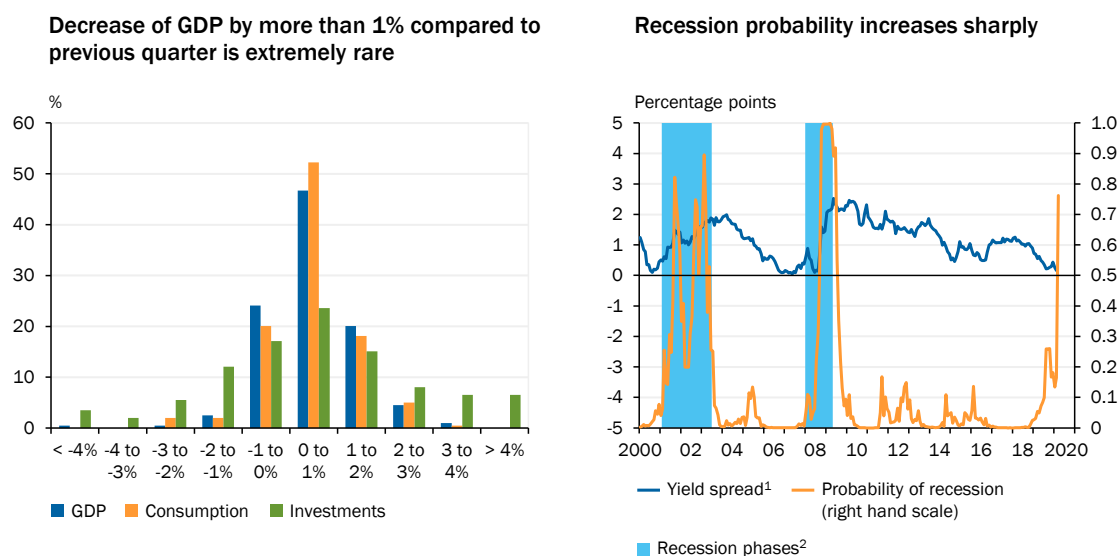
Monetary and fiscal policy responded to the latest development with a **range of support measures**. Near-term stimulation of economic activity with economic stimulus packages, as happened during the financial crisis, for example, is hardly possible, however, as such support measures run counter to measures to contain the pandemic. Therefore, the majority of support measures are geared to bridge the economic downturn as best as possible in order to enable the economy to bounce back quickly when the measures are lifted. Actions such as short-time allowance and the generous provision of liquidity are designed to avoid layoffs and bankruptcies. [↪ ITEMS 120 FF.](#)

The **success of economic support measures hinges critically on the duration of the restrictions**, however. A precondition for the economy to recover, is the normalization of economic and social life. If Germany manages to limit the further spread of the coronavirus on a lasting basis, a swift return to growth can be expected.

55. By historical standards, the current **situation is exceptional**. Pandemics on this scale are extremely rare. Restrictions on public life like those currently in place worldwide to contain the coronavirus pandemic are unparalleled in times of peace. Accordingly, it is difficult to estimate the economic effects. There are signs of a significant decline in economic activity in the first half year, comparable, at most, with the contraction during the financial crisis. Therefore, there is a **large degree of uncertainty around forecasts**. To take this into account, in the following section the GCEE will present a baseline scenario for economic recovery which it believes to be the most likely based on current information, along with two risk scenarios.
56. On the basis of the estimates for the short-term development [↪ ITEMS 61 FF.](#), the GCEE assumes that **economic output will contract significantly in the first half year**. The baseline scenario yields growth rates of -1.5% in the first quarter and -4.5% in the second quarter of 2020. Up to now, the biggest quarterly decline in GDP was registered between the fourth quarter of 2008 and the first quarter of 2009 when economic output contracted by 4.7% . Even decreases of over 1% on the previous quarter have been extremely rare in the past 50 years. [↪ CHART 10 LEFT](#)
57. The **heightened degree of uncertainty** surrounding future economic developments is particularly reflected in the financial markets. Since the high of mid-February, the German stock market index (DAX) has lost up to almost 40% . At the same time, the yields on German federal bonds fell to all-time lows, while the yield spread between corporate bonds and government bonds rose significantly. These and other financial market indicators, together with figures for output and

↪ CHART 10

Historical distribution of GDP growth and probability of recession



1 – Yield spread between 10-year and 2-year government bonds as estimated by Deutsche Bundesbank. 2 – GCEE business cycle dating.

Sources: Deutsche Bundesbank, Federal Statistical Office, own calculations

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incoming orders, for example, feed into models to identify recessions (GCEE Annual Report 2018 box 3). The **probability of recession** calculated in this way rose sharply in March, having dropped to around 15-20 % at the start of the year. ↪ CHART 10 RIGHT It **currently stands at 76 %**. This is the highest it has been since the financial crisis.

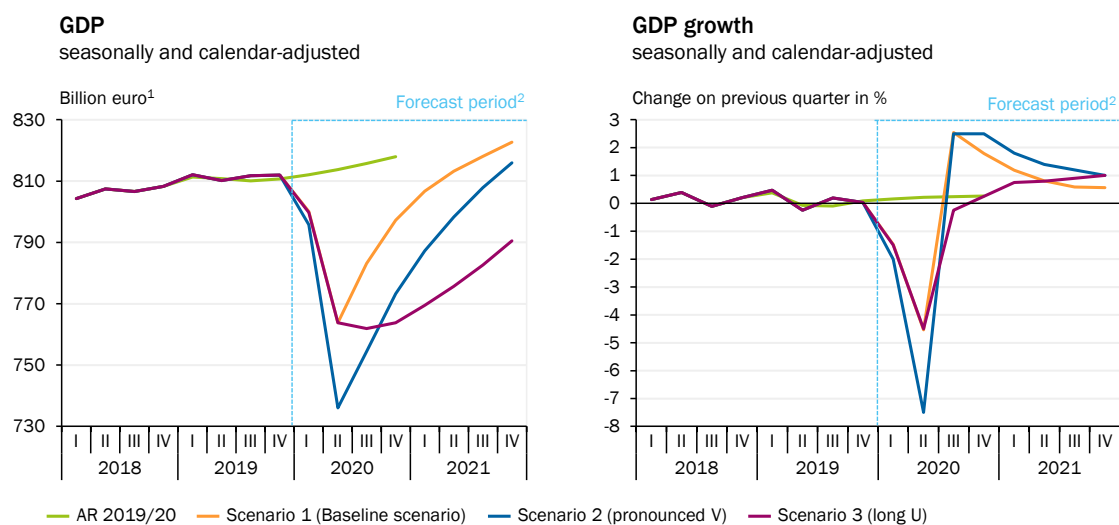
While these estimates often are prone to significant revisions and can therefore cause a false alarm, it should be noted that the current probability of recession is still based on the strong January values for industrial output and incoming orders. These do not reflect the most recent developments resulting from the coronavirus outbreak. If these two indicators were removed from the calculation, the current probability of recession is as high as 86 %.

Success of policy measures will determine economic recovery

58. Economic development is **likely to hinge critically** on whether the country manages to **effectively combat the spread of the coronavirus** so that the various restrictions on social and economic activity can be lifted quickly. A return to normality will also depend on whether the measures enacted by the government, such as short-time allowance and liquidity assistance for businesses, prevent layoffs and bankruptcies to the extent that potential output can be maintained. Furthermore, due to the strong international interconnection of German businesses it is essential that value chains function properly again with minimum disruption. If these prerequisites are met, **catch-up effects** following the end of the public health interventions are likely to ensure temporary growth substantially above the potential rate, with the result that **economic activity** is likely to **return to the growth trajectory** in the coming years. ↪ CHART 11

➤ CHART 11

Scenarios for the expected economic development in Germany



1 – Chained volumes (reference year 2015). 2 – Forecast by the GCEE.

Sources: Federal Statistical Office, own calculations

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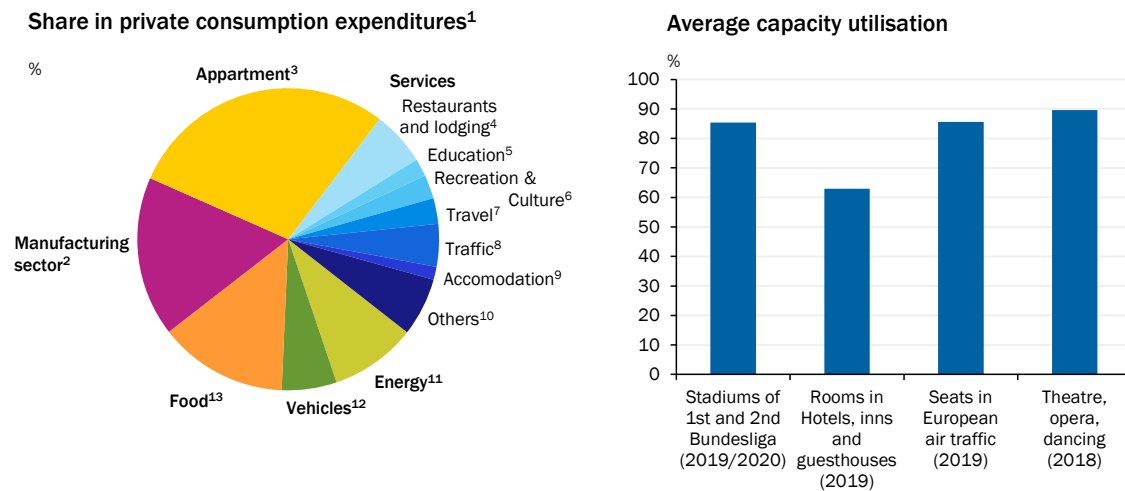
59. **Catch-up effects** can temporarily drive economic activity above potential in some sectors once the pandemic subsidies are **not** expected to **affect the economy as a whole to a substantial extent**. The support measures adopted by policy-makers aim to limit the number of bankruptcies and job losses. Combined with the automatic stabilisers, the approach is to keep the drop in disposable income to a minimum. Once restrictions have been lifted and supply shortages ended, consumers could then catch up on some of their purchases, particularly of durable goods. In some sectors, consumers will likely catch up on services they have not used, but this will not be possible in all areas. For example, consumers will probably not take a deferred winter holiday or get their hair cut twice. Key expense items, e.g. for housing, are likely to remain stable at any rate. ➤ CHART 12 LEFT

60. On the supply side, **available capacity** will determine how pronounced the **effect of catch-up demand** will be. In the business sectors limited by capacities, particularly in the service sector, an attempt can be made to achieve higher value added than before the downturn by working additional hours. This is probably not possible on a larger scale in many service sectors, however. The situation is aggravated by the fact that average capacity utilisation is already very high, particularly in the economic sectors currently hardest hit, such as travel, trade shows, gastronomy or events, and can hardly be increased in the short term. ➤ CHART 12 RIGHT

In addition to capacity constraints owing to restrictions in terms of time and space, **constraints posed by supply bottlenecks and labour resources are a further issue**. In light of the structural shortage of skilled labour in many sectors, companies may be willing to accept higher costs to a certain extent in order to increase working hours by introducing overtime, for example.

↘ CHART 12

Consumption expenditure and capacity utilisation in selected service sectors



1 – Results of the current economic accounts in 2017. 2 – Clothing and shoes; interior, domestic appliance and articles without housekeeping services; durable and non-durable goods for health; other traffic; post and telecommunication without services; recreation, entertainment and culture without recreational and cultural services, books, newspapers, magazines and the like and all-inclusive tours; other goods. 3 – Rent. 4 – Restaurant and lodging services. 5 – Books; newspapers, magazines and the like; education. 6 – Recreational and cultural services. 7 – All-inclusive tours. 8 – Maintenance, care and repairs of vehicles, motorbikes and bicycles. 9 – Apartment maintenance; housekeeping services. 10 – Health care services; post and telecommunication services; body care services; other services. 11 – Energy and fuels and lubricants. 12 – Vehicles, motorbikes and bicycles, spare parts and accessories for vehicles and motorbikes. 13 – Food, drinks, tobacco products.

Sources: Federal Statistical Office, Deutscher Bühnenverein e.V., IATA, kicker, own calculations

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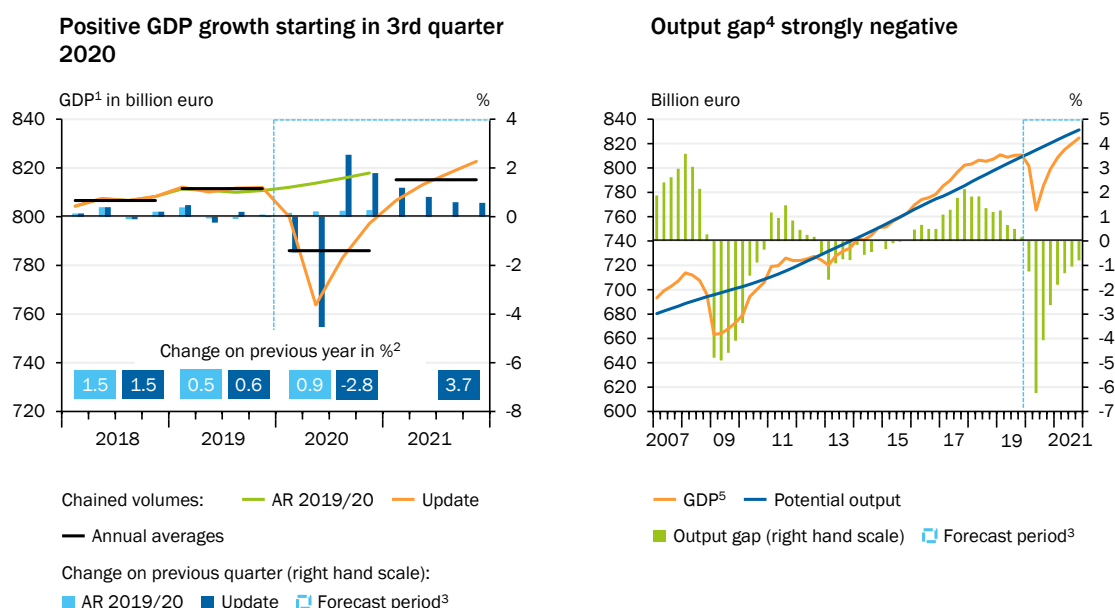
61. In the baseline scenario, the GCEE assumes that the economic situation will normalise over the summer, similar to the pattern emerging in China. In its **baseline scenario**, the GCEE expects **GDP to contract by 2.8 %** in 2020. ↘ CHART 13 LEFT This is the second highest decline of economic output in the history of the Federal Republic of Germany. Only in 2009, the growth was lower with -5.7% . At that time, however, the economic output was already declining in the fourth quarter of 2008, which resulted in a stronger negative growth rate in total for 2009. In addition, the higher number of working days should be noted for the 2020 forecast. Netting out this effect, the result is a decline of 3.1% .

Growth of 3.7% would be expected for next year. In addition to the higher growth dynamics, this result is driven by a carry-over effect of 1.5 percentage points. In the first half of 2020, the **output gap** would be **very negative** before closing gradually in the further course of the forecast period. ↘ CHART 13 RIGHT

62. Under one risk scenario, production plants remain closed longer than currently planned, and value chains are more restricted on account of border checks, for example. In this scenario, the **downturn in economic output in the second quarter is much deeper**. Following the top-down approach and assuming a drop of up to 40% in industrial output or retail sales (including cars) in the second quarter, this could mean a decline in GDP of over 10% in the first half year. Not even the 2008/2009 recession experienced a decline of this magnitude. It is unclear - not least with regard to possible non-linear relationships between the indicators and GDP growth - whether the potential drop in GDP in this scenario can be reliably calculated with this approach.

↘ CHART 13

Expected development in Germany: Baseline scenario



1 – Reference year 2015, seasonally and calendar adjusted. 2 – Not adjusted. 3 – Forecast by the GCEE. 4 – Estimate by the GCEE. 5 – Real seasonally adjusted values; the calendar effect is taken into account, however.

Sources: Federal Statistical Office, own calculations

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63. Alternatively, the drop in GDP in this risk scenario can also be estimated taking the bottom-up approach. If the various restrictions on social activities last into the summer, or if the **economic activities hardest hit suffer bigger losses than already anticipated** due to a tightening of measures, this would severely limit private consumption. More extensive stay-at-home orders or the closing of shops of stationary retail that are currently still opened would lead to a further decrease in demand in many sectors. In this case it is assumed, that demand will drop by another 15 % in all sectors that are negatively affected in the baseline scenario. For travel services no further decline is assumed compared to the baseline scenario. It is further presumed that the decline in demand will last until May and will slowly subside until the end of June. This would lead to a substantial decline in private consumption and consequently result in a 7 % drop in GDP in the second quarter compared to a situation without the coronavirus pandemic. Almost half of the decline is due to a drop in consumption of durable goods ↘ CHART 9 RIGHT Factoring in the negative contribution of international trade and plant and machinery investment to growth, in this **risk scenario (pronounced V)** GDP could therefore be almost 10 % lower in the second quarter.

This **sharper downturn in the first half of 2020** than that assumed in the baseline forecast would be associated with a drop in GDP of –5.4 % on an annual average. This results in a calendar-adjusted decline by 5.7 %. This would constitute the biggest decline in GDP growth in the history of the Federal Republic of Germany. However, catch-up effects in this scenario are likely to ensure that economic activity converges to its potential level, like in the baseline scenario. In 2021, the economy would then grow by 4.9 %.

64. Another risk scenario changes the assumptions regarding two aspects that are likely to be critical for economic development beyond the second quarter. Firstly, it is necessary to effectively contain the spread of the coronavirus so that the **various restrictions can be lifted soon**.

Secondly, it is essential to **prevent** the coronavirus shock developing into a **financial or debt crisis**. If the battle against the coronavirus takes longer, the number of bankruptcies is likely to rise, which, in turn, could cause banks to get into difficulties. At the same time, the financial burdens could raise concerns about the sustainability of public budgets in some countries. A possible return of the euro crisis would have serious repercussions.

65. If the measures to contain the coronavirus last beyond the summer and new cases of infection in autumn/winter put the health system under pressure once again, this could delay economic recovery until 2021. In this **risk scenario (long U)**, the policy measures taken may not be enough to prevent far-reaching damage to the economic structure resulting from bankruptcies and layoffs. While tools such as short-time work proved effective in the 2008/2009 recession, the recession itself was comparatively short. Deteriorating financing conditions and growing uncertainty could also curb investment and result in restrained household spending. Ultimately in such a scenario there is a risk of negative feedback loops through the financial markets or the banking system.

In this case, an economic recovery would not be expected before spring 2021. Growth in 2020 could amount to -4.5% in this scenario. Next year, economic output would only grow at a very slow pace of 1.0% . The output gap would be markedly negative and would still be below -4% even at the end of the forecast period.

66. A combination of both risk scenarios, i.e. a sharp drop in the first half of 2020 followed by a slow recovery, is also possible. Such a negative scenario is not, however, supported by the development seen in **China** so far, where the economy appears to **be over the worst**. Furthermore, the policy measures time-tested during the financial crisis are likely to take effect, with the result that hysteresis effects could be avoided even in the event of a more pronounced downturn in the first half of 2020. Lastly, it is important to bear in mind that this downturn was caused by an exogenous shock and is not the result of economic imbalances as in many other longer lasting recessions. Lengthy processes of adjustment may therefore not be necessary this time.

IV. THE BASELINE SCENARIO IN DETAIL

KEY MESSAGES

- The impacts of the coronavirus pandemic have affected nearly all economies, and it will come to a considerable decrease of global economic output in the first half of 2020.
- Before the pandemic, the German economy had already been in an economic downturn; however, until the pandemic the service and construction sectors were widely not affected by this.
- The number of employees employed persons will most probably decrease during the second and third quarter of 2020, and public finances will report significant deficits.

67. The **baseline scenario**, which the GCEE believes to be the most likely scenario given the current information available, is discussed **in more detail** in the following section. This also includes a discussion on the international environment, which is also impacted by the coronavirus pandemic. In addition, the developments in the various components of the GDP, of the labour market and of public finances are also presented here.

1. International economy dominated by a pandemic

Global economy under pressure

68. Following the muted growth of the **global economy** in the second half of 2019 and the pronounced slowdown in the industrial sector, there were increasing signs of economic stabilisation initially at the turn of the year. The economic impact of the spread of the **coronavirus** from China since the start of 2020 is now causing considerable **uncertainty**, however, and has significantly clouded the future outlook. While the Chinese economy, in particular, was initially hit hard by the virus, more and more advanced economies are now taking a battering as the virus continues to spread. At the same time, international trade and production interlinkages are producing reciprocal spill-over effects between individual economies around the world. International **financial markets** were **in turmoil** in March in the wake of these developments.
69. The further **course of the pandemic** and the policy measures associated with it are of central importance to economic development worldwide. However, it is very difficult to predict how the situation will evolve at present, which makes the **degree of forecasting uncertainty unusually high**. Even if it is possible to swiftly contain the spread of the virus and limit the damage to the economy, the global economy will grow at a significantly slower pace again this year than it did last year. **In the first half year, economic output is likely to drop sharply** in many economies affected by the coronavirus.
70. In the **baseline scenario**, the assumption is that the pandemic can be successfully contained in the first half year and the countermeasures that were needed

can be largely rolled back. In this scenario, an economic **recovery** is likely in the further course of the year: once the restrictions are lifted and production and consumption resume, this would produce a rebound effect on growth rates, causing them to rise again significantly. The continuing effect of disruptions in the supply chains is likely to prevent an even larger increase, however.

Deviating from this baseline scenario, **alternative scenarios** can be developed. [↘ ITEMS 62 FF.](#) These scenarios differ from the baseline scenario particularly in two specific aspects. For one, the drop in economic output could be greater than assumed in the baseline scenario. The scale of containment measures implemented in many countries is unprecedented, making it very difficult to quantify the effects on GDP. Secondly, the pandemic and the restrictions associated with it could last longer than assumed. This would delay recovery and is also likely to increase the risk of a sustained slowdown in the economy as a result of layoffs and bankruptcies. Such a trajectory would, in turn, increase the risks for financial stability. Other key factors for economic development are the scale, structure and effectiveness of the measures implemented by governments and central banks to support the economy. [↘ ITEMS 120 FF.](#)

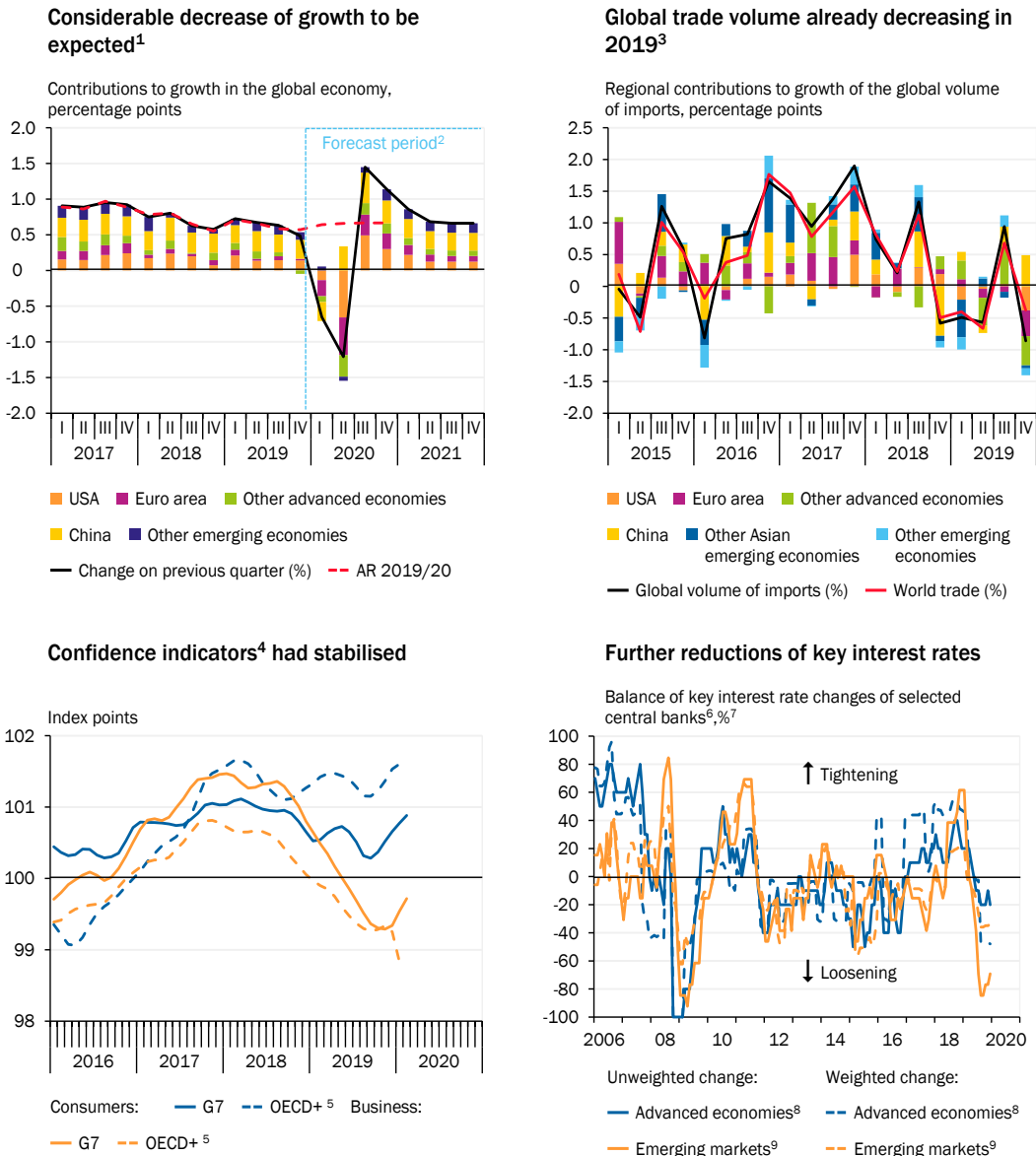
Global economic development before the pandemic outbreak

71. Global economic **growth slowed further in the course of 2019**, as forecast by the GCEE forecast in its Annual Report 2019/20. [↘ CHART 14 TOP LEFT](#) While the quarterly growth rate of the GDP in the United States had remained stable at 0.5 % since the second quarter, other advanced economies saw an appreciable decline in growth in the fourth quarter. Growth in the euro area dipped slightly, for example, and economic output in the United Kingdom stagnated. In Japan, GDP shrank significantly not least due to the increase in value added tax. China's reported GDP growth for the third and fourth quarter was 6.0 % against the respective prior-year quarters. Following an interim increase in the third quarter, **world trade fell** again in the fourth quarter. [↘ CHART 14 TOP RIGHT](#) On an annual average, the global volume of trade in 2019 was 0.4 % below the value of the previous year.
72. Towards the end of 2019, **confidence among economic operators** had risen again slightly on average in the major economies. [↘ CHART 14 BOTTOM LEFT](#) While surveys indicate that confidence among businesses in the manufacturing sector was still low, the downturn in this sector had at least initially come to an end. Developments in the **trade conflict** between the United States and China could have played a part in this. As a result of the preliminary "**phase one**" **trade deal** agreed between the two countries, a further increase in tariffs was initially averted and the risk of a renewed escalation appears to be reduced for the time being. Nevertheless, the vast majority of the additional tariffs introduced during the conflict remain in place. Moreover, there are doubts about the feasibility of the agreed import volumes, for example. At the same time, the agreement is likely in breach of World Trade Organisation (WTO) rules and third-countries could suffer as a result of diversion of trade. Therefore, there is **continued uncertainty surrounding** the future development of tariff and non-tariff **obstructions to trade** and the multilateral trading system.

73. The weaker economic growth and muted inflation expectations contributed to the decision by many central banks to ease their **monetary policies** in the second half of 2019. This brought the preceding brief phase of rising key interest rates to a halt for the time being. ↘ CHART 14 BOTTOM RIGHT For example, the US Federal Re-

↘ CHART 14

Indicators on the economic situation of the global economy



1 – Global GDP (weighted total of national economies listed). Country definitions according to Table 1. 2 – Forecast by the GCEE according to baseline scenario. 3 – Change on previous quarter, quarterly averages of seasonally adjusted monthly data. Data and country definitions of the Dutch Centraal Plan Bureau (CPB). 4 – Standardised OECD confidence indicators. The business confidence index represents the manufacturing sector. 5 – The aggregate “OECD+” includes the member states of the OECD as well as the non-member states Brazil, China, India, Indonesia, Russia and South Africa (Major Six NME). 6 – Based on BIS key interest rate data. 7 - Share of central banks whose key interest rate is higher (positive entry) or lower (negative entry) than three months earlier. 8 - Australia, euro area, Japan, Canada, New Zealand, Norway, Sweden, Switzerland, United Kingdom, United States. 9 - Brazil, Canada, Chile, China, India, Indonesia, Malaysia, Mexico, Philippines, Republic of Korea, Russia, South Africa, Thailand, Turkey.

Sources: BIS, CPB, IMF, national statistical offices, OECD, own calculations

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serve reduced its target range for the Federal Funds Rate by a total of 0.75 percentage points in three separate stages, going from the range of 2.25 % to 2.50 %, which applied until July, to 1.50 % to 1.75 % at the end of October. In the euro area, the ECB cut its deposit rate by 10 basis points to –0.50 % in September and resumed net bond purchases from November onwards.

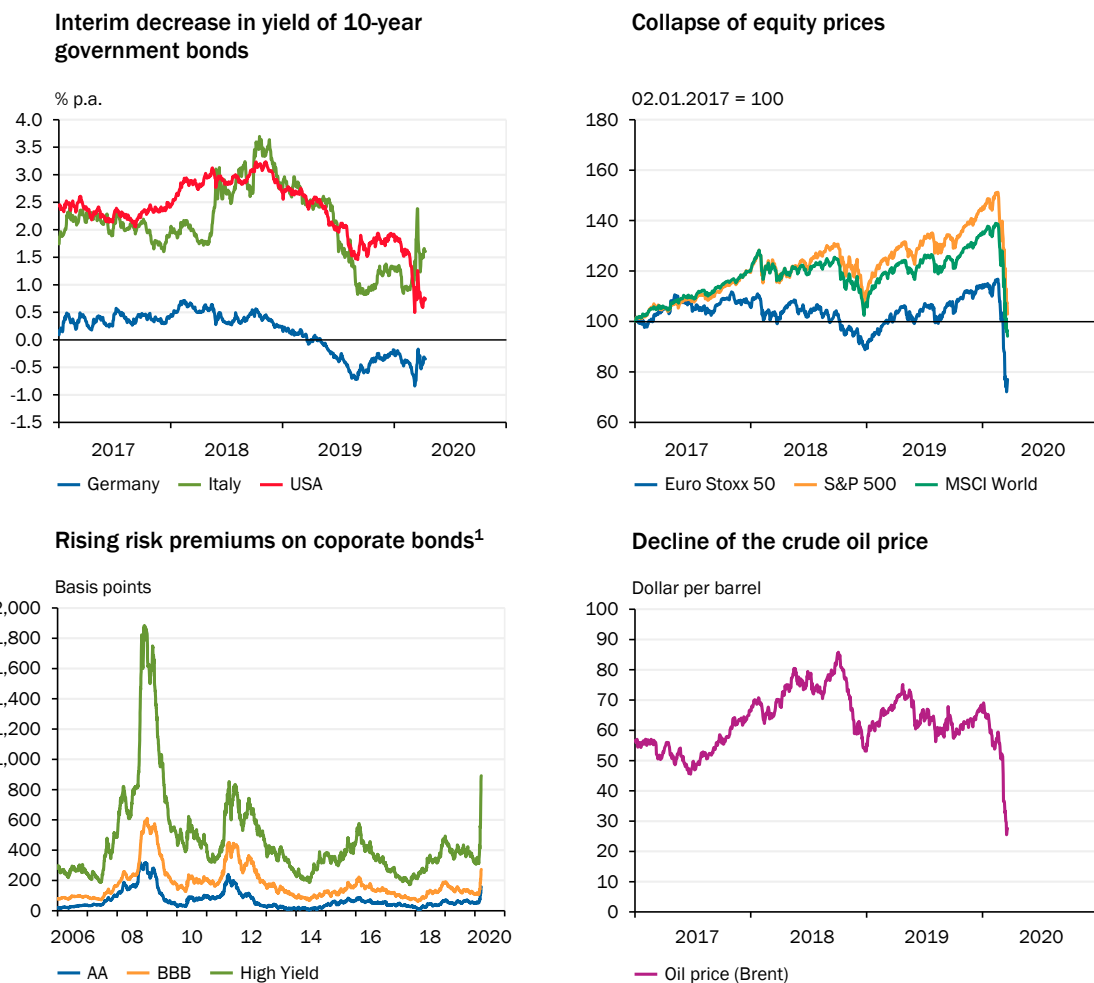
Unforeseen spread of pandemic causes turmoil on financial markets

74. In light of the growing number of coronavirus-related illnesses in China since January this year, **concerns** increased in the first quarter **about the impact this will have on the Chinese economy**. Growth forecasts have been revised accordingly and the risk for the future development of the global economy has been pointed out (OECD, 2020a). In the wake of the rapid global spread of the coronavirus and the increasingly extensive containment measures being taken, the global economic outlook has deteriorated appreciably, however. This and the prevailing uncertainty, have led to strong **reactions on the financial markets**.
75. For one, there has been a surge in demand for assets that are considered safe, particularly German government bonds and US Treasury bonds, which has led to an interim decline of their yields. [↘ CHART 15 TOP LEFT](#) In this context, the **widening of the yield spread** between German and Italian government bonds, for example, indicates that market participants appear to differentiate between the individual countries in terms of their debt burden and the potential country-specific impact of the coronavirus pandemic.
76. Furthermore, the **prices of riskier assets have dropped significantly**. [↘ CHART 15 TOP RIGHT](#) The stock market declines have been very substantial by historical standards. Indexes such as MSCI World and the US S&P 500 index fell by around 30 % between mid-February and mid-March 2020. With a drop of –34 % in the same period, the Euro Stoxx 50 index suffered an even greater loss. Measured by the time taken for the share index to shed 20% of its value from the last peak, the development of the S&P 500 index in March constitutes the fastest ever correction of a bull market in the index's history. In the week from 16 March to 20 March 2020 alone, the index lost approximately 15% - the fifth highest weekly loss on record.
77. Alongside falling share prices, an increase in corporate bond yields can also be observed. [↘ CHART 15 BOTTOM LEFT](#) The heightened uncertainty is likely to aggravate financing conditions for businesses. An increase in debt **defaults, particularly among highly indebted issuers of corporate bonds** (high-yield bonds) cannot be ruled out. This market segment has grown considerably in recent years, particularly in the United States. As a not insignificant proportion of high-yield bonds in the United States have been issued by businesses in the energy sector, the deterioration in financing conditions that we are observing and the drop in the price of oil can trigger an increase in the number of debt defaults in the United States.

78. As Russia and Saudi Arabia failed to agree to a limit on oil production in response to the falling demand, **the price of crude oil has dropped below US\$30 per barrel**. [↪ CHART 15 BOTTOM RIGHT](#) It is therefore close to the level reached at the start of 2016 following the fall in oil prices in 2014/2015. During this period, the price of crude oil plummeted from US\$115 in June 2014 to just under US\$30 in January 2016. If oil prices remain this low, this will place a considerable burden on oil-producing countries and companies. On the other hand, the lower oil prices provides significant relief to consumers of oil and oil-based products.
79. In March 2020, **central banks took extensive action** in response to the increasing **spread of the coronavirus**, the consequences to be expected and the sharp changes in prices on the financial markets. For example, in light of the evolving risks the pandemic poses for economic activity, the Federal Reserve initially lowered the target range by 0.5 percentage point in an unscheduled interest rate decision on 3 March 2020. In order to counteract disruptions in the U.S. Treasury markets, on 12 March the Federal Reserve announced adjustments to the purchase of U.S. Treasury bonds it uses to control reserves. In a parallel move,

↪ CHART 15

Financial market indicators and crude oil price



1 – Difference in yield between corporate bonds with different ratings denominated in Euro and German government bonds with a 10-year maturity.

Sources: Refinitiv Datastream, own calculations

it significantly expanded the offering of repurchase agreement operations in order to enhance the functioning of the secured U.S. dollar funding markets (New York Fed, 2020).

The Federal Reserve announced additional measures in another unscheduled meeting on 15 March (Fed, 2020a). It lowered the target range to 0 % to 0.25 % and announced that it will increase its holdings of Treasury securities and its holdings of agency mortgage-backed securities by at least US\$500 billion and by at least US\$200 billion, respectively, over the coming months. Further to this, it lowered the discount window rate, extended the term on discount window loans, and announced a reduction of the reserve requirement ratio to zero effective on 26 March (Fed, 2020b). Finally, on 17 March it announced the formation of the Commercial Paper Funding Facility to guarantee liquidity for businesses with financing from commercial paper markets (Fed, 2020c). Other central banks, such as the Bank of England or the ECB, [▶ ITEMS 159 FF](#) also adopted a broad range of measures. Furthermore, extensive swap line arrangements were agreed between the major central banks to enhance the provision of liquidity in U.S. dollars.

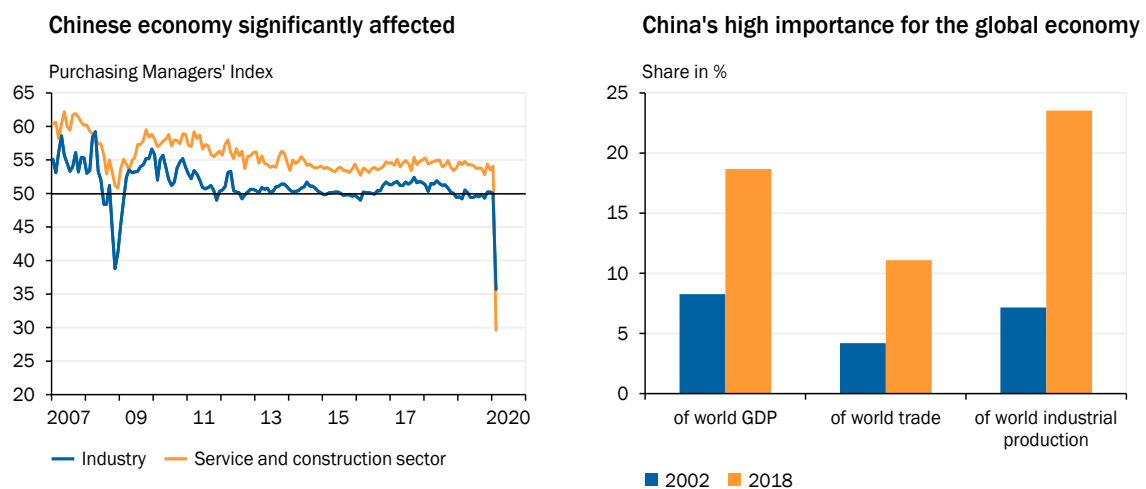
[▶ ITEM 163](#)

Impact of the coronavirus pandemic on the real economy

- 80. The **spread of the coronavirus** and the associated restrictions on economic activity will **weigh significantly on global growth** in the first half of **2020**. The course of the epidemic in China so far suggests that other countries that are currently hard hit by the virus could tentatively see the number of cases peak in the first half of the second quarter. [▶ ITEM 34](#). This will, however, require the individual countries to take aggressive measures to contain the pandemic. [▶ ITEMS 22 FF](#). In such a scenario in which countries manage to contain the pandemic and avoid major upheavals, such as large-scale defaults or friction on the financial markets,

[▶ CHART 16](#)

Economic development in China and its importance for the global economy



Sources: National Bureau of Statistics of China, OECD, World Bank, own calculations

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production constraints are likely to end by autumn at the latest and positive growth rates reported again in the course of the year.

81. With its very aggressive public health measures, China appears to have successfully reduced the rise in new cases. [↪ ITEM 34](#) At the same time, however, the economy has suffered significantly as a result. Industrial output in China fell abruptly with the entry into force of the first **quarantine measures** in the province of Hubei at the end of January 2020 and the tightening of measures in February. Steel and car production dropped significantly in February 2020. At the same time, there was a marked drop in demand for cars and car registrations (RWI, 2020). The Purchasing Managers' Index also points to a significant **decline in economic activity**. [↪ CHART 16 LEFT](#)

The Chinese government began easing quarantine measures around five weeks after the measures were put in place. Since then, **production in China** appears to be regaining momentum. Using its Production Activity Tracker (PAT), which takes into account, among others, the freight transport, coal consumption and worker mobility, the Chinese bank CICC puts the level of production activity on 9 March at 76 % of the level reached before Chinese New Year at the start of February. By contrast, the index only stood at 64 % on 2 March. According to this measure, activity normally increases to over 90 % in the first two weeks after Chinese New Year, however. If the current trend continues, a **quick resumption of production appears possible**. However, it remains to be seen how reliably the index reflects actual development.

82. On the basis of these observations, **GDP growth in China** is likely to **drop** sharply in the first quarter. How big this contraction will be **is difficult to quantify**. Using data on the economic structure and the decline in production associated with Chinese New Year celebrations, Döhrn (2020) calculates a negative effect on GDP growth of 2.4 % percentage points in the first quarter. Taking an average quarterly growth rate of around 1.5 % in China, an effect of this magnitude would mean that **quarterly growth in the first quarter** is likely to be clearly in **negative** territory. The indicators that have been published since then, particularly industrial output and retail sales, suggest an even more pronounced decline in activity.

In the baseline scenario on which the forecast is based, GDP is expected to contract by 1.5 % on the previous quarter. With the expected increase in economic activity in spring, growth rates should experience a certain **rebound effect**, as production starts to increase again from the low previously reached. Accordingly, GDP growth in the second quarter is likely to significantly exceed the value that would have been expected had the previous decline not occurred. While **the effects of pent-up demand** may be seen in production in the further course of the year, the initially weak development in the rest of the world is likely to have a dampening effect on growth. In this scenario, GDP in China would grow by 3.8 % for the full year 2020. At roughly two percentage points, the decline in growth is roughly on the same scale as the results of simulations conducted by the OECD

(2020a) and IfW (2020) suggest. Due to the stronger growth expected in the second half of 2020 and the carry-over effect, much stronger growth of 6.8 % is likely in 2021.

TABLE 1

Gross domestic product and consumer prices of selected countries

| Country/country group | Weight in % ¹ | Gross domestic product ² | | | | Consumer price index | | | |
|---|--------------------------|-------------------------------------|-------------------|----------------------------------|-------------------|----------------------|-------------------|----------------------------------|-------------------|
| | | Change on previous year in % | | | | | | | |
| | | 2019 | 2020 ³ | | 2021 ³ | 2019 | 2020 ³ | | 2021 ³ |
| | | | Update | Diff. to AR 2019/20 ⁴ | | | Update | Diff. to AR 2019/20 ⁴ | |
| Europe | 29.7 | 1.4 | - 1.3 | (- 2.7) | 2.2 | 2.1 | 1.3 | (- 0.6) | 1.7 |
| Euro area | 18.2 | 1.2 | - 2.1 | (- 3.2) | 2.5 | 1.2 | 0.8 | (- 0.5) | 1.2 |
| United Kingdom | 3.8 | 1.4 | - 1.1 | (- 2.1) | 1.4 | 1.8 | 1.3 | (- 0.7) | 1.7 |
| Russia | 2.2 | 1.3 | 0.6 | (- 0.7) | 0.9 | 4.5 | 2.1 | (- 1.7) | 3.8 |
| Middle- and Eastern Europe ⁵ | 1.8 | 3.8 | 0.8 | (- 2.3) | 2.6 | 2.6 | 2.1 | (- 0.4) | 2.0 |
| Turkey | 1.0 | 0.9 | 2.2 | (- 1.5) | 3.8 | 15.2 | 9.6 | (0.6) | 8.2 |
| Other countries ⁶ | 2.7 | 1.3 | - 0.4 | (- 2.0) | 1.8 | 1.2 | 0.2 | (- 1.0) | 0.9 |
| America | 35.3 | 2.0 | - 0.4 | (- 2.2) | 2.3 | 3.1 | 2.4 | (- 0.4) | 2.5 |
| United States | 27.4 | 2.3 | - 0.4 | (- 2.2) | 2.6 | 1.8 | 1.5 | (- 0.5) | 1.8 |
| Latin America ⁷ | 3.2 | 0.0 | - 0.6 | (- 2.4) | 1.6 | 14.4 | 11.0 | (0.1) | 8.8 |
| Brazil | 2.5 | 1.1 | 0.4 | (- 1.6) | 1.5 | 3.7 | 3.0 | (- 0.3) | 3.1 |
| Canada | 2.3 | 1.6 | - 1.0 | (- 2.4) | 1.0 | 1.9 | 1.4 | (- 0.4) | 1.5 |
| Asia | 35.0 | 4.4 | 2.3 | (- 2.0) | 4.8 | 2.2 | 2.5 | (0.3) | 2.1 |
| China | 17.8 | 6.1 | 3.8 | (- 2.0) | 6.8 | 2.9 | 3.6 | (1.2) | 2.5 |
| Japan | 6.6 | 0.7 | - 1.6 | (- 2.0) | 1.0 | 0.5 | 0.6 | (- 0.7) | 0.3 |
| Asian advanced economies ⁸ | 4.0 | 1.6 | - 0.3 | (- 2.1) | 2.1 | 0.7 | 0.1 | (- 1.0) | 0.8 |
| India | 3.6 | 5.1 | 4.2 | (- 2.4) | 5.8 | 3.7 | 4.4 | (0.3) | 4.0 |
| Southeast Asian emerging economies ⁹ | 2.9 | 4.4 | 3.0 | (- 1.8) | 4.4 | 1.9 | 1.3 | (- 1.3) | 2.4 |
| Total | 100.0 | 2.6 | 0.3 | (- 2.3) | 3.2 | 2.5 | 2.1 | (- 0.2) | 2.1 |
| Advanced economies ¹⁰ | 66.8 | 1.7 | - 1.0 | (- 2.5) | 2.2 | 1.5 | 1.1 | (- 0.5) | 1.4 |
| Emerging economies ¹¹ | 33.2 | 4.5 | 2.9 | (- 1.9) | 5.1 | 4.5 | 4.2 | (0.4) | 3.6 |
| memorandum: | | | | | | | | | |
| weighted by exports ¹² | 100.0 | 2.2 | - 0.3 | (- 2.4) | 2.4 | . | . | . | . |
| following IMF concept ¹³ | 100.0 | 2.9 | 1.5 | (- 1.9) | 3.3 | . | . | . | . |
| World trade ¹⁴ | | - 0.4 | - 2.7 | (- 4.2) | 2.8 | . | . | . | . |

1 – GDP (US dollar) of the named countries or country groups in 2018 as a percentage of total GDP of the named countries or country groups.

2 – Price-adjusted. 3 – Forecast by the GCEE according to baseline scenario. 4 – Difference in percentage points. 5 – Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania. 6 – Denmark, Norway, Sweden, Switzerland. 7 – Argentina, Chile, Colombia, Mexico. 8 – Hong Kong, Republic of Korea, Singapore, Taiwan. 9 – Indonesia, Malaysia, Philippines, Thailand. 10 – Asian advanced economies, euro area, Middle- and Eastern Europe, Canada, Denmark, Japan, Norway, Sweden, Switzerland, United Kingdom, United States. 11 – Latin America, Southeast Asian emerging economies, Brazil, China, India, Russia, Turkey. 12 – Total of all named countries, weighted by the respective shares of German exports in 2018. 13 – Weights according to purchasing power parities and extrapolated to the countries covered by the IMF. 14 – As measured by the Netherlands Bureau for Economic Policy Analysis (CPB).

Sources: CPB, IMF, national statistical offices, OECD, own calculations

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83. According to the scenario for the further course of the pandemic and the associated measures that is assumed in the forecast, there will also be a **significant decline** in economic output particularly in the **advanced economies** that are more affected by the outbreak. This applies for both Europe and the United States alike. As the development in these countries in terms of the spread and containment of the pandemic is a number of weeks behind China, their economies are likely to be particularly hard hit in the second quarter of 2020. However, many countries are likely to already see a significant drop in economic output in the first quarter. This will result in clearly negative growth rates for global economic growth in both quarters of the first half of the year. For 2020 as a whole, **global economic output would only grow by** a mere 0.3 % in the baseline scenario. [↘ TABLE 1](#) This growth is attributable almost exclusively to emerging economies, which are expected to see GDP growth of 2.9 % in 2020. In the group of advanced economies, economic output for the full year is likely to fall.

Against this backdrop, it is likely that world trade will continue to experience very weak growth for the time being and that **another decline in the volume of trade** can be expected for the year as a whole. In this scenario, GDP growth rates could increase significantly again in the further course of 2020. Due to the higher carry-over effect, appreciably higher annual average growth rates can be expected again for 2021.

Opportunities and risks for future development

84. To take due account of the considerable uncertainties surrounding the further course of the pandemic and containment measures, it makes sense to **develop scenarios** that make different assumptions as regards the further development of key parameters. [↘ ITEMS 63 FF.](#) In this context, there are several **opportunities and risks** for future economic development and situations that veer from the baseline scenario considered in the forecast. Downside risks currently predominate. In particular, there is **considerable uncertainty** surrounding the further spread and the impact of the **coronavirus**. A far higher number of illnesses and more aggressive measures to contain the disease could place a greater strain on economic activity than assumed in the baseline scenario. In particular, if the situation lasts longer and a massive global outbreak takes place, significantly slower global economic growth can be expected than in the baseline scenario. Not least, international value chains would be considerably disrupted and businesses that are hard hit could face increasing financial difficulties. If, on the other hand, it is possible to contain the disease faster than assumed and avoid supply shortages, the cost to the economy could be lower than the current development suggests and growth in 2020 would not contract as much.
85. At the same time - in addition to geopolitical risks - there is still the risk of a further escalation of **trade conflicts**, although the provisional agreement between the United States and China has probably reduced this risk somewhat for the forecast period. If broad new protectionist measures come into play between the United States and the EU, for example, this and the ensuing uncertainty would weigh considerably on international trade and the confidence of economic opera-

tors. An escalation of the conflict with China would further hit the Chinese economy, already significantly weakened by the impact of the coronavirus. On the other hand, political agreements that **reduce uncertainty and remove barriers to trade** could provide a positive stimulus. While the coronavirus shock does initially lead to a restriction or even ban on international exchange, such as tourism, owing to the public health responses, it also provides a reason for talks and collaboration between governments, which could produce greater willingness of parties to accept compromises in other areas with potential for conflict, such as the area of trade policy.

86. The uncertain economic environment carries the risk of even larger price adjustments on the financial markets. In addition, an economic slowdown could trigger loan defaults on a larger scale, which pose a risk for **financial market stability**. If the financial markets experience further upheaval, this has repercussions for the real economy, which in turn will exacerbate the downturn. Given the high level of indebtedness of many businesses and countries there is the danger that the deteriorating economic outlook will contribute to **another rise in risk premiums** for bonds. This could limit the affected countries' fiscal capacity to act and aggravate the financing conditions of private borrowers. Even a resurgence of the euro crisis cannot be ruled out in this scenario.
87. Furthermore, in Europe there is still a lack of clarity regarding the future relationship between the United Kingdom and the EU after **Brexit**. A timely agreement that guarantees broad market access while ensuring and the integrity of the European internal market could have positive effects and drive stronger growth in Europe. In contrast, an unexpectedly sharp restriction of economic relationships is likely to have an appreciably negative impact on the economy, particularly in the United Kingdom. Against this background it would make sense, to extend the transition phase provided for the withdrawal agreement.



With the entry into force of the withdrawal agreement on 31 January 2020, the United Kingdom ceases to be a member of the EU and is effectively a third country from now on. The withdrawal agreement contains a transition period that lasts until 31 December 2020 (Council of the European Union, 2020a). During this transition period, the United Kingdom is still bound by EU laws; the country therefore remains a part of the European internal market and the customs union for the present. If both sides agree, the transition period can be extended one time only by up to two years. This must be done by 1 July 2020 (Council of the European Union, 2020a). However, the United Kingdom has already announced its opposition to an extension of the transition period (UK Government, 2020). Even though the conditions for trade between the EU and the United Kingdom remain unchanged at least until the end of this year unless another agreement is reached earlier, a decline in the share of exports to the United Kingdom and imports from the United Kingdom in Germany's trade can already be observed between 2015 and 2019. What form trade relations will take following the transition phase still remains to be seen.

Negotiations on the future relationship between the EU and the United Kingdom got underway in March (European Commission and United Kingdom, 2020). In addition to conditions for trade in goods and services, the negotiations are to explore how harmonised conditions for open and fair competition can be guaranteed (Council of the European Union, 2020b). Progress in negotiations is to be reviewed in June 2020.

After the European Commission and the United Kingdom agreed in principle in October 2019 to seek a free trade agreement (FTA) that did not comprise any customs or quotas, the United Kingdom is seeking an agreement on the lines of that agreed between the EU and Canada (UK Government, 2020). Given, that existing FTAs are often the product of several years of negotiations (GCEE Annual Report 2016 box 10), it remains to be seen whether an FTA of this kind can enter into force by the end of the transition period, particularly considering that considerable resources are currently devoted to the coronavirus pandemic. One particular issue that is likely to cause controversy is how the United Kingdom can make independent decisions regarding laws and regulations in the future.

Euro area: under considerable strain from the pandemic

88. At 0.3 % and 0.1 %, respectively, **GDP growth in the euro area** in the two quarters of the second half of 2019 was slightly weaker than in the first half year. In particular, this involved a sustained **decline in gross value added in industry**. [↪ CHART 17 TOP LEFT](#) Among the larger Member States, France and Italy reported a contraction in GDP in the fourth quarter of 2019. In France, the widespread strikes could have contributed to this result. In Spain and the Netherlands, on the other hand, growth rates were largely stable up to the end of the year. The **coronavirus pandemic** is likely to have a **decisive influence** on future economic development, however.
89. The shock of the pandemic in the euro area hits an economy whose labour market was in good shape until recently. **Employment has continued to rise**, and unemployment in the aggregate is almost back to the pre-crisis level. [↪ CHART 17 BOTTOM LEFT](#) In addition to the positive development in Germany, this is attributable not least to significant drops in unemployment in Member States previously hard hit by the crisis in the euro area, such as Spain, Ireland and Greece. Higher employment and rising wages spur private consumption. Following the strong growth in employment in recent years, employment expectations did fall somewhat last year, however. [↪ CHART 17 BOTTOM RIGHT](#) Weak performance in the industrial sector, which had significantly contributed to a cloudier economic outlook even before current developments, is likely to have played a particular role here.
90. The **inflation rates** of the Harmonised Index of Consumer Prices (HICP) for the euro area rose slightly towards the end of the year. [↪ CHART 17 TOP RIGHT](#) The development of the energy component contributed to this rise. At the same time, core inflation, which excludes the volatile prices for energy and food, was slightly higher in the fourth quarter.

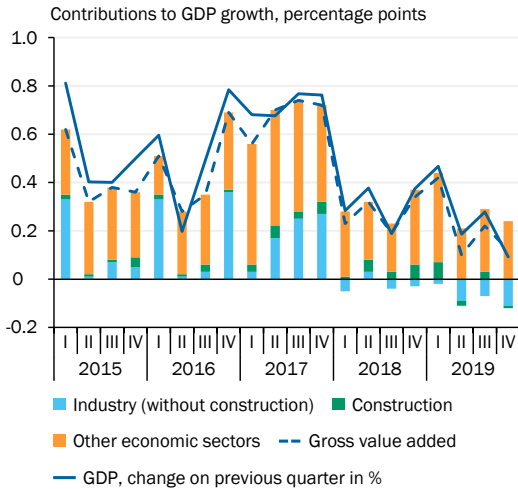
Many Member States hard hit by the pandemic

91. So far, the **coronavirus pandemic** has **hit Italy particularly hard**, but it is also increasingly affecting the other Member States. [↪ CHART 18 LEFT](#) In response, many countries have implemented far-reaching measures to slow the spread of the virus. [↪ ITEMS 29 FF](#). Because of this, **economic activity** in the euro area will be significantly **impacted** in the first half year. In addition to potential loss of production, this particularly affects business sectors that face a drop in demand owing to the quarantine measures and the fear of contracting the disease. Many car

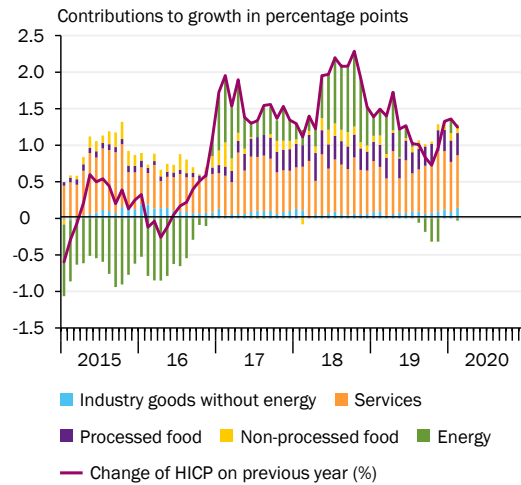
↪ CHART 17

Economic indicators for the euro area

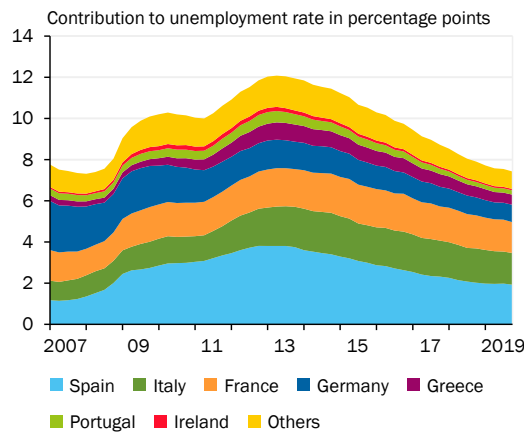
Industry weakness brakes growth in the Euro area



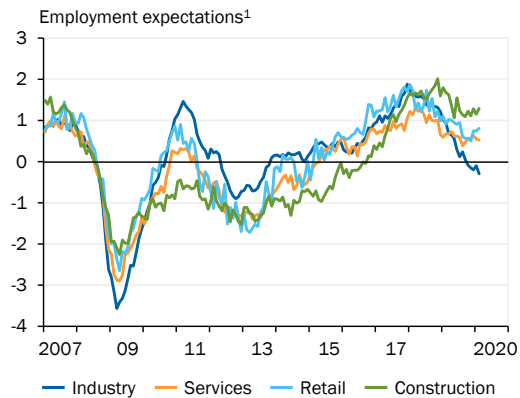
Moderate increase of consumer price inflation at the turn of the year



Unemployment rate almost at its pre-crisis level



Increase in employment will slow down



1 – Employment expectations in the next three months; according to a corporation survey by the European Commission. Standardized for the period 2000 – 2019.

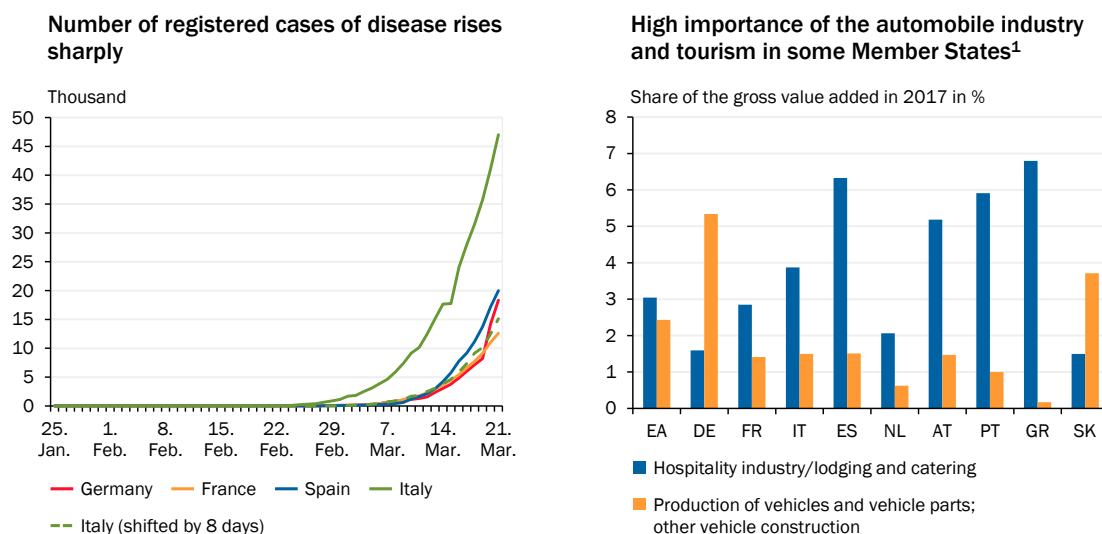
Sources: European Commission, Eurostat, own calculations

manufacturers, for example, have already announced a suspension of production. On March 21, the Italian government announced the vast shut down of all production activities that were not need for basic services. At the same time, the tourism sector is severely hit as a result of the travel restrictions. Both sectors account for a significant share of the value added in individual Member States. ↪ CHART 18 RIGHT

- 92. At its meeting on March 12, the **ECB's Governing Council adopted a comprehensive package of measures** in response to developments in the wake of the coronavirus pandemic. Additional longer-term refinancing operations (LTRO) are designed to safeguard the liquidity of the European financial system. ↪ ITEM 159 The ECB did not, however, further reduce the deposit rate, as its toolkit is more constrained in this regard in comparison to the US Federal Reserve. While it is still possible to cut the deposit rate further into the negative range, below a rate of about -1 % is likely to cause more significant evasive responses to cash

↪ CHART 18

Cases of disease and economical importance of the automobile industry and tourism



1 – EA-Euro area, DE-Germany, FR-France, IT-Italy, ES-Spain, NL-Netherlands, AT-Austria, PT-Portugal, GR-Greece, SK-Slovakia.

Sources: European Centre for Disease Prevention and Control, Eurostat, own calculations

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holdings are to be expected. The ECB did, however, announce a modification of conditions for targeted longer-term refinancing operations (TLTRO). ↪ ITEM 160 In addition to an increase in the possible amount, the conditions are designed to enable banks that maintain lending to refinance at particularly favourable conditions. Furthermore, the ECB announced that it would increase net purchases under its asset purchase programme by €120 billion through to the end of this year. ↪ ITEM 161 In a parallel move, ECB Banking Supervision announced a temporary easing of the capital and liquidity requirements for financial institutions under its supervision. In doing so, it is using the flexibility of these requirements to prevent procyclical effects of banking regulation. ↪ ITEM 162 Furthermore, on 18 March the ECB announced the new Pandemic Emergency Purchase Programme with an overall volume of €750 billion. ↪ ITEM 164

93. The **European Commission** responded to the coronavirus pandemic with a package of measures with an initial volume of €25 billion. A few days later, it followed up with **measures worth €37 billion**. The vast majority of these packages will be financed through existing structural funds. ↪ ITEM 126 Furthermore, the European Commission intends to use the **full flexibility of fiscal frameworks of the Member States** and **suspend restrictions on state aid for affected countries if needed**. This has already happened in the case of Italy. ↪ ITEM 179 For their part, the **countries in the EU** have responded to the crisis **with assistance programmes worth billions of euros** for their economies. In Germany, the programme primarily comprises the more flexible access to short-time allowance and the unlimited provision of loans and guarantees. ↪ ITEM 145 To enable the funding of measures by the Member States, the European Commission activated the escape clause on March 20. ↪ ITEM 179
94. In light of the considerable impact on economic activity, **quarterly GDP growth rates that are deeply in negative territory can be expected in**

the first half of 2020. In the baseline scenario, the assumption is that efforts to contain the spread of the coronavirus will be successful and the restrictive measures will come to an end in the course of the second quarter. In this case, the economy is likely to bounce back quickly. Positive effects from pent-up demand in individual sectors will face possible negative effects resulting from the ripple effect of disruptions to the supply chain. Despite the comprehensive policy measures taken, business investment activity might also decline due to the deteriorating financing conditions and heightened uncertainty. At the same time, demand might be lower than usual throughout the rest of the year, for example in the tourism sector.

95. Against this backdrop, the GCEE is significantly lowering its forecast for aggregate growth for the euro area. Instead of GDP growth, a **contraction of GDP can now be expected in 2020.** Under the baseline scenario, euro area GDP for the full year would drop by –2.1 % rather than increase by 1.1 % as expected in the Annual Report. [TABLE 2](#) The rate of growth would then rise to 2.5 % in 2021. At 0.8 %, the rate of inflation is likely to be lower than last year, not least due to the significant drop in the price of oil. Inflation is likely to rise again to 1.2 % in 2021.

TABLE 2

Gross domestic product, consumer prices and unemployment rates in the euro area

| Country/ country group | Weight in % ¹ | Gross domestic product ² (calendar-adjusted) | | | | Consumer prices (HICP) ³ | | | | Unemployment rate ⁴ | | | |
|--------------------------------------|-----------------------------|--|-------------------|----------------|-------------------|-------------------------------------|-------------------|----------------|-------------------|-------------------------------------|-------------------|--------------|-------------------|
| | | Change on previous year in % | | | | | | | | % | | | |
| | | 2019 | 2020 ⁵ | | 2021 ⁵ | 2019 | 2020 ⁵ | | 2021 ⁵ | 2019 | 2020 ⁵ | | 2021 ⁵ |
| | Update | Diff. to AR 2019/20 ⁶ | | | Update | Diff. to AR 2019/20 ⁶ | | | Update | Diff. to AR 2019/20 ⁶ | | | |
| Euro area⁷ | 100 | 1.2 | - 2.1 | (- 3.2) | 2.5 | 1.2 | 0.8 | (- 0.5) | 1.2 | 7.6 | 7.9 | (0.7) | 8.0 |
| including: | | | | | | | | | | | | | |
| Germany | 29.0 | 0.6 | - 3.1 | (- 3.6) | 3.7 | 1.4 | 0.9 | (- 0.4) | 1.5 | 3.2 | 3.3 | (0.1) | 3.3 |
| France | 20.4 | 1.3 | - 1.4 | (- 2.6) | 2.4 | 1.3 | 0.9 | (- 0.6) | 1.1 | 8.5 | 8.8 | (0.5) | 8.9 |
| Italy | 15.2 | 0.3 | - 3.6 | (- 4.1) | 2.0 | 0.6 | 0.2 | (- 0.7) | 0.8 | 10.0 | 10.5 | (1.2) | 10.6 |
| Spain | 10.5 | 2.0 | - 2.0 | (- 3.9) | 1.7 | 0.8 | 0.7 | (- 0.4) | 1.2 | 14.1 | 14.9 | (1.9) | 15.1 |
| Netherlands | 6.7 | 1.7 | - 1.0 | (- 2.6) | 1.6 | 2.7 | 1.1 | (- 0.8) | 1.5 | 3.4 | 3.6 | (0.3) | 3.7 |
| Belgium | 3.9 | 1.4 | - 1.3 | (- 2.3) | 1.5 | 1.2 | 0.9 | (- 0.7) | 1.4 | 5.4 | 5.6 | (0.1) | 5.5 |
| Austria | 3.3 | 1.5 | - 1.9 | (- 3.1) | 1.0 | 1.5 | 1.3 | (- 0.4) | 1.5 | 4.5 | 4.8 | (0.2) | 5.0 |
| Ireland | 2.8 | 5.5 | 2.9 | (- 0.7) | 3.3 | 0.9 | 0.6 | (0.2) | 0.7 | 5.0 | 5.2 | (- 0.1) | 5.3 |
| Finland | 2.0 | 1.0 | - 0.4 | (- 1.2) | 1.2 | 1.1 | 0.7 | (- 0.5) | 1.0 | 6.7 | 6.8 | (0.1) | 6.8 |
| Portugal | 1.8 | 2.2 | - 0.7 | (- 2.4) | 1.2 | 0.3 | 0.5 | (- 0.3) | 1.0 | 6.6 | 7.3 | (1.6) | 7.3 |
| Greece | 1.6 | 1.9 | - 1.3 | (- 3.4) | 1.4 | 0.5 | 0.6 | (- 0.4) | 1.0 | 17.3 | 16.9 | (1.3) | 16.5 |
| memorandum: | | | | | | | | | | | | | |
| Euro area without Germany | 71.0 | 1.5 | - 1.6 | (- 3.0) | 2.0 | 1.2 | 0.7 | (- 0.6) | 1.1 | 9.2 | 9.6 | (1.0) | 9.7 |

1 – GDP in the year 2018 as a percentage of the GDP of the euro area. 2 – Price-adjusted. Values are based on seasonal and calendar-adjusted quarterly figures. 3 – Harmonised index of consumer prices. 4 – Standardised according to the ILO concept, weighted for the total euro area and euro area without Germany by the labour force of 2018. 5 – Forecast by the GCEE according to baseline scenario. 6 – Difference in percentage points. 7 – Weighted average of the 19 euro area member states.

Sources: Eurostat, own calculations

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96. The economic **outlook involves considerable uncertainty**. If efforts to contain the pandemic are successful soon, the effect on the labour market will likely be comparatively limited. Nevertheless, the downward trend of the unemployment rate in recent years is likely to come to an end for the interim. If it is not possible to largely maintain employment with the policy measures taken and a swift economic recovery, a sharper increase in unemployment could result. The baseline scenario assumes a relatively short downturn in economic activity, followed by a fast recovery. Given the high degree of uncertainty, however, a **far steeper downturn** than that assumed in this scenario cannot be ruled out. There is also the danger that the phase of **economic weakness may last longer**. [↘ ITEMS 63 FF.](#)

2. Coronavirus shock likely to push Germany into recession

97. The German economy has been **on a downward trend for two years**. After the years of comparatively high growth rates and overutilization of capacity in the economy, a period of normalisation was expected. However, weak performance particularly in the manufacturing sector lasted longer than anticipated. In this sector, output has declined further and was recently more than 6 % below the peak reported at the start of 2018. So far, the **service sectors** geared towards the domestic market and the construction industry **have been largely unaffected by the downturn**. While employment in the manufacturing sector has been declining, the labour market has, however, remained robust on the whole.
98. Recently, there were increasing signs of a stabilisation in the manufacturing sector. The outbreak of the **coronavirus** has put an **abrupt** end to any **economic recovery, however**. For one, disruptions in the global supply and value chains can be expected on the supply side, which would particularly affect the manufacturing industry. Secondly, preventive measures in the wake of the increasing spread of the virus in Germany mean a significant loss of revenue in selected service sectors. Further to this, increasing global uncertainty and the turmoil on the financial and capital markets are likely to appreciably dampen investment confidence in particular.

German economy already on downward trend before coronavirus

99. In 2019, GDP grew by 0.6 %. GDP growth was therefore 0.1 percentage points higher than forecast in the 2019 Annual Report. [↘ TABLE 3](#) As expected, **economic growth in the second half was weak**. While Germany managed to narrowly avoid a "technical recession" - i.e. a drop in economic output in two consecutive quarters - due to the increase in the third quarter of 2019, fourth-quarter GDP remained virtually unchanged compared to the previous quarter, however. This results in a small **carry-over effect** of roughly 0.1 percentage points **for 2020**. A carry-over of zero was forecast in the Annual Report.

100. On the expenditure side, the development of imports and investment in machinery and equipment was weaker than forecast in autumn. The **drop in investment in machinery and equipment**, in particular, **was again more pronounced than expected**. While investment in machinery and equipment in 2019 was 0.6 % higher than the previous year thanks to the positive first half year, growth in non-public investment in machinery and equipment dropped considerably by 1.4 % in the course of 2019. In the fourth quarter alone, a drop of 0.8 % on the previous quarter was reported. Reasons for the weak investment growth include a drop in capacity utilisation, falling profitability and deteriorating business prospects, in particular, the heightened uncertainty with regard to trade conflicts, for instance.

TABLE 3

Key economic indicators for Germany

| | Unit | 2018 | 2019 | Forecast ¹ | | |
|---|-------|--------|--------|-----------------------|---|--------|
| | | | | 2020 | | 2021 |
| | | | | Update | Difference to AR 2019 / 20 ² | |
| Gross domestic product ³ | % | 1.5 | 0.6 | - 2.8 | (- 3.7) | 3.7 |
| Final consumption expenditure | % | 1.3 | 1.8 | - 1.5 | (- 2.9) | 3.8 |
| Private consumption ⁴ | % | 1.3 | 1.6 | - 3.0 | (- 4.2) | 4.5 |
| Government consumption | % | 1.4 | 2.6 | 2.3 | (0.2) | 2.0 |
| Gross fixed capital formation | % | 3.5 | 2.6 | - 0.2 | (- 1.9) | 3.0 |
| Investment in machinery & equipment ⁵ | % | 4.4 | 0.6 | - 6.8 | (- 7.6) | 4.3 |
| Buildings | % | 2.5 | 3.9 | 2.7 | (0.5) | 2.2 |
| Other products | % | 4.3 | 2.7 | 3.6 | (1.5) | 3.2 |
| Domestic uses | % | 2.1 | 1.0 | - 1.2 | (- 2.7) | 3.6 |
| Net exports (growth contribution in percentage points) | | - 0.4 | - 0.4 | - 1.7 | (- 1.2) | 0.4 |
| Exports of goods and services | % | 2.1 | 0.9 | - 4.4 | (- 5.9) | 3.6 |
| Imports of goods and services | % | 3.6 | 1.9 | - 0.9 | (- 3.9) | 3.1 |
| Current account balance ⁶ | % | 7.4 | 7.1 | 6.5 | (0.1) | 6.5 |
| Persons employed (domestic) | 1,000 | 44,854 | 45,251 | 45,232 | (-128) | 45,266 |
| Employees subject to social security contributions | 1,000 | 32,964 | 33,521 | 33,769 | (128) | 34,057 |
| Registered unemployment, stocks | 1,000 | 2,340 | 2,267 | 2,393 | (76) | 2,354 |
| Unemployment rate ⁷ | % | 5.2 | 5.0 | 5.3 | (0.2) | 5.2 |
| Consumer prices ⁸ | % | 1.8 | 1.4 | 1.1 | (- 0.5) | 1.7 |
| General government balance ⁹ | % | 1.9 | 1.4 | - 0.8 | (- 1.3) | - 1.0 |
| Gross domestic product per capita ^{10, 11} | % | 1.2 | 0.3 | - 3.0 | (- 3.7) | 3.5 |
| Annual rate of change of GDP, calendar-adjusted ¹¹ | % | 1.5 | 0.6 | - 3.1 | (- 3.6) | 3.7 |

1 – Forecast by the GCEE according to baseline scenario. 2 – Difference in percentage points except for unit 1,000. 3 – Price-adjusted. Change on previous year. Also applies to all listed components of GDP. 4 – Including non-profit institutions serving households. 5 – Including military weapon systems. 6 – In relation to GDP. 7 – Registered unemployed in relation to civil labour force. 8 – Change on previous year. 9 – In relation to GDP; Regional authorities and social security in according to national accounts. 10 – Population development according to medium-term projection of the GCEE. 11 – Price-Adjusted. Change on previous year.

Sources: Federal Employment Agency, Federal Statistical Office, own calculations

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Investment in the construction sector continued to see positive growth in the second half year. For 2019 as a whole, the increase amounted to 3.9 %. A significant expansion in investment, at 2.7 %, was also reported for other products.

101. **Changes in stocks** had a significantly negative impact on GDP growth last year. At –0.9 %, the **negative contribution to growth** was again somewhat more pronounced than assumed in the Annual Report. [↘ TABLE 7 ANNEX](#) Towards the end of the year, business surveys regarding the assessment of stocks of finished goods or order backlogs and the stabilisation of incoming orders suggested that the increased **inventory reduction** in the manufacturing sector could potentially be coming to an end (Wollmershäuser et al., 2019).

Slight reduction in external risks at year end

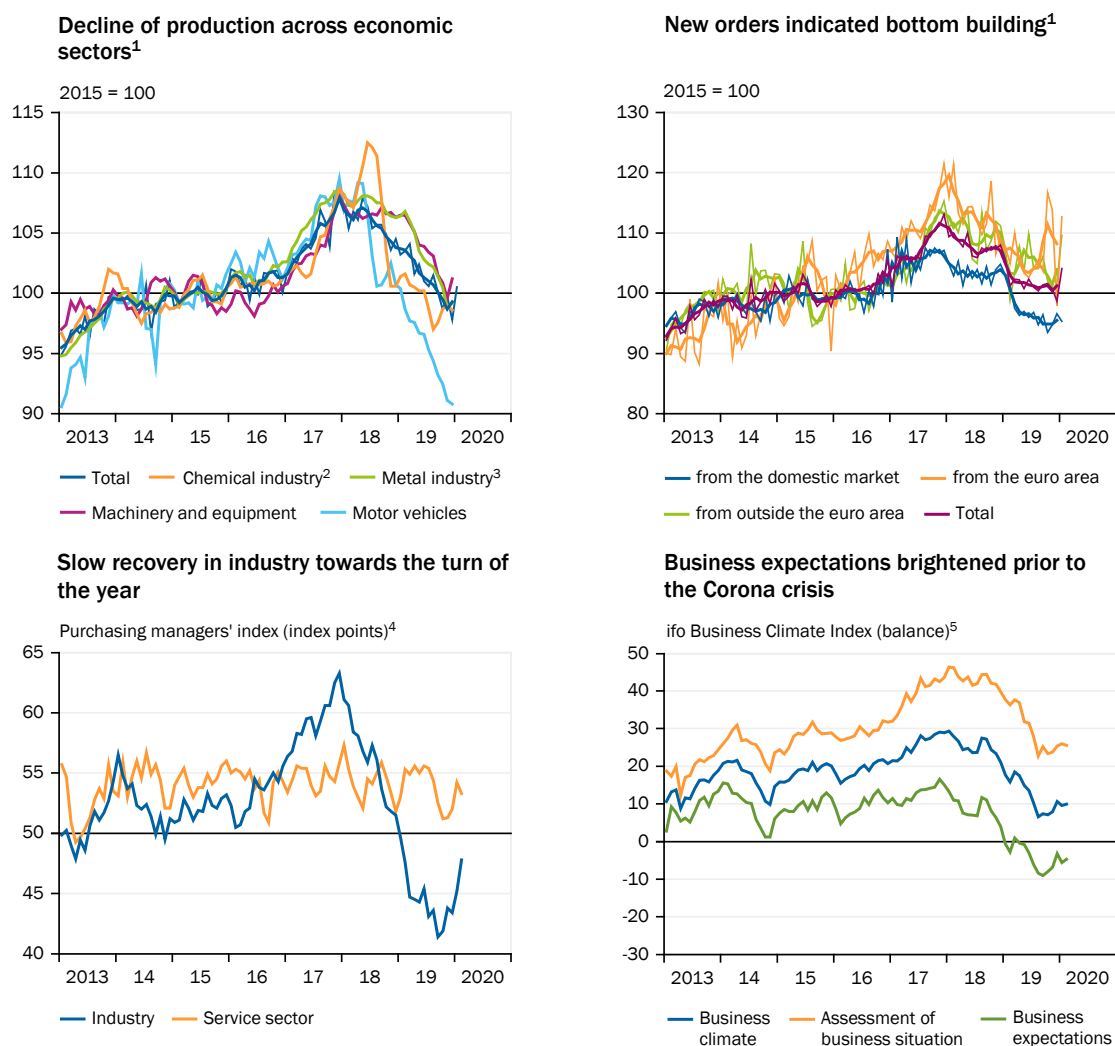
102. **Net exports** also made a negative contribution, reducing GDP growth in 2019 by 0.4 percentage points. The fact that the contribution to growth was less negative than forecast in the Annual Report is largely attributable to the lower growth in imports in the second half year, while development of exports was weak - as expected - particularly in the fourth quarter. **Trade conflicts** and the possibility of a disorderly **Brexit** clouded the external environment last year. **Tensions** in this regard **eased** somewhat in autumn 2019. [↘ ITEM 85](#) Nevertheless, considerable uncertainty remains regarding the relationship with the United Kingdom, for example. Business surveys had indicated **a certain degree of stabilisation in the interim**. [↘ CHART 19 BOTTOM](#) This also applies for export expectations, which have improved since autumn.
103. As expected, both **private consumption** and **government consumption** saw positive growth, increasing by 1.6 % and 2.6 %, respectively, in 2019. Prior to the outbreak of the coronavirus pandemic in Germany, the outlook for consumption was positive. This is confirmed by various survey indicators, such as the GfK consumer confidence index or the European Commission's confidence indicator. However, the figures published so far do not yet capture the impact of the spread of the coronavirus in Germany.

Signs of a bottoming-out in industry were in sight

104. On the output side, the **division** between the **economic** development in the manufacturing industry and the other economic sectors continued last year. **The manufacturing industry** was already in **recession** before the outbreak of the coronavirus pandemic. [↘ CHART 19 TOP LEFT](#) While various one-off factors hampered production in the second half of 2018, particularly in the automotive and chemical industry (GCEE Economic Forecast 2019 items 25 ff.), weak development spread to other sectors in 2019, such as the mechanical engineering sector and the metalworking industry. The reasons for this are likely manifold and include structural changes and challenges for several industries as well as heightened uncertainty owing to trade conflicts and Brexit (GCEE Annual Report 2019 items 7 ff.).

↘ CHART 19

Selected indicators for the economic development



1 – Thin line: Monthly values; bold line: 3-month moving averages. Volume index; seasonally and calendar adjusted values. 2 – Manufacturing of chemical and pharmaceutical products. 3 – Manufacturing of basic metals, manufacturing of metal products. 4 – The purchasing managers' index is based on a monthly survey among purchasing managers and managing directors. 5 – Manufacturing sector, service sector, trade and construction industry.

Sources: ifo, IHS Markit, Federal Statistical Office, own calculations

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105. In winter, there were **tentative signs that the sector was in a phase of bottoming out**. For example, in January 2020 output was up 2.8 % on the previous month. To some extent this was likely a rebound effect after the sharp 1.9 % drop in output in December, resulting not least from the high number of days taken off in December to bridge the gap between the national holidays and the weekend (BMWi, 2020a). The truck toll index also saw positive growth, with substantial increases in January and February.

Incoming orders in the manufacturing industry also showed signs of stabilising towards the turn of the year. Most recently, **incoming orders from abroad**, in particular, **had picked up again slightly**, even though the marked increase in January was also due to an exceptionally high number of large orders (BMWi, 2020b). Total orders are currently still a solid 10 % below the peak level reported at the end of 2017, however. ↘ CHART 19 TOP RIGHT

106. The situation in the service sectors that are more geared towards the domestic economy remained positive. This was particularly true of the **construction industry**, with growth in this sector continuing its **upward trend** according to recent figures. ↘ CHART 20 LEFT The very mild winter is likely to have encouraged building activity until now, while incoming orders indicated consistently strong demand. Construction investment particularly benefits from the extremely favourable financing conditions. ↘ CHART 20 RIGHT While the credit-to-GDP gap is currently close to 0 %, it is on an upward trend (Deutsche Bundesbank, 2019).

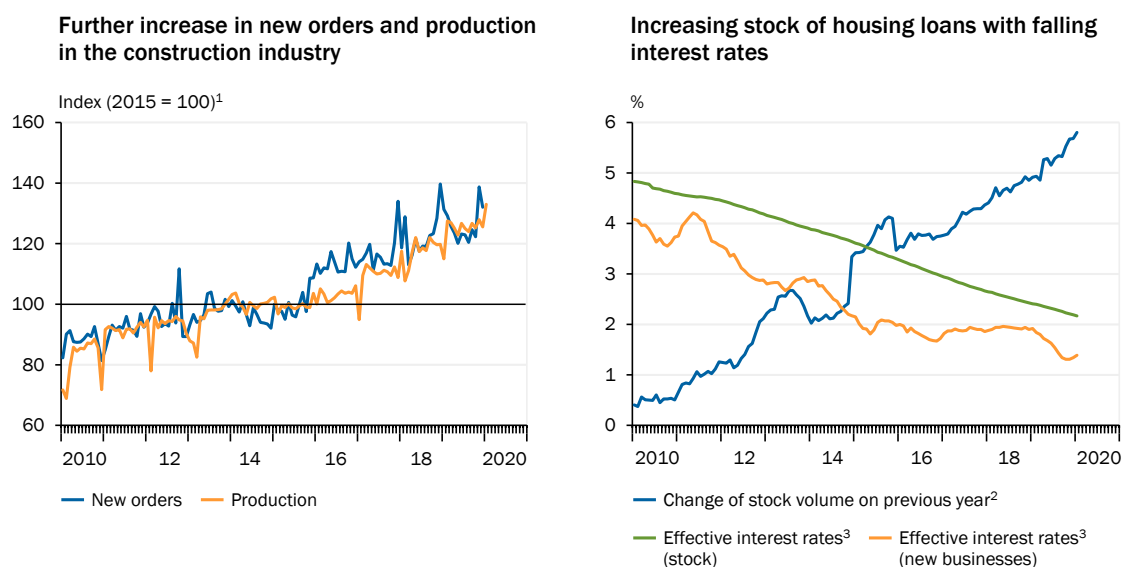
Capacity constraints are likely to stand in the way of an even sharper increase. The forward order book in construction proper has been increasing since 2015, and in the third quarter of 2019 stood at 6.8 months for operations with more than 20 employees. At a current rate of 85 %, **capacity utilisation** is also **at an all-time high** (ifo Institute, 2020). Accordingly, sharp price increases have been reported in this sector over the past few years, but growth dynamics did normalise again somewhat in the course of 2019.

Utilisation components and consumer prices

107. In the baseline scenario, **GDP is expected to contract by 2.8 % in 2020**. ↘ TABLE 4 This equates to a downward revision of 3.7 percentage points on the forecast from autumn 2019. Adjusted for the higher number of working days this year, GDP growth is as low as –3.1 %. On the other hand, in its baseline scenario the GCEE expects **growth of 3.7 % for 2021**. The extremely large carry-over effect of 1.4 percentage points must be taken into consideration in this context.

↘ CHART 20

Economic development in the construction industry and housing loans



1 – Seasonally and calendar adjusted. 2 – Loans to private households across all maturities. 3 – Average interest rates weighted by volume.

Sources: Deutsche Bundesbank, own calculations

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↘ TABELLE 4

Components of the forecast for GDP¹ growth (in %)

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 ² | 2021 ² |
|--|------|------|-------|------|------|-------------------|-------------------|
| Carry-over effect at the end of the previous year ³ | 0.9 | 0.7 | 0.5 | 1.1 | 0.2 | 0.1 | 1.4 |
| Year-on-year fourth quarter rate ⁴ | 1.3 | 1.9 | 3.4 | 0.6 | 0.5 | - 1.8 | 3.2 |
| Annual rate of change of GDP, calendar adjusted | 1.5 | 2.1 | 2.8 | 1.5 | 0.6 | - 3.1 | 3.7 |
| Calendar effect (in percentage points) | 0.2 | 0.1 | - 0.3 | 0.0 | 0.0 | 0.4 | 0.0 |
| Annual rate of change of GDP ⁵ | 1.7 | 2.2 | 2.5 | 1.5 | 0.6 | - 2.8 | 3.7 |

1 – Price-adjusted. 2 – Forecast by the GCEE according to baseline scenario. 3 – Percentage difference between the level of real GDP in the last quarter of year t and the average level of quarterly real GDP in the total year t (Annual Report 2005 Box 5). 4 – Percentage change of the fourth quarter on the fourth quarter of the previous year. 5 – Deviations in sums due to rounding.

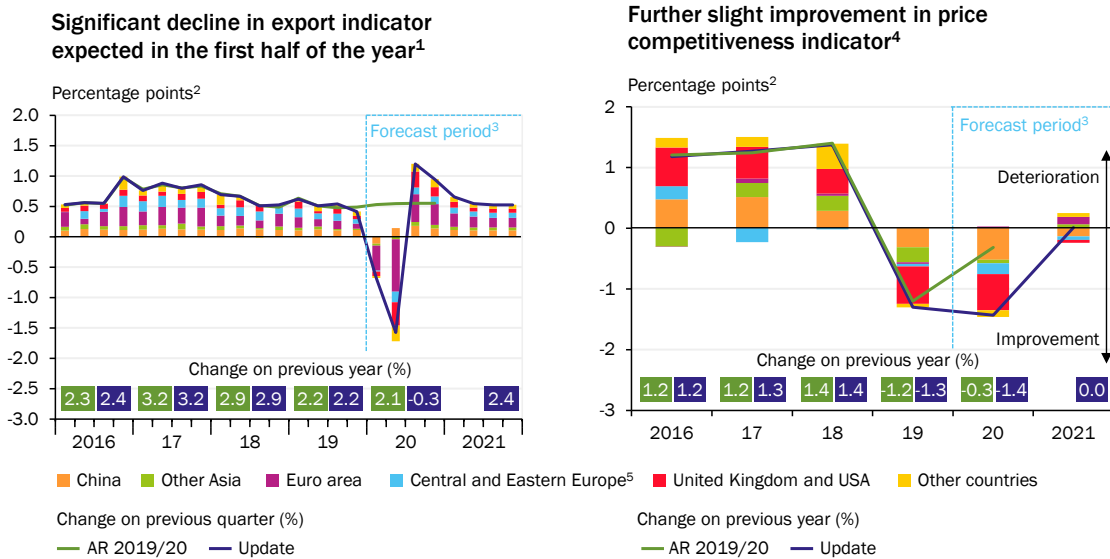
Sources: Federal Statistical Office, own calculations

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108. With regard to the **expenditure components**, a significant drop in private consumer spending can be expected, with a contraction of 3.0% likely in 2020 in the baseline scenario. Next year, catch-up effects are likely to drive growth to 4.5 %. The drop in the price of oil in March 2020 produces positive real economy effects for **domestic demand**. ↘ ITEM 78 The reduced price of oil imports helps companies to offset falling revenues and also lowers the costs of mobility and heating for households. Under the baseline scenario, robust growth in government consumption is expected in both years, at 2.3 % and 2.0 % respectively. Investment in machinery and equipment is only likely to turn the corner in autumn. Due to the sharp decline in the first half year, growth of -6.8 % is expected for the entire year 2020 in the baseline scenario. In 2021, growth could then amount to 4.3 %. With regard to investment in construction, growth rates of 2.7 % and 2.2 % are expected in the baseline scenario. Direct effects of the coronavirus pandemic on the construction sector are not expected.
109. **Foreign trade** is likely to drop sharply in the first half of 2020 in the wake of the coronavirus pandemic. In the third quarter a recovery likely begins to take shape. For the first time since the financial crisis, the GCEE expects negative figures for the **export indicator** - a growth index weighted according to shares in total German exports - in the first half year. ↘ CHART 21 LEFT After the real effective exchange rate fell last year as a result of the slightly weaker euro, **price competitiveness** is not expected to provide a significant impetus in the forecast period. ↘ CHART 21 RIGHT
- At -4.4 %, the decline in exports in 2020 in the baseline scenario is likely to be much more pronounced than the decline in imports, where a value of -0.9 % is expected. In the baseline scenario, strong growth in exports and imports is expected next year, with growth rates of 3.6 % and 3.1 % respectively in Germany. ↘ CHART 29 ANNEX The **current account** is then likely to drop to 6.5 % of the GDP in 2020, which would be primarily attributable to the much smaller trade surplus. This is partially offset by the improvement in the terms-of-trade resulting from the drop in the price of oil. No further change in the current account is expected for 2021.
110. The downside in oil prices is likely to noticeably slow the rise of the **consumer price index (CPI)** this year. The coronavirus pandemic has contrasting additional effects on price developments in 2020. While on the one hand we may see

CHART 21

Expected development of the external environment



1 – The indicator is based on the GDP development of 49 trading partners. The weighting of each country corresponds to its share of German exports. Country definitions as in Table 1. 2 – Growth contributions of the respective regions. 3 – Forecast by the GCEE according to baseline scenario.

4 – Against 37 selected countries; an increase shows a deterioration in price competitiveness of German products. Calculation and country definitions based on the approach of the Deutsche Bundesbank. 5 – Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania.

Sources: Deutsche Bundesbank, national statistical offices, own calculations

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price reductions for certain services on the short term, delays on the production side are likely to drive up prices if demand increases in the second half year as expected. The GCEE therefore expects inflation rates of 1.1 % and 1.7 % in 2020 and 2021, respectively

The introduction of the carbon pricing mechanism for fuels at the start of 2021 is likely to drive up the energy price component of the CPI. The reduction in the EEG surcharge that is sought will contribute to lower inflation. The increase in the air passenger tax and the reduction of sales tax on train tickets are not likely to have a major effect on consumer price inflation. According to calculations of the GCEE based on the final outcome of the Mediation Committee of December 2019 the CPI will therefore increase by additional 0.35 percentage points in the coming year.

3. Robust labour market going into the crisis

111. Labour market performance remained robust in 2019. The number of people in employment increased by almost 400,000 compared with 2018. [TABLE 5](#) While employment growth was weaker than in previous years, the **labour market is in good shape** as it faces the coronavirus pandemic.

Many sectors created jobs over the course of 2019. Job growth was particularly strong in the healthcare as well as the information and communication sectors.

Given the slowdown in the manufacturing sector, the fall in here has been – compared to past downturns – limited so far (Weiske, 2020). [↘ CHART 22 LEFT](#) Only the **number of temporary workers has declined** considerably.

- 112.** Following a slight increase in **unemployment** in the second and third quarter of 2019, unemployment fell again in the last quarter of 2019. Overall, 73,000 fewer people were registered as unemployed in 2019 than in the previous year. [↘ TABLE 5](#) However, weak industry performance appears to have affected unemployment at a regional level. **Unemployment increased particularly in regions in which the manufacturing sector plays an important role.** [↘ CHART 22 RIGHT](#)
- 113.** Despite the sudden economic downturn due to the coronavirus pandemic, many employers will likely try to **retain their staff**. This will make it easier for companies to quickly become fully operational again as soon as the precautionary measures are reduced and consumer demand increases. In addition, partial shortages of skilled labour in the past have kept the number of vacancies and the lead time to fill a vacancy at a persistently high level. To avoid time-consuming and costly efforts to fill vacancies in the near future, it is likely to make sense for many companies to continue to employ workers even if incoming orders are down.

[↘ TABLE 5](#)

Labour market in Germany

1,000 persons

| | 2018 | 2019 | Forecast ¹ | | | | | |
|--|--------|--------|-----------------------|---------------------|--------|--|---------------------|--------|
| | | | 2020 | | 2021 | 2020 | | 2021 |
| | | | Update | Diff. to AR 2019/20 | | Update | Diff. to AR 2019/20 | |
| Annual averages | | | | | | Change on previous year in %; diff. in percentage points | | |
| Labour force ² | 46,177 | 46,476 | 46,586 | (1) | 46,575 | 0.2 | (- 0.1) | - 0.0 |
| Unemployed persons ³ | 1,468 | 1,376 | 1,453 | (64) | 1,430 | 5.6 | (4.4) | - 1.6 |
| Commuter balance ⁴ | 145 | 151 | 100 | (- 65) | 121 | - 34.1 | (- 39.1) | 21.4 |
| Employed persons ⁵ | 44,854 | 45,251 | 45,232 | (- 128) | 45,266 | - 0.0 | (- 0.3) | 0.1 |
| Employees subject to social security contributions | 32,964 | 33,521 | 33,769 | (128) | 34,057 | 0.7 | (0.1) | 0.9 |
| Exclusively marginally employed ⁶ | 4,671 | 4,577 | 4,439 | (- 104) | 4,307 | - 3.0 | (- 1.6) | - 3.0 |
| Registered unemployed persons | 2,340 | 2,267 | 2,393 | (76) | 2,354 | 5.5 | (3.6) | - 1.6 |
| Underemployment excluding short-time work ⁷ | 3,285 | 3,200 | 3,359 | (30) | 3,304 | 5.0 | (1.6) | - 1.6 |
| Short-time workers (Employment equivalence) | 43 | 47 | 308 | (262) | 47 | 556.6 | (564.3) | - 84.7 |
| Unemployment rate (FEA) ^{8,9} | 5.2 | 5.0 | 5.3 | (0.2) | 5.2 | 0.3 | (0.2) | - 0.1 |
| Unemployment rate (ILO) ^{9,10} | 3.4 | 3.2 | 3.3 | (0.1) | 3.3 | 0.2 | (0.1) | - 0.1 |

1 – Forecast by the GCEE according to baseline scenario. 2 – Persons in their working age with residence in Germany (national concept); as defined by the national accounts systems. 3 – ILO concept. 4 – Difference of employed workers commuting from foreign countries to Germany and those commuting from Germany to foreign countries. 5 – Employed persons in Germany independent of their residence (domestic concept). 6 – Employed workers with a wage up to 450 euro. 7 – According to the concept of underemployment by the Federal Employment Agency. 8 – Registered unemployed persons in relation to civilian labour force. 9 – Yearly averages in %; change on previous year in percentage points. 10 – Unemployed persons in relation to the labour force, in each case persons in private households aged from 15 to 74 years.

Sources: Eurostat, Federal Employment Agency, Federal Statistical Office, own calculations

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Short-time work is an instrument that allows employers to reduce their labour input and personnel costs in line with their needs. In the second quarter of 2020, the number of those claiming benefits for short-time work is likely to significantly exceed the **record level** seen in 2009 [↪ ITEM 131](#) not least due to the recently announced easing of requirements for applicants. [↪ ITEM 48](#)

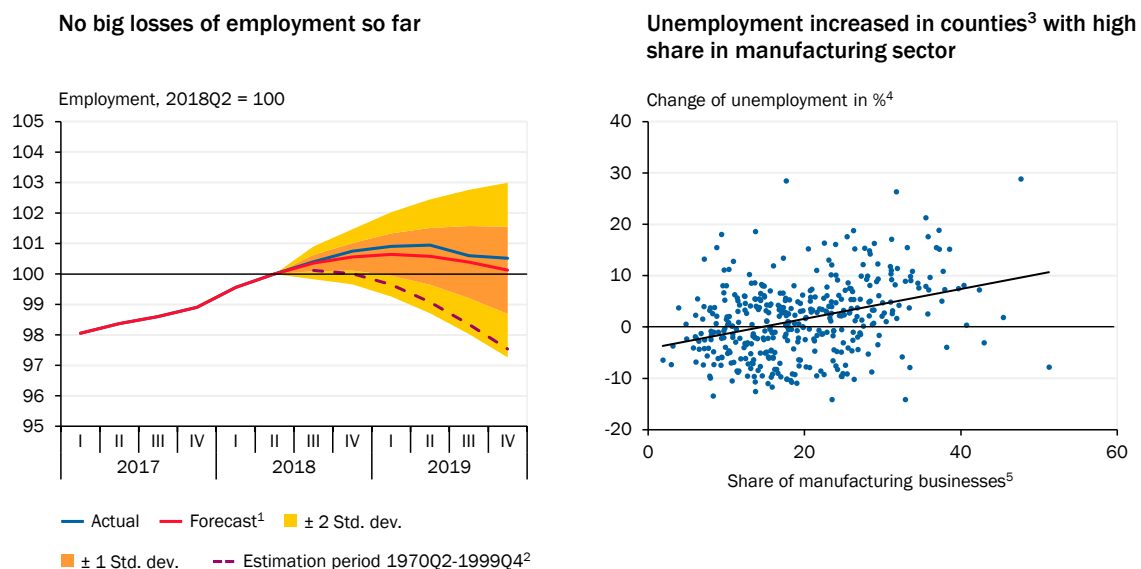
- 114. In addition to a reduction of hours per worker, the GCEE expects in its baseline scenario that the **number of people in employment will fall** in the second and third quarter of 2020. Despite government assistance [↪ ITEMS 143 FF.](#), company closures will not be entirely avoidable and the willingness of businesses to hire is likely to decline across the board. In the baseline scenario, employment will decrease only marginally (–20,000 persons) in 2020 due to a positive carry-over effect. Unemployment is likely to rise by around 125,000 persons. The unemployment rate would then stand at 5.3 %. [↪ TABLE 5](#)

The forecast, however, is subject to large uncertainty. The effects of the nationwide restrictions to public life can hardly be compared to previous decreases in demand. Additionally, it is unclear at this point in time how much the newly introduced economic policy measures [↪ ITEMS 143 FF.](#) can stabilize labour demand. Furthermore, if the precautionary measures remain in effect longer than the basic scenario assumes [↪ ITEM 50](#), the labour market is likely to come under further pressure and unemployment will increase more than shown here.

- 115. After wages have been increased much stronger than productivity in recent years, **wage growth** is likely to be smaller in this year and next year. In light of the

[↪ CHART 22](#)

Current development of employment in the manufacturing sector



1 – Growth of the employment in the manufacturing sector on the previous quarter regressed on: Constant, lagged growth of employment and growth of gross value added in the manufacturing sector on the previous quarter (contemporary and lagged). Up to two lags are included into the estimation equation. Estimation period: 2000Q1-2017Q4. Forecast from 2018Q3 onwards given the actual development of the gross value added. 2 – After 1991: Germany; before: former federal territory. 3 – 401 counties and urban municipalities. 4 – December 2018 to December 2019. 5 – Share in the total gross value added in 2017.

Sources: Federal Employment Agency, Federal Statistical Office, Regional Accounts, Weiske (2020)

economic downturn in the first half year, it is likely that – similar to the deal in the metal industry – the safeguarding of jobs will play a central role in upcoming wage negotiations. Effective wages are expected to increase by 1.9 % in 2020 and 2.4 % in 2021.

4. Public budgets move into deficit

116. At €49.8 billion (1.4 % in relation to GDP) the **general government budget balance** in 2019 was at the second-highest level since reunification and was slightly higher than forecast in the GCEE Annual Report 2019/20. [↘ TABLE 6](#) In light of the impact of the coronavirus pandemic on the economy and the substantial

↘ TABLE 6

Public revenues and expenditures and fiscal indices¹

| | 2019 | Forecast ² | | | Forecast ² | | |
|---|----------------|-----------------------|----------------------|----------------|-----------------------|----------------------|----------------|
| | | 2020 | | 2021 | 2020 | | 2021 |
| | | Update | Diff. to AR 2019 /20 | | Update | Diff. to AR 2019 /20 | |
| | | Billion euro | | | % ³ | Percentage points | % ³ |
| Total revenues | 1,608.6 | 1,618.5 | (- 19.6) | 1,668.6 | 0.6 | (- 1.8) | 3.1 |
| Taxes | 825.8 | 820.1 | (- 19.4) | 857.8 | - 0.7 | (- 2.8) | 4.6 |
| Social contributions | 597.8 | 606.7 | (- 6.6) | 619.3 | 1.5 | (- 1.6) | 2.1 |
| Other revenues ⁴ | 184.9 | 191.8 | (6.4) | 191.5 | 3.7 | (2.1) | - 0.1 |
| Total expenditures | 1,558.8 | 1,645.7 | (24.0) | 1,706.0 | 5.6 | (1.0) | 3.7 |
| Intermediate consumption | 179.8 | 189.0 | (1.7) | 194.5 | 5.1 | (- 0.1) | 2.9 |
| Compensation of employees | 271.7 | 281.4 | (3.6) | 288.8 | 3.6 | (0.3) | 2.6 |
| Property income (including interest) payable | 27.5 | 25.0 | (- 2.4) | 23.8 | - 9.3 | (- 3.7) | - 4.6 |
| Subsidies payable | 31.7 | 35.6 | (3.6) | 40.9 | 12.2 | (9.8) | 14.9 |
| Social benefits other than social transfers in kind | 546.2 | 577.6 | (6.8) | 599.3 | 5.8 | (1.2) | 3.8 |
| Social benefits in kind | 299.7 | 317.5 | (8.1) | 328.0 | 5.9 | (2.0) | 3.3 |
| Gross capital formation | 85.3 | 90.2 | (0.7) | 97.1 | 5.8 | (0.0) | 7.6 |
| Other expenditures ⁵ | 116.9 | 129.3 | (1.9) | 133.5 | 10.6 | (- 0.4) | 3.3 |
| Net borrowing/net lending | 49.8 | - 27.2 | (- 43.6) | - 37.4 | x | x | x |
| Fiscal indices (%)⁶ | | | | | | | |
| Public spending ratio ⁷ | 45.4 | 48.1 | (2.2) | 47.2 | x | x | x |
| Tax ratio ⁸ | 24.4 | 24.3 | (0.2) | 23.9 | x | x | x |
| Tax and contribution ratio ⁹ | 40.6 | 40.9 | (0.5) | 39.9 | x | x | x |
| Net borrowing/net lending | 1.4 | - 0.8 | (- 1.3) | - 1.0 | x | x | x |
| Debt-to-GDP ratio ¹⁰ | 58.9 | 60.5 | (3.8) | 58.6 | x | x | x |

1 – National accounts (nominal values). 2 – Forecast by the GCEE according to baseline scenario. 3 – Change on the previous year in %.

4 – Sales, other subsidies on production, property income, other current transfers, capital transfers. 5 – Other current transfers, capital transfers, other taxes on production, and net acquisition of non-financial non-produced assets. 6 – In relation to GDP. 7 – Total expenditures. 8 – Taxes including inheritance tax and taxes entitled to the EU. 9 – Taxes including inheritance tax and taxes entitled to the EU, and actual social contributions. 10 – Forecast of the GCEE for the general government gross debt as defined in the Maastricht Treaty.

Sources: Federal Statistical Office, own calculations

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government fiscal measures, **budget balances** are expected to **worsen** considerably this year and next year. For 2020, the GCEE expects a **deficit** of €2772.2 billion (–0.8 % in relation to GDP) and a deficit of €37.4 billion for 2021 (–1.0 % in relation to GDP).

117. The forecast is based on the baseline scenario ↘ ITEM 61 and involves considerable uncertainty. Even **larger deficits** can be expected in **2020** if the economy develops as depicted in the **risk scenarios**. ↘ ITEMS 63 FF. Further to this, the Federal Government has introduced numerous measures, such as the deferral of tax payments, easier access to short-time work allowance and extensive liquidity support for businesses, whose impact on the budget **depends on how the coronavirus pandemic will evolve**, and cannot be estimated at present. ↘ ITEMS 126 FF. This also applies to the measures recently planned by the Länder and the supplementary budget of the Federal Government, so, such that these could be taken into account in the calculations.
118. **Irrespective of the coronavirus pandemic, additional discretionary fiscal policy measures** amounting to 0.5 % of GDP were planned for 2020. These measures include relief with regard to income tax and unemployment insurance and a reduction in the applicable VAT rate for train tickets issued by Deutsche Bahn. Additional expenditure can be expected, among other things, within the framework of the Energy and Climate Fund. It can therefore be assumed that these measures, in total, will place a significant burden on public budgets in 2020.
119. The anticipated dynamic in tax revenue in **2021** hinges critically on the **extent and speed of the economic recovery process**. While the "long U" risk scenario is likely associated with a weaker pace of revenue growth, a much faster growth in tax revenue is assumed in the "pronounced V" scenario than in the baseline scenario. Furthermore, additional discretionary fiscal policy measures worth 0.7 % of GDP are expected in 2021. On the revenue side, these include the **partial abolition of the solidarity surcharge** and the periodical adjustment to income tax in order to reduce bracket creep. Additional expenditures can be expected from the increase in the child benefit, spending within the framework of the Energy and Climate Fund and the recent decision to **increase public investment**. The additional income expected from the carbon pricing system will in all likelihood be offset by the loss of revenue resulting from the reduction in the EEG surcharge and the additional expenditure due to the increase in the tax allowance for commuters.

V. ECONOMIC POLICY MEASURES

KEY MESSAGES

- Economic policy measures should be based on five criteria: protecting the health, communicating clearly, maintaining economic capacities, stabilising income and making good use of time.
- The extensive measures established by the federal government to support employees and companies are to be welcomed and come at the right time.
- Policy makers could communicate their criteria for public health restrictions in a normalisation strategy in order to stabilise expectations and to reduce uncertainty.

120. Economic policy will help **cushion** the **economic effects** of the coronavirus pandemic. Extensive packages of measures have already been announced and implemented in many countries. In addition, many proposals are currently under discussion (Baldwin and Weder di Mauro, 2020a, 2020b; Bofinger et al, 2020; Demertzis et al., 2020; IMF, 2020; Odendahl and Springford, 2020; OECD, 2020b). In the following the conducted measures and further options are discussed in the context of the areas and groups they will affect.

1. Health and prevention

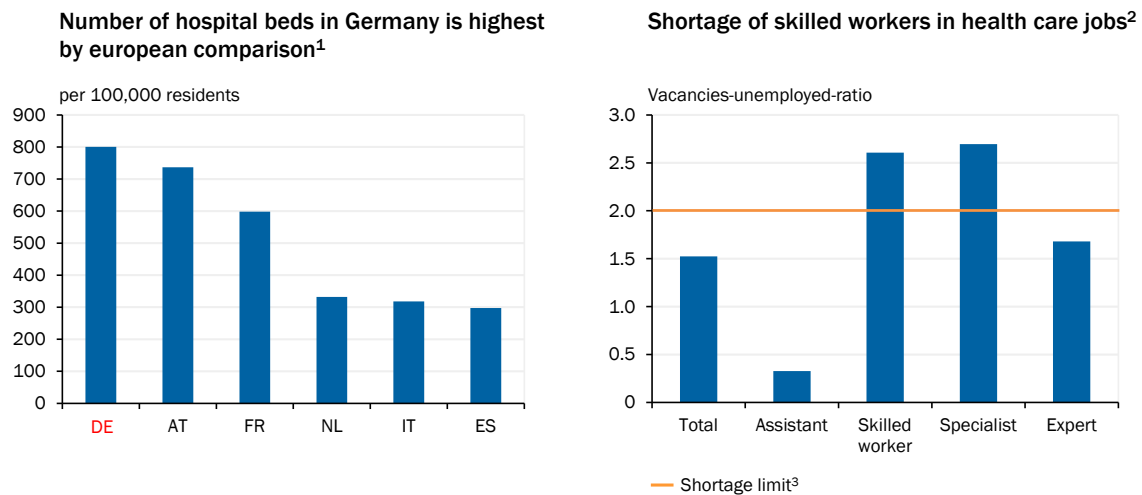
121. Efforts are focusing in particular on the provision of adequate **resources** in the area of **health and prevention**. Sufficient financial resources must be made available for the necessary equipment and facilities to contain the corona pandemic.

The **costs** of the coronavirus pandemic for the German health system are **difficult to quantify**. Haas et al. (2016) estimate the costs to the health system as a result of influenza in the winter of 2012 and 2013 at around €366 million with an estimated 1.16 million patients identified. Meanwhile, Szucs et al. (2001) estimate that the costs of medical treatment of influenza patients by doctors and hospitals, combined with the costs of medication, amounted to 600 million German Mark (equivalent to approx. €307 million) in 1996. Due to the higher proportion of patients requiring intensive care [▶ ITEM 23](#) and the already stronger preventive hygiene measures, the costs of the corona pandemic may be much higher for a similar number of patients. Higher patient numbers and precautionary quarantine measures for persons in need of care are additional factors that cannot be estimated and could lead to even higher costs.

122. While many proposals for providing resources in the healthcare sector have already been implemented, the question of how the increased costs of the coronavirus pandemic and the new measures introduced are to be funded still remains inconclusive. For hospitals, health insurance funds as well as medical personnel, reducing uncertainty in this area would be important as the basis for their decisions. A lack of data also impedes decision-making on restrictive measures. While

↘ CHART 23

Hospital endowment and health personnel



1 – Data: 2017. DE-Germany, AT-Austria, FR-France, NL-Netherlands, IT-Italy, ES-Spain. 2 – Data: February 2020. Medical and healthcare, emergency rescue service and obstetrics. 3 – According to the definition of the Federal Employment Agency.

Sources: Eurostat, Federal Employment Agency

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many countries have a unified database of laboratory tests, this does not yet exist in Germany. ↘ ITEM 12

123. According to the OECD (2020a) Germany has the highest hospital bed capacity in Europe, with 800 beds per 100,000 inhabitants. It also has the fourth highest capacity worldwide, after Japan, South Korea and Russia. ↘ CHART 23 LEFT For **more severe cases**, Germany has 34 intensive care beds per 100,000 inhabitants (GBE, 2017). However, a lack of **qualified nursing staff** could prevent many intensive care beds from being used (Karagiannidis et al., 2019). In Germany there is especially in the area of highly trained nursing staff a lack of skilled workers ↘ CHART 23 RIGHT The GCEE has previously discussed in detail the skills shortage that exists in the health service (GCEE Annual Report 2018 items 811 ff.).
124. The Federal Government and the *Länder* have **introduced many measures** to prepare the **capacities** available in the health system for the **corona-virus pandemic**. For example, the Federal Minister of Health has promised a bonus payment to hospitals that can make additional intensive care beds available temporarily (Deutsches Ärzteblatt, 2020b). The idea behind this measure is to have the statutory health insurance funds bear the costs of care provided in areas covered by them so that the hospitals themselves do not end up in deficit. In addition, temporary intensive care capacity is to be created in rehabilitation facilities, hotels and halls. A new online register of available beds with ventilators has been set up in order to aid planning of intensive care capacities (DIVI, 2020). Together with the Federal Office of Bundeswehr Equipment, Information Technology and In-Service Support (BAAINBw), the procurement offices of the Federal Ministry of Finance and the Federal Ministry of the Interior have now centralised the procurement of medical equipment (BMVg, 2020).

125. Various measures have already been taken to **supplement hospital staff**. For example, medical professionals will be reactivated from retirement. Financial incentives to take on overtime are being put in place, students with medical training are being involved in patient care and collaboration with the Armed Forces is being sought. Focusing medical capacity on severe cases requires restrictions on patients with less critical ailments, e.g. by having planned surgeries postponed. In the nursing sector, bureaucratic regulations such as documentation requirements and staffing ratios, will be temporarily suspended. Inspectors and consultants of the Health Insurance Medical Service (MDK) will be employed as nursing staff and doctors (Deutsches Ärzteblatt, 2020c).
126. At **EU level**, an initial package of measures amounting to €25 billion has been made available from structural funds to combat the coronavirus pandemic (European Commission, 2020a). In addition to small and medium-sized enterprises and the labour market, the health service is an area in particular need of special support. In a second announcement, the European Commission (2020b) has promised a **package of measures** to the value of **€37 billion**. However, this largely consists of existing resources from structural funds.

Public health measures to contain the spread of the virus will have **positive spillover effects within the EU**. The EU Commission's crisis unit (European Commission, 2020c) is currently limited to efforts to coordinate aid, procurement and protective measures. EU endeavours to ensure the free movement of goods are important with regard to medical products. European coordination could ensure, in particular, that unilateral action by individual countries is prevented, as this would be detrimental to containing the spread of the coronavirus at a European level. A general restriction of the export of protection masks is not constructive. On the one hand, firstly an adequate supply of surgeries, clinics and nursing institutions with masks and clothing should be secured in the case of scarcity. On the other hand, quick precautions should be undertaken in order to achieve a quick extension of production.

2. Absorbing income losses for wage earners

127. It is essential to secure consumer demand, among other things, if the economy is to be revived as quickly as possible following the coronavirus pandemic. Income stabilisation is vital in this regard. **Many institutions** exist in Germany for this purpose, which operate independently of discretionary policy measures.

Unemployment insurance and short-time work limit income losses for employees and act as **automatic stabilisers** in times of low labour demand. Sick pay and wage compensation serve to protect households when people are unable to work due to illness or quarantine.

128. However, the current situation is putting pressure on the **self-employed** in particular. They generally face a higher **income risk** and experience sudden loss of earnings directly as a result of restrictions on public life. The **closure of child-**

care facilities also presents a challenge to working parents, who now find themselves faced with the problem of coordinating their childcare arrangement. They risk losing income if they are unable to respond flexibly and continue working in the changed circumstances

Existing instruments for employees

129. If an employee who is subject to mandatory social insurance is laid off and is ultimately unemployed, **unemployment benefits (Arbeitslosengeld I, ALG I)** covers 60% of her net pay. For those with children, the replacement rate rises to 67%. The duration of this insurance depends on the age of the employee and how long she has been in employment and subject to social insurance. Provided that the qualifying period is satisfied, the **benefit** is usually paid **for twelve months**. This is extended to 24 months for older employees. If people remain unemployed after this period, they switch to the income support payment referred to as Arbeitslosengeld II.
130. Employers can use **short-time work** to avoid displacements during phases when order levels drop. Depending on the extent of loss in labour demand, employees may reduce their employees' working hours, thereby reducing their personnel costs in the very short term. The resulting flexibility can have a stabilising effect on the labour market (GCEE Annual Report 2009 box 13; GCEE Annual Report 2019 item 103) Employees on reduced working hours receive a **short-time allowance** (Kurzarbeitergeld, *KuG*), which compensates them for 60% (or 67% for those with children in their household) of their net income loss. As a result, their purchasing power remains to a large extent unchanged. The short-time allowance instrument is normally limited to a period of twelve months to prevent it from slowing structural change.

In 2009 and 2010, two years when short-time work was used very extensively, this instrument was applied in particular by companies in the manufacturing industry and construction In the spring of 2009, **around 3% of all employees subject to mandatory social insurance were working short-time hours**. Despite this, the average intensity of short-time work was moderate. Accordingly, the duration of short-time work and the reduction of hours were both on a relatively low level for most short-time workers in 2009 and 2010. [↘ CHART 24 LEFT](#) The extent to which wage losses will be higher or lower in the current situation depends to a large degree on the duration and intensity of the economic slowdown. Internet searches, which can be used as an early indicator of short-time allowance claims, currently suggest that there will be more claims than in 2009.

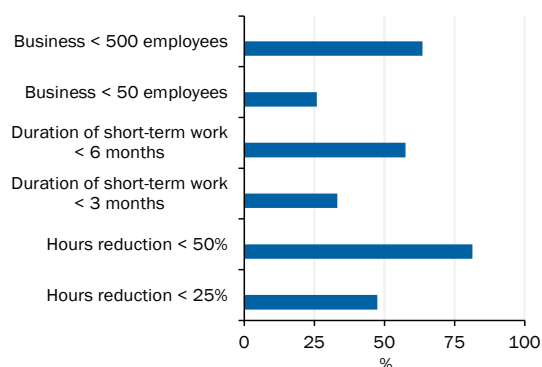
[↘ CHART 8 BOTTOM RIGHT](#)

131. In light of the coronavirus pandemic and its potential economic consequences, resolutions have already been passed to facilitate **access to the short-time allowance** (Federal Government, 2020a). Now, companies meet the requirements for the short-time allowance if the labour demand of the firms drops by at least 10%. Furthermore, those employed on a temporary basis through employment agencies now also qualify for the short-time allowance. In addition, the social insurance contributions of affected employees will be covered in full by the Federal

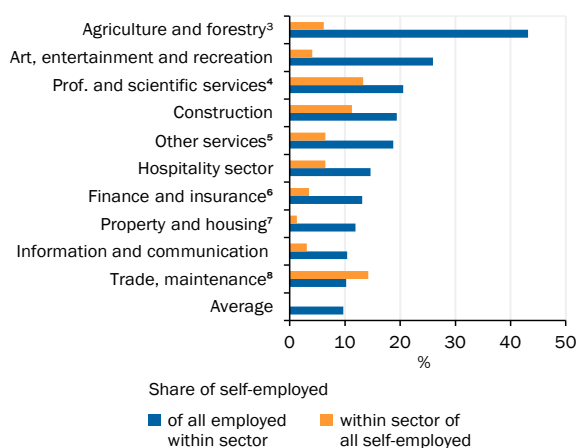
↳ CHART 24

Claiming of short-term work and distribution of self-employed persons

Characteristics of short-term workers in 2009 and 2010¹



Share of self-employed persons in selected economic sectors² in 2017



1 – Averages of the period January 2009 to December 2010 are depicted. 2 – Values include family workers. Only those economic sectors are shown whose share of self-employed in the employed persons of the sector is above the average. In 2017, around 4,3 million persons were self-employed or family workers. According to the classification of economic sectors, 2008 edition (WZ 2008). 3 – Agriculture, forestry and fishing. 4 – Professional, scientific and technical activities. 5 – Provision of other service activities. 6 – Provision of financial and insurance activities. 7 – Property and housing. 8 – Trade, maintenance and repair of motor vehicles.

Sources: Federal Employment Agency, Federal Statistical Office

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Employment Agency and the requirement for negative working hours balances to be established can be dispensed with in full or in part.

Prior to these reforms, companies were required to pay social insurance contributions for employers and employees during short-time working. They were also required to furnish evidence that other, company-internal measures to reduce work load had already been exhausted. These measures have thus **significantly facilitated and accelerated access to the short-time allowance**.

132. These measures to simplify access to the allowance, which have been provisionally introduced until the end of 2020, were implemented in response to the rapid development of the situation over the past number of weeks. Depending on the intensity and duration of the short-time work, the period of short-time work could be used by employees for further training of their employed. Existing funding for **further training** could be extended for this purpose. Digital offerings and direct information for employers may serve to facilitate participation in further training measures.
133. In the case of company insolvency, **insolvency payments (Insolvenzgeld)** can be used to pay employees any **unsettled wage entitlements**. In this way, insolvency payments also have a macroeconomic stabilisation function if the number of insolvency increases during phases of economic slowdown. The period of wage compensation is limited to the three months prior to the opening of insolvency proceedings, the rejection of the application of insolvency or the complete cessation of all business operations. The amount corresponds to the employee's net wage, calculated as gross wage minus social insurance contributions. The

gross wage on which the payment is based is limited by the income ceiling of the unemployment insurance.

The insolvency payment is **tax-free**. However, it is subject to the progression proviso of the Income Tax Act, which means that it is taken into account when calculating the employee's personal annual income tax burden. Insolvency payments are funded by the monthly **insolvency levy** paid by employers. This amount of this levy is legally defined as 0.15% of gross wages. However, a legal ordinance has reduced this level to 0.06% for the present. If there is still a prospect of continuing an struggling business after the insolvency proceedings, the insolvency payment can be paid by means of pre-financing before the formal application for insolvency has been made in order to maintain business operations and protect jobs.

Additional options for providing relief within the framework of insolvency payments can be examined, given the increasing economic strain due to the coronavirus. For example, an **extension of the benefit** for employees could be investigated. This could be given a particular consideration for the sectors affected most severely by the coronavirus and its consequences. Further relief could be provided to employees by temporarily **suspending the progression proviso** for 2020. The **obstacles to pre-financing** of insolvency payments could be reduced, not least by simplifying procedures, and this would help maintain the capacities of businesses that have a high probability to continue trading.

134. In the event of illness, the employee who is unable to work receives a full wage from the employer for the first six weeks (**sick pay**). Provisions for **sickness benefit** become effective as of day 43 of the illness. This is intended to replace 70% of the employee's gross wage but is capped at 90% of net pay.

If **quarantine** is required, the **Protection against Infection Act (Infektionsschutzgesetz)** envisages the same wage replacement rates and timeframe for quarantine as would apply in the case of illness. If an employee becomes ill, the employer is obliged to continue paying wages in the first six weeks. The U1 levy system provides partial cover for continuing personnel costs but only in the case of businesses with fewer than 30 employees. It is only sickness benefit that is an insurance benefit. If an employee is in quarantine and unable to work as a result, the local health authority will pay the employee's wages in accordance with the Protection against Infection Act.

Self-employed and freelancers

135. **Self-employed individuals and freelancers** who are required to go into quarantine will also be compensated. They are similarly entitled to sickness benefit. However, unless they have been making voluntary contributions for unemployment insurance, they are not entitled for unemployment benefits. The **short-time work allowance** is similarly **unavailable to self-employed and freelancer** personally. While they are free to choose their own working hours, they will nonetheless suffer a direct loss of income as a result. This means that the self-employed are impacted directly by the sudden collapse of macroeconomic demand.

Self-employed individuals and the family members who assist them in their businesses make up around 9 % of the labour force (approx. 4.2 million people). However, the pandemic is likely to have heterogeneous effects on this group. For example, the **arts, entertainment and recreation** sector will be affected directly by the cancellation of events. The proportion of self-employed workers in this sector is particularly high at 26 %. In absolute terms, however, this group is relatively small (around 175,000 individuals). In the **retail and hospitality sectors**, where shops and restaurants are required to remain closed as a precautionary measure, around 600,000 and 277,000 individuals, respectively, are registered as self-employed. [↘ CHART 24 RIGHT](#) Other sectors of the economy with a large number of self-employed individuals in absolute or relative terms are likely to be initially affected indirectly by the pandemic and associated precautionary measures. These include agriculture, construction and technical service providers.

136. In principle, self-employed individuals have to rely on **personal savings to cover loss of income** due to a decline in demand. In this context, the progressive tax system acts as an automatic stabiliser – if profits fall, the average tax burden decreases disproportionately. If profits drop below subsistence level, and the private savings are below a legally stated spare wealth (Schonvermögen), self-employed individuals may apply for social security benefits in accordance with Book II of the German Social code (SGB II) in order to secure their livelihood.

Federal minister of labour and social affairs Hubertus Heil announced that the check for private savings and for an appropriate size of the dwelling will be suspended in case of an application for income support. Accordingly, self-employed do not need to exhaust their wealth until the defined line of spare wealth in order to be eligible for income support. Thereby, the savings of the self-employed should diminish slower.

137. In addition, various measures to offer companies assistance have already been agreed. Self-employed individuals will benefit from these benefits: Guarantees and loans [↘ ITEMS 144 FF.](#) as well as tax deferrals [↘ ↘ ITEMS 148 FF.](#) can help to maintain liquidity in the short term. Direct monetary transfers via a sovereign wealth fund [↘ ITEMS 153 FF.](#) are intended to cover direct losses of revenue.

Loss of work due to a lack of childcare

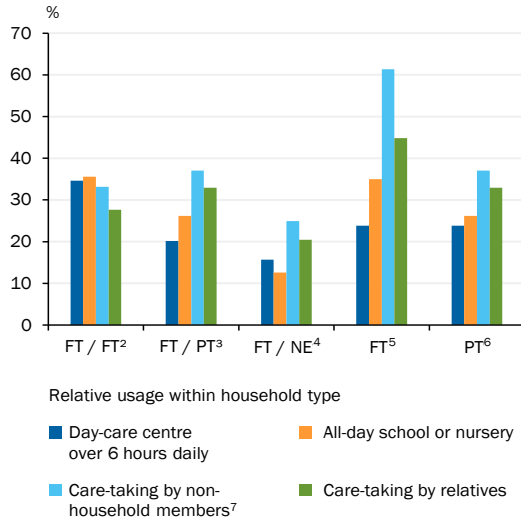
138. The precautionary **closure of childcare facilities and schools** presents a challenge to working parents, who have been forced to make new childcare arrangements. Single parents in particular are facing major **coordination problems** in this regard. The emergency childcare services that have been established in many places are only available to parents who belong to the group of essential workers. [↘ ITEM 22](#) The situation is compounded by the fact that grandparents, who represent an important source of support in daily childcare, are part of the group most at risk from infection with the virus and therefore should not be involved in minding their grandchildren at present. [↘ CHART 25 LEFT](#)

CHART 25

Child care and availability of teleworking

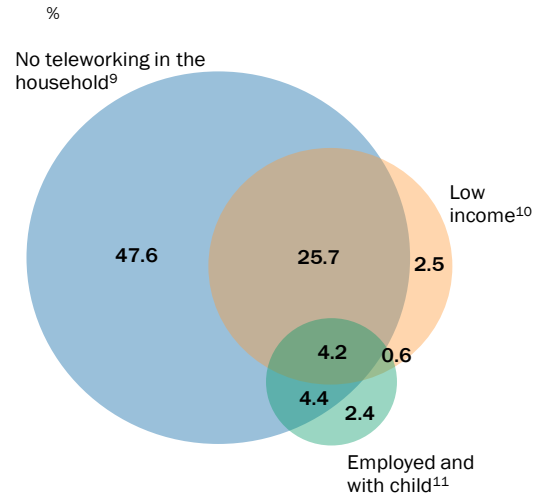
Usage of selected child care options depending on parents' employment type¹

Households with at least one child younger than 13 year in 2018



Venn diagram for employed households with children, availability of teleworking and low income⁸

Households with at least one employed person in 2014



1 – Calculations use weighting factors in order to achieve representativity. Only those households are considered whose head of the household is between 18 and 65 years old. 2 – Both parents fulltime employed. 3 – Both parents employed, one parent only part-time. 4 – One parent is employed (fulltime), the other not. 5 – Single parent fulltime employed. 6 – Single parent part-time employed. 7 – As non-household members are considered childminders, friends as well as paid care persons. 8 – Values based on the SOEP wave of the year 2014. Population are all households with at least one employed person. Head of the household must be between 18 and 65 years old. According to extrapolation of the SOEP the population are approximately 20 million households. 9 – None of the employed household members reports to be working from at home at least every 2 to 4 weeks. 10 – Net equivalent income of the household lies below the 33rd percentile of the population. Equivalent weighting according to OECD. 11 – Employed single parent with at least one child younger than 13 years or household with two employed partners and at least one child younger than 13 years. Marginal employment is not included.

Sources: SOEP v35, own calculations

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139. Employees can, in principle, take holiday leave to care for their children themselves. However, if the unavailability of childcare affects a large number of employees in a company, it may not be possible to grant all parents holiday leave at the same time for operational reasons. Furthermore, if closures persist over several weeks, households could reach the limits of their contractually agreed holiday leave. One option in this case would be to take **unpaid leave** but this could cause **significant financial strain**.
140. The situation could be eased to some extent by **temporarily making working hours more flexible**. For example, parents could temporarily be permitted to have negative working time balances in their working time accounts, which can be compensated for at a later point in time. However, **mobile working** represents the most important instrument that can be used to avoid a lack of labour supply. This is all the more true because it offers a two-fold benefit in the current situation. On the one hand, it could allow parents to care for their children. And, on the other, it has a positive effect on the strategy of social distancing.

Despite this, the **possibilities** of teleworking are **very limited**. For one thing, working remotely does not necessarily allow parents to care adequately for their children in all cases. For another, only around 26% of all companies reported in

2018 that they gave their employees the option of working remotely. Grunau et al. (2019) find that 88% of all employees in Germany did not have the choice to work from home or while on business trips. Compared with the rest of Europe, this puts Germany middle of the field in terms of the prevalence of teleworking (Hammermann and Stettes, 2017). The decisive reason for not offering the option of teleworking is the view that tasks can only be completed at the place of work (Grunau et al., 2019). In addition, the **option to work remotely is not evenly distributed**. While having children in the household does not appear to have an influence on an employee's ability to work from home, this option is more frequently offered to those with a higher level of education, for example (Brenke, 2016). This means that families with lower income levels are less likely to have access to this instrument. ↘ [CHART 25 RIGHT](#) One can suppose that in the current crisis more employers would enable telework than in the normal situation, on which the upper mentioned surveys are based.

141. Jobs that require no training are particularly unlikely to offer parents the option to respond in a flexible way to the current challenges. This means that a reduction of working hours and thus a **loss of income cannot be avoided**. A temporary increase in child benefit, child supplement or housing benefit could replace lost wages due to unpaid holiday leave. However, these benefits would be less suited to the purpose of addressing income losses caused by a lack of childcare because they do not take account of the employment status of household members.

A **Corona allowance for parents** could fulfil the objective more effectively and create flexibility along the intensive margin. Parents and their employers could agree upon a reduction in hours. The wage replacement rates could be based on the rules that apply to short-time work. However, the conditions of eligibility for the benefit would be household-specific and linked to the closed childcare facilities rather than being tied to specific companies. While a portion of income would nonetheless be lost, the loss would be limited and the incentive compatibility preserved. This instrument would **pursue a socio-political goal** and would not represent a fiscal stimulus – the number of low-income households with children requiring childcare and in which remote working was not an option was found to be very small in 2014. ↘ [CHART 25 RIGHT](#)

142. However, these types of measures cannot help to solve **problems with childcare coordination**. Therefore, an expansion of publicly available childcare options for families in special circumstances should be considered in the interests of employees and employers.

3. Bridging companies' liquidity needs

143. While short-time work allows companies to reduce their personnel costs in the short term, **capital costs are much more persistent**. These can only be slowly adapted in case of diminishing demand. Since payment obligations still need to be honoured despite the weak economy and falling sales, companies may face shortages of liquidity. The public sector can take swift action to provide es-

stantial support in this respect. These measures are aimed at mitigating the closures, bankruptcies and reductions in capacity triggered by the coronavirus pandemic. Financial aid may also be required in addition to **liquidity support**. However, the requirements that apply to the relevant support measures differ greatly. The duration of the measures, their scope and the speed at which they can be implemented may be decisive criteria. Various automatic stabilisers can also help companies by automatically reducing company costs. These stabilisers include, for example, corporate tax, which is no longer incurred in the event of losses, or the price of carbon emissions in the EU-Emission trade (EU-ETS), which decreases as demand falls and thus results in a lower price of electricity.

Liquidity through loans and guarantees

144. Many companies and the self-employed can only adjust their costs slowly in line with the loss of income associated with the measures to curb the spread of the coronavirus. The state can draw on several established instruments to counteract the resulting bankruptcies and capacity adjustments. Companies affected by production and revenue shortfalls can obtain grants to bridge their short-term liquidity needs. These grants are provided via the existing **loan support programmes from KfW, the state-owned development bank** or the **ERP (European Recovery Programme) Special Fund**. The grants thus awarded allow the possibility of repayment-free years within the term as well as relief in the liability regulations. At the same time, this would reduce the otherwise expected defaults on bank. After the financial crisis, the KfW programmes for loans and guarantees were already significantly extended with the **'Business Fund Germany'** for a limited period from 2009 to 2010 in order to support businesses in the real economy.
145. With the measures published on March 13, the Federal Government (2020b) announced the **unlimited provision of loans and guarantees** for companies. The conditions for the KfW's lending programmes are being adjusted in this regard (KfW, 2020). However, these programmes are not issued directly by KfW, but in accordance with the on-lending principle in conjunction with other banks to which the loan applications are to be submitted. KfW's existing lending programmes for companies with a turnover of up to €500 million, the entrepreneur loan and the ERP start-up loan are being made available to companies with a turnover of up to €2 billion. Since KfW will now assume 80% of the risk, banks should be more willing to grant loans in order to fund working capital and investments. The KfW programme "loans for growth" will be made available to companies with a turnover of up to €5 billion rather than €2 billion and the restriction in relation to financing innovation and digitisation will be lifted. In these cases, the KfW will assume risk sub-participations in consortium financing or participates directly as a consortial partner. Larger companies will continue to be supported on the basis of a case-by-case assessment. Additional special programmes will be set up for companies in crisis and temporary financial difficulties. The options offered by guarantee banks are also being expanded, with the maximum guarantee amount being increased to €2.5 million. Guarantee banks now should be able to approve guarantees for up to €250,000 independently and within 3 days. The large guarantee programme is being extended to cover not only companies in structurally

weak regions but all companies. Increases have also been promised for **export credit guarantees** if the funds available to date are not sufficient.

146. This support must be limited to the period of possible liquidity shortages caused by the spread of the coronavirus to avoid **long-term financing of companies that are in fact already insolvent**. However, with increasing strain due to the spread of the coronavirus, problems with later repayments are to be expected and these could delay insolvencies until the period after the pandemic. The adoption of measures in order to **further facilitate repayment** beyond those currently in place could therefore be considered. These measures could include, for example, **an extension of the repayment-free period** or **debt relief for companies in badly affected sectors**. However, this aid could also be paid directly in the form of transfers to companies [↘ ITEMS 153 FF.](#) or through government participation in ownership. [↘ ITEMS 156 FF.](#)
147. The KfW measures depend crucially on the participating banks passing on the liquidity support in form of loans. If they significantly reduce their willingness or ability to take risks during the crisis, greater government guarantees could be necessary. Furthermore, the expected **high demand for KfW loans** at house banks could lead to **administrative bottlenecks**. In order to be able to transfer the loans as quickly as possible on a large scale, it could be considered to include fintech companies in the transaction process. While the options for guarantees are usually limited in terms of volume or company characteristics, consideration could be given to expanding these if necessary. The importance of a transparent information policy in relation to the companies as well as a timely announcement of a possible expansion should be highlighted in order to positively influence the expectations of the companies and their short and medium-term planning.

Liquidity through deferral of tax payments and adjustments of pre-payments

148. Other options for boosting the liquidity of companies in the short term that are already being implemented by the Federal Government (2020b) include the **deferral of tax payments** and the **adjustment of tax prepayments**. The decisions made by the Federal Government (2020b) also make provision for **waiving enforcement measures** in connection with outstanding tax payments.

The option to **defer tax payments due in 2020** is available in particular for income tax, corporation tax and sales tax. In this case, tax liabilities are postponed rather than waived. To qualify, taxpayers must submit an application and demonstrate the direct and significant impact of the coronavirus pandemic on their business. This application can be submitted up to the end of 2020 and should be permitted without further strict requirements. In addition to the tax authorities, the customs administration and the Federal Central Tax Office are instructed to facilitate the granting of deferrals for the tax types within their remits. The responsible tax authorities are generally entitled to waive deferral interest. This is particularly welcome in view of the very high interest rate level of 0.5 % per month (6 % per year) laid down in the German Fiscal code and thus maximize the liquidity-enhancing effect of the tax deferrals and the suspension of additional tax payments.

149. In addition to the deferrals, **enforcement measures for overdue tax debts and late payments** are partially suspended until 31 December 2020. The late payment penalties that would theoretically accrue in this period are to be waived by a general order (Allgemeinverfügung). As with the tax deferrals, direct and significant impact by the coronavirus are conditions for this waiver.

With the increasing economic fallout from the spread of the coronavirus, it is likely that drawing a distinction between directly and indirectly affected taxpayers will no longer be possible. The same will apply to the condition of significant impact. In this context, the tax deferral option and the waiver of enforcement measures could be considered at even lower thresholds. An extension into 2021 could also be an option.

150. For companies, self-employed and freelancers the option provided by the Federal Government (2020b) to **adjust tax prepayments** over the course of the fiscal year also has an immediate liquidity-boosting effect. Taxpayers can submit an application to adjust prepayments for income tax and corporation tax and also for the assessment of trade tax. For these annual taxes, the possible prepayments are generally calculated at the end of the previous tax year by means of a tax return, the prepayments are usually made quarterly and can only be adjusted by means of a statement in the course of the next tax year. An expedited and simplified adjustment of prepayments during the tax year is therefore to be welcomed in light of the current situation. In this context, the decisions made to date by the Federal Government (2020b) refer to a reduction, though no value has been specified. As the economic strain induced by the spread of the coronavirus becomes greater, a complete suspension of tax prepayments may be considered.

Liquidity through loss carry-backward/-forward and changed depreciation rules

151. Another possible measure is to expand the options for **loss carry**. For example, carrying back a loss would allow a current loss to be offset against the taxable profit from the previous year, thus directly reducing the effective tax burden. The loss carry-back is currently limited to one year and the volume to €1 million euros. An expansion of these limits could be considered, depending on the economic impact of the spread of the coronavirus. However, with this measure it must be noted that a possible repayment of past tax payments would only occur after submission of the next tax return or next annual tax statement and thus only after a certain time lag. In the short term, the effect of expanding tax depreciation options is likely to be limited and rather unfocused. This is especially because the expected relief depends on companies having the liquidity and economic security to actually make investments.
152. The tax loss carry-back is a sensible measure for providing short-term relief. In addition, an **expansion of the loss carry-forward** in relation to income, corporate and trade tax can be considered for the period after the spread of the coronavirus. After taking into account the possibility of the loss carry-back, the loss carry-forward allows a tax loss to be carried over into the following years, thereby reducing the future tax burden. In this case, the transfer is limited in terms of

volume, but not in terms of time. While amounts up to €1 million can be fully taken into account, the measure only applies to 60 % of amounts over €1 million. Depending on the extent of the fallout caused by the spread of the coronavirus, an adjustment of these limits could be considered.

Direct grants

153. Direct financial aid through **possible sovereign wealth funds** can be targeted at various areas. The state of Bavaria has announced a fund to **support the self-employed as well as micro-enterprises and small businesses** with up to 250 employees, which will offer between €5,000 and €30,000 euros per business location at very short notice. This aid is intended for businesses that can no longer raise liquid funds and are about to become insolvent (STMWi Bayern, 2020). To allow quick payment, the impending insolvency should only be verified once payment has taken place. At this point, the applicant should be held liable for any incorrect information submitted.

In addition to these non-specific grants, an **emergency aid fund** is being prepared by the Federal Ministry of Finance and is intended to provide specific help for payments actually due, for example to settle liabilities from rentals and leases or electricity bills that can no longer be paid due to the sudden drop in demand. The aim of this measure is **direct and unbureaucratic allocation of funds** for small businesses that have no access to alternative KfW programmes due to time-related and bureaucratic obstacles. Providing liquidity support in the form of loans alone may not be enough for small businesses, if there is a risk of insolvency after the loan expires. Non-repayable aid may therefore be necessary for the **sustainable recovery** of these companies.

154. The **reconstruction aid fund** launched as a result of the **2013 flood** and financed emergency aid for affected households and companies, as well as infrastructure repairs, could serve as a model for direct support. At that time, the funds of €8 billion necessary for the fund were initially provided by the Federal Government. The *Länder* will continue to pay off their share of the fund until 2033. A comparable solution would be to provide **emergency aid for small businesses and the self-employed** who are affected by the effects of the coronavirus pandemic. However, a fund for direct grants, even if only to include rent and electricity subsidies, would have to be considerable in the current crisis. It would also need to ensure that resources are allocated as quickly and unbureaucratically as possible during measures to curb pandemics.
155. A quick allocation of funds could be achieved by inserting a **claim for damages** of companies affected, solo self-employed and freelancers in the **Infection Protection Act**. They could apply for compensation for the costs incurred by the federal, the *Länder* and local authorities against the spread of the Corona virus, to the extent that these cannot be covered by income. This could include rents, leases, wages and capital costs to be paid, but not the lost profits. This claim could be used as collateral for loans at the house bank and would therefore lead to payments relatively quickly. The disadvantage of such a claim is the potentially high budgetary burden for the federal, the *Länder* and local authorities. The longer the

state of health emergency lasts, the more the cost of such a claim for damages increases for the state. Therefore, consideration should be given to limiting compensation to small and medium-sized companies, for example.

Direct participation in ownership

156. Direct government participation in ownership would represent far more extensive measures to support companies. A model for this could be the **Financial Market Stabilisation Fund (Soffin)** which provided a protective shield for banks during the financial crisis. Guarantees and risk-taking as well as recapitalisation and resolution were available as instruments for this fund. While a total of ten banks received guarantees from this fund, four banks were recapitalised. Hypo Real Estate and WestLB were wound up, Aareal Bank was able to repay the state's silent participations to the value of €500 million, while the Federal Government still holds a 17 % stake in Commerzbank. However, direct participation in ownership of non-banks in the wake of the financial crisis has remained the exception. Government support for Opel, for example, was handled through a trust company.
157. With an **economic stabilization fund (WSF)**, the federal government strives to stabilize large companies that have encountered difficulties due to the corona crisis. To this end, the fund is expected to total €600 billion and be managed by the finance agency. Of this, €100 billion are earmarked **for state-owned company participations**. These investments can be transferred to KfW. In addition, €400 billion are available as guarantees for refinancing to prevent liquidity shortages. KfW's special programs are to be financed with a further €100 billion. The Federal Ministry of Finance is responsible for the use of these instruments in consultation with the Federal Ministry for Economic Affairs and Energy and can be linked to conditions such as the remuneration of organs or the payment of dividends.
158. While policymakers can decide, in individual cases, on **direct participation in ownership by a fund in large companies**, providing support to **medium-sized companies** in this way poses a major administrative challenge for the authorities. Decisions would therefore need to be made at the *Länder* level. It has to be ensured that participations are only temporary and the state offers an exit scenario. Silent participations, as in the some cases of the Soffin, could offer a solution that later eases the exit. Furthermore, it should be ensured that the state applies clear criteria to participation in ownership. The decisive factor must be the financial difficulties resulting from the current crisis. If companies were already a restructuring case before the crisis, they must not be kept alive artificially. Similar conditions were previously in place for liquidity support from the Business Fund Germany (Elsas and Mielert, 2010). Suspension of the EU state aid rules, as granted by the European Commission for Italy, [▶ ITEM 179](#) is a mandatory requirement for this type of instrument.

4. Monetary policy and financial system

159. On March 12, the Governing Council of the European Central Bank met to agree on an **extensive package of measures** in response to the developments arising from the coronavirus pandemic (ECB, 2020a). The central bank announced that it would temporarily conduct additional **longer-term refinancing operations** (LTROs) to provide immediate liquidity support to banks and to safeguard money market conditions (ECB, 2020b). The LTROs will be carried out through a full-allotment tender procedure, with an interest rate equal to the average interest rate on the deposit facility. These refinancing operations are offered weekly, each running until 24 June 2020. Through the LTROs, the ECB will provide banks with liquidity at favourable terms to avoid them having to restrict lending due to liquidity shortages and thus exacerbate the effect of the coronavirus shock. The ECB has signalled its willingness to provide additional liquidity in this context if necessary. So far €224 billion of liquidity have been retrieved (ECB, 2020c).
160. Furthermore, the ECB has promised to offer more favourable conditions for all **targeted longer-term refinancing operations (TLTRO III)** that are outstanding during the period from June 2020 to June 2021 (ECB, 2020d). By changing the conditions of these operations, it is intended to support bank lending to those most affected by the coronavirus pandemic, in particular small and medium-sized businesses. During the period mentioned, the interest rate for TLTRO III will be 25 basis points below the average interest rate for the main refinancing operations carried out in the same period. For banks that at least maintain their levels of lending, a lower interest rate will apply for TLTRO III. This can be up to 25 basis points below the average interest rate for the deposit facility and in any case will not exceed -0.75 %. This means that the ECB will pay a premium for bank lending over and above the deposit rate. This equates to a targeted rate cut. At the same time, the ECB has increased the maximum total amount that banks can borrow in TLTRO III operations from 30 % to 50 % of their stock of eligible loans as at 28 February 2019. Meanwhile, it will review collateral easing measures to ensure that banks can avail of TLTRO III.
161. The ECB also announced plans to **increase net asset purchases** under its purchase programmes by €120 billion by the end of this year (ECB, 2020a). The Corporate Sector Purchase Programme (CSPP) is intended to make a significant contribution to this. However, it decided **not to cut the deposit rate** further, [↘ CHART 26 RIGHT](#) because here its scope is already very limited in comparison to the Federal Reserve. A cut in the deposit rate further into the negative range would be possible. However, below a level of -1% significantly stronger evasive responses to cash holdings are to be expected. A reduction in the deposit rate would also further increase the cost of holding credit balances with the central bank. The ECB could further increase the exemptions for banks in this regard.
162. At the same time, ECB Banking Supervision has announced **temporary easing of capital and liquidity requirements** for the credit institutions it supervises (ECB, 2020e). It will thus temporarily allow banks to operate with a capital ratio that is below the level of capital defined by the Pillar 2 Guidance. It will also tolerate that banks go below the requirements for the capital conservation buffer and

the liquidity coverage ratio. Banks will also be allowed to partially use instruments that do not meet the Common Equity Tier 1 requirements in order to meet capital requirements (Pillar 2 Requirements). By taking into account Additional Tier 1 and Tier 2 capital instruments, it has brought forward changes to the Capital Requirements Directive (CRD) that were originally intended to come into effect from January 2021. ECB Banking Supervision (2020f) estimates that these measures will lead to a capital relief of € 120 billion, which can be used to absorb losses or to provide additional loans worth up to € 1.8 billion. With these measures, ECB Banking Supervision is using the flexibility of capital and liquidity requirements to prevent banking regulation from having a procyclical effect.

On March 20, ECB Banking Supervision offered its supervised institutions further **flexibility in the application of supervisory requirements** (ECB, 2020f). If loans are subject to public guarantees or are affected by a moratorium, ECB Banking Supervision will exercise temporary flexibility regarding the classification of debtors as "unlikely to pay". Loans that are subject to public guarantees should be given preferential treatment in terms of supervisory expectations about loss provisioning. ECB Banking Supervision has also made recommendations to counteract excessive volatility in loss provisioning and thus avoid procyclical effects caused by the supervisory capital requirements.

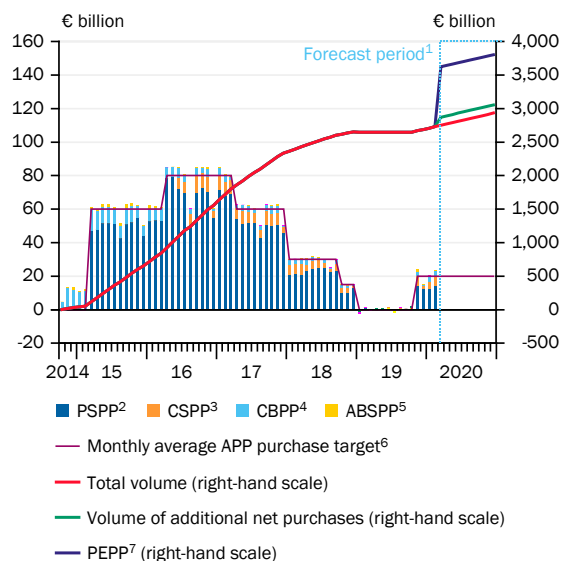
163. On 15 March, in order to counteract restrictions on the global financing markets and the effects of such on household and corporate lending, the Bank of Canada, the Bank of England, the Bank of Japan, the ECB, the Federal Reserve and the Swiss National Bank announced a coordinated **action to enhance the provision of US dollar liquidity to banks** (ECB, 2020g). In addition to the existing 1-week refinancing operations, the participating central banks have been offering US dollar refinancing operations with an 84-day maturity on a weekly basis since March 16. The interest rate on these operations was also reduced by 25 basis points. On March 20, the participating central banks announced that they would increase the frequency of US dollar refinancing operations with a 7-day maturity and offer these daily from March 23 (ECB, 2020h).
164. On March 18, the Governing Council of the ECB decided to launch an **additional asset purchase programme** to counter the risks posed by the coronavirus pandemic to the monetary policy transmission mechanism and the economic outlook for the euro area (ECB, 2020i). Under the Pandemic Emergency Purchase Programme (**PEPP**), the ECB will acquire assets with a volume of up to €750 billion. The purchases should be conducted at least until the end of 2020 and can include all types of assets acquired through existing purchase programmes.

Purchases of public sector securities should continue to be based on the relevant country's share in the ECB's capital key. However, the central bank also announced that the **purchases will be conducted in a flexible manner**. In this way, the volumes could be allowed to fluctuate over time, between individual types of assets and countries. In contrast to previous purchase programmes, the ECB will buy **Greek government bonds** under the PEPP. The ECB has also expanded the assets permitted under the CSPP to include money market instruments issued by companies in the non-financial sector. Furthermore, the ECB has

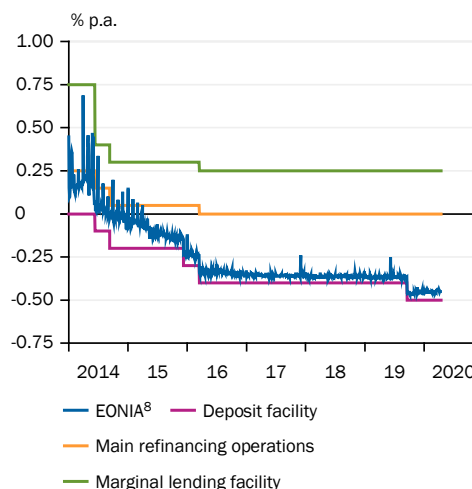
↘ CHART 26

ECB's Asset Purchase Programmes (APP) and policy rates and EONIA

Massive expansion of the Asset Purchase Programmes



EONIA and ECB's policy rates



1 – Forecast of the total volume on the basis of the monthly average purchase target of €20 billion as well as the in March 2020 decided volume of additional net purchases of €120 billion and the PEPP of €750 billion by year-end. 2 – Public Sector Purchase Programme. 3 – Corporate Sector Purchase Programme. 4 – Covered Bond Purchase Programme. 5 – Asset-Backed Securities Purchase Programme. 6 – Asset Purchase Programme. Monthly average purchase target has been first determined by the ECB's Governing Council at the start of PSPP in March 2015. 7 – Pandemic Emergency Purchase Programme. 8 – Euro Overnight Index Average.

Sources: ECB, own calculations

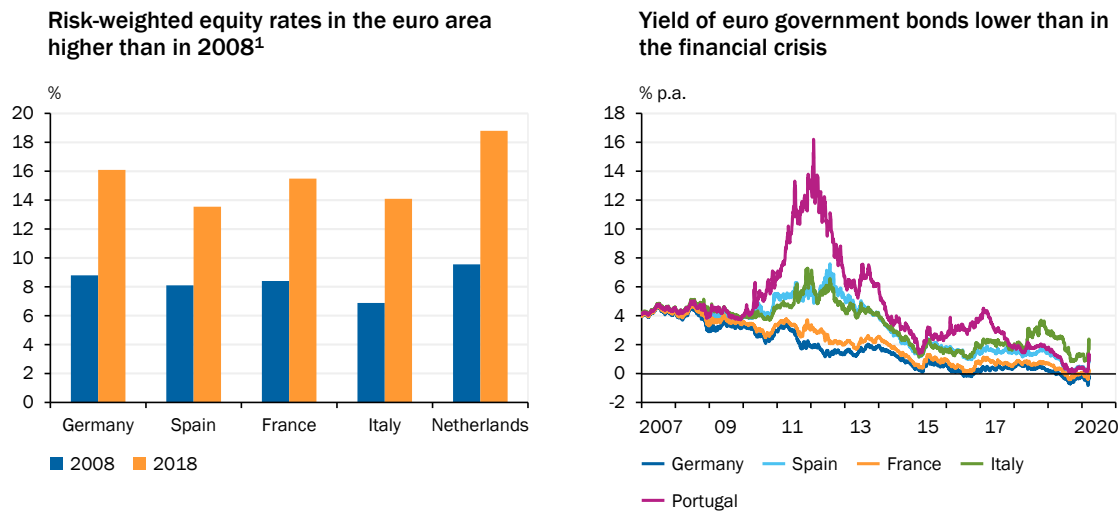
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adjusted the collateral framework so that banks can deposit additional corporate finance claims as collateral for refinancing operations.

165. Since the ECB had temporarily stopped net asset purchases, the total volume of assets acquired by the ECB remained at a constant level between January and October 2019. In view of the additional net purchases with a volume of up to €870 billion that have been announced in the meantime, the total volume of the assets acquired will increase by 7.3% of the euro area's GDP. ↘ CHART 26 LEFT In addition to the purchase programmes, the use of longer-term or targeted longer-term refinancing operations could result in the **ECB expanding its balance sheet even more**.
166. In connection with the announcement of the PEPP, the **ECB** emphasised that it would not tolerate any risks to the transmission of its monetary policy in all jurisdictions of the euro area. In the event that self-imposed constraints could hamper the measures it must take to fulfil its mandate, it **announced** that the Governing Council will consider **adjusting** the **limits** to the extent necessary to keep the measures in proportion to the current risks (ECB, 2020i).
167. Since the ECB is not providing all relevant information it is hard to determine **how far the ECB can expand its purchase programme for government bonds** without violating the limits that it has imposed in this context on itself so far. These limits include the following elements: (i) The issuer limit, which stipulates that no more than 33% of the nominal volume of all outstanding bonds in a

Chart 27

Equity rates and yields on government bonds in the euro area



1 – Tier-1 capital of a bank proportional to its risk-weighted assets.

Sources: ECB, Refinitiv Datastream

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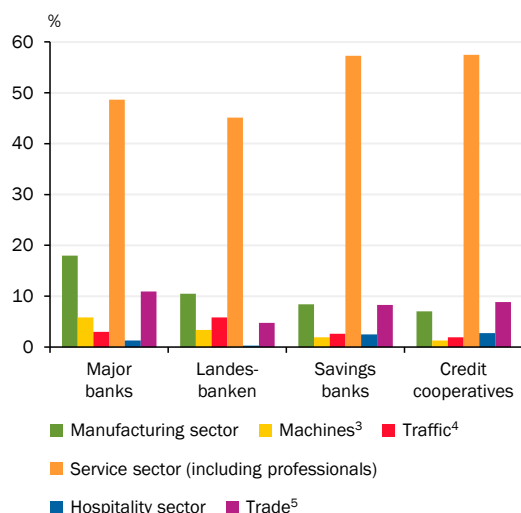
country may be purchased; (ii) the issue share limit, which stipulates that depending on its design a share of up to 33% of a single security is bought; and (iii) the purchase key, according to which the share of purchased bonds of a jurisdiction in relation to the total government bonds purchased should correspond to the share of the relevant country in the capital key. Through the increase of debt due to the crisis it is easier for the ECB to maintain the issuing restrictions. In addition, the ECB has already announced that it may adjust these limits, in order to be able to expand the government bond purchase programme. However, this could lead to further reviews by the European Court of Justice or the Federal Constitutional Court. Since the PEPP was announced the yield differentials within the euro area are, in particular those from Italian and Greek government bonds to German government bonds, have decreased significantly.

168. Despite the sharp rise in volatility, **developments on the financial markets are not yet comparable** with those during the **financial crisis in 2008**. That crisis originated in the financial system and had a particular impact on the rest of the economy through restricted lending. In contrast, the current developments are likely to be mainly caused by the uncertainty surrounding the spread and duration of the coronavirus pandemic and the associated economic consequences. Nevertheless, these developments are being accompanied by a decline in market liquidity and have triggered a **deterioration in financing conditions**. Companies that tap the bond and equity markets for funding are likely to be particularly hard hit (Adrian, 2020). Central banks are trying to counteract these developments by providing liquidity for banks, lowering interest rates and taking measures to ensure the functioning of individual markets. ↘ [ITEMS 159 FF](#). However, classic monetary policy responses, such as further interest rate cuts or measures that can be translated into such, may only be of limited suitability to counteract short-term capacity restrictions in production and the supply of labour.

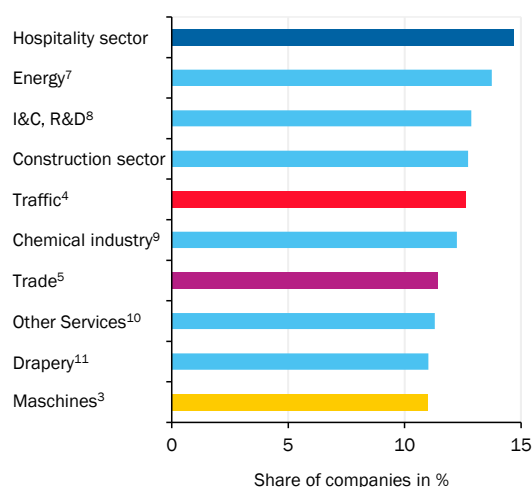
↘ CHART 28

Share in lending and financial situation of selected economic sectors¹

Share in loans to domestic companies and self-employed persons²



Share of companies with weak credit standing by economic sectors⁶



1 – According to the classification of economic sectors, 2008 edition (WZ 2008). 2 – Loans to domestic companies and economically self-reliant individuals (without holdings of marketable money market papers and without holdings of commercial papers). 3 – Manufacturing of machines and equipment; manufacturing of vehicles; repair and installation of machines and equipment. 4 – Traffic and storage; telecommunication. 5 – Trade; maintenance and repair of motor vehicles. 6 – Share of companies of an economic sector in the total number of companies of an economic sector whose credit standing is assessed as weak. Assessment of the credit standing is based on a credit check by a credit agency. The credit standing is assessed as weak when the result of the credit check leads to the assessment "weak credit standing", "very weak credit standing", "poor credit standing" or "insufficient credit standing/default". 7 – Energy and water supply; waste disposal; mining and retrieval of rare stones and earths. 8 – Information and communication, research and development; lobbies; publishing sectors. 9 – Chemical industry, coke plants and mineral oil processing. 10 – Other services. 11 – Drapery and clothing trade; leather trade.

Sources: Deutsche Bundesbank, ZEW Mannheimer Unternehmenspanel (Special evaluation), own calculations

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169. The increased capital and liquidity standards in recent years have fundamentally boosted the resilience of banks. ↘ CHART 27 LEFT However, if the coronavirus pandemic leads to a significant rise in defaults, the banks that supply credit to the most affected economic sectors will be especially exposed. Even before the coronavirus pandemic, the hospitality industry had the highest proportion of companies whose creditworthiness was assessed as weak. In the banking groups considered, this economic sector accounts for up to 2.75% of all loans issued to domestic companies and the self-employed. ↘ CHART 28 Economic policy measures that prevent a sharp rise in payment defaults by enterprises thus simultaneously limit the impact on the banking system. **Government guarantees for credit risks** are likely to be of particular importance in this context: first, they could increase the willingness of banks to provide credit and second, they could limit the amount of possible losses.

Nevertheless, the economic slowdown is likely to result in an increase in loan loss provisions and risk weights. A decline in the capital ratios and profitability of banks is therefore to be expected. In this context, the **measures implemented so far by the supervisory authorities** appear constructive in supporting the banks' lending capacity. Aside from reducing the countercyclical capital buffer, these measures include a temporary toleration that further capital and liquidity buffers fall below required levels. However, any attempt to secure lending to the

real economy should avoid an excessive increase in risk associated with the loans granted in order to prevent banks from running into difficulty.

5. Fiscal policy

Additional fiscal stimulus needed once public health restrictions have been lifted

170. Despite wide-ranging measures to stabilise income, employment and business, it can be the case that after the public health restrictions are lifted there will be a persisting under-utilisation of capacities. **Additional fiscal stimulus** beyond the automatic stabilisers may then be needed to address persistent weakness in demand. These measures will depend on the extent and duration of the constraints associated with it. In particular, appropriate measures to stabilise expectations and increase demand will likely be necessary in the case of a “long U” scenario, where strong signs of recovery do not rapidly appear in the third and fourth quarter. Such a scenario is also likely to result in underutilised capacities.
171. An announcement of demand-side measures while the public health restrictions of social distancing are still in force could trigger positive expectation effects and financial market reactions. To do this, the measures must credibly increase household incomes and company profits once the restrictions have been lifted. However, the **measures** themselves should only come into force **once the restrictions have been lifted**.

In the current situation, measures to increase income in the short term are likely to produce just the following effects: i) people will use the additional income in economic sectors that are not affected by the public health restrictions and that have already benefited through substitution, such as e-commerce; ii) they will save the additional income; or iii) the additional fiscal stimulus will lead to people counteracting the measures needed to contain the spread of the virus. It must also be kept in mind that, when restrictions are in place, i.e. labour and resources are scaled back and production is thus limited, direct state expenditure will have the maximum crowding-out effect on private sector spending and on the investment expenditure of companies.

172. While the short-term stabilisation measures and automatic stabilisers that have been decided upon will also lead in some cases to the effects described above. They are however necessary to provide liquidity or to retain jobs through short-time work. If the aim is to increase demand, in particular in the hardest-hit economic sectors or the sectors with underutilised capacities, these measures are likely to have the intended effects only after the public health restrictions have been lifted. If the construction industry is subject to relatively few restrictions as a result of the public health measures, however, consideration could be given to **prioritising investment projects**. For example, the lower utilisation of schools, public transport services or motorways as a result of the restrictions could be used to implement projects faster than would usually be the case with normal capacity.

173. Once the public health measures are lifted, various measures can be used in a **scenario resembling a “long U” shape**. One of the aims of standard economic packages is to employ unutilised resources and increase the spending of borrowing-constrained households. These conditions are likely to prevail during a slower recovery in which there will be company bankruptcies and layoffs. Direct government spending and transfers or tax reductions may be considered to counter a shortfall in demand.

The demand-side stimulus could consist of long-term measures, such as a massive, long-running investment programme or permanent tax reductions, and temporary measures, such as temporary depreciation reliefs, consumption vouchers or temporary tax reductions. The **right time to launch the measures** could be easier to determine in the specific case of the coronavirus pandemic than in other crises, as the end of public health measures is determined by policymakers. However, it is not clear whether the measures can be implemented quickly enough. It could be helpful to bring forward the agreed reductions in taxes and levies, such as the solidarity surcharge or the EEG surcharge, or to implement investment projects that have already been planned. While the time at which the public health measures are to be discontinued may be specified, it cannot be predicted with certainty which scenario will ultimately materialise.

174. The demand stimulus could clash with the catch-up effects, especially in a **scenario characterised by strong catch-up effects (“pronounced V”)** towards the end of the year, with the result that capacity constraints could play a role. The problem is exacerbated in the case of temporary measures intended to have a pull-forward effect. Another risk posed by temporary measures is that a negative rebound effect could take place when they are lifted. Temporary measures could therefore be suitable in such a scenario in order to cushion the blow of the downturn immediately after the public health measures have been discontinued.
175. The **long-term financing** of temporary measures is easier to guarantee than permanent measures. In the medium term, negative effects on fiscal sustainability should be prevented. Such effects could make it necessary to increase taxes or reduce productive spending at a later date. For that reason, permanent measures, particularly if they are predictable and implemented indefinitely, are likely to be combined with additional measures that **boost growth potential**. In particular, these could have a long-term positive effect thanks to the use of improved incentives for labour, investments in the capital stock and innovations or higher expenditure on education, research and infrastructure. It should be borne in mind that fiscal resources are not unlimited and that it is therefore important to focus on measures that are effective at the appropriate time.
176. In addition, it would be useful for the stabilization of expectations and reduction of uncertainty if the government published as soon as possible a strategy for a normalization of health policy **restrictions** based on appropriate **criteria**. These criteria could be guided by various indicators such as number of infections and time points and would have to be designed on the basis of medical and epide-

miological findings. In this way, the government could give companies and households a perspective on when demand and production are expected to return to normal. This could make it easier for companies and households to deal with the temporary economic downturn, which would help to reduce the extent of the negative effects of health policy measures on economic development.

177. The **debt brake** does **not represent an obstacle to net borrowing** within the framework of the measures to contain the effects of the coronavirus pandemic. The provisions in Article 115(2) sixth sentence of the Basic Law provide for an extension of credit authorisation in the event of natural catastrophes or extraordinary emergency situations that are outside the control of the state and substantially harmful to the state's financial capacity. These characteristics should apply to the financial implications of the spread of the coronavirus, with the result that credit authorisations could be extended with a majority decision by the members of the Bundestag and the presentation of a repayment plan. Within the scope of the supplementary budget 2020 the Federal government is actually planning to activate the exemption to exceed the control limit for new structural debt for an amount of € 100 billion.

Fiscal space in the euro area

178. **Considerable financial resources** will be needed to implement the economic measures needed to respond to the spread of the coronavirus. Most Member States will only be able to raise the additional financial resources by taking on new debt. The options for financing these additional means in EU Member States depend on three factors: i) European fiscal rules for public deficits; ii) access to financing via the financial markets; and iii) financing through European institutions.
179. The fiscal rules at European level allow a higher deficit in times of extraordinary crises, such as the outbreak of a pandemic. The European Commission has already declared the coronavirus pandemic to be an extraordinary event, outside the control of governments (European Commission, 2020d). As a result, extraordinary expenditures in relation to the pandemic, such as health expenditures or targeted support will be exempt from the fiscal rules. In addition, the EU Member States' necessary fiscal adjustments will be adapted to lower growth rates. The European Commission has also activated the general escape clause, which suspends the EU Member States' necessary fiscal adjustments to their individual medium-term budgetary objectives due to a serious economic downturn in the EU as a whole (Articles 5(1) and 9(1) in EG 1466/97; European Commission, 2020d). The **European fiscal rules**, therefore, are **not likely to limit** the **fiscal space** needed to respond to the effects of the coronavirus. Moreover, in Italy, state aid is seen as justified by the European Commission in accordance with Article 107 Paragraph 3 Letter b of the Treaty on the Functioning of the European Union. The Commission is reviewing on an ongoing basis whether this approval is to be applied to other countries.
180. Whether raising the additional financial means will be possible by issuing additional government bonds depends on the associated cost, i.e. the yield that states

must offer on the financial market in order to be able to sell their bonds. This interest rate depends on various factors. The assessment made by financial market participants about the long-term sustainability of public finances is essential in this regard (GCEE Annual Report 2019 items 485 ff). This includes in particular the **debt-to-GDP ratio** of a country (GCEE Annual Report 2017 items 526 ff.) prior to the outbreak of the coronavirus pandemic. In 2019, this was at 136 % in Italy, 120 % in Portugal and 99% in France, whereas debt-to-GDP ratios in Germany and the Netherlands had fallen to 59 % and 49 %, respectively, over the previous years. In the course of the coronavirus pandemic, the Member States could be confronted with a significant increase in debt-to-GDP ratios. One consequence is likely to be a significant reduction in tax revenue. Another is that the costs incurred in responding to the virus will have negative economic implications. Ultimately, a temporary decline in GDP is to be expected, as a result of which the debt-to-GDP ratio will increase further. Negative repercussions on the long-run sustainability of public finances should not be expected as far as a successful response to the coronavirus pandemic and its economic consequences can be achieved.

However, doubts about the solvency of individual countries may lead to sudden jumps in yields and a loss in access to financial markets due to multiple equilibria, especially in light of the extremely high level of uncertainty on financial markets. This became evident during the sovereign debt crisis in the euro area in 2011 and 2012 when the interest rate on government bonds issued by Greece, Portugal, Ireland and Spain increased so sharply that it was no longer possible to issue additional bonds. While the interest rates have risen again for Italy and Portugal, they are still significantly lower than the rates prevailing in 2011 and 2012. [↘CHART 27 RIGHT](#)

181. **Preventing a loss of confidence** on financial markets and sharp increases in yields is critical against the current background in order to ensure the financing of necessary measures as well as to avert a **resurgence of the sovereign debt crisis** in the euro area. A sovereign debt crisis could exacerbate even further the negative economic effects of the crisis, especially during the current coronavirus pandemic. Therefore, several wide-ranging proposals (Brunnermeier et al., 2020; Bénassy-Quéré et al., 2020; Galí, 2020; Südekum et al., 2020) such as Euro-Bonds or helicopter money via central banks are currently being discussed to finance the consequences of the corona crisis. Since the euro area sovereign debt crisis, the GCEE has repeatedly assessed these proposals critically (GCEE Special Report 2015 items 65 ff.; GCEE Annual Report 2013 items 316 ff.; GCEE Annual Report 2012 items 154 ff.; GCEE Annual Report 2011 items 172 ff.). Apart from these objections, such proposals should not be feasible within the current institutional framework and the political consensus necessary for respective institutional reforms should be hard to achieve. Against this background, the GCEE advocates the **reliance on already existing institutions and instruments** which can provide the necessary resources to finance the crisis response.
182. If the Member States of the European Monetary Union are not guaranteed access to the financial markets, the instruments of the **European Stability Mechanism (ESM)** will be available. These instruments were created to ensure that the

euro area does not experience another sovereign debt crisis; they are available with immediate effect. The ESM was created as a fiscal instrument to **guarantee the debt capacity** of Member States in a crisis. The community of Member States, in particular the Member States with greater fiscal space, guarantee the European Stability Mechanism's borrowing. The ESM has various instruments at its disposal, which, at the request of an ESM member, can be used under certain conditions (GCEE Annual Report 2017 items 122 ff.). **Precautionary financial assistance** can be granted in the form of primary market purchases of government bonds or as loans, **if the country's economic situation is stable and refinancing via the financial market is possible**. If the ESM member country meets several criteria, in relation to public debt, deficit ceilings and a stable banking system for example, it can avail of the Precautionary Conditioned Credit Line (PCCL). If the economic situation is stable but some of these criteria are not met, the Enhanced Conditions Credit Line (ECCL) may be applicable with the obligation that the country endeavours to meet these criteria. In both cases, the country's economic and financial situation is monitored more stringently.

183. ESM members, **who no longer have access to the financial markets** or whose financial sustainability would not be guaranteed due to the market's excessive interest rate demands, can be granted **a loan under the conditions of a reform programme**. If financial institutions can no longer be capitalised by the private sector and the relevant ESM member is not in a position to do so without incurring negative effects on its own financial sustainability, the ESM can recapitalise these institutions directly or provide the member country with a loan for this measure. For countries that have been granted precautionary financial assistance or a loan and reform programme, the ESM can purchase government bonds on the primary market. Interventions on the secondary market outside the programmes are also possible to safeguard the government bond market's ability to function and its liquidity if the relevant country's economic situation is fundamentally stable.

In the case of the coronavirus pandemic, the conditions of the ESM programme should be stated as least restrictive as possible. After all, this pandemic is an exogenous shock that was not caused by the government of any country and does not involve an increase in public debt brought about by the actions of a government. In this case, the conditions could be reduced to a necessary minimum for a later reduction in of the debt to GDP ratio. A monitoring would apply anyway within the framework of the regular European Semester.

184. An ESM programme would create a **protective shield**, which should also ensure that Member States can continue to access the market for government bonds at favourable terms. If the Member States in the eurozone send a clear signal that, if necessary, fiscal resources are available immediately and without restrictive conditions via existing instruments such as the ESM, this may stabilise **expectations on the financial markets**. This means that the need to take out ESM loans may not even arise. This effect of providing financial market players with assurance of the debt servicing capacity of the Member States could be reinforced if the EU Member States were to publicly announce in advance the conditions that would accompany a loan borrowed in connection with the coronavirus pandemic.

With its announcement of the PEPP programme, the **ECB** has already played its part in reducing risk premiums on government bonds. The existence of an application enables the ECB to purchase the government bonds issued by that Member State in a targeted manner. If it were to become necessary as a last resort to prevent a sovereign debt crisis, the ECB could strategically buy large amounts of government bonds of individual countries via the **OMT Programme**. Use of the programme for such a purpose has been the subject of a review by the European Court of Justice and by the Federal Constitutional Court. While the ECB follows the decisions of the European Court of Justice only, the decision of the Federal Constitutional Court is of relevance to the participation of German Bundesbank and the positioning of the Federal Government. The courts have approved the potential use of the OMT Programme, subject to some specific conditions. This means that, if an ESM programme is in place but bond yields still rise to dangerous levels, the ECB can also intervene with bond purchases. In October 2012, ECB President Mario Draghi pointed out that the conditionality of the ESM programme is essential to avoiding the fiscal dominance of monetary policy (Draghi, 2012). This protection of the ECB's independence would not be part of a PEPPP-SPP programme to counterbalance the risk premiums of national debt. With an ESM programme to fence a sovereign debt crisis, applying Member States and the other Member States as guarantors of the ESM would carry the **necessary fiscal responsibility**. At the same time, this would prevent the ECB from being pushed once again into the role of a permanent provider of emergency assistance.

APPENDIX

TABLE 7

Contributions to growth of gross domestic product by expenditure components¹
 Percentage points

| | 2015 | 2016 | 2017 | 2018 | 2019 | Forecast ² | | |
|--|------------|--------------|------------|--------------|--------------|-----------------------|--------------------------|------------|
| | | | | | | 2020 | | 2021 |
| | | | | | | Update | Difference to AR 2019/20 | |
| Domestic demand | 1.5 | 2.8 | 2.2 | 2.0 | 0.9 | - 1.1 | (- 2.5) | 3.4 |
| Final consumption expenditure | 1.6 | 2.0 | 1.2 | 1.0 | 1.3 | - 1.1 | (- 2.1) | 2.8 |
| Private consumption ³ | 1.0 | 1.2 | 0.7 | 0.7 | 0.8 | - 1.6 | (- 2.2) | 2.3 |
| Government consumption | 0.5 | 0.8 | 0.5 | 0.3 | 0.5 | 0.5 | (0.1) | 0.4 |
| Gross fixed capital formation | 0.4 | 0.8 | 0.5 | 0.7 | 0.6 | 0.0 | (- 0.4) | 0.7 |
| Investment in machinery & equipment ⁴ | 0.3 | 0.2 | 0.3 | 0.3 | 0.0 | - 0.5 | (- 0.6) | 0.3 |
| Construction investment | - 0.1 | 0.4 | 0.1 | 0.3 | 0.4 | 0.3 | (0.1) | 0.2 |
| Other products | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | (0.0) | 0.1 |
| Changes in inventories | - 0.4 | 0.1 | 0.5 | 0.3 | - 0.9 | 0.1 | (0.1) | - 0.1 |
| Net exports | 0.2 | - 0.6 | 0.3 | - 0.4 | - 0.4 | - 1.7 | (- 1.2) | 0.4 |
| Exports of goods and services | 2.5 | 1.1 | 2.3 | 1.0 | 0.4 | - 2.0 | (- 2.7) | 1.6 |
| Imports of goods and services | - 2.3 | - 1.7 | - 2.0 | - 1.5 | - 0.8 | 0.4 | (1.6) | - 1.3 |
| Gross domestic product (%) | 1.7 | 2.2 | 2.5 | 1.5 | 0.6 | - 2.8 | - 3.7 | 3.7 |

1 - Contributions to growth of price-adjusted GDP. Deviations in sums due to rounding. 2 - Forecast by the GCEE according to baseline scenario.

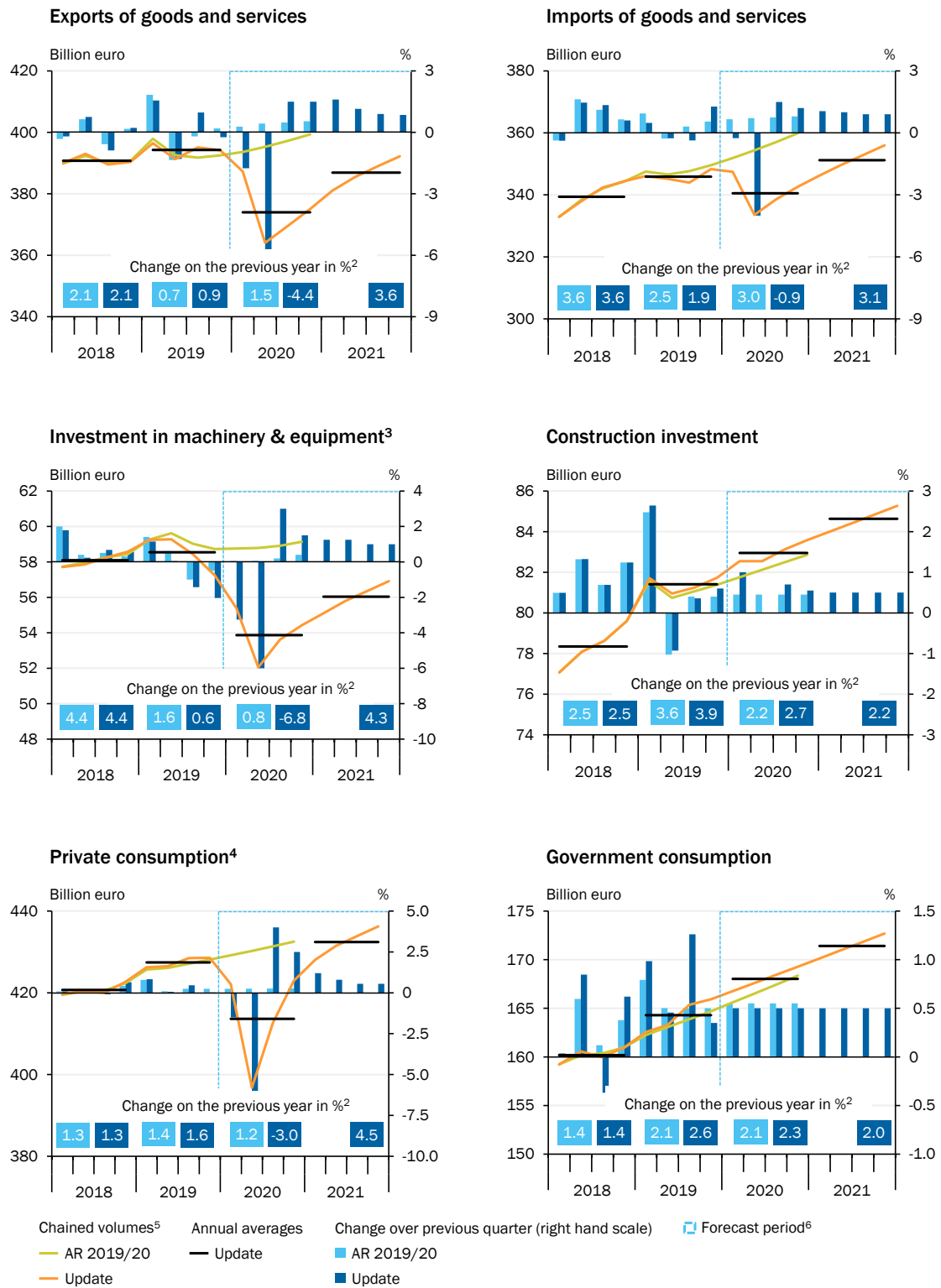
3 - Including non-profit institutions serving households. 4 - Including military weapon systems.

Sources: Federal Statistical Office, own calculations

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CHART 29

Components of the German GDP¹



1 - All components of GDP reported price-adjusted. 2 - Not seasonally and calendar adjusted. 3 - Including military weapon systems. 4 - Including non-profit institutions serving households. 5 - Seasonally and calendar-adjusted. 6 - Forecasts by the GCEE according to baseline scenario.

Sources: Federal Statistical Office, own calculations

TABLE 8

Key figures of the national accounts

Absolute values

| | Unit | 2019 | 2020 ¹ | 2021 ¹ | 2020 ¹ | | 2021 ¹ | |
|--|---------------------|----------------|-------------------|-------------------|-------------------|----------------|-------------------|----------------|
| | | | | | 1. half-year | 2. half-year | 1. half-year | 2. half-year |
| Use of domestic product | | | | | | | | |
| at current prices | | | | | | | | |
| Final consumption expenditure | billion euro | 2,493.4 | 2,490.0 | 2,631.5 | 1,208.7 | 1,281.4 | 1,278.2 | 1,353.3 |
| Private consumption ² | billion euro | 1,794.0 | 1,757.8 | 1,869.5 | 853.4 | 904.4 | 908.4 | 961.1 |
| Government consumption | billion euro | 699.4 | 732.2 | 762.0 | 355.3 | 376.9 | 369.8 | 392.2 |
| Gross fixed capital formation | billion euro | 746.9 | 762.6 | 802.2 | 363.5 | 399.1 | 382.0 | 420.2 |
| Investment in machinery & equipment ³ | billion euro | 239.8 | 226.2 | 237.8 | 107.0 | 119.2 | 111.9 | 126.0 |
| Construction investment | billion euro | 373.3 | 395.4 | 416.2 | 189.6 | 205.8 | 199.9 | 216.3 |
| Other products | billion euro | 133.7 | 141.0 | 148.2 | 66.8 | 74.1 | 70.2 | 77.9 |
| Domestic demand | billion euro | 3,228.1 | 3,242.2 | 3,421.2 | 1,571.0 | 1,671.2 | 1,658.4 | 1,762.8 |
| Exports of goods and services | billion euro | 1,612.1 | 1,553.8 | 1,626.5 | 775.6 | 778.2 | 800.1 | 826.3 |
| Imports of goods and services | billion euro | 1,404.4 | 1,376.8 | 1,432.0 | 675.9 | 700.9 | 693.3 | 738.7 |
| Gross domestic product | billion euro | 3,435.8 | 3,419.2 | 3,615.7 | 1,670.7 | 1,748.5 | 1,765.3 | 1,850.4 |
| Chained volumes | | | | | | | | |
| Final consumption expenditure | billion euro | 2,365.0 | 2,329.0 | 2,417.5 | 1,140.2 | 1,188.9 | 1,185.7 | 1,231.8 |
| Private consumption ² | billion euro | 1,708.0 | 1,656.6 | 1,731.9 | 807.4 | 849.3 | 846.4 | 885.5 |
| Government consumption | billion euro | 657.2 | 672.1 | 685.6 | 332.6 | 339.5 | 339.3 | 346.4 |
| Gross fixed capital formation | billion euro | 683.9 | 682.5 | 703.0 | 326.7 | 355.9 | 336.1 | 366.8 |
| Investment in machinery & equipment ³ | billion euro | 232.9 | 216.9 | 226.3 | 102.6 | 114.4 | 106.4 | 119.9 |
| Construction investment | billion euro | 324.4 | 333.1 | 340.3 | 160.8 | 172.4 | 164.5 | 175.8 |
| Other products | billion euro | 126.5 | 131.1 | 135.3 | 62.5 | 68.5 | 64.5 | 70.8 |
| Domestic demand | billion euro | 3,048.0 | 3,012.7 | 3,119.7 | 1,468.9 | 1,543.8 | 1,523.3 | 1,596.4 |
| Exports of goods and services | billion euro | 1,570.9 | 1,502.4 | 1,555.7 | 752.1 | 750.2 | 768.3 | 787.4 |
| Imports of goods and services | billion euro | 1,379.4 | 1,367.0 | 1,409.9 | 671.3 | 695.7 | 685.5 | 724.4 |
| Gross domestic product | billion euro | 3,240.7 | 3,151.0 | 3,268.2 | 1,550.7 | 1,600.3 | 1,606.8 | 1,661.4 |
| Price Development (deflators) | | | | | | | | |
| Final consumption expenditure | 2015=100 | 105.4 | 106.9 | 108.9 | 106.0 | 107.8 | 107.8 | 109.9 |
| Private consumption ² | 2015=100 | 105.0 | 106.1 | 108.0 | 105.7 | 106.5 | 107.3 | 108.5 |
| Government consumption | 2015=100 | 106.4 | 109.0 | 111.1 | 106.8 | 111.0 | 109.0 | 113.2 |
| Gross fixed capital formation | 2015=100 | 109.2 | 111.7 | 114.1 | 111.3 | 112.1 | 113.6 | 114.5 |
| Investment in machinery & equipment ³ | 2015=100 | 103.0 | 104.3 | 105.1 | 104.3 | 104.2 | 105.2 | 105.1 |
| Construction investment | 2015=100 | 115.1 | 118.7 | 122.3 | 117.9 | 119.4 | 121.5 | 123.0 |
| Other products | 2015=100 | 105.7 | 107.6 | 109.5 | 106.9 | 108.1 | 108.9 | 110.1 |
| Domestic demand | 2015=100 | 105.9 | 107.6 | 109.7 | 107.0 | 108.3 | 108.9 | 110.4 |
| Terms of Trade | 2015=100 | 100.8 | 102.7 | 102.9 | 102.4 | 102.9 | 103.0 | 102.9 |
| Exports of goods and services | 2015=100 | 102.6 | 103.4 | 104.6 | 103.1 | 103.7 | 104.2 | 104.9 |
| Imports of goods and services | 2015=100 | 101.8 | 100.7 | 101.6 | 100.7 | 100.8 | 101.1 | 102.0 |
| Gross domestic product | 2015=100 | 106.0 | 108.5 | 110.6 | 107.7 | 109.3 | 109.9 | 111.4 |
| Production of domestic product | | | | | | | | |
| Employed persons (domestic) | 1,000 | 45,251 | 45,232 | 45,266 | 45,130 | 45,335 | 45,078 | 45,453 |
| Labour volume | million hours | 62,720 | 61,389 | 62,137 | 30,413 | 30,976 | 30,374 | 31,763 |
| Labour productivity (per hour) | 2015=100 | 103.0 | 102.3 | 104.9 | 101.6 | 103.0 | 105.4 | 104.3 |
| For information purposes: | | | | | | | | |
| Consumer prices | 2015=100 | 105.3 | 106.4 | 108.2 | 106.6 | 106.6 | 107.6 | 108.7 |

1 - Forecast by the GCEE according to baseline scenario. 2 - Including non-profit institutions serving households. 3 - Including military weapon systems.

Sources: Federal Employment Agency, Federal Statistical Office, own calculations

↘ TABLE 8 CONTINUED

Key figures of the national accounts

Change on the previous year in %

| 2019 | 2020 ¹ | 2021 ¹ | 2020 ¹ | | 2021 ¹ | | |
|------------|-------------------|-------------------|-------------------|--------------|-------------------|--------------|--|
| | | | 1. half-year | 2. half-year | 1. half-year | 2. half-year | |
| | | | | | | | Use of domestic product |
| | | | | | | | at current prices |
| 3.5 | - 0.1 | 5.7 | - 0.5 | 0.2 | 5.8 | 5.6 | Final consumption expenditure |
| 2.9 | - 2.0 | 6.4 | - 2.6 | - 1.4 | 6.4 | 6.3 | Private consumption ² |
| 5.1 | 4.7 | 4.1 | 5.2 | 4.2 | 4.1 | 4.1 | Government consumption |
| 5.5 | 2.1 | 5.2 | 1.1 | 3.0 | 5.1 | 5.3 | Gross fixed capital formation |
| 1.9 | - 5.7 | 5.1 | - 7.5 | - 3.9 | 4.5 | 5.7 | Investment in machinery & equipment ³ |
| 8.4 | 5.9 | 5.3 | 5.1 | 6.7 | 5.4 | 5.1 | Construction investment |
| 4.4 | 5.4 | 5.1 | 5.5 | 5.3 | 5.1 | 5.1 | Other products |
| 2.9 | 0.4 | 5.5 | - 0.6 | 1.4 | 5.6 | 5.5 | Domestic demand |
| 1.7 | - 3.6 | 4.7 | - 3.4 | - 3.8 | 3.2 | 6.2 | Exports of goods and services |
| 1.8 | - 2.0 | 4.0 | - 2.7 | - 1.3 | 2.6 | 5.4 | Imports of goods and services |
| 2.7 | - 0.5 | 5.7 | - 1.1 | 0.1 | 5.7 | 5.8 | Gross domestic product |
| | | | | | | | Chained volumes |
| 1.8 | - 1.5 | 3.8 | - 2.0 | - 1.1 | 4.0 | 3.6 | Final consumption expenditure |
| 1.6 | - 3.0 | 4.5 | - 3.7 | - 2.3 | 4.8 | 4.3 | Private consumption ² |
| 2.6 | 2.3 | 2.0 | 2.6 | 1.9 | 2.0 | 2.0 | Government consumption |
| 2.6 | - 0.2 | 3.0 | - 1.3 | 0.8 | 2.9 | 3.1 | Gross fixed capital formation |
| 0.6 | - 6.8 | 4.3 | - 8.9 | - 4.9 | 3.7 | 4.8 | Investment in machinery & equipment ³ |
| 3.9 | 2.7 | 2.2 | 1.9 | 3.5 | 2.3 | 2.0 | Construction investment |
| 2.7 | 3.6 | 3.2 | 3.8 | 3.4 | 3.2 | 3.3 | Other products |
| 1.0 | - 1.2 | 3.6 | - 2.1 | - 0.2 | 3.7 | 3.4 | Domestic demand |
| 0.9 | - 4.4 | 3.6 | - 4.2 | - 4.6 | 2.1 | 5.0 | Exports of goods and services |
| 1.9 | - 0.9 | 3.1 | - 1.4 | - 0.5 | 2.1 | 4.1 | Imports of goods and services |
| 0.6 | - 2.8 | 3.7 | - 3.4 | - 2.1 | 3.6 | 3.8 | Gross domestic product |
| | | | | | | | Price Development (deflators) |
| 1.6 | 1.4 | 1.8 | 1.5 | 1.3 | 1.7 | 1.9 | Final consumption expenditure |
| 1.3 | 1.0 | 1.7 | 1.1 | 0.9 | 1.5 | 1.9 | Private consumption ² |
| 2.5 | 2.4 | 2.0 | 2.5 | 2.3 | 2.0 | 2.0 | Government consumption |
| 2.9 | 2.3 | 2.1 | 2.4 | 2.2 | 2.1 | 2.1 | Gross fixed capital formation |
| 1.3 | 1.2 | 0.8 | 1.6 | 1.0 | 0.8 | 0.8 | Investment in machinery & equipment ³ |
| 4.4 | 3.1 | 3.0 | 3.2 | 3.1 | 3.0 | 3.0 | Construction investment |
| 1.6 | 1.8 | 1.8 | 1.7 | 1.9 | 1.8 | 1.8 | Other products |
| 1.8 | 1.6 | 1.9 | 1.6 | 1.6 | 1.8 | 2.0 | Domestic demand |
| 0.9 | 1.9 | 0.2 | 2.1 | 1.6 | 0.6 | - 0.0 | Terms of Trade |
| 0.8 | 0.8 | 1.1 | 0.8 | 0.8 | 1.0 | 1.2 | Exports of goods and services |
| - 0.1 | - 1.1 | 0.8 | - 1.3 | - 0.8 | 0.4 | 1.2 | Imports of goods and services |
| 2.2 | 2.3 | 2.0 | 2.4 | 2.3 | 2.0 | 1.9 | Gross domestic product |
| | | | | | | | Production of domestic product |
| 0.9 | - 0.0 | 0.1 | 0.2 | - 0.3 | - 0.1 | 0.3 | Employed persons (domestic) |
| 0.6 | - 2.1 | 1.2 | - 1.3 | - 2.9 | - 0.1 | 2.5 | Labour volume |
| - 0.0 | - 0.7 | 2.5 | - 2.3 | 0.8 | 3.7 | 1.2 | Labour productivity (per hour) |
| | | | | | | | For information purposes: |
| 1.4 | 1.1 | 1.7 | 1.9 | 0.6 | 1.0 | 2.0 | Consumer prices |

1 - Forecast by the GCEE according to baseline scenario. 2 - Including non-profit institutions serving households. 3 - Including military weapon systems.

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