

GEOPOLITICAL RISKS TO INTERNATIONAL TRADE FLOWS

The multilateralism that has shaped international relations in recent decades is being increasingly undermined by geopolitical issues.¹ Ongoing conflicts in Ukraine and the Middle East and trade tensions between the United States and China are affecting international trade and investment patterns and having economic consequences that are still difficult to fully gauge.

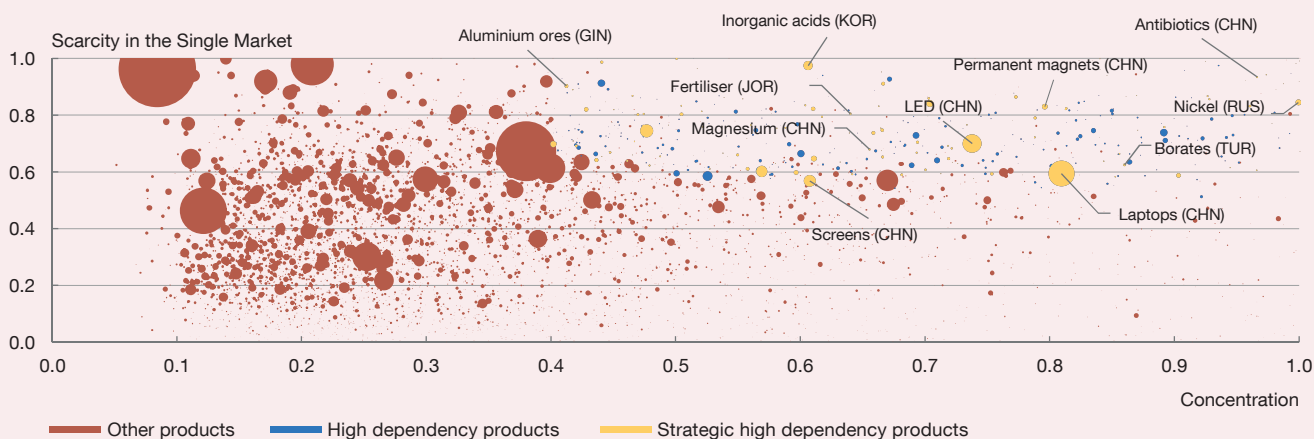
Spain and the European Union (EU) face this new environment with highly open economies that are integrated into global trade and investment flows. The high degree of external openness has been one of the main drivers of European economic growth in recent decades. However, a high concentration of imports in a few non-EU suppliers (that may ultimately exercise a dominant position in the supply of certain products) could prove to be a source of vulnerability to external shocks, especially in the case of products that are difficult to substitute.

Moreover, supply risks are amplified by geopolitical tensions if these escalate to confrontations that entail sanctions and trade restrictions. A recent example is the episode following Russia's invasion of Ukraine and the problems created by some EU Member States' significant dependence on natural gas imported from Russia.²

The external dependency of the EU and Spain

To identify the European economy's vulnerabilities to the potential materialisation of geopolitical shocks, Chart 1 applies the methodology developed by the European Commission,³ using granular bilateral trade flow data. This methodology classifies a product as a high dependency product for the EU if it meets the following conditions: (i) its extra-EU sources of imports are highly concentrated, (ii) it is scarce on the Single Market, and (iii) European exports of the product would

Chart 1
The EU's trade dependencies (2022) (a)



SOURCE: Banco de España, drawing on the CEPII BACI database.

a The trade dependencies of the EU were identified using the methodology in Arjona, Connell and Herghelegiu (2023), based on 6-digit (HS6) level bilateral trade flow data. The horizontal axis shows the concentration indicator, while the vertical axis represents the scarcity of a product in the Single Market. The size of the circle denotes the total value of extra-EU imports for each product. The blue circles are high dependency products. The yellow circles are high dependency products that the European Commission deems "strategic". See footnote 4 for definitions. The main supplier of some products is shown in parentheses. Data from 2022.

1 Demosthenes Ioannou and Javier J. Pérez (coordinators) (2023). "The EU's Open Strategic Autonomy from a central bank perspective. Challenges to the monetary policy landscape from a changing geopolitical environment", ECB Occasional Paper 311.

2 Javier Quintana (2022). "Economic consequences of a hypothetical suspension of Russia-EU trade", *Economic Bulletin – Banco de España*, 2/2022, Analytical Article, and Lucía López, Susana Párraga and Daniel Santabárbara (2022), "The pass-through of higher natural gas prices to inflation in the euro area and Spain", *Economic Bulletin – Banco de España*, 3/2022

3 See Ramón Arjona, William Connell and Cristina Herghelegiu (2023), "An enhanced methodology to monitor the EU's strategic dependencies and vulnerabilities", Single Market Economics Papers, WP2023/14.

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not be sufficient to substitute an abrupt curtailment in trade flows.⁴

Of the 5,400 imported goods analysed,⁵ 413 qualify as dependent products (459 in the case of Spain).⁶ The European Commission classifies certain dependent products as “strategic”, given their importance to defence, health or the green and digital transitions.⁷

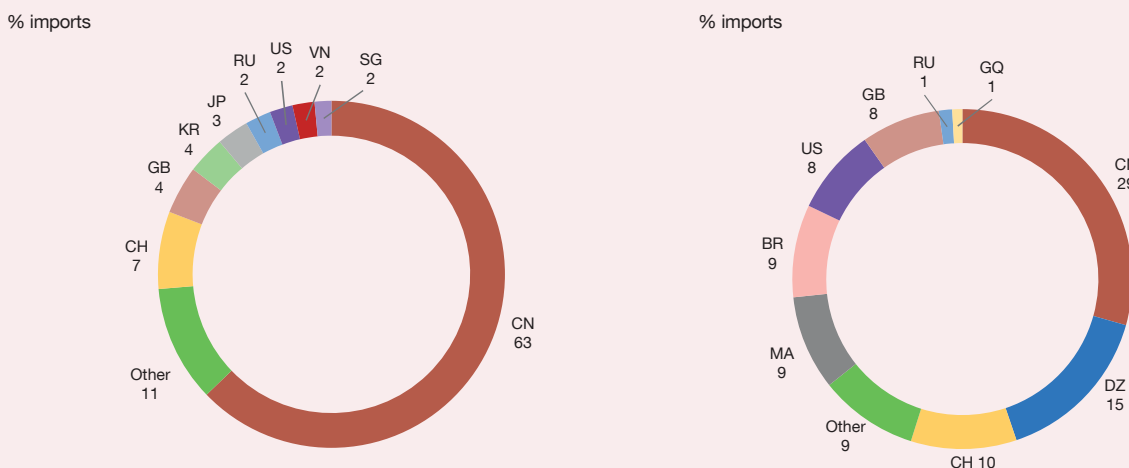
For the EU as a whole, China is the main source of 40% of these categories of strategic high dependency products, supplying 63% of the value of all European imports (see Chart 2, left-hand panel). With regard to Spain’s extra-EU imports, China is also the main supplier of 37% of this category of goods accounting for 29% of the total value of such imports (see Chart 2, right-hand panel).

Strategic high dependency products include high technology content products, such as portable electronic devices, screens, semiconductors and permanent magnets, as well as raw materials considered critical or strategic owing to their economic importance and sourcing difficulty, such as aluminium, borate and magnesium. It should be noted that 70% of the EU’s imports, and more than 45% of Spain’s extra-EU imports, come from countries that tend to take a different stance to the EU on geopolitical issues,⁸ which may magnify imports’ vulnerability to such shocks (see Chart 3).⁹

EU energy imports and the green transition

Energy products are a unique example of dependency. As shown by the Russian invasion of Ukraine in 2022,

Chart 2
Strategic high dependency products in the EU (l-h panel) and Spain (r-h panel) (2022) (a)



SOURCE: Banco de España, drawing on the CEPII BACI database.

a Percentage of extra-EU imports of strategic high dependency products from each trading partner.

4 Import concentration is measured using the Herfindahl-Hirschman Index, scarcity on the Single Market is calculated using the ratio of extra-EU imports to total imports, and the substitutability of imports with exports is measured using the ratio of extra-EU imports to total EU exports. Products are also ordered based on their average ranking by the three indicators. A product is deemed a high dependency product if it exceeds the pre-defined thresholds for the three indicators and is in the top 10% of products in terms of aggregated rank.

5 Chart 1 uses the 6-digit level Harmonized System (HS6) data on values of bilateral trade flows from the CEPII BACI database. See Guillaume Gaulier and Soledad Zignago (2010), “BACI: International Trade Database at the Product-Level. The 1994-2007 Version”, CEPII Working Paper, 2010-23.

6 Given the focus on trade dependencies and vulnerabilities, the analysis for Spain only considers extra-EU imports, since intra-EU imports are deemed to be subject to less risk of supply disruptions.

7 See footnote 3.

8 Based on the distribution’s quartiles of the geopolitical distance index by Michael A. Bailey, Anton Strezhnev and Erik Voeten (2017), “Estimating Dynamic State Preferences from United Nations Voting Data”, *The Journal of Conflict Resolution*, 61(2), pp. 430-456, constructed using countries’ voting data on United Nations resolutions on human rights. This indicator is often used in the literature as a proxy for the “geopolitical distance” between countries.

9 The difference between these two figures is attributable to the fact that Brazil and Morocco account for a larger relative share of Spain’s imports, as do the United States and the United Kingdom, which are relatively close countries geopolitically speaking.

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energy product supply constraints can cause sharp price increases, with significant implications for the competitiveness of European firms.¹⁰

In 2022, 63% of available energy in the EU depended on net imports of energy products, in particular oil and oil products and natural gas.¹¹ In addition, the four main imported energy products – crude oil, liquefied and gaseous natural gas (LNG and GNG) and hard coal – are relatively scarce in the Single Market and difficult to substitute.¹² Supply, however, is not particularly concentrated. For example, the EU imported crude oil from 35 trading partners in 2022. The largest supplier that year – Russia – is geopolitically very distant from the EU and accounted for 19% of total imports. Of these 35 oil-supplying countries, 15 (representing 41% of imports) could be classified as either geopolitically close to the EU or neutral.

Among Spain's extra-EU imports of energy products, there is a notable concentration in the GNG supply

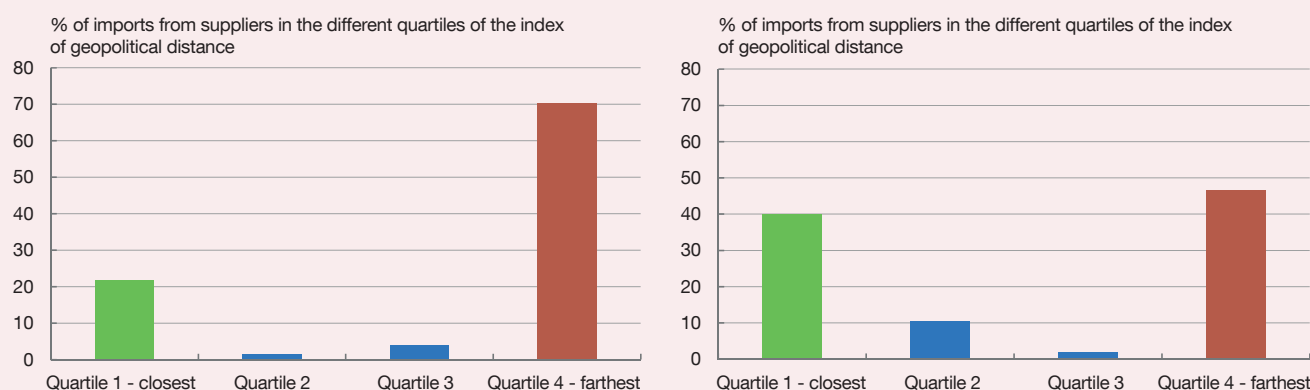
(almost all of which comes from Algeria) and liquid petroleum gas (60% of which comes from the United States and more than 35% from Algeria).

It should also be noted that more recent Eurostat data for selected products¹³ show that the sanctions imposed by the European Commission on Russia in late 2022 and early 2023 altered the patterns of the EU's energy dependency on this supplier country. In 2024 Q2, Russia no longer ranked as the top exporter of GNG (having been replaced by Norway and Algeria), crude oil¹⁴ (replaced by the United States and Norway) or coal (replaced by Australia and the United States). As a result, the EU's imports of energy products have been reoriented towards geopolitically closer suppliers (see Charts 4, 5 and 6, left-hand panels).

However, this is not the case in Spain. Between 2022 and 2024 Q2, Russia's share of Spain's extra-EU LNG imports rose from 18% to 36% and Algeria's from 1% to 20%, while the US share dropped from 40% to 20%.

Chart 3

Geopolitical distance of the main suppliers of strategic high dependency products to the EU (l-h panel) and Spain (r-h panel) (a)



SOURCES: Banco de España, drawing on the CEPII BACI database, and Bailey, Strezhnev and Voeten (2017).

a Percentage of extra-EU imports of strategic high dependency products from suppliers in different quartiles of the geopolitical distance index of Bailey, Strezhnev and Voeten (2017). See footnote 8 for a definition of the index. A low (high) value denotes a low (high) geopolitical distance between the exporter of a product and the EU/Spain. The data in the geopolitical distance index refer to the average of the period 2018-2022.

10 "Spain and the European Union in the face of the energy crisis: near-term adjustments and challenges pending", Chapter 4 of the Annual Report 2022, Banco de España (2023).

11 According to Eurostat data. Nuclear energy, renewable energy and biofuels are considered domestically produced energy.

12 Given the issues of under-reporting that affect cross-border trade flows of energy products (Cecilia Bellora, Pierre Cotterlaz and Malte Thie (2022), "Trade datasets are not the right starting point to discuss trade in natural gas", CEPII blog), this analysis uses the Eurostat NRG database, which reconstructs trade flow data with data provided by ministries and national agencies specialising in energy.

13 The data available relate to selected suppliers and do not allow the calculation of concentration, scarcity and substitutability indices.

14 The products considered in the European Commission's statistics refer to oils obtained by condensing natural gas, crude oil and oils obtained from bituminous minerals.

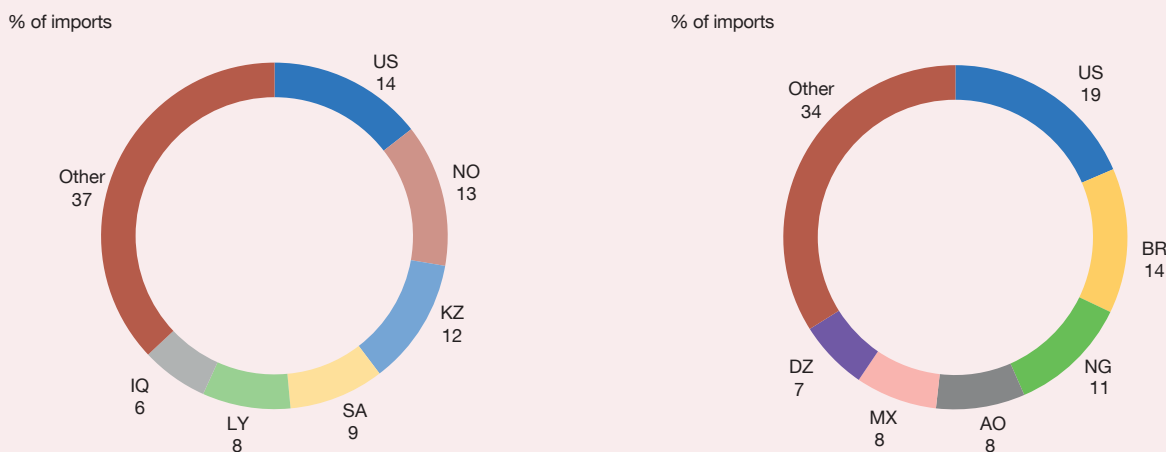
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Turning to extra-EU imports of GNG and LNG, Russia rose from the fourth largest supplier in 2022 to the second in the first eight months of 2024, only behind Algeria. It should be noted that the EU's imports of LNG from Russia also rose in 2024, with the share of this supplier climbing from 14% in 2022 to 17% in 2024 Q2. In any case, this increase in Russia's share of natural gas imports is partly attributable to greater demand for LNG and the availability of unused capacity at

regasification plants in some countries, including Spain, which enable operations to respond flexibly to supply and demand.

The significant dependence on external energy is one of the factors behind forecasts that energy prices in the EU will, in the medium term, remain above those of other global players, such as the United States.¹⁵ Looking ahead, this energy dependency is expected to be lessened

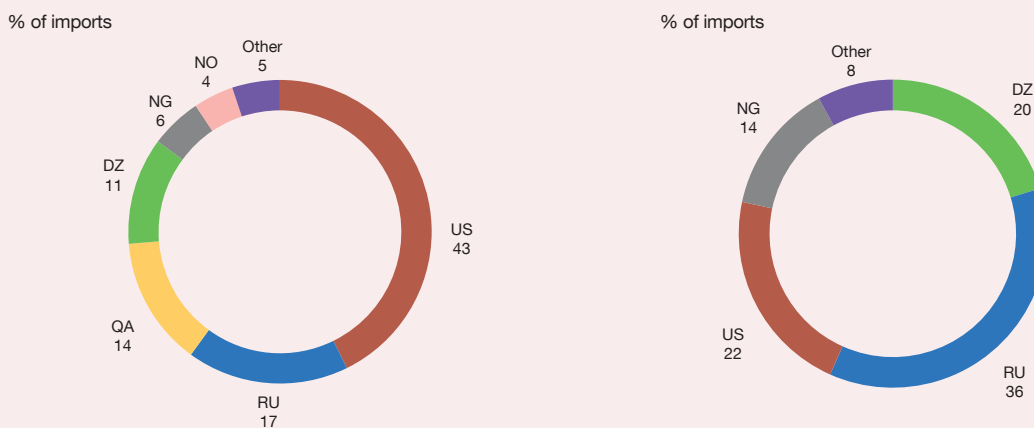
Chart 4
Main suppliers of crude petroleum oils to the EU (l-h panel) and Spain (r-h panel) (2024 Q2) (a)



SOURCE: Banco de España, drawing on estimates from Eurostat (for the EU) and Eurostat-Comext (for Spain).

a Share of crude petroleum oils imported to the EU and Spain from different non-EU suppliers in 2024 Q2. "Other" includes producers such as Nigeria, Brazil, the United Kingdom and Russia, in the case of the EU, and exporters such as Libya, Saudi Arabia and Norway, in the case of Spain.

Chart 5
Main LNG suppliers to the EU (l-h panel) and Spain (r-h panel) (2024 Q2) (a)



SOURCES: Banco de España, drawing on estimates from Eurostat (for the EU) and Cores (for Spain).

a Share of LNG imported to the EU and Spain from different non-EU suppliers in 2024 Q2.

15 International Energy Agency (2023), "Electricity Market Report Update Outlook for 2023 and 2024", and International Energy Agency (2023) "Medium-Term Gas Report 2023".

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by the green transition, as the shift from fossil fuels to clean energy could lead to a lower weight of imports in European energy consumption. In recent decades, European companies have spearheaded development of the technologies needed for this transition, accounting for almost a third of patents worldwide related to green energy sources. However, in some key sectors, such as solar energy, China currently controls most of the market at several stages of the production chain.¹⁶

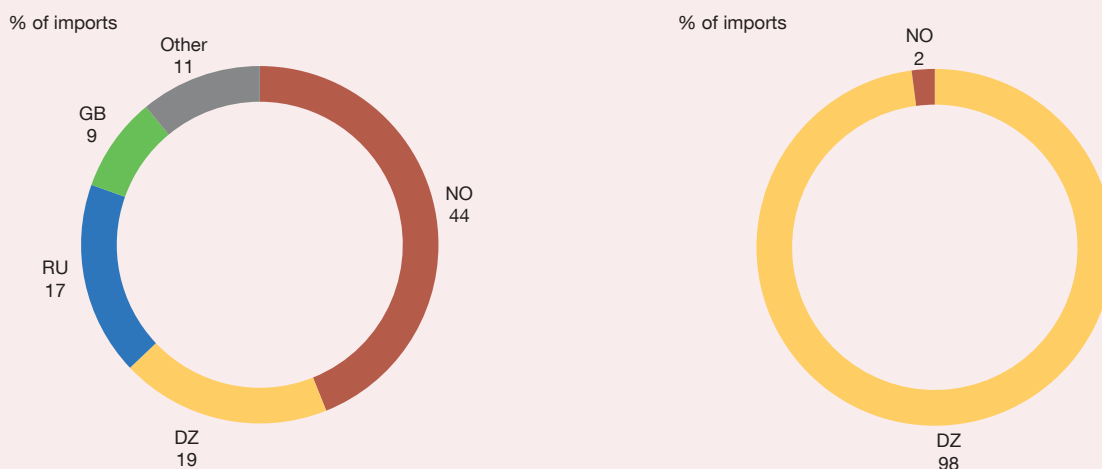
Analysis of European firms' exposure to imports from China

Given the importance of China as a key trading partner for the European economy, the Banco de España, the Banca d'Italia and the Deutsche Bundesbank have conducted a harmonised survey of firms in their respective countries, to better understand the degree of their dependency on inputs from China.¹⁷ In particular, the survey stresses the concept of dependence on "critical inputs", i.e. those inputs which, if supply were abruptly disrupted, would materially affect a firm's activity.

According to the survey's findings, around 20% of manufacturing firms in Spain and Italy and just over one-third of those in Germany import critical inputs from China (see Chart 7.a), with the vast majority of firms reporting that it would be difficult or very difficult to replace them. In Spain, however, only 22% of such firms have so far adopted specific measures to reduce their dependency, compared with 30% and 40% of their Italian and German counterparts, respectively (see Chart 7.b).

Any potential escalation of trade tensions between the West and China would have a negative impact on large parts of the economy, affecting around 40% of Spanish and Italian firms and 75% of German firms (see Chart 7.c). One particularly important channel – in addition to the usual trade ones – is uncertainty, as it acts as a magnifying mechanism for any geopolitical shocks to the rest of the economy.¹⁸ Although the world is still broadly interconnected by major trade and financial flows, various risk scenarios envisaging greater global trade fragmentation are beginning to be countenanced, as the above analysis shows.

Chart 6
Main GNG suppliers to the EU (l-h panel) and Spain (r-h panel) (2024 Q2) (a)



SOURCES: Banco de España, drawing on estimates from Eurostat (for the EU) and Cores (for Spain).

a Share of GNG imported to the EU and Spain from different non-EU suppliers in 2024 Q2.

16 International Energy Agency (2022), "Special Report on Solar PV Global Supply Chains".
 17 Irina Balteanu, Marco Bottone, Alejandro Fernández-Cerezo, Demosthenes Ioannou, Ambre Kutten, Michele Mancini and Richard Morris (2024), "European firms facing geopolitical risk: Evidence from recent Eurosystem surveys", VoxEU, and Irina Balteanu, Alejandro Fernández-Cerezo and Javier Quintana (2024), "Exposure of Spanish firms to imports of critical inputs from China: a survey-based analysis", *Economic Bulletin - Banco de España*, 2024/Q4, 02.
 18 This is consistent with the literature that links geopolitical tensions, uncertainty and economic activity. See, for example, Dario Caldara and Matteo Iacoviello (2022), "Measuring Geopolitical Risk", *American Economic Review*, 112(4), pp. 1194-1225, and Scott R. Baker, Nicholas Bloom and Steven J. Davis (2016), "Measuring Economic Policy Uncertainty", *The Quarterly Journal of Economics*, Volume 131, Issue 4, pp. 1593-1636.

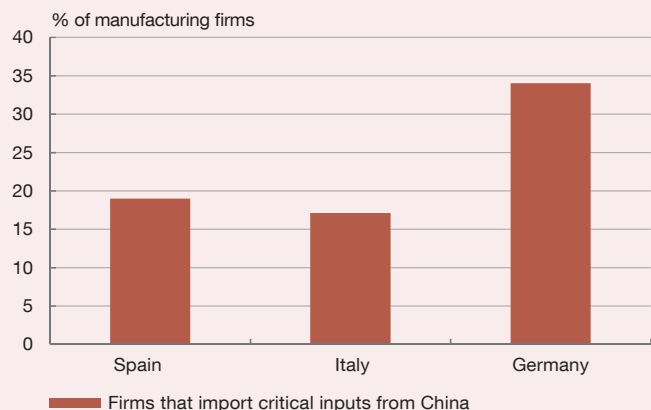
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Specifically, an increase in geopolitical tensions that raises China-EU trade costs could have a considerable bearing on the European economic outlook.¹⁹ As well

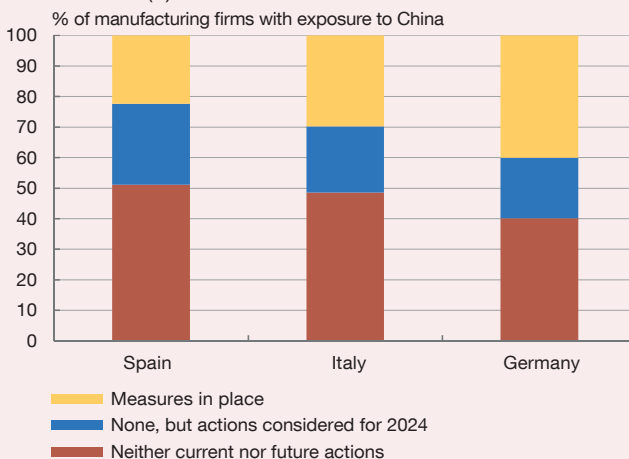
as demand being adversely affected by a drop in exports, trade fragmentation would sharply drive up production costs. This adverse impact on supply would

Chart 7
Exposure of European manufacturers to China

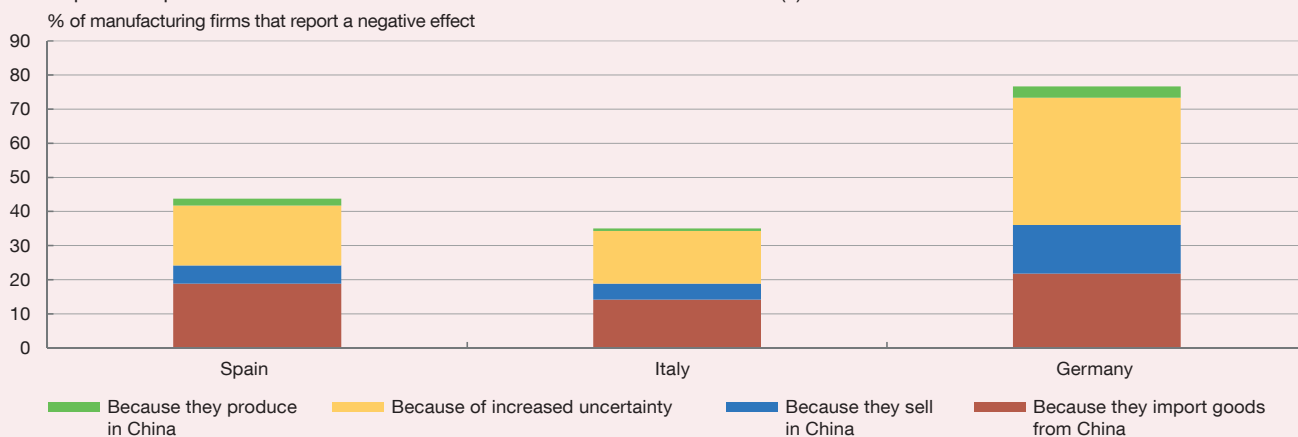
7.a Manufacturing firms that import critical inputs from China (a)



7.b Manufacturing firms' measures to reduce exposure to China (b)



7.c Impact of a potential increase in trade tensions between China and the West (c)



SOURCES: Banco de España, Banca d'Italia, Deutsche Bundesbank and Balteanu et al. (2024).

- a Manufacturing firms with more than 20 employees. Critical inputs are those without which an important part of the firm's production process could not be performed or would be significantly delayed, or the quality of its goods or services would deteriorate. The responses are weighted to obtain representative results for the population of firms in the respective country.
- b Firms' responses to the question: "If your firm imports critical inputs from China, has it taken or is it planning to take any measures to reduce its dependence on such imports?". Possible answers: 1) "No, none have been taken and none are planned"; 2) "None have been taken, but some measures are planned for the next 12 months"; 3) "Yes, they have been replaced with inputs produced in Spain or produced in-house"; 4) "Yes, they have been replaced with inputs produced in other EU countries"; 5) "Yes, they have been replaced with inputs produced in other non-EU countries"; and 6) "Yes, measures different from those mentioned above have been implemented". Only manufacturing firms with more than 20 employees.
- c Firms' responses to the question: "How do you think your firm would be affected by an increase in tensions between China and Western countries (including the EU) in the coming months, potentially resulting in new tariffs, non-tariff measures or restrictions on foreign investment?". Possible answers: 1) "No significant effect"; 2) "Positively"; 3) "Negatively, because our firm uses inputs from China"; 4) "Negatively, because our firm sells (directly or through intermediaries) products and services to firms or consumers in China"; 5) "Negatively, because a portion of our firm/group's production is located in China"; and 6) "Negatively, due to increased uncertainty over future economic developments". Manufacturing firms with more than 20 employees.

19 See Javier Quintana (2024), "The dynamics of trade fragmentation: a network approach", *Documentos de Trabajo, Banco de España*, forthcoming, for an analysis of the dynamic effects on euro area economic activity of an increase in the cost of trade between China and Organisation for Economic Co-operation and Development countries, both under a mild scenario (in which trade flows between opposing blocs are ultimately reduced by around 50% over the long term) and under a severe scenario (in which they practically disappear within a decade).

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stem from the higher cost of both intermediate inputs and capital goods.

In the short term, the adverse effects would be chiefly attributable to the higher intermediate input costs, the difficulty in replacing suppliers and the spillovers resulting from these shocks spreading through the multi-sector production network. The impact should gradually ease as European producers become increasingly able to replace Chinese suppliers. Meanwhile, the higher cost of capital goods will tend to permanently curtail investment, which will have more persistent effects on activity.

Additional considerations

Lastly, it is important to note that geopolitical risks may also be transmitted through financial channels, in addition to the trade channels highlighted in this box. For instance, a rise in risk aversion attributable to an adverse geopolitical event could result in sharp asset price adjustments, changes in capital flows and widening sovereign spreads.²⁰ In the same vein, mention should be made of the risks to the security of institutions and critical financial infrastructure owing to the physical risks associated with conflicts or cyber threats, as well as those associated with a fragmentation of international payment systems.

20 Some empirical evidence suggests that, when exposed to an increase in trade uncertainty through their exporting and/or importing customers, private banks tend to curb lending and tighten financing conditions for the entire economy, even for firms that are not directly exposed to the trade tensions. See, for example, Ricardo Correa, Julian di Giovanni, Lisa S. Goldberg and Camelia Minoiu (2023), "Trade Uncertainty and U.S. Bank Lending", CEPR Discussion Paper, 18631.