Short-term shock with lasting effects: The coronavirus crisis and international value chains

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The coronavirus pandemic has hit the global economy hard and caused international trade to plummet. Global industrial production dropped to its lowest in April, falling around 15% below the level of December of the previous year. In April and May 2020, international trade was 16 and 17% below the December level. The development of the global economy is also affecting Germany's SMEs. As they are integrated into global value chains, they are hardly immune to declines in demand and disruptions of production abroad and so they are affected not just by the measures adopted within Germany to contain the virus. Having experienced declines in international turnovers and supply chain disruptions, many businesses are likely to review their sales and procurement strategies and to make long-term realignments in order to better mitigate future local or global shocks. One conceivable response is an at least partial withdrawal from global value chains. Almost one in two SMEs that were affected by supply chain disruptions expect businesses to respond to the crisis in this way. Other possible adjustments include greater diversification of international business, increasing stockpiles and insourcing previously outsourced production stages. In this regard, efficiency and resilience are conflicting goals, at least in the short term.

Changes to global value chains would not be without consequence for global trade. Globalisation lost momentum even before the crisis struck. Trade disputes of the US with China and the EU already weighed on goods and services trade for some time and trust in rules-based international trade has dwindled. The coronavirus crisis has further fuelled national interests and trade restrictions. As recessions often combine with growing discrimination against foreign interests, the prospects of trade tensions easing are less than encouraging.

At the same time, international trade is an important driver of growth and a key prerequisite for a rapid recovery from the economic fallout of the coronavirus crisis. Improved international cooperation aimed at strengthening rules-based trade is therefore more important than ever.

The coronavirus crisis has hit the global economy hard and led to a slump in external trade

The coronavirus crisis has hit the economy hard. At its lowest point in April 2020, Germany's industrial output was 22% below the pre-coronavirus crisis level of December 2019. Global industrial output also fell to its lowest level in April of last year, dropping around 15% below the December level of the previous year (see Figure 1).[1] The global dimension of the crisis, which led to declines in demand and supply chain disruptions, also caused international trade to plummet.

Figure 1: Global industrial output and international trade

Seasonally adjusted, constant USD, indexes, December 2019=100

Note: global industrial output as average of the data presented in the Global Economic Monitor, World Bank, and Global Trade Monitor, CPB Netherlands Bureau for Economic Policy Analysis.

Source: Macrobond, KfW Research.

April and May were the two worst months for external trade. Germany's trade volume was 21 and 18% below the level at the end of 2019 and the global figure was 16 and 17%. For 2020 as a whole, KfW Research estimates that economic activity in Germany declined by 5.3% and global economic activity by 4.4%. Germany's exports and imports are also likely to turn out significantly lower in 2020 than in the year before.

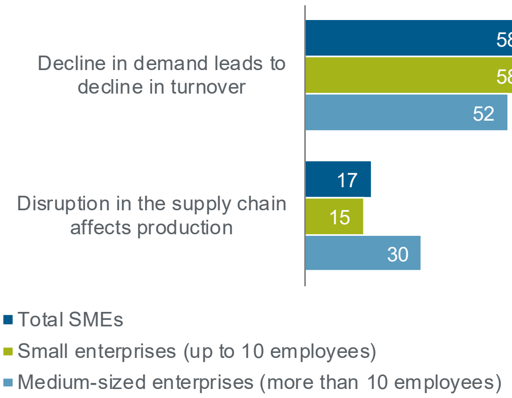
SMEs, too, are feeling the impact of the coronavirus crisis – at home and abroad

The coronavirus crisis severely affected the SME sector as well, which employs more than 70% of Germany's workforce (Figure 2).[2] In March, around 58% of the 3.8 million small and medium-sized enterprises (SMEs) recorded turnover losses averaging 53% of the turnover typically expected for that month.[3] SMEs' massive turnover losses are directly related to the measures adopted in Germany to contain the pandemic but are likely the result of declines in demand from abroad as well. After all, most recently around one in five enterprises generated foreign turnover from direct exports or through sales branches in other countries. In 2018, international turnover totalled just under EUR 600 billion, representing around 28% of exporting SMEs' overall turnover.[4] In addition, many SMEs sell products or services outside Germany indirectly as suppliers to exporters. Overall, almost

90% of manufacturing SMEs and 53% of SMEs operating in the business-related services sector are directly or indirectly dependent on demand from abroad.[5]

Figure 2: Impact of coronavirus crisis on the SME sector

Percentage of enterprises



Source: Supplementary coronavirus survey of the KfW SME Panel (—14 April 2020), see also Schwartz, M., and Gerstenberger, J., (2020).

Furthermore, supply chain disruptions affected large SMEs in particular. Around 30% of businesses with more than ten employees saw their production affected in March because necessary inputs such as components, raw materials or services were not available as usual. In total, problems in the supply chain affected around 17%, or just under 650,000 SMEs in Germany.[6] That is likely to also have been partly due to disruptions to production at suppliers abroad and restrictions on cross-border movement of goods and services, since SMEs are closely connected with other countries, not just in sales but on the procurement side as well. The OECD has estimated the share of SMEs in total German goods imports at around 33% for the year 2018.[7] The SME sector is part of global value chains and as such is also affected directly and indirectly by external economic developments.

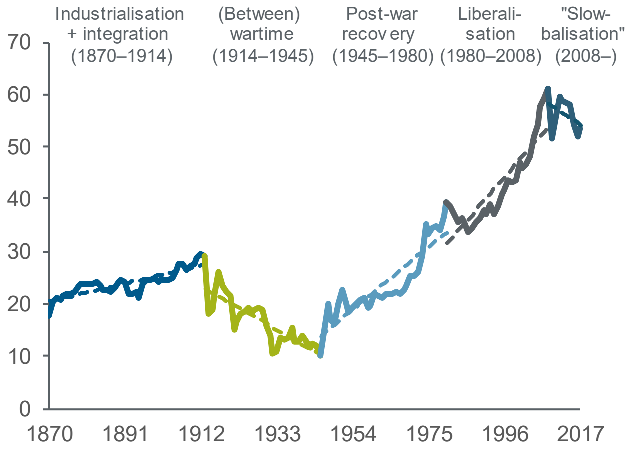
Globalisation had already slowed down before the pandemic hit

Even if the pre-crisis level of economic activity should be reached again at the end of 2021, the impact of the coronavirus crisis will reverberate beyond this period. The experiences of the crisis can be expected to lead to long-term structural transformations in the economy. That will also affect enterprises' cross-border relations along value chains and, consequently, international trade of goods and services.

Globalisation lost momentum even before the coronavirus hit (Figure 3). Since the beginning of the global financial crisis in 2008, merchandise trade, the sum of exports and imports in relation to global GDP, decreased from 51 to 43% in the year 2019.[8] The phase of strong liberalisation since the end of the 1970s was thus replaced by a phase in which globalisation has slowed significantly and is therefore dubbed 'slowbalisation'. This trend could continue or even intensify in the future as a result of the coronavirus crisis. It will crucially depend on whether and how companies realign their international value chains in a bid to shield themselves from future crises. Policy responses will also play an important role for the further pace of globalisation. Protectionist measures that further restrict international trade are just as conceivable here as additional support for national locations and incentives for production relocation in the context of national economic policy.

Figure 3: Phases of globalisation

(Global exports + global imports) / global GDP (in per cent)



Note: Data based on Klasing, M. J. and Milionis, P. (2014), Quantifying the Evolution of World Trade, 1870–1949, Journal of International Economics 92 (1), 185–197; Feenstra, R. C., Inklaar, R. and Timmer, Marcel P. (2015), The Next Generation of the Penn World Table, American Economic Review, 105 (10), 3150–3182.

Source: Our World in Data, https://ourworldindata.org/grapher/globalization-over-5-centuries-km

Experience of the crisis can prompt SMEs to reassess and realign their value chains

The coronavirus pandemic has made many businesses aware of the fragility of global value chains. Production shutdowns began in China at the end of January as a result of the measures imposed to contain the virus. Along with the closures, China's exports plunged as well, illustrated not least by container handling in Chinese seaports, which fell by 18% from January to February.[9] As China plays an important role in many international value chains, the decline in local production activity affected upstream and downstream production stages in many countries with a delay. As the virus increasingly spread in Europe, industrial production was compromised in further important trading partners, as well as in Germany itself, resulting in declines in demand and supply chain disruptions in German SMEs and large corporations alike. These experiences could prompt many businesses to reassess and realign their relations along value chains in the long term in order to become more resilient to future shocks.

Is a withdrawal from global value chains looming?

As a possible response, businesses might withdraw at least partly from global value chains. They could re-shore to Germany or Europe production stages previously shifted to other regions of the world. Companies might consider such re-shoring or near-shoring particularly in operations where the share of labour costs is falling continuously through automation and robotisation, especially in manufacturing.[10]

German SMEs definitely see the withdrawal from global value chains as a possible consequence of the coronavirus crisis. Around one in three SMEs expect production or service provision to become more regional. Their own experience of the crisis plays an important role here. SMEs that were themselves confronted by supply chain disruptions brought about by the coronavirus crisis are much more likely to predict that many businesses will withdraw from global value chains in the long term (Figure 4). If increased relocation occurs around the world, it will adversely affect international trade.

Efficiency gains from international division of labour would be lost

Relocating production stages, however, means losing efficiency gains from the international division of labour, unless these were achieved through technological progress. All else equal, production costs will rise and competitiveness will fall. Retreating from global and focusing on European or national value chains is also not necessarily expedient to achieve higher resilience because businesses will become more vulnerable to regional shocks such as natural disasters or geopolitical crises. To be sure, international value chains play a role in the spread of economic shocks across national boundaries. But they also help companies and countries recover from such crises more quickly.[11]

The fact that withdrawing from global value chains involves higher costs and new risks is also reflected in the survey results. Nearly one in four enterprises expect that companies will not withdraw from global value chains across the breadth of the SME sector in response to the coronavirus crisis (Figure 4). This underscores that relocating production stages to Germany or Europe must be seen in a differentiated manner against the background of competitiveness and resilience.

Furthermore, the sectors that were disproportionately affected by the coronavirus crisis were not necessarily the ones that are integrated relatively tightly into international value chains, such as the metallurgical, chemical or electronics industry, but primarily businesses from the services sector such as hotels, restaurants and tour operators, as well as businesses with stationary retail outlets that had to close during the lockdown in the spring.[12] This exceptionally severe impact on the services sector is a particular characteristic of the current crisis. It has also caused merchandise trade to fall less sharply than the decrease in economic output would have suggested if the global recession of 2009 is taken as a measure, for example.

Greater diversification helps reduce country-specific risks

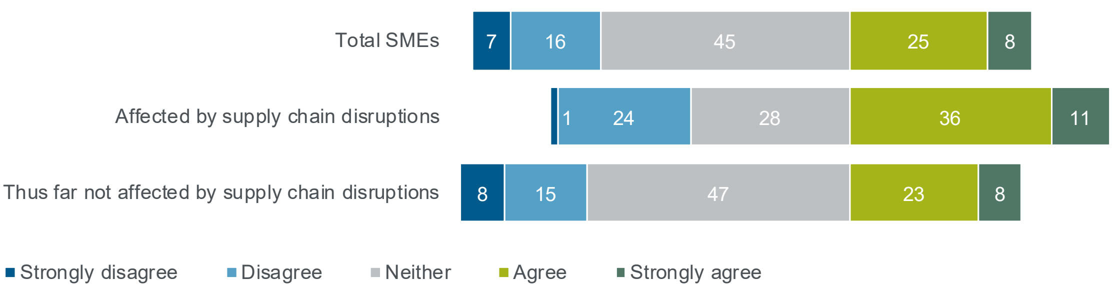
Greater diversification in procurement, that is the purchase of inputs from various suppliers from different countries, in contrast, increases the stability of supply chains and enables production activity to return to normal quickly after a disruption.[13] This also applies to the sale of goods and services. A diversified export strategy allows declines in demand in one market to be partly offset by turnovers in other markets. Here, international trade in goods and services takes on an insurance function.[14]

The fact that geographic diversification of target markets can help minimise risk on the sales side becomes clear once again when considering that in the past decades there has hardly been a quarter in which no country was in recession (Figure 5). Global recessions are much less common than country-specific shocks. The only disruptions that had a broader geographic reach were the oil price shocks in the early and late 1970s and the recession at the beginning of the 1990s. A vast majority of countries around the world was also impacted by the global financial and economic crisis of 2009.

The current coronavirus crisis is unusual in its global impact. Real economic output per capita in 2020 is expected to be below the previous year's level in at least 80% of countries.[15] To a limited degree, however, greater geographic diversification can also help spread risks in a global shock such as the coronavirus pandemic. This is particularly the case when

Figure 4: SMEs see global value chains under pressure

"Many businesses will withdraw from global value chains as a consequence of the coronavirus crisis."



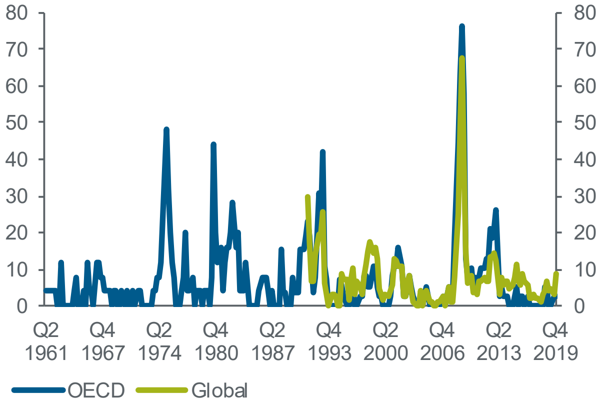
Note: Percentage of SMEs that agree with the statement depending on whether they have been affected by supply chain disruptions due to the coronavirus pandemic.

Source: Supplementary coronavirus survey of the KfW SME Panel (2–12 June 2020).

individual countries are affected with different intensity and, in particular, at different times. In the coronavirus crisis the economic downturn in China occurred in the first quarter of the year, while other countries followed in the second quarter. Particularly in the second half of 2020, there was a stronger regional differentiation regarding the progression of the pandemic and its economic impact.

Figure 5: Prevalence of recessions

Percentage of countries with two consecutive negative quarterly growth rates, number of countries varies by data availability



Source: OECD, World Bank, KfW Research

The strategy of greater diversification might have a positive effect on international trade. Tapping into new sales and procurement markets, however, comes at a cost for businesses. In fact, this is an important reason for many SMEs to target only few international markets. More than half of all SME exporters do business in not more than two target regions.[16] On the procurement side, redundancies in the supply chain increase production costs, not least because suppliers' economies of scale decrease. Besides, the required inputs must be available in the desired quality from various sources as well.

Coronavirus crisis could lead to higher stockpiling and increased outsourcing

In order to prevent value chain disruptions from compromising production, an increase in stockpiles might also be considered. But such a response increases stockpiling expenses and capital requirements. Businesses could also seek to relocate previously outsourced production stages back into their own operations and thus shorten the supply chain in order to reduce their dependence on external suppliers. Digital technologies such as 3-D printing are likely to provide additional impetus here. However, many raw materials would probably still need to be imported, so production disruptions from supply bottlenecks cannot be completely ruled out.[17] Furthermore, insourcing previously outsourced stages in the value chain is usually associated with lost efficiency gains.

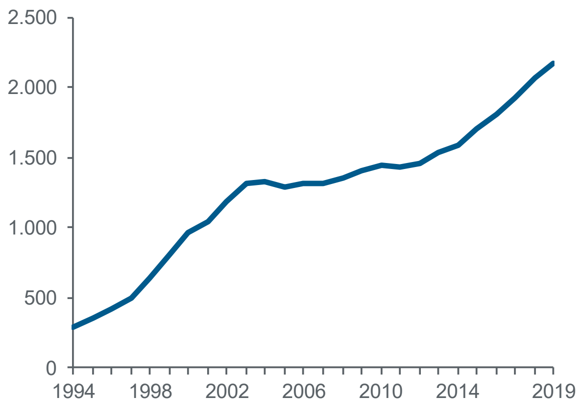
Realigning value chains means weighing efficiency against resilience

Whether and how businesses will change their value chain relations in response to the coronavirus crisis is ultimately an individual decision based on a cost-benefit calculation. At least in the short term, there will be a trade-off between efficiency and resilience. If companies aim to not just quickly resume production after a disruption and ensure that their operations remain viable in the long term but to completely avoid disruptions and maintain uninterrupted business operation even during crisis, they will have to deploy all the more resources.[18]

Strong competition and pressure to earn profits in order to offset losses from the coronavirus crisis might deter businesses from making adjustments to their value chains that reduce efficiency, even if these measures strengthen their resilience in the long term. Furthermore, the rising debt of businesses that took up loans to overcome liquidity constraints in the coronavirus crisis is making it harder for them to access further finance necessary to realign supplier relationships or tap into new sales markets.[19] New digital technologies, in turn, are likely to increasingly facilitate their integration into international value chains and further improve risk management in supplier relationships. In this way, they can also help SMEs mitigate the trade-off between efficiency and resilience.[20]

Figure 6: Non-tariff trade barriers

Number of trade protection measures in force around the world (sum of anti-dumping, compensation and protection measures)



Source: WTO, KfW Research.

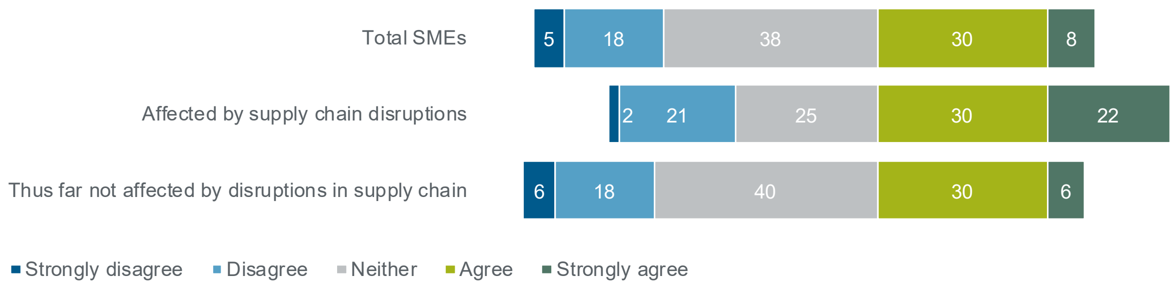
A pandemic is not the only risk

Businesses will also take into consideration the probability of industry-specific, regional or global shocks. Disruptions to value chains will be associated primarily with supply-side shocks, such as the containment measures imposed under the current pandemic, which have led to production losses around the world, or the absence of workers due to illness, quarantine or childcare constraints. Normally, it is demand-side shocks that cause recessions and sales difficulties for businesses. In the coronavirus crisis, loss of business and personal income plays the main role in this regard.

Apart from a pandemic, there are other global risks that have the potential for serious economic impacts. According to the Global Risk Report, the main ones currently include environmental issues such as extreme weather events, natural disasters and failure to take action on climate change.[21] These can also damage international value chains, as exemplified

Figure 7: SMEs see risk of rising protectionism as a result of the coronavirus crisis

"In the long term, the coronavirus crisis will lead to more protectionism and isolationism."



Note: Percentage of SMEs that agree with the statement depending on whether they have been affected by supply chain disruptions due to the coronavirus pandemic.

Source: Supplementary coronavirus survey of the KfW SME Panel (2–12 June 2020).

by the earthquake and tsunami in Japan in 2011 and the floods in Thailand, which temporarily closed down production facilities, triggering a supply-side shock.[22]

Trade tensions and protectionism could put additional strain on international value chains

In the decade following the global financial and economic crisis of 2008/2009, the number of non-tariff trade barriers rose significantly (Figure 6), even though the global recession did not promote protectionism to the extent that had been feared.[23] Since 2017, a new factor has been the trade dispute of the US, particularly with China but also with the EU, placing a strain on international trade in goods and services. Even if the new US president Biden is expected to encourage more multilateralism in trade, the conflict between the US and China will continue. And an escalation of the trade dispute between the US and the EU, even if less likely with a new US administration, would also leave traces in the German SME sector.[24] Apart from that, the EU has Brexit – its very own source of external trade risks.

In this situation of trade tensions, the coronavirus crisis has again promoted the assertion of national interests with protectionist measures. Particularly at the beginning of the coronavirus pandemic, many countries adapted their trade policy in response to shortages in the supply of medical goods. While most countries that had a trade deficit in medical products put in place import facilitation measures, net exporters of medical products tightened their export restrictions.[25] Between January and October 2020, a total of 92 countries imposed 215 measures aimed at controlling exports of medicines and medical products, thereby further clouding the trade environment.[26]

Even if the introduced measures are lifted again – and some of them already have been – the outlook is not very encouraging. As recessions tend to be accompanied by greater discrimination of foreign economic interests,[27] there is little reason to expect a significant improvement of the conditions for businesses' foreign activities given the sharp economic downturn caused by the coronavirus pandemic. Trust in a rules-based international trade system appears to have declined overall and will take a long time to rebuild.[28] The role of the WTO as a central institution of a multilateral trade order has been weakened, not least by the blockades of the US.

Many SMEs in Germany also predict that the coronavirus crisis will lead to more protectionism and isolationism in the long term (Figure 7). Some 38% of SMEs expect the trade environment to deteriorate. SMEs whose supply chains were affected by disruptions in the course of the coronavirus crisis are relative pessimistic in this regard. They are more likely to be integrated into global value chains and would be directly affected by growing protectionism. But clearly not all businesses share this view. Around one in four SMEs are optimistic and do not expect the trade environment to deteriorate as a result of the coronavirus crisis.

Improving framework conditions for international trade and strengthening multilateralism

The experiences which enterprises have had in the coronavirus crisis as participants in global value chains will lead to a rethink and possibly also to a realignment of existing sales and procurement strategies. Partial withdrawal from global value chains is a conceivable consequence, as is greater geographic diversification. In weighing the costs and benefits of such realignments, the risk of a new pandemic will not be the only factor that plays a role. Climate risks and risks associated with an increasingly closer digital integration of businesses and the economy must also be taken into consideration. International trade policy will have significant influence on the future structure of value chains.

At the core of all considerations must be the recognition that international trade in goods and services is not a zero-sum game but is of mutual advantage. No country can live in isolation and a shift away from international trade would entail a dramatic loss of prosperity. This applies to Germany in particular. Global trade is a key driver of growth and an important prerequisite for a rapid recovery from the economic fallout of the coronavirus crisis. Against this background, it is crucial that trade policymakers work to keep markets open and further liberalise trade in goods and services. Such efforts should also involve SMEs, which often face high barriers as they move to tap into new international markets.

Fears that the coronavirus crisis could lead to more protectionism and isolationism in the long term are understandable. The task at hand is to dispel these fears, among other things by rebuilding trust in rules-based international trade. Improved international cooperation and stronger multilateralism are more important than ever, both with a view to cross-border trade in goods and services and with respect to further issues such as climate action.

[1] Source: Macrobond; for the global value we averaged global industrial output according to NPB and the World Bank.

[2] Cf. Schwartz, M. (2019): **KfW SME Panel 2019 – After a record year, dark clouds are gathering – businesses between all-time highs and recession fears**, KfW Research.

[3] Cf. Schwartz, M., and Gerstenberger, J., (2020), **SMEs are firmly in the grip of the coronavirus crisis but (still) holding on strong**, Focus on Economics No. 286, KfW Research.

[4] Cf. Abel-Koch, J. (2020): **KfW-Internationalisation Report 2020: German SMEs' foreign trade – economic impact of coronavirus crisis eclipses concern over trade conflicts**, KfW Research.

[5] Unlike the other figures stated, this includes only SMEs with 20 and more employees. Cf. Abel-Koch, J. (2016): **SMEs' value chains are becoming more international – Europe remains key**, Focus on Economics No. 137, KfW Research.

[6] Cf. Schwartz, M., and Gerstenberger, J., (2020), **SMEs are firmly in the grip of the coronavirus crisis but (still) holding on strong**, Focus on Economics No. 286, KfW Research.

[7] OECD Trade in Enterprise Characteristics Database.

[8] Calculations based on data from UNCTADstat.

[9] RWI/ISL-Containerumschlagindex, https://www.isl.org/de/containerindex/august-2020, retrieved on 2 Oct. 2020.

[10] Cf. Marin, D. and Kilic, K. (2020): Wie Covid-19 Deutschland und die Weltwirtschaft verändert (*How COVID-19 is changing Germany and the global economy* – our title translation, in German only), ifo Schnelldienst 5/2020, 73th year, 13 May 2020, p. 13-16.

[11]Cf. OECD (2020): COVID-19 and Global Value Chains: Policy Options to Build More Resilient Production Networks.

[12] For details on the shares of global value chains in total value added of different sectors see Flach, L., Aichele, R. and Braml, M. (2020): Status quo und Zukunft globaler Lieferketten (*Status quo and future of global supply chains* – our title translation, in German only), ifo Schnelldienst 5/2020, year 73, 13 May 2020, p. 16–22.

[13] Thus, Todo et al. (2015) have illustrated that businesses with an extensive network of suppliers outside the affected region recovered faster from the impact of the 2011 earthquake in Japan. Cf. Todo, Y., K. Nakajima and Matous, P. (2015): How do supply chain networks affect the resilience of firms to natural disasters? Evidence for the Great East Japan Earthquake, Journal of Regional Science, Vol. 55(2), p. 209–229.

[14] Cf. Caselli, F., Koren, M., Lisicky M. and Tenreyro, S. (2020): Diversification through trade, Quarterly Journal of Economics, Vol. 135(1), p. 449–502.

[15] World Bank (2020), Global Economic Prospects, June 2020.

[16] Cf. Abel-Koch, J. (2017): **The world is not a village – geographic proximity to export markets is crucial to SMEs**, Focus on Economics No. 182, KfW Research.

[17] Cf. Petersen, T. (2020): Globale Lieferketten zwischen Effizienz und Resilienz (*Global supply chains between efficiency and resilience* – our title translation, in German), ifo Schnelldienst 5/2020, year 73, 13 May 2020, p. 7–10.

[18] Here, Miroudot (2020) refers to the risk management literature, distinguishing between resilience as the ability to return to normal business operation after disruptions within an acceptable period of time and robustness as the ability of maintaining business operation even in a crisis. This can be of relevance in the production of vital goods such as medical products, for example. Siehe Miroudot, S. (2020): Resilience versus robustness in global value chains: some policy implications, in Baldwin, R. and S. J. Evenett (Hrsg.): Covid-19 and trade policy: Why turning inward won't work, London, p. 117–130.

[19] Cf. also Petersen, T. (2020): Globale Lieferketten zwischen Effizienz und Resilienz (*Global supply chains between efficiency and resilience* – our title translation, in German), ifo Schnelldienst 5/2020, year 73, 13 May 2020, p. 7–10. The aspect of growing business debt as a result of the coronavirus crisis and possible consequences is also discussed in a KfW Research position paper, see Köhler-Geib, F. (2020): **Where to from here? The crucial next steps in the coronavirus crisis**, KfW Research

[20] Examples of such digital solutions include scoutbee, mysupply, riskmethods and DHL Resilience360. See also Bogaschewsky, R. (2020): Improving sourcing decisions, not only in turbulent times, Whitepaper 06/2020, Würzburg University.

[21] World Economic Forum (2020), The Global Risks Report 2020.

[22] OECD (2020); COVID-19 and Global Value Chains: Policy Options to Build More Resilient Production Network, Tackling coronavirus (COVID-19) Contributing to a global effort; McKinsey-Global Institute (2020), Risk, resilience, and rebalancing in global value chains.

[23] Bown, C. (2011), Import protection and the Great Recession, https://voxeu.org/article/import-protection-and-great-recession; Vijua, C. and Kerr, W.A. (2012), Protectionism During Recession-Why are Trade Barriers no Longer the Preferred Policy Choice?, Procedia - Social and Behavioral Sciences 62 (2012) 1366–1370.

[24] Cf. Abel-Koch, J. (2020): **KfW-Internationalisation Report 2020: German SMEs' foreign trade – economic impact of coronavirus crisis eclipses concern over trade conflicts**, KfW Research.

[25] Cf. Leibovici, F. and Santacreu, A. M. (2020): International Trade of Essential Goods During a Pandemic, Federal Reserve Bank of Sankt Louis Working Paper No. 2020-010B.

[26] Cf. Global Trade Alert (2020), The COVID-19 Pandemic: 21ST Century Approaches to Tracking Trade Policy Responses in Real-Time, Methodological Note, https://globaltradealert.org/reports/54.

[27] See Georgiadis, G. and Gräb, J. (2013), Growth, Competitiveness and Trade Protectionism During the Great Recession, unpublished manuscript, http://www.uibcongres.org/imgdb/archivo_dpo12975.pdf and Georgiadis, G. and Gräb, J. (2016), Growth, Real Exchange Rates and Trade Protectionism since the Financial Crisis, Review of International Economics 24 (5), 1050-1080 and Evenett 2020, What's next for protectionism, in Baldwin/Evenett, Covid-19 and Trade Policy, p. 179.