

## Reconfiguration of Supply Chains: What Are the Priorities of German Firms?

*Cevat Giray Aksoy, Andreas Baur, Lisandra Flach, and Beata Javorcik*

### Key Messages

- Most German companies have continued adjusting their sourcing strategies to mitigate the risk of supply chain disruptions. This is continuation of the process that started in the aftermath of the Covid-19 pandemic.
- Diversification of suppliers (58 percent) and increased stockpiling (45 percent) are the most frequently mentioned measures taken within the last 12 months.
- The share of firms increasing their inventories in 2023 was lower than in 2022 (45 percent vs. 68 percent). Only 12 percent of firms intend to increase stockpiling in the coming 12 months, suggesting that the process of inventory adjustment may be nearing completion.
- In contrast, the share of firms that further diversified their supply chains has remained relatively stable since 2022. Moreover, almost one-third of respondents plans to add new suppliers within a year.



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EconPol POLICY BRIEF

A publication of the CESifo Research Network

Publisher and distributor: CESifo GmbH

Poschingerstr. 5, 81679 Munich, Germany

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Editors: Clemens Fuest, Florian Dorn

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# Reconfiguration of Supply Chains: What Are the Priorities of German Firms?

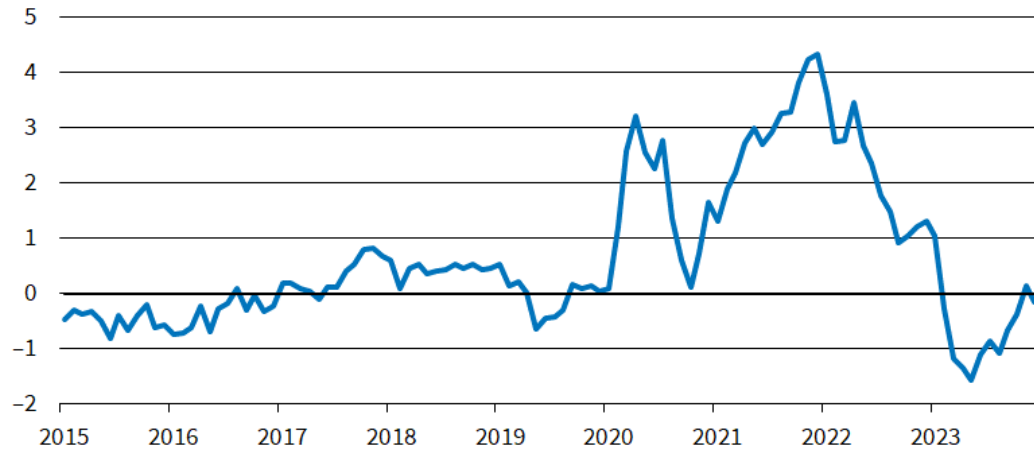
*Cevat Giray Aksoy, Andreas Baur, Lisandra Flach, and Beata Javorcik\**

At the height of the Covid-19 pandemic, global supply chains of firms came under increased public scrutiny. Pandemic-related production and transportation disruptions had put supply chains under severe pressure worldwide and were often associated with considerable economic costs. However, as the pandemic has subsided, the extent of supply chain disruptions has also decreased significantly. The Supply Chain Pressure Index (GSCPI), produced by the Federal Reserve Bank of New York to track the state of global supply chains, fell significantly last year and was even below its historical average in December 2023 (see Fig. 1). Moreover, according to the ifo shortage indicator, the proportion of German companies affected by shortages of intermediate inputs is also approaching pre-pandemic levels. While eight out of ten German manufacturing firms reported material shortages at the height of the pandemic in December 2021, this share had fallen to 18 percent in October 2023 (see Fig. 2). Nonetheless, the recent attacks by the Yemeni Houthi rebels on container ships in the Red Sea highlight the fact that supply chain risks remain significant.

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**Figure 1:**

**Global Supply Chain Pressure Index**



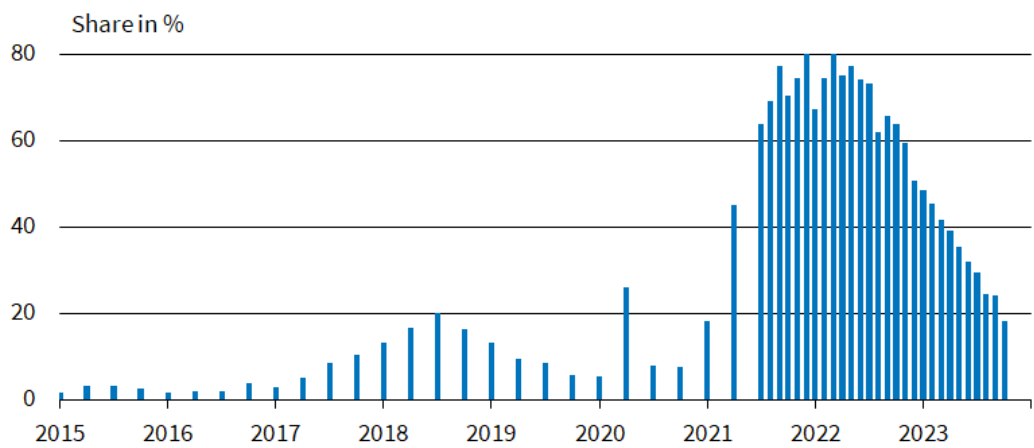
Source: Federal Reserve Bank of New York.

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**Figure 2:**

**ifo Index for shortage of intermediate inputs**

**Manufacturing**



Source: ifo Business Survey.

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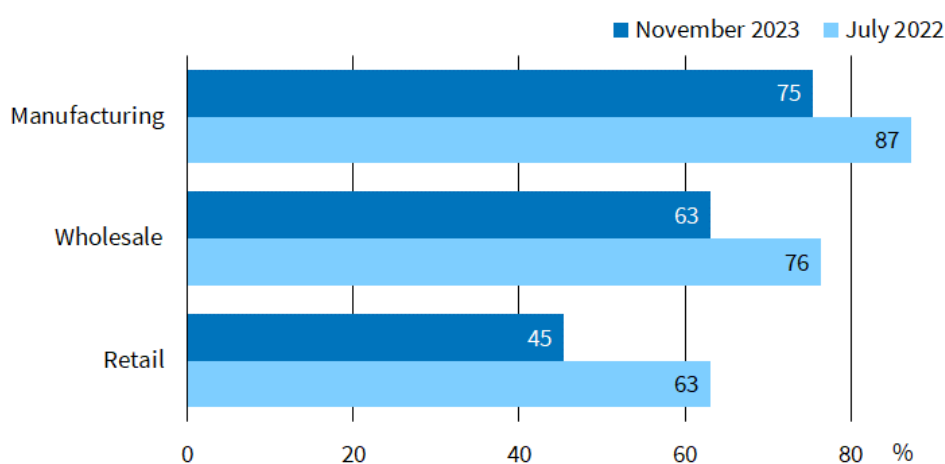
The vast majority of German enterprises responded directly to the acute disruptions during the pandemic by adjusting their sourcing strategies and strengthening the resilience of their supply chains (Aksoy et al. 2022). But what does the noticeable normalization of supply chains and the significant decline in material shortages mean for these efforts? Are companies continuing to restructure their supply chains despite decreasing immediate pressure? This policy brief presents the results from a representative firm-level survey that provide new insights into these questions. As part of the ifo Business Survey in November 2023, more than 4,000 German companies in the manufacturing sector, as well as wholesale and retail trade, were asked about the

extent to which they had made additional adjustments to their sourcing strategy in the last 12 months and the priorities they set for the future alignment of their supply chains. These questions were also posed to the companies in July 2022 (see Aksoy et al. 2022), allowing for a comparison of the two surveys.

**Figure 3:**

### **Actions taken to mitigate the risk of supply chain disruptions**

November 2023: in the last 12 months / July 2022: since the outbreak of the Covid-19 pandemic



Source: ifo Business Survey.

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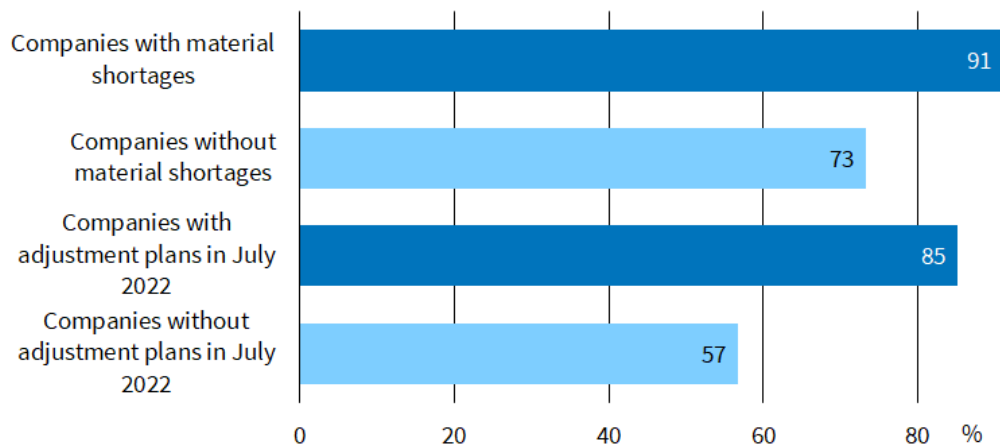
## **German Companies Continue to Invest in Supply Chain Resilience**

Figure 3 shows that in 2023 a significant majority of German companies took further actions to reduce the risk of supply chain disruptions. Three out of four manufacturing firms report concrete adjustments to their sourcing strategy. In wholesale, the respective share is 63 percent, in retail 45 percent. Compared to July 2022, the share of companies making supply chain adjustments has fallen overall, most likely reflecting the adjustments made earlier. This decline is relatively small in manufacturing and wholesale trade, where companies have remained very active in overhauling their supply chains compared to the previous year. A more substantial decrease, however, is evident in the retail sector.

**Figure 4:**

**Actions taken to mitigate the risk of supply chain disruptions**

Manufacturing



Source: ifo Business Survey.

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Figure 4 underlines that supply chain measures are not exclusively driven by acute material and supply shortages. Over 90 percent of manufacturing firms currently affected by material shortages have adjusted their sourcing strategy in the past 12 months. However, 73 percent of manufacturing companies without such acute shortages have also continued to restructure their supply chains in the past year. Moreover, it is worth noting that more than half of the companies that had not planned any further adjustments to their supply chains in July 2022 have nevertheless taken additional measures to mitigate supply chain disruptions in the meantime.

## Diversification of Supply Chains Takes Center Stage in Companies Adjustment Measures

Figure 5:

### Measures to mitigate the risk of supply chain disruptions

Manufacturing, multiple answers possible

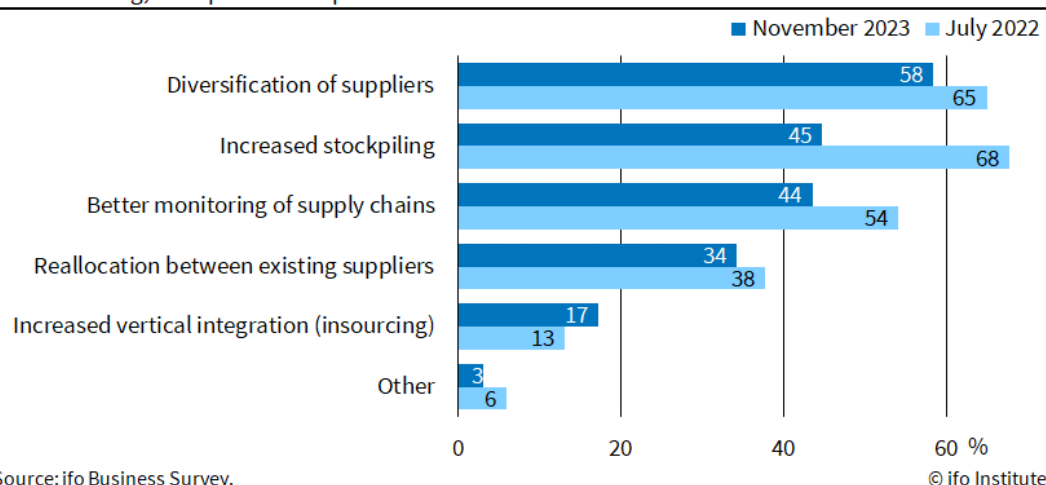


Figure 5 provides an overview of the specific measures manufacturing companies have taken in the past 12 months to mitigate the risk of supply chain disruptions. Compared to the previous survey in July 2022, the share of firms that have increased their inventories has fallen from 68 percent to 45 percent. The share of companies that have improved their supply chain monitoring has also seen a decline, dropping by 11 percentage points to 44 percent. In both cases, the lower figures may reflect the earlier adjustments to strategy that are still in effect. In contrast, supply chain diversification is now the most frequently cited adjustment measure among the companies in the survey. The corresponding share was 58 percent, which was only slightly lower than in the previous year's survey (65 percent). This suggests that diversifying supply chains tends to be a long-term task for companies, requiring more time and effort than, for example, increasing inventories. Similarly, increased vertical integration (insourcing) might not always be achievable in the short term. Only 17 percent of all firms state that they are now increasingly producing inputs themselves that were previously sourced from independent suppliers. However, insourcing is the only supply chain adjustment that companies have pursued more frequently compared to the previous year's survey.

**Table 1:**

	<b>Measures taken</b>	<b>Diversification of suppliers</b>	<b>Reallocation between existing suppliers</b>	<b>Insourcing</b>	<b>Increased stockpiling</b>	<b>Better monitoring of supply chains</b>	<b>Other</b>
<b>Manufacturing</b>	<b>75.4</b>	<b>58.3</b>	<b>34.2</b>	<b>17.3</b>	<b>44.7</b>	<b>43.5</b>	<b>3.2</b>
Food products, beverages, and tobacco	73.2	55.1	26.5	2.5	55.1	33.3	1.1
Textiles, wearing apparel, leather, and related products	70.2	54.8	23.4	6.9	46.0	30.6	2.4
Wood and products of wood and cork	64.4	52.4	37.3	9.9	35.6	27.5	1.3
Paper products	66.7	37.3	36.6	8.6	29.3	32.4	1.7
Printing	60.5	27.7	17.2	10.5	36.6	21.0	1.7
Chemicals and pharmaceutical products	76.8	57.3	37.2	12.3	25.6	47.0	5.1
Rubber and plastic products	68.5	48.6	29.6	8.4	41.4	47.8	1.6
Other non-metallic mineral products	65.5	50.6	14.2	3.5	45.4	28.8	0.0
Basic metals	66.2	50.9	19.1	10.6	22.0	29.3	5.4
Fabricated metal products	60.7	44.7	23.9	15.9	32.0	35.0	1.7
Computer, electronic, and optical products	91.5	79.6	40.5	22.9	79.4	65.9	1.3
Electrical equipment	80.5	61.5	32.4	21.2	52.1	48.1	4.5
Machinery and equipment	85.0	70.6	45.2	25.4	53.5	48.1	5.1
Motor vehicles, trailers, and semi-trailers	82.8	62.3	51.5	33.1	45.4	62.3	4.1

Source: ifo Business Surveys, November 2023.



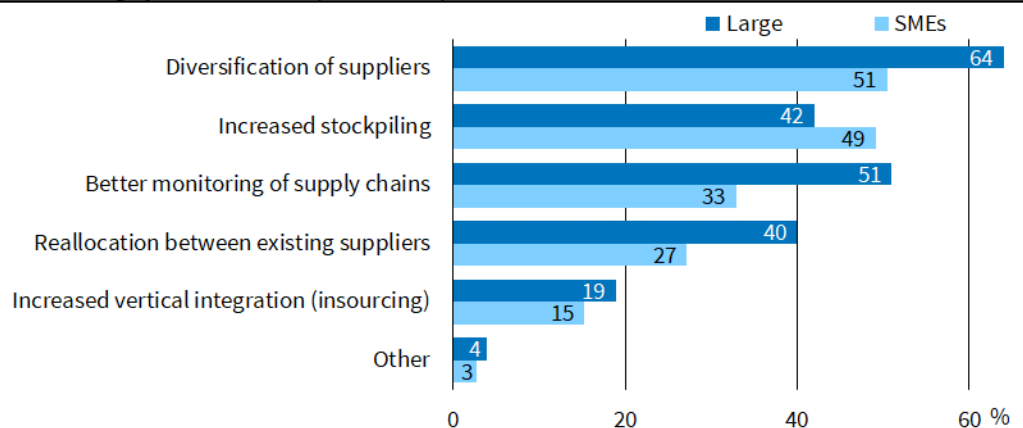
## Important Differences across Industries and Firm Size

There are considerable differences between industries with respect to supply chain adjustments, as can be seen in Table 1. In particular, companies in the computer and electronics industry as well as in machinery and the automotive industry were very active in adapting their sourcing strategy. Notable disparities between the sectors are apparent when it comes to supply chain diversification: while almost 80 percent of manufacturers of computer, electronic, and optical products have further diversified their supplier structures, the corresponding share for manufacturers of printed products is below 30 percent. The automotive industry stands out with a notably high proportion of companies opting for increased insourcing: approximately one-third of manufacturers of motor vehicles and parts increased vertical integration in the past 12 months to reduce the risk of supply chain disruptions.

**Figure 6:**

### Measures to mitigate the risk of supply chain disruptions

Manufacturing by size class, multiple answers possible



Source: ifo Business Survey, November 2023.

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The size of companies also plays a significant role in how companies have recently changed their sourcing strategies (see Fig. 6). Large firms are more likely to invest in increasing supplier diversification and improving supply chain monitoring compared to small and medium-sized enterprises (SMEs).<sup>1</sup> Conversely, SMEs more frequently opted to increase their stockpiles than large companies. One possible explanation lies in the fixed costs associated with each action. In particular, diversifying the supply chain and

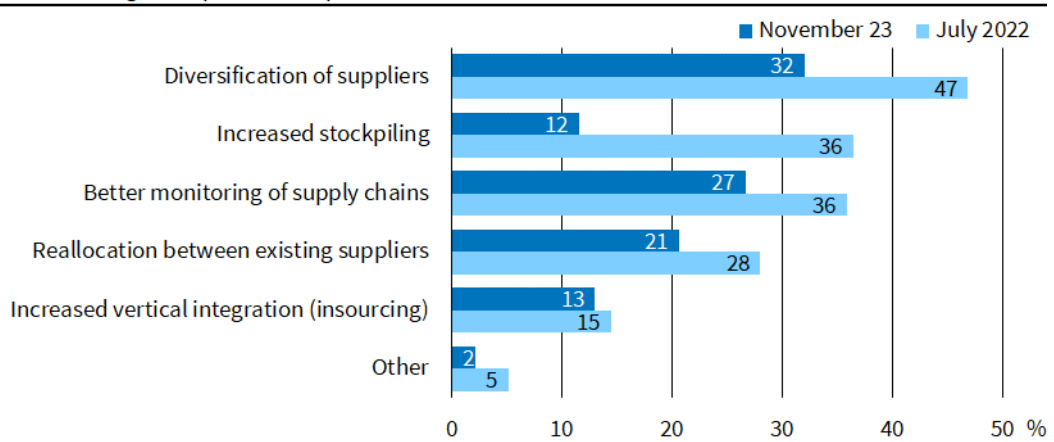
<sup>1</sup> We define SMEs as enterprises with fewer than 250 persons employed.

improving supply chain monitoring may involve relatively high initial costs that might not be easily manageable for many SMEs.

## Firms' Plans for Future Supply Chain Adjustments

Figure 7:

**Planned adjustments to sourcing strategy within the next 12 months**  
 Manufacturing, multiple answers possible



Source: ifo Business Survey, November 2023.

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What priorities are German manufacturing firms setting for the future design of their supply chains? Many companies plan to continue diversifying their supply relationships in the future (see Fig. 7). One in three companies is aiming to find additional suppliers within a year. This remains the most frequently planned adjustment to the sourcing strategy. In contrast, only 12 percent of all companies plan to increase their stock levels within the next year. This suggests that most firms that have increased their inventories since the pandemic do not believe that a further increase would be appropriate. Moreover, supply chain transparency remains an important issue for many companies, with around 27 percent of the companies surveyed planning further improvements in this area.

## Conclusion and Outlook

The survey results presented in this policy brief show that many German companies have continued to reshape their supply chains even despite the recent decline in supply chain pressures. In particular, diversification of the supplier base continued to be a central margin of adjustment. However, it is apparent that supply chain diversification is notably more challenging for SMEs than for large enterprises.

In this context, economic policies can play an important role in promoting further diversification of suppliers in the future and strengthening the resilience of supply chains. From a European perspective, the multilateral, rules-based trading system remains a central reference point for companies to construct more resilient and better diversified supply chains (see Baur and Flach 2022). For this reason, despite various challenges, strengthening the multilateral trade order remains essential. Moreover, by reducing trade costs and uncertainties, new trade agreements can offer companies additional opportunities to diversify their supply chains. However, the use of trade agreements is often accompanied by major bureaucratic hurdles, especially for SMEs. Making trade agreements more SME-friendly, for example through greater transparency and simplified customs procedures, would therefore also make a valuable contribution to the robustness of supply chains.

## References

Aksoy, C., A. Baur, L. Flach, and B. Javorcik (2022). Reactions to Supply Chain Disruptions: Evidence from German Firms. *EconPol Policy Brief* 45.

Baur, A. and L. Flach (2023), Protectionism on the Rise? New Challenges for EU Trade Policy. *EconPol Forum* 24 (5), 32–35.