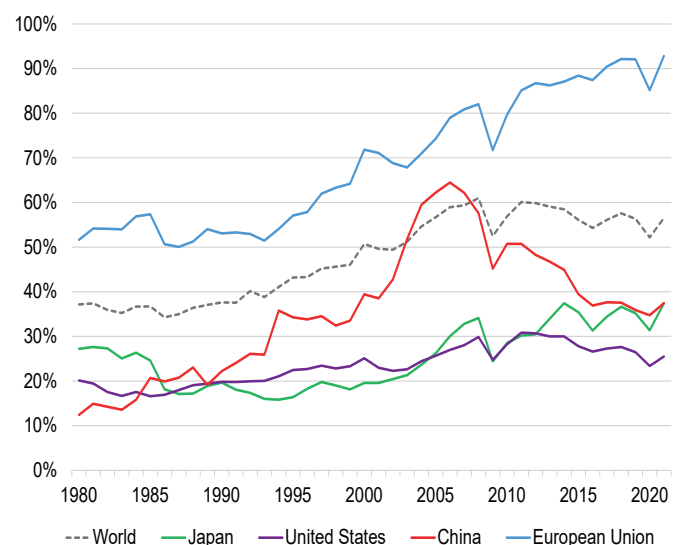


What Factors Could Drive the Reorganisation of Global Value Chains?

Aymeric Lachaux

- After an exceptional expansion in trade in the 1990s and 2000s, globalisation experienced a slowdown between the financial crisis of 2008 and the COVID-19 pandemic, largely due to the rebalancing of China's economic growth (see Chart).
- The pandemic led to tensions, or even shortages, in certain value chains, revealing supply vulnerabilities in some countries. These disruptions raise the question of how resilient the global production organisation is and if globalisation is built to last. After the shock from the pandemic in 2020, the scale of global trade has exceeded its 2019 level, and the distance travelled by goods is as large as before.
- However, the structure of trade has evolved. Exports of goods returned to their pre-pandemic level by December 2020, compared to September 2021 for services. The quick recovery in trade particularly benefitted China, which increased its trade surplus due to its exports.
- Changes in the organisation of value chains in the years to come will depend on several factors. Geopolitical tensions and Russia's invasion of Ukraine have led to trade diversion, which could increase in the context of new sanctions and businesses seeking out more secure ways to conduct trade. Climate change could affect certain production lines, particularly due to a decrease in agricultural yields and the relocation of agricultural production. Governments could encourage or even require businesses to adjust their value chains to reinforce their resilience and sustainability, or respond with protectionist measures.
- Owing to these different factors, some particularly concentrated value chains are showing initial signs of diversification. Manufacturers of semiconductors, which have mostly been based in Korea and Taiwan up to now, have announced large-scale investments in production capacity in Japan, the United States and Europe.

Total trade in goods and services as a % of GDP, by region



Source: WDI, sum of imports and exports, latest data point: 2021.
European Union trade also includes intra-European trade.

1. A changing global trade landscape

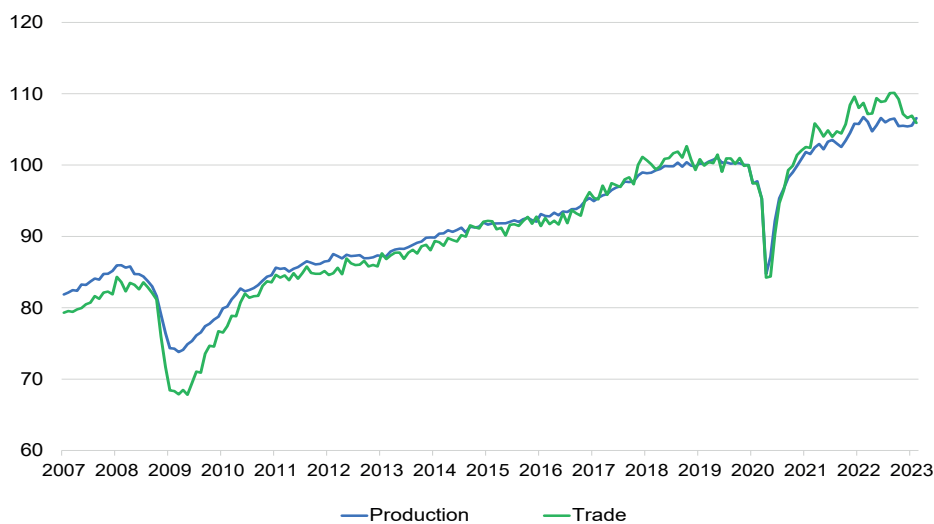
1.1 Before the pandemic, globalisation was slowing down

After an exceptional expansion in trade in the 1990s and 2000s, and an elasticity of trade to GDP¹ higher than 1, globalisation has experienced a slowdown since the financial crisis of 2008 (see Chart on page 1). Elasticity of trade to GDP is now estimated to be around 1, its theoretical long-term level, with trade growing at the same rate as output. Between 2010 and 2019, after the global financial crisis and before the pandemic, the slowdown in globalisation was essentially due to the rebalancing of Chinese economic growth in favour of domestic production: China, the driving force behind the expansion of global value chains before the financial crisis, now uses more and more domestic inputs.² As a result, China's production growth is exceeding its trade growth.

1.2 Trade proved dynamic after the pandemic but its composition has changed

The trading of goods was significantly lower in 2020 due to the pandemic (-14% in volume between December 2019 and May 2020). Lockdowns and other health-related restrictions limited production capacity as well as countries' consumer activity. Additional trade restrictions were also implemented: according to the World Trade Organization (WTO), 197 trade restrictive measures have been introduced since the outbreak of the pandemic.³ Nevertheless, trade in goods has shown to be more resilient if we compare the COVID-19 crisis to the financial crisis in 2008. The decrease in trade during the pandemic was proportional to the decrease in industrial production, whereas trade decreased more than economic activity during the 2008 financial crisis (-20% compared with -14%, see Chart 1). In addition, trade in goods has recovered rapidly and significantly: the December 2019 level was reached as early as December 2020. In December 2022, world trade in goods exceeded its pre-pandemic level by 7%, while the recovery in industrial production was slower (+5% by the same time).

Chart 1: Industrial production and global trade of goods (index base 100 = Dec. 2019)



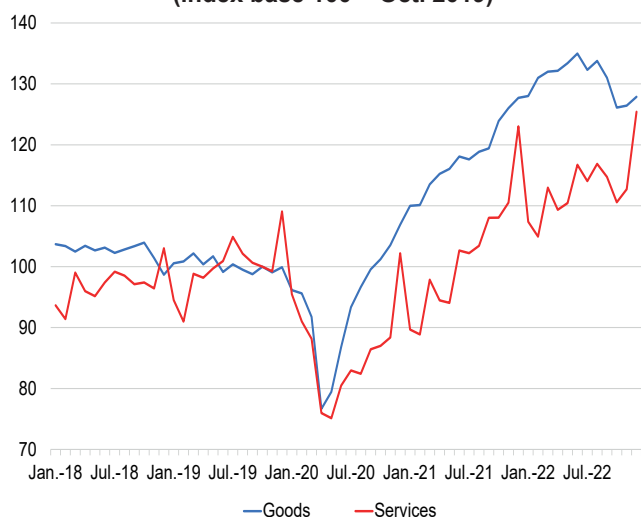
Source: CBP, latest data point: Feb. 2023, seasonally adjusted, in real terms.

- (1) That is, the ratio of trade growth to GDP growth.
- (2) According to the World Bank's World Development Indicators (WDI), China's GDP growth between 2008 and 2021 was 286%, compared to 169% for imports and 137% for exports.
- (3) WTO (2022). WTO-wide reports on trade-related developments.

Although trade has not dropped off in relation to activity, its content and geographical structure has evolved since the pandemic:⁴

- Firstly, trade in goods has recovered more than trade in services. Pharmaceutical products, metals, semiconductors and certain durable goods such as laptops, whose demand has been driven by remote working, saw a very substantial increase in trade during either the crisis or the recovery phase, whereas services, particularly tourism, and transport equipment are struggling to return to their global pre-pandemic levels. Global exports of services did not return to their December 2019 level until September 2021 (see Chart 2). This change in the structure of trade explains some of the supply difficulties and the rise in freight prices.⁵

Chart 2: Global exports of goods and services (index base 100 = Oct. 2019)



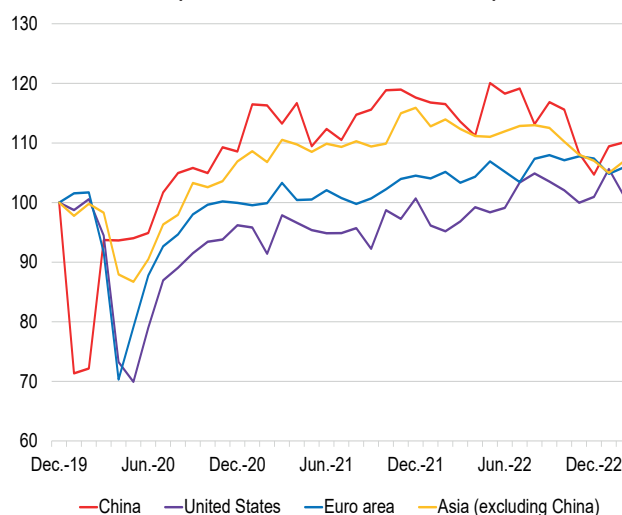
Source: WTO for commercial services (40 countries) and CBP for goods, latest data point: Dec. 2022, in nominal terms.

- Secondly, China has benefitted from the recovery and from changes in the structure of trade. Its trade surplus increased in 2021 and 2022, just as its share in European Union imports (21% in 2022 compared to 19% in 2019, see Chart 4). Chinese exports were boosted by an earlier end to the first epidemic wave than in other competing

countries (particularly in South-East Asia), which helped restart production (see Chart 3). After a sharp decline starting in January 2020, China's exports returned to high levels by April 2020, while exports from Europe, the US and other Asian countries were plummeting at the same time. Chinese exports were also helped by the decrease in spending on services by Western households, in favour of consumer and capital goods. Nevertheless, Chinese exports diminished in the second quarter of 2022 as a result of the zero-COVID policy being tightened.

- Because of the increase in imports from China, supply chains have not shortened since the start of the pandemic. The distance travelled by imported goods⁶ has remained the same since the start of the crisis. It has even increased slightly for America and Europe, due to the rise in imports from China, and decreased in the Asia-Pacific region, for the same reason. Furthermore, the stability of the distance travelled by imported goods reflects the slowdown in globalisation (in terms of the elasticity of trade to activity) over the last decade compared to the decade before that.

Chart 3: Exports of goods by region (index base 100 = Dec. 2019)



Source: CPB, latest data point: Feb. 2023, seasonal adjustment, in real terms.

(4) See in particular OECD (2023), "Challenges to International Trade and the Global Economy: Recovery From COVID-19 and Russia's War of Aggression Against Ukraine".

(5) The rise in freight prices can also be attributed to difficulties in increasing freight capacity, health restrictions in China and the increase in companies' precautionary stockpiling.

(6) This is the average distance between the exporting country and the importing country, calculated by the OECD (ibid.) based on ITC data for trade and CEPII data for distance.

2. What factors will affect the organisation of global value chains going forward?

The organisation of global value chains is primarily driven by the search for economic efficiency within given institutional and geopolitical frameworks. In the years to come, various factors could affect this organisation which remains subject to a high level of uncertainty.

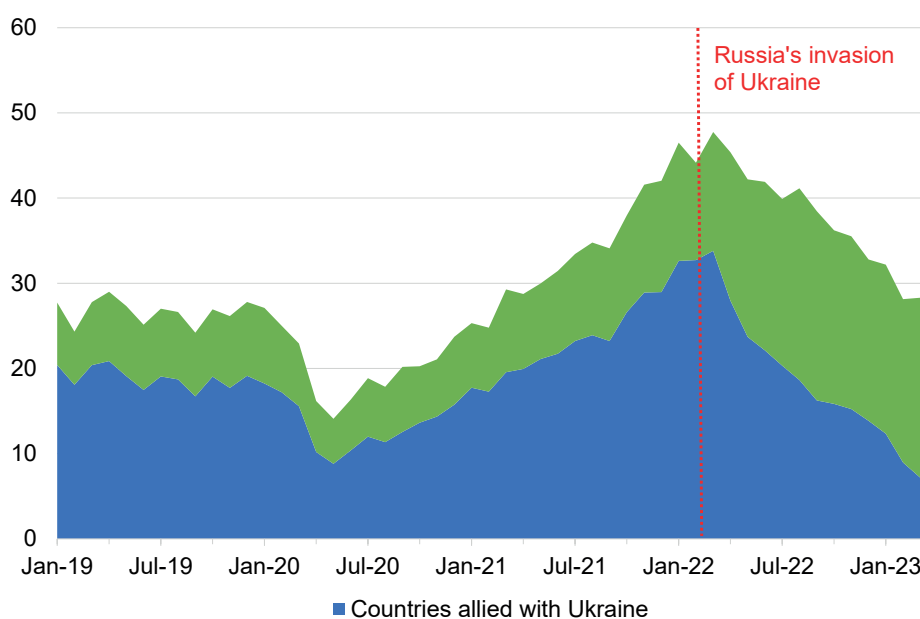
2.1 Russia's invasion of Ukraine

Despite Russia's invasion of Ukraine, international trade in goods grew by 3.5% in 2022.⁷ However, there has been a notable trade diversion. First of all, trade between Russia and countries allied with Ukraine (has decreased significantly due to sanctions (see Chart 4). Since the war began, the value of Russian exports to Europe,⁸ Japan and the United States has fallen by 80% and imports from these countries to Russia

have declined by 47%.⁹ This decrease shows the willingness of the countries allied with Ukraine¹⁰ to "isolate" Russia from the international financial system and from their economies¹¹ by way of sanctions.

At the same time, there has been a notable increase in Russia's trade with emerging economies, particularly India and China. Trade between Russia and India increased fivefold whereas trade with China increased by 75%. Nevertheless, a year on from the onset of the war, Russia has not managed to redirect all of its trade flows to other partners: its total trade value¹² has decreased by 27%. This trade fragmentation between Russia and Ukraine's allies, in favour of other countries, should continue to develop as new sanctions are put in place.

Chart 4: Destination of Russian exports (in \$bn)



Source: Bruegel, latest data point: Mar. 2023, by value. Ukraine's allies (non-exhaustive list): European Union, Switzerland, Norway, United Kingdom, United States, South Korea, Japan.

(7) WTO (2023), "One Year of War in Ukraine: Assessing the Impact on Global Trade and Development".

(8) European Union, Switzerland, Norway, United Kingdom.

(9) Z. Darvas, C. Martins, C. McCaffrey, L. Léry Moffat (2022), "Russian Foreign Trade Tracker", Bruegel Datasets.

(10) The main allies applying sanctions against Russia are the following: European Union, United States, Australia, Canada, Iceland, Japan, New Zealand, Norway, Singapore, South Korea, Switzerland, Taiwan, United Kingdom.

(11) G7 Leaders' Statement on 26 February 2022.

(12) Based on trade with 37 countries representing more than 77% of Russian imports and exports in 2019.

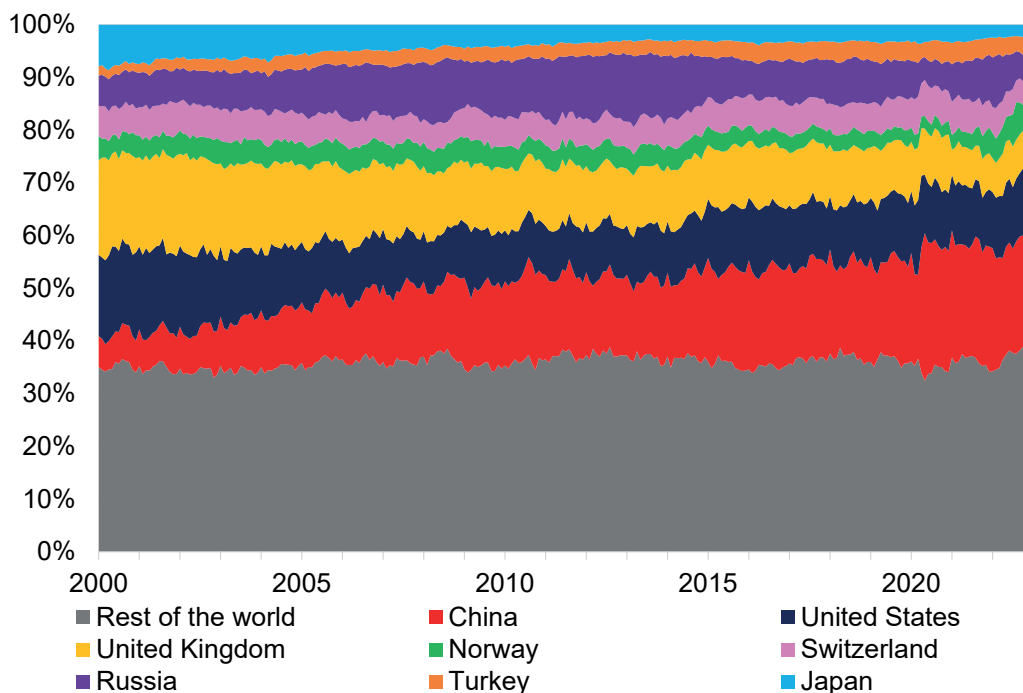
2.2 Geopolitical tensions

Beyond the war in Ukraine, the geopolitical situation worldwide has led to increased tensions which could affect trade. Against a backdrop of persistent obstructions to the running of the WTO,¹³ trade is increasingly being used by certain countries as a means of exerting pressure on political decisions. For example, since December 2021, China has been applying discriminatory and coercive measures against Lithuanian exports and exports of European Union products with Lithuanian parts, in response to a diplomatic rapprochement between Taiwan and Lithuania.¹⁴

Economic competition and geopolitical tensions between nations are also increasingly translating into trade restrictions. US-China tensions, for example,

have led to the adoption of reciprocal trade control measures which could affect global value chains. First of all, these two powers have implemented additional customs duties on more than half of their bilateral trade. This “trade war” has resulted in an increase or, less often, a decrease in exports from other countries, depending on whether their production can be substituted or is complementary to products subject to supplemental tariffs.¹⁵ Furthermore, China and the United States control exports of certain products, such as semiconductors, which could be used in the production of goods ultimately exported to the other country. The European Union could be particularly affected by these measures, given that, for example, 15% of foreign electronic parts incorporated into its exports to the United States are made in China.¹⁶

Chart 5: Origin of goods imported into the European Union (%)



Source: Eurostat, latest data point: Jan. 2023, in nominal terms.

- (13) In particular, the Appellate Body of the dispute settlement system has been paralysed since 2019, running the risk that disputes will be “appealed into the void” by the losing party at the end of the first instance review and therefore remain unresolved.
- (14) European Commission press release on 7 December 2022: “EU Requests Two WTO Panels Against China: Trade Restrictions on Lithuania and High-tech Patents”.
- (15) P.D. Fajgelbaum, P. Goldberg, P. J. Kennedy, A. K. Khandelwal and D. Taglioni (2023), “Trade War and Global Reallocations”, *NBER Working Paper* No. 29562 and *World Bank PRWP* No. 9894.
- (16) R. Beaujeu, O. Besson, L. Decazes, A. Lachaux (2022), “Decoupling of US and China Value Chains: Challenges for the EU”, *Trésor-Economics*, No. 308.

2.3 Businesses are securing their supply chains

Freight disruptions, shortages during the pandemic and increased geopolitical uncertainty could prompt companies to diversify their value chains and focus on countries that are more politically aligned with their own, more economically stable or closer geographically than in the past.¹⁷ However, companies only change their sourcing strategies if they anticipate shocks are affecting the economy in the long term, because relocating all or part of a production system or, on a smaller scale, sourcing from foreign producers entails fixed costs. For example, physical assets held in a country are not easy to sell or redeploy, and relational capital and research costs are lost if a business relationship is abandoned. Evolving local market conditions can also lead to a company withdrawing from production or marketing in a country. This was notably the case for Renault, which sold its holdings in Russian companies for a symbolic single rouble.¹⁸

In addition, input supply decisions at different stages of production chains are interdependent, and it can be very costly for a company to relocate only certain stages of production. It is therefore essential to be able to assess the impact of a shock. The easing of supply tensions since the beginning of 2022 suggests that some of the disruptions caused by the pandemic were only temporary. Conversely, since the start of the war unleashed by Russia in Ukraine, many companies have announced that they are voluntarily ceasing their activities in Russia, including companies from countries not applying sanctions against Russia,¹⁹ which shows that companies consider the shock of the war to have created a long-term risk.

2.4 Governments are intervening to protect and secure value chains

Governments can encourage or even require companies to adjust their global production. Since the pandemic, there has been an increase in government measures aimed at securing value chains by favouring domestic production (reshoring) or production in neighbouring (nearshoring) or allied (friendshoring) countries. These measures particularly concern the products needed for the green transition, and notably the extraction of minerals and metals (via the Inflation Reduction Act in the United States or the Critical Raw Materials Act in Europe). Public intervention can take the form of positive incentives (such as subsidies or reduced customs duties) or, conversely, trade restrictions (such as investment screenings or higher customs duties). For example, given a certain dependence on China, the President of the European Commission has highlighted the relevance of trade agreements as part of a “de-risking” strategy by diversifying trade.²⁰ At the same time, protectionist measures continue to be introduced, sometimes under the pretext of securing the supply of goods.²¹

As a result of these various factors, some of the most concentrated value chains are showing some initial signs of diversification. Semiconductor manufacturers who until now have produced mainly in Korea and Taiwan have announced large-scale investments in production capacity in Japan, the United States and Europe.²² New mining operations are planned or underway, particularly for rare earth elements in Sweden and the United States. However, in many sectors further downstream, it seems that companies have rarely started working on identifying vulnerabilities in their supply chains.

(17) According to a survey by EY in the first quarter of 2022, more than half of industrial companies surveyed said that they have relocated their operations closer to their customers in the last two years, and have diversified their supplier countries and companies. See EY (2022), “Why Global Industrial Supply Chains Are Decoupling”.

(18) J. Guérin (2022), “Renault cède AvtoVAZ pour un rouble et sort de Russie”, *Le Figaro*.

(19) See J. Sonnenfeld, S. Tian, S. Zaslavsky, Y. Bhansali and R. Vakil (2022), “It Pays for Companies to Leave Russia”, *Yale School of Management*.

(20) See “Speech by President von der Leyen on EU-China relations to the Mercator Institute for China Studies and the European Policy Centre”, 30 March 2023.

(21) For example, Turkey adopted regulations requiring the production of certain medicines on national territory in order to protect itself against the risk of shortage. A WTO panel and appellate arbitrators rejected this argument, as Turkey had not, among other things, identified any shortages.

(22) Y. Rousseau and S. Godeluck (2023), “Dans la guerre mondiale des puces, l'Europe doit cultiver ses points forts”, *Les Échos*.

2.5 Climate change and the greening of value chains

Climate change could have major effects on value chains.²³ Climate change and the increase in the frequency and severity of extreme weather events could affect certain geographical areas and certain types of production, such as agriculture.²⁴

Furthermore, measures recently adopted or under discussion aim to ensure compliance with certain environmental (and sometimes social) standards throughout the value chain. This is the case in Europe

with the Carbon Border Adjustment Mechanism (CBAM), which will apply to imported products the carbon pricing applicable to European products, the “deforestation-free” supply chains regulation, the directive currently being finalised on corporate sustainability due diligence, and the recent proposal to combat forced labour throughout the value chain. This is also the case in the United States with the Uyghur Forced Labor Prevention Act.²⁵ These initiatives could eventually spur companies to reorganise their value chains in favour of more socially and environmentally responsible countries.²⁶

(23) C.E.T. Mora, Y. Wu and T. Zheng (2022), “Stress Testing the Global Economy to Climate Change-Related Shocks in Large Interconnected Economies”, *IMF Working Papers*, No. 2022/189.

(24) A. Costinot, D. Donaldson and C. Smith (2016), “Evolving Comparative Advantage and the Impact of Climate Change in Agricultural Markets: Evidence From 1.7 Million Fields Around the World”, *Journal of Political Economy*, 124(1), 205-248.

(25) Act prohibiting the import of products manufactured in Xinjiang by forced labourers into the United States.

(26) For example, the CBAM could increase economic activity in Europe, Japan and the United States, but decrease it in Russia and India. See United Nations Conference on Trade and Development (2021), “A European Union Carbon Border Adjustment Mechanism: Implications for Developing Countries”.

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