



Supply chain disruptions

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Still a risk to the economy and inflation in 2022

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Never since reunification have industrial companies in Germany complained as much about material bottlenecks as they do at present. According to the ifo Institute, at the beginning of the 3rd quarter almost 64% of companies reported that bottlenecks in the supply of primary products were hampering their own production. The average figure for the years 1991 to 2020 was 5.4%.

In addition to physical shortages of intermediate products, rising prices are also currently problematic for companies. On the one hand, this is due to higher prices for raw materials. On the other, suppliers are increasingly drawing on their stocks of finished goods to meet customer demand. Due to the current bottlenecks, significant price increases for finished products can be enforced.

This is reflected in producer prices. In August 2021, they were around 12% higher than a year earlier – the biggest increase since December 1974. Metals were a good 35% higher than a year earlier, processed wood almost 100% higher and iron and steel scrap 105% higher. Producer prices for crude oil and natural gas exceeded the 2020 level by 142%.

The latest development is not a German phenomenon. In many countries around the world, the current economic recovery is being dampened by supply bottlenecks and higher prices. As an open economy, Germany is feeling the impact via import prices. In August 2021, these were more than 16% higher than the corresponding year-earlier level. This was the highest increase since September 1981.

As a result, the inflation rate in Germany has been picking up for some time. In September 2021, it was 4.1%. For 2021 as a whole, we expect inflation to be around 3%, compared with +0.4% in 2020. A number of structural factors suggest that we will have to prepare for higher inflation rates in the coming years.

Supply bottlenecks and rising prices for intermediate goods are hampering the economic recovery in the manufacturing sector. Here, new orders in August 2021 exceeded the production level by close to 22%. This is the second largest difference between production and orders since reunification (with July 2021 ranking first place). The demand side is therefore not a limiting factor for a stronger industrial recovery. We have revised our production forecast for the manufacturing sector downward to +6% in 2021 (2020: -9.6%).

Overall, we expect supply chain disruptions to keep us busy into 2022, although the low point in the supply crisis may be behind us. Production capacities will be difficult to expand in the short term. Some companies will hold back on expansion investments if they expect the excess demand to be temporary. For individual products (e.g. semiconductors), production capacities are likely to be ramped up, but at the same time demand is rising structurally.



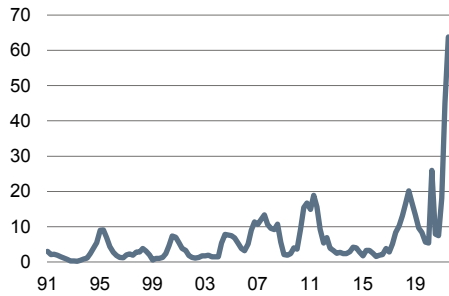
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Complaints about material shortages at record level

Shortage in material on a record level

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Index for the shortage of intermediate goods in the manufact. ind., DE, share of companies, %



Source: ifo

Never since reunification have industrial companies in Germany complained as much about material bottlenecks as at present. At the beginning of the 3rd quarter, 63.8% of companies reported that bottlenecks in the supply of input materials were hampering their own production. In September, the figure was as high as 77.4%. The previous record for a quarterly value dates back to Q3 2018, when a good 20% reported negative effects on production due to supply shortages of intermediate products.¹ The 1991-2020 average was 5.4%. The difference to the latest survey value illustrates the historical dimension of the current supply crisis.

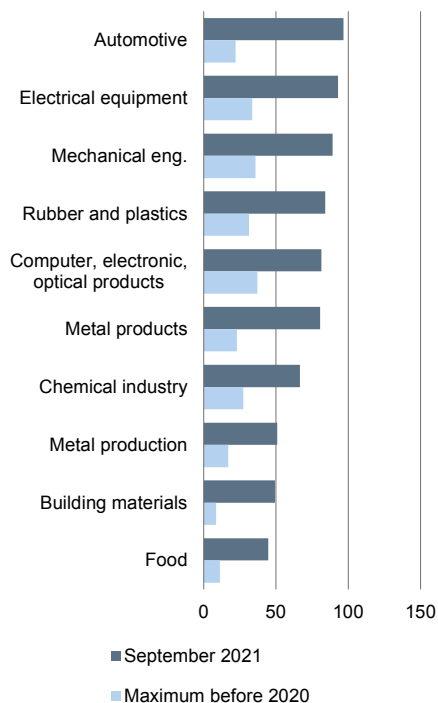
Almost all sectors affected

It is also striking that almost all industrial sectors are suffering severely from material shortages. The automotive industry is a prime example. Here, production has been running on the back burner since the beginning of the year because the supply of semiconductors and other electronic components is insufficient. Companies are concentrating on the production of particularly high-margin vehicles. Production volumes are suffering as a result. In September, 96.6% of all companies in the automotive industry (including suppliers) reported shortages of intermediate products – the highest figure of all industrial sectors.

Capital goods producers are hit most

2

Index for the shortage of intermediate goods in the manufact. ind., DE, share of companies, %



Source: ifo

In electrical engineering, mechanical engineering, the rubber and plastics industry and the furniture industry, too, the proportion of companies where material bottlenecks are hampering production is over 80% in each case. In the chemical industry, the figure is just under 67%. The picture in the metals industry is mixed: While “only” just 50% of companies in metal production and processing, i.e. the sectors at the start of the value chain, complain of supply bottlenecks, the figure for the manufacture of material products is around 80%. Only in the food industry and in the clothing industry is the proportion of companies for which material bottlenecks lead to production disruptions relatively small, at around 44%. However, these are also extraordinarily high figures in these sectors by historical standards.

Prices pick up across the board

The cited ifo survey from early September shows that not only physical shortages of intermediate products are problematic for companies, but also rising prices. On the one hand, this is due to higher quotations for raw materials. On the other, suppliers are increasingly drawing on their stocks of finished goods to meet customer demand. Due to the current bottlenecks, significant price increases for finished products can be implemented.

The latest economic survey by the DIHK confirms that energy and raw material prices are increasingly becoming a burden for companies. Whereas in the early summer of 2020 only 15% of the companies surveyed in the export industry stated that higher energy and raw material prices would represent a business risk for them in the coming twelve months, one year later the figure was 42%.

¹ Cf. Wohlrabe, Klaus (2021). Material bottlenecks in industry: Who is affected and how do companies react? ifo Schnelldienst 9/2021. Munich.

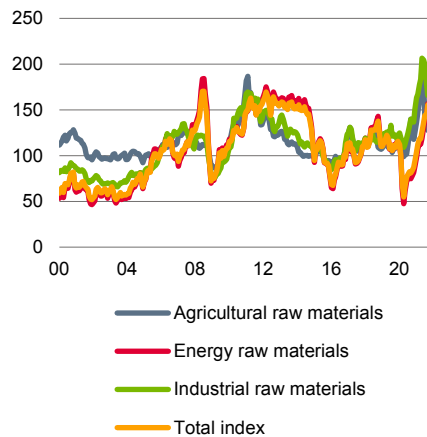


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Industrial raw materials particularly expensive

3

Commodity price index for Germany, Euro basis, 2010=100



Source: HWWI

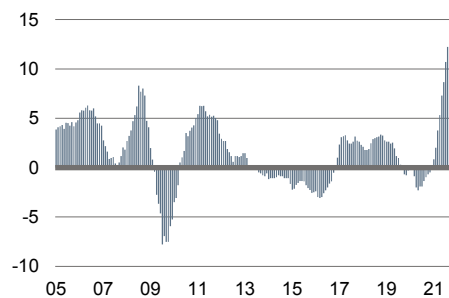
World market prices for raw materials at a high level

Raw materials are at the beginning of the industrial value chain. Here, there have been noticeable price increases in recent months. The overall HWWI commodity price index was most recently at its highest level since summer 2014 (in euro terms). In September, the index exceeded the prior-year figure by 92%. For industrial raw materials (e.g. nonferrous metals, iron ore, scrap), a historic all-time high was reached in May 2021. Since then, there has been some price relief, but the price index for industrial commodities in September was 34% above the average level of 2019, the year before corona. The HWWI commodity price index for energy has seen particularly sharp increases over the past several months. Here, the index in September 2021 exceeded the value of the previous year by 110%.

Substantial increase in producer prices

4

Producer prices for industrial products in Germany, % yoy



Source: Federal Statistical Office

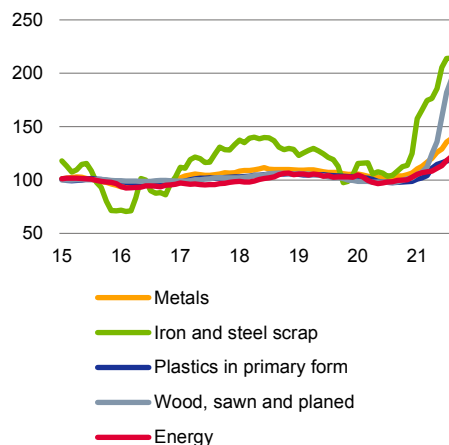
Producer prices rise more strongly than at any time since 1974

The development in raw materials is reflected in producer prices. In August 2021, they were around 12% higher than a year earlier. According to the Federal Statistical Office, this was the biggest increase in a single month since December 1974, when producer prices rose sharply in the wake of the first oil crisis. Here, too, the historical dimension of producer price developments becomes clear.

Steel scrap, wood and metals more expensive

5

Producer prices for selected products in Germany, 2015=100



Source: Federal Statistical Office

The price increases for individual product groups are even higher. For example, plastics in primary form were almost 22% more expensive in August 2021 than a year earlier, metals were a good 35% higher than a year earlier, processed wood (sawn and planed) almost 100% higher, and secondary raw materials from iron and steel scrap 105% higher. The producer price index for energy (total) was 24% higher in August than a year earlier. Producer prices for crude oil and natural gas exceeded the 2020 figure by 142%. Gas prices in particular have risen sharply in recent weeks. One reason for this is that gas storage facilities in Germany are currently quite empty for the time of year and need to be filled before the winter season. This is driving demand. In addition, demand for liquefied natural gas (LNG) is rising sharply in Asia. Because higher prices are paid there than in Europe, less LNG is currently arriving in Europe from the USA, for example. In addition, there have been some disruptions on the supply side, which have led to interruptions in the operation of gas fields or pipelines, for example. The bottom line is that energy prices are a major driver of the current increase in producer prices, but by no means the only factor.

Price rise not a German phenomenon: Import prices picking up

The latest development is not a German phenomenon. In many countries around the world, the current economic recovery is being dampened by supply bottlenecks and higher prices. As an open economy, Germany is feeling the effects of this through import prices. In August 2021, these were more than 16% higher than the corresponding pre-year level. This was the highest increase since September 1981 (second oil crisis).

Energy products also recorded particularly high increases in import prices. On average, they rose by 93.6% year-on-year in July. For crude oil and natural gas, the increase was just below 104%. At the same time, import prices for many other goods – not least intermediate goods – also increased noticeably. These include prices for non-ferrous scrap (+22.4%), chemical products (+24.4%), metals (+38.9%), plastics in primary form (+41.4%) and sawn and planed wood (+61.6%).



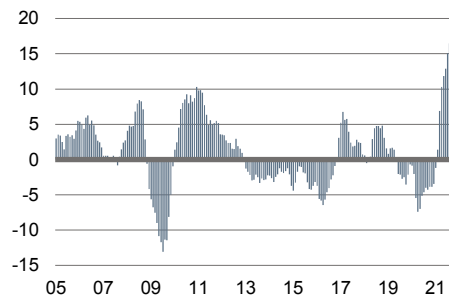
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Inflation rate picks up significantly in 2021 and remains high in 2022

Historically high increase in import prices

6

Import prices in Germany, % yoy



Source: Federal Statistical Office

Unsurprisingly, higher producer and import prices are now also feeding through into general inflation. For example, the inflation rate in September 2021 was 4.1%. This was the highest value on a monthly basis since 1993. For 2021 as a whole, we expect an inflation rate of around 3%, after +0.4% in 2020. Admittedly, various base effects play a role here. For example, global energy prices declined at the start of the coronavirus crisis in 2020 due to the collapse in demand. In addition, the VAT rate was reduced by 3 percentage points in the 2nd half of 2020 as part of the coronavirus measures. Finally, a CO₂ levy on fossil fuels such as gasoline, diesel, heating oil and natural gas was introduced at the beginning of the year. Nevertheless, such a high inflation rate is remarkable after many years with only minor general price increases.

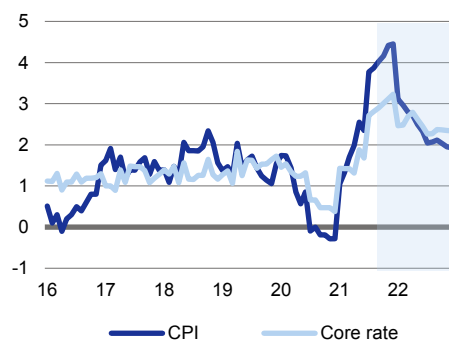
The higher inflation rate also entails the risk that stronger wage increases will follow and trigger second-round effects. The inflation rate could then remain permanently elevated, especially as the economic catch-up effect following the coronavirus crisis is likely to continue into 2022. The ECB's relatively relaxed stance to date could then be followed by a more restrictive monetary policy. We currently expect inflation to be around 2.5% in 2022. One important reason for this is that the above-mentioned base effects will disappear completely next year (VAT effect), will no longer occur in this dimension (e.g. lower increase in the CO₂ price in 2022 compared with the initial introduction in 2021) or will even have a dampening effect on prices (e.g. if the oil price in 2022 is lower than in 2021, which we currently expect).

Structural factors point to higher inflation

Some price relief in 2022 expected

7

CPI in Germany, % yoy



Sources: Federal Statistical Office, WEFA, Deutsche Bank Research

Nevertheless, there are a number of structural factors which suggest that we will have to prepare for higher inflation rates in the coming years.² These include the diminishing price-dampening effects of globalisation. For example, the potential labour force in many industrialised countries is declining, as is the share of the labour force in the emerging markets. This makes higher wage agreements in the industrialised countries more likely. Progress in free trade is likely to remain limited. As a result, the deflationary effects of the international division of labour will be less pronounced than in the first decade of this century. At that time, for example, the greater integration of the labour force in China (WTO accession at the end of 2001) and other Asian countries into the industrial value chain had a dampening effect on wage agreements in the industrialised countries.

What is more, a more ambitious climate and energy policy will lead to higher prices for fossil fuels for end customers (CO₂ pricing). In addition, the desired path to a climate-friendly or even climate-neutral society requires enormous investments in new infrastructures. This need for investment is often matched by limited capacities, e.g. in the construction sector. Furthermore, if traditional CO₂-intensive production processes are to be replaced by more climate-friendly production processes (e.g. production of steel based on green hydrogen), this will lead to higher costs at various points in the value chain. In addition, the demand for some raw materials (e.g. copper, rare earths) is likely to be permanently boosted to a higher level by the intended electrification of larger parts of the economy, which will have a price-increasing effect *ceteris paribus*.

In addition, regulatory measures (e.g. bans, limits, quotas) can have a price-increasing effect on the supply side. For example, energy efficiency requirements for buildings lead to higher costs for homeowners and tenants in

² See Schneider, Stefan (2021). Heightened inflation risks in Germany: For real or just the usual paranoia? Deutsche Bank Research. Focus Germany. Frankfurt am Main.



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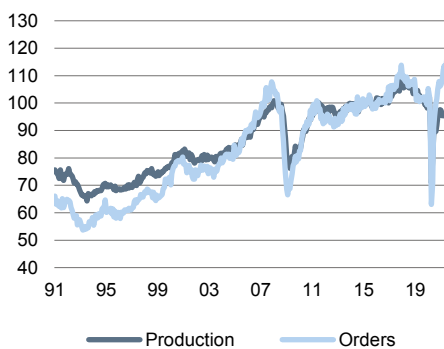
the short-to-medium term if these requirements can only be met through extensive renovation and refurbishment measures. Furthermore, bans on certain technologies reduce the supply. If alternative technologies are initially more expensive, this will drive up inflation. Finally, restrictions on international trade in goods introduced, for example, to protect energy-intensive industries in the EU (Carbon Border Adjustment Mechanism, CBAM) can also have a price-increasing effect on the products concerned because they make trade more expensive. In sum, climate policy has a direct and indirect effect on prices through many channels. However, the effect is difficult to quantify due to uncertainties about the concrete design.

Industry: Large discrepancy between orders and production

Large gap between production and orders

8

Production and orders in the manufacturing industry in Germany, 2015=100



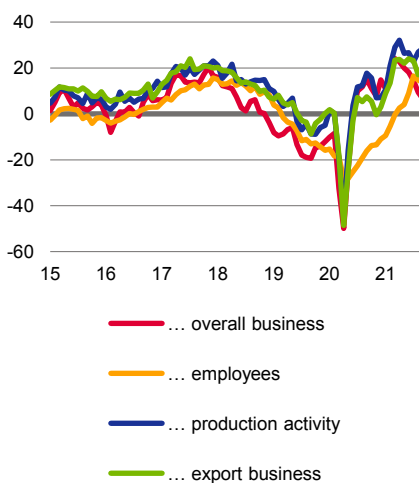
Source: Federal Statistical Office

Back to the physical supply bottlenecks and increased prices for intermediate goods: Both effects have already impacted the economic development in the manufacturing sector in Germany. Here, the current margin shows an extraordinary, large discrepancy between orders and domestic production. In August 2021, new orders exceeded the production level of the same by close to 22%. This is the second largest difference between production and orders since reunification (with July 2021 ranking first place). The order backlog in the manufacturing sector even reached a new record level in July. The demand side is therefore not a limiting factor for a stronger industrial recovery in 2021. However, due to the supply bottlenecks we have lowered our forecast for industrial production in the current year to 6% (from 8% previously); in 2020 manufacturing fell by 9.6%. In the automotive industry in particular, the aforementioned chip shortage is having a dampening effect. Compared with the low level of the corona year 2020, manufacturing in 2021 is likely to stagnate at best (2020: -23.5%). The sector is a long way from its previous highs and is unlikely to reach them again in Germany in the medium term.

In general positive mood in the manufacturing industry of late

9

Balance of opinions in the German manufacturing industry, expectations with regard to ...



Source: ifo

Low point may have been reached, but no all-clear for 2022

Production and export expectations in the manufacturing sector are currently in positive territory. This is initially a positive signal. However, the development of the two indicators has been mixed in recent months. It is therefore not yet clear that the low point in the current supply crisis is already behind us. There are several reasons to believe that the supply bottlenecks cannot be eliminated in the short term. Even in normal times, it is not possible to build up additional production capacity in the short term. At present, of course, this is also made more difficult by the supply bottlenecks and other capacity restrictions, for example in the construction sector. Some companies will hold back on expansion investments if they expect the current excess demand to be only temporary. For individual products (e.g. semiconductors), production capacities are likely to be ramped up, but at the same time demand will rise structurally. In the case of raw materials, it is often the case that new deposits cannot be tapped in the short term.

Overall, we expect supply chain disruptions to keep us busy (well) into 2022. The renewed dampening of business expectations illustrates the scepticism. There are likely to be sector-specific differences. There are even reports from the automotive industry that the chip shortage could continue to affect production until 2023. Even if the worst supply bottlenecks were already behind us, this would not automatically mean that industrial production would then pick up particularly dynamically. We expect manufacturing output to grow by a further 6% in 2022. However, this would still lead to a level below the previous peak of 2018.



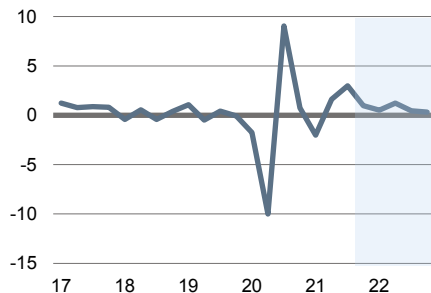
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GDP forecast hampered by supply chain disruptions

Corona effects fade away

10

Real GDP in Germany, % qoq



Sources: Federal Statistical Office, Deutsche Bank Research

The bottlenecks are not limited to intermediate products and industry. Some service sectors are also complaining about shortages. This applies above all to personnel. For example, there is a shortage of workers in the hospitality industry, because established employees have found employment in other sectors during the coronavirus crisis. The freight transport industry has been complaining about the lack of qualified truck drivers for many years. The fact that the skilled trades or the health and care sector are suffering from a lack of young talent is also not new news. Relief on the labour market through more immigration could be further hampered by the fact that the coronavirus crisis is still putting the brakes on immigration to Germany for the time being. In 2020, the net number of people migrating to Germany was the lowest since 2010. In any case, the shortage of skilled workers is (once again) a limiting factor in many sectors.

Ultimately, GDP growth in Germany in 2021 and 2022 would also be higher than we have forecast so far (+3.1% and +4.3% respectively). If the bottlenecks were to ease earlier than previously assumed, an even stronger recovery would be possible next year. However, if supply chain disruptions or shortages of skilled workers continue, our forecast for next year would be too optimistic.

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