



2023 Trade report
A fragmenting world



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Abbreviations and acronyms

Acronyms	Meaning
CIPS	Cross-Border Interbank Payment System
DeFi	Decentralised Finance
EU	European Union
FDI	Foreign Direct Investment
IEA	International Energy Agency
IMF	International Monetary Fund
IRA	Inflation Reduction Act
SPFS	Financial Messaging System of the Bank of Russia
UNCTAD	United Nations Conference on Trade and Development
US	United States

Introduction

The objective of the report is to provide an overview of fragmentation trends. Economic fragmentation or decoupling is a risk for businesses as it can change the cost-benefit analysis of businesses. It will influence the decision-making process in businesses, impacting exports, investment and human resources. It is critical for businesses to understand and anticipate these risks. To help businesses and policymakers to grasp this changing global context, this report seeks to explore different forms of fragmentation.

This report will be structured as followed: The first chapter describes the 2022 trends in trade in merchandise and services. The second chapter presents the outlook for the present year underlining the fragmenting forces at play. Finally, the third chapter analyses the fragmentation trends in different fields including trade, digital economy, debt and payment.

Main messages

Trends in 2022: A trade rebound disrupted by multiple shocks

- ❖ Trade rebounded but was disrupted by the war in Ukraine, lingering COVID-19 restrictions, persistent high inflation and lower economic growth.
- ❖ Globalisation is not gone but changing patterns.
- ❖ There is evidence of decoupling between China and the United States (US) but also Russia and Western countries.

Outlook for 2023: Trade growth will face strong headwinds

- ❖ Geopolitical tensions will continue to shape supply chains and trade dynamics.
- ❖ Businesses are already adjusting their inventory strategy and diversify their suppliers.

Challenges: Fragmentation is accelerating

- ❖ The rise of subsidies, export controls and investment restrictions are contributing to trade fragmentation.
- ❖ **Digital fragmentation** is both driving and mirroring geopolitical tensions.
- ❖ **Debt fragmentation** could lead to a debt crisis.
- ❖ **Payment fragmentation** could increase instability and erode the role of the US dollar.
- ❖ The cost of fragmentation could range from **1.2 to 12% of global GDP**.

1. Trends in 2022: A trade rebound disrupted by multiple shocks

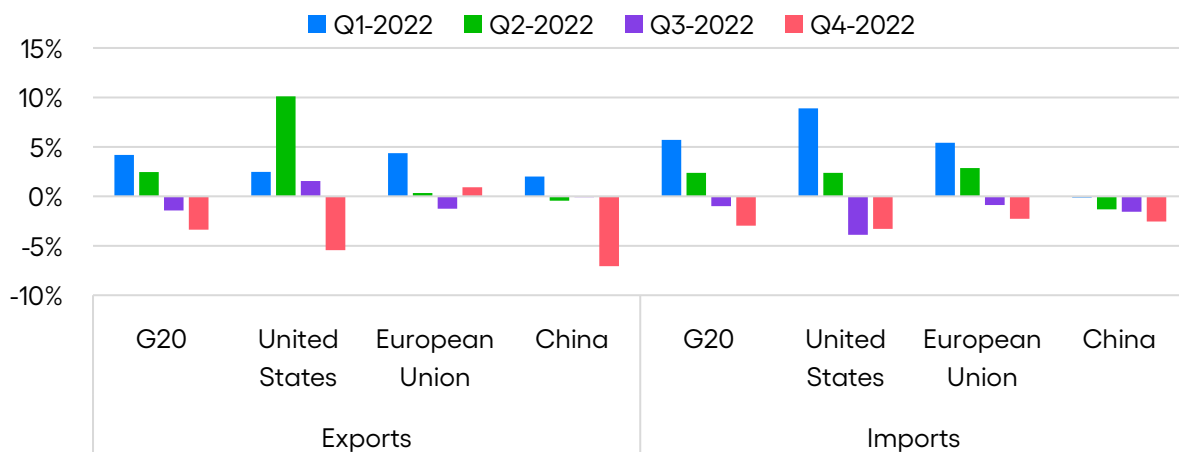
A. Merchandise trade

Global merchandise trade rebounded in 2022 to reach record levels. Latest OECD data indicates that G20 merchandise exports, which account for 75% of global trade, reached their highest level in history (US\$19 trillion) in 2022. G20 exports performance in 2022 was mainly driven by the European Union (EU) as it contributed to more than half of the recorded export growth of 11%. G20 merchandise imports surged by 14% to almost US\$20 trillion in 2022, with the EU and the US accounting for more than half of this increase. China’s sluggish performance reflected strict COVID-19 containment measures that weighed on trade.

Amid fears of a recession, trade growth lost momentum in the second half of 2022. Both merchandise exports and imports in nominal terms started to decline in the second half of 2022 (Figure 1) due to deteriorating economic conditions and rising uncertainties. After steady growth in the first three quarters of 2022, export and import volumes shrunk in the fourth quarter, reflecting a sluggish global demand and inflationary pressures. Lower demand also pushed commodity prices down, which contributed to lower export and import prices. By contrast, the prices of internationally traded intermediate inputs and consumer goods kept increasing during the same period, reflecting inflationary pressures.

Trade growth remained resilient but lost momentum in the second half of 2022

Figure 1. Nominal exports and imports growth, year-on-year change in %



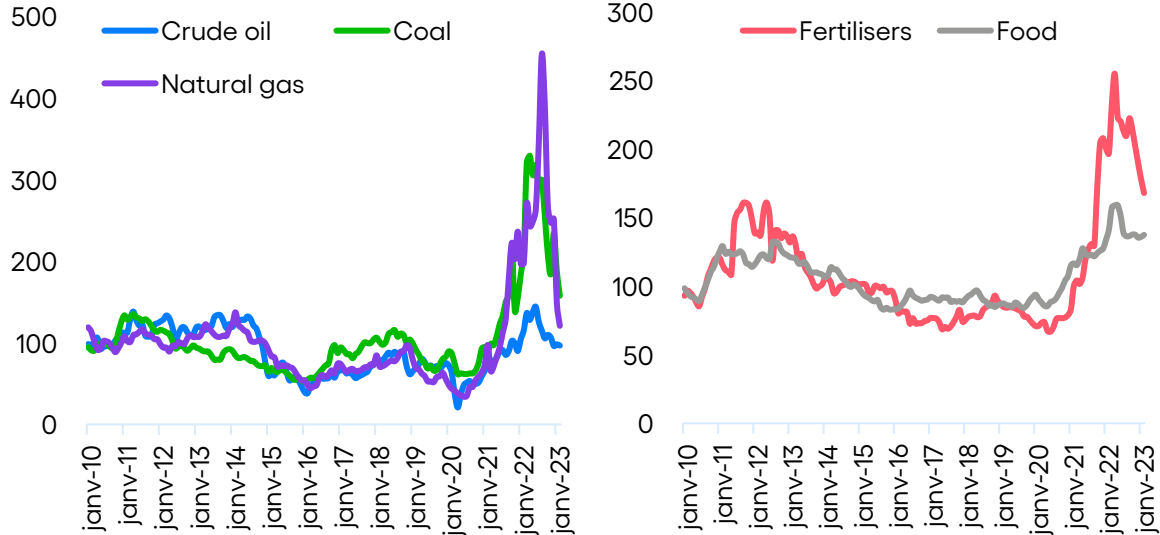
Source: OECD, Monthly International Merchandise Trade, accessed in March 2023

The war in Ukraine put a strain on supply chains, pushing up commodity prices. The war in Ukraine and related sanctions on Russia have disrupted both countries’ trade logistics. Port connectivity was cut, air space closed, and rail transit slowed down. Since Russia and Ukraine were top exporters for several commodities (oil, natural gas, wheat, aluminum, palladium,

nickel, iron, nitrogenous fertilisers, sunflower, corn and barley), the war resulted in shortages and price hikes (Figure 2). Sectors that are critically dependent on those inputs were severely impacted. This included industries such as steel, heavy manufacturing (transport equipment, machinery, electronics), automotive and software. Eastern European and Central Asian economies felt the brunt of the logistics and trade disruptions, while food and energy importers suffered from higher and volatile prices.

Energy and food prices soared to record levels amid sanctions and supply disruptions

Figure 2. Energy, food and fertilisers prices index, 2010=100



Source: World Bank, Commodity Prices “Pink Sheet” Data, accessed in March 2023

China’s economic slowdown heavily weighed on supply chains, but alleviated pressure on prices.

New export orders started to shrink in March 2022, reflecting a lower growth of Chinese imports. In a context of lower external demand, backlogs of work declined while suppliers’ delivery times surged. This helped to alleviate pressure on prices. Shipping rates dropped by more than 70% from their historical high at the beginning of the year.

B. Trade in services

Trade in services showed resilience in 2022 and remained above pre-pandemic levels. Exports of commercial services increased by 10% in 2022 to US\$2.7 trillion. This trend was mainly driven by travel and transport services, which jumped by 61% and 17%, respectively. By contrast, China’s property market crisis and monetary tightening in Europe and the US led to a contraction of exports in construction (-16%) and financial services (-4%).

Travel and tourism services bounced back in 2022 with Europe leading the global recovery.

According to the United Nations World Tourism Organization, the number of international tourists doubled between 2021 and 2022 to reach more than 900 million. Nevertheless, it remains below pre-pandemic levels (63%). Europe led the way by recording 585 million arrivals in 2022 to reach nearly 80% of pre-pandemic levels. This was mainly explained by the removal and easing of COVID-19 related travel restrictions around the world. As of December 2022, the International Air

Transport Association registered 122 countries without COVID-19 related restrictions for travel, compared to only eight in March 2022. As of December 2022, Europe had the fewest restrictions and 45% of European countries had none.

However, capacity constraints and COVID-19 related restrictions in Asia impeded a full recovery.

Shortage of staff at airports and airlines that were unprepared for increased demand have caused delays and disruptions to flights and travel services. Japan remained closed to international tourists until October 2022. The number of Chinese tourists remained below its pre-pandemic levels (150 million in 2019). This has had a strong impact on Asian countries such as Thailand, Japan and Vietnam, among others.

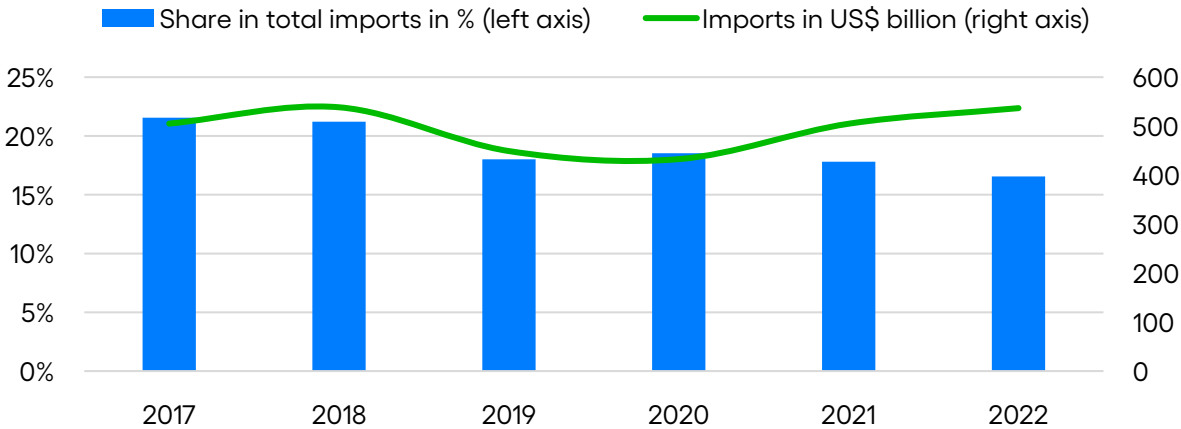
C. Globalisation and decoupling trends

Globalisation has not reversed but is changing. International trade, capital and information flows all exceeded pre-pandemic levels in 2022. As evidenced by the DHL Global Connectedness Index (Altman and Bastian, 2023), the depth of international flows steadily increased whereas the breadth slightly decreased since 2019. In other words, the share of international flows, compared to domestic activity, increased but remained concentrated on specific countries. This implies that some countries remain excluded from global trade.

The US is decoupling from China. Since 2018, talk of the US “decoupling” from China has picked up. Although US imports from China in 2022 reached their highest level since 2018, the share of China in total imports declined from 22% in 2017 to 17% in 2022 (Figure 3). US exports to China declined from 8% to 7%. Meanwhile, the share of China’s exports to the US dropped from 19% to 16% in the same time period. Imports from the US slightly decreased from 8% to 7%. A similar negative trend was observed for foreign direct investments. Lastly, China significantly reduced its interaction with the US in scientific collaborations (Altman and Bastian, 2023).

The US is decoupling from China

Figure 3. Share of China in total imports vs. US imports from China in US\$ billion

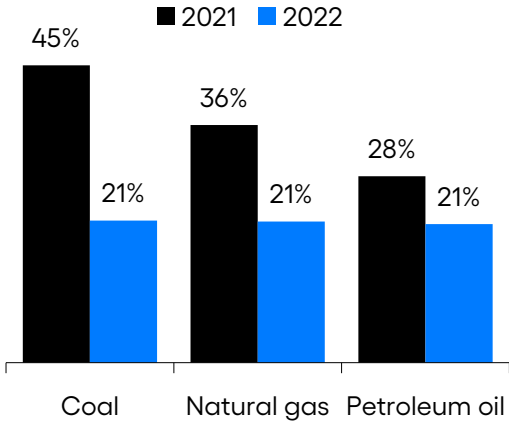


Source: US Census Bureau, US International Trade Data, accessed in March 2023

As a result of the war in Ukraine, Europe is decoupling from Russia in the energy sector. Between February 2022 and December 2022, the value of EU imports from Russia fell by 51%. Between 2021 and 2022, extra-EU imports of energy products from Russia fell strongly, for example, coal (from 45 to 22%), natural gas (from 36% to 21%), and petroleum oil (from 28 to 21%). Russia turned to eastern markets to compensate for the loss of European demand (Figure 4, Figure 5). Indeed, imports from Russia to China (73%), Turkey (153%) and India (430%) significantly increased in 2022.

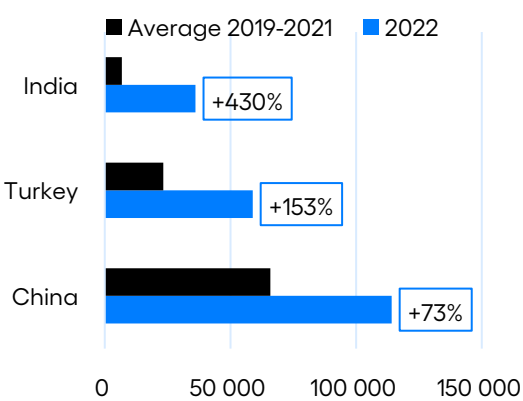
The EU is decoupling from Russian energy, making Russia turn to Asian markets

Figure 4. Russia's share in EU imports for selected products, in %



Source: Eurostat, International Trade in Goods (DS-045409), accessed in March 2023

Figure 5. Imports of goods from Russia, in US\$ million



Source: China General Administration of Customs, Monthly Bulletin; Turkish Statistical Institute, Foreign Trade Statistics; Indian Ministry of Commerce and Industry, Export and Import Data Ban, accessed in March 2023

But, there is no sign yet of a wider fragmentation into rival blocs. Close allies of the US and China slightly reduced the share of their flows to/from the rival bloc, but not with the same magnitude as the US and China. The share of China allies' flows to/from the US and its close allies mainly declined in areas such as merchandise trade, scientific research collaboration and tourist arrivals. There is no evidence of US allies decoupling from China (Altman and Bastian, 2023).

2. Outlook for 2023: Trade growth will face strong headwinds

A. Merchandise trade

The global economy is splitting into blocs. Geopolitical tensions will continue to shape supply chains.

Amid lower growth and inflation peaking, trade is expected to slow down in 2023. Latest International Monetary Fund (IMF) projections indicate that economic growth will decelerate from 3.4% in 2022 to 2.9% in 2023. The rise in central bank rates to fight inflation and Russia's war in Ukraine will continue to weigh on economic activity. Elevated inflation is expected to dampen demand for imports, which will lead to a decline in the volume of international trade. The tightening of financial conditions will increase pressure on highly indebted governments, amplifying vulnerabilities and deterring investments and trade flows.

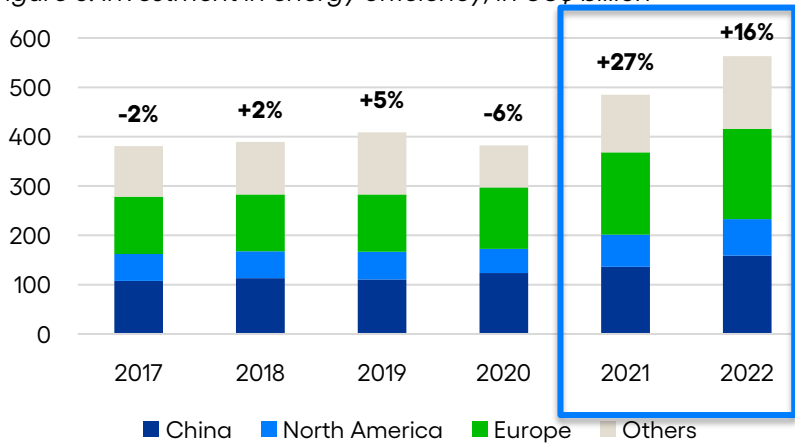
Geopolitical tensions will continue to deepen fragmentation. The rivalry between the US and China will continue to constrain merchandise trade, especially in technologies. In parallel, Europe will keep reducing its reliance on Russia, especially for energy products. There have been significant measures to decouple these economies in high-tech (medical supplies, computer chips and rare earth materials) and social media sectors (see [section 3](#)). The US is expected to buy more expensive imports from third countries such as Vietnam. This trend is reinforced by China which was already losing competitiveness in the region as local wages have increased.

Businesses will strive to increase supply chain resilience. According to McKinsey (August 2022), global supply chains leaders are already exploring three options: (i) diversify their supply base, (ii) boost regionalisation and (iii) increase their inventory stocks. The latter is the most common response. Indeed, more than eight out of 10 companies in the high-tech, chemicals and construction sectors plan to revise their inventory management strategy over the next three years. Similarly, 80% of respondents are considering increasing their number of suppliers for raw materials. Finally, 44% of respondents considered regionalisation to reduce their vulnerabilities to external shocks.

Amid the war in Ukraine, the energy transition will accelerate to achieve climate goals and energy security. Global investments in energy efficiency such as building renovations, public transport and electric car infrastructure increased by 27% in 2021 and 16% in 2022 (Figure 6). At the same time, the International Energy Agency (IEA) noticed a sharp acceleration in installations of renewable power, notably solar and wind. The capacity growth of renewables worldwide is set to almost double in the next five years. Sales of heat pumps are surging, especially in Europe. Global electric car sales jumped close to 60%.

The green transition is accelerating

Figure 6. Investment in energy efficiency, in US\$ billion



Source: IAE, Energy Efficiency 2022, 2022

B. Services trade

Travel and transport services are expected to benefit from the easing of China's zero-COVID strategy. The outlook for the tourism industry is upbeat as China is easing its zero-COVID policy. The removal or easing of travel restrictions will benefit key Asian destinations such as Japan and Thailand. At the same time, strong demand from the US, backed by a strong US dollar, will continue to benefit destinations in the region and in Europe. However, the availability and cost of air travel, visa regulations and COVID-19 related restrictions will continue to weigh on the recovery. As of March 2023, 18 countries, mostly in Asia and Europe, had imposed specific travel restrictions related to travel from China.

3. Challenges ahead: Fragmentation is accelerating

A. Trade fragmentation

Globalisation, already slowing, is further deteriorating. Trade tensions, the pandemic and the war in Ukraine have led to a rise in protectionist measures. They include subsidies, export controls and investment restrictions and contribute to trade fragmentation.

A.1. From globalisation to slowbalisation

Merchandise trade and capital flows were already slowing down since the global financial crisis in 2009. According to the World Bank, globalisation, measured by the merchandise trade-to-GDP ratio, started to stagnate after the global financial crisis in 2009. Cross-border capital flows declined as banks deleveraged to increase their capital buffer. China's emphasis on domestic demand instead of export-led growth, trade tensions between the US and China and Brexit also contributed to this trend.

By contrast, services trade grew steadily. Between 2010 and 2021, services trade increased at an average rate of 4% to amount to US\$6 trillion in 2021. Business services and telecommunications, computer and information services contributed to more than half of this increase. Several factors drove this rise: (i) a shift in final demand from goods towards services, (ii) technological changes, (iii) the servicification of manufacturing due to the fragmentation of production and technological progress and (iv) demographic changes such as an aging population (UNCTAD, 2018).

A.2 The resurgence of protectionism and industrial policy

The number of trade restrictive measures has significantly increased since the pandemic, indicating a rise in protectionism. The number of trade restrictions imposed by countries rose from almost 2,300 in 2019 to 2,600 in 2022, peaking at 4,500 in 2020. While goods and services restrictions progressively declined, investment restrictions jumped from 62 to 236 following the war in Ukraine. Metals (iron and steel), cereals (wheat, corn, rice) and pharmaceutical products account for the bulk of trade restrictions. High-tech sectors that are linked to national security or strategic competition are notably affected by trade restrictions. One third of iron and steel restrictions come from the US and China.

The subsidies race

The US is spending lavishly on subsidies to revive manufacturing. In 2022, the US passed two pieces of legislation to boost its manufacturing sector. First, the CHIPS and Science Act includes US\$53 billion to spur domestic production of semiconductors and investments in research and development. Second, the Inflation Reduction Act (IRA) earmarks US\$370 billion in grants, loans and tax credits to lower energy costs and accelerate private investment in clean energy solutions. The Congressional Budget Office estimates that the energy and climate section of the IRA will cost US\$391 billion over a decade. The incentives contained in the IRA are designed to minimise China's role in the clean tech pipeline. US companies are rewarded for building equipment nationally or

sourcing components and critical minerals from the US or countries with which the US has a free trade agreement.

In response, US trading partners have been scaling up their support to businesses to remain competitive. US trading partners are forced to respond as US subsidies jump to unprecedented heights and businesses warn they could lose investments and new jobs. The EU is reviewing its state aid rules to facilitate national public investments in the transition plans to ultimately re-assess the need for further European public investment in the transition¹. In December 2022, Japan increased its science and technology budget (US\$10 billion), which includes US\$4.6 billion for the development of semiconductor infrastructure over multiple years². According to the French Institute of International Relations, global support for the electronic chips industry could reach up to US\$721 billion (0.7% of global GDP in 2021).

Subsidies could distort industries and potentially lead to overcapacity. This new global subsidy race could disadvantage countries with lower fiscal space and lead to unprofitable investments due to the complexity of the semiconductor production. The semiconductor industry is also highly concentrated. Moreover, these subsidies come on top of massive investments by the industry as chipmakers have announced a surge of US\$200 billion investment in the US. This could result in overcapacity since demand for high-tech goods is cyclical whereas supply cannot be adapted quickly. *The Economist* (2023) estimated that replicating the cumulative investments of firms in the global tech-hardware, green-energy and battery industries would cost US\$3.1 trillion to US\$4.6 trillion (3.2% to 4.8% of global GDP).

The surge of export controls

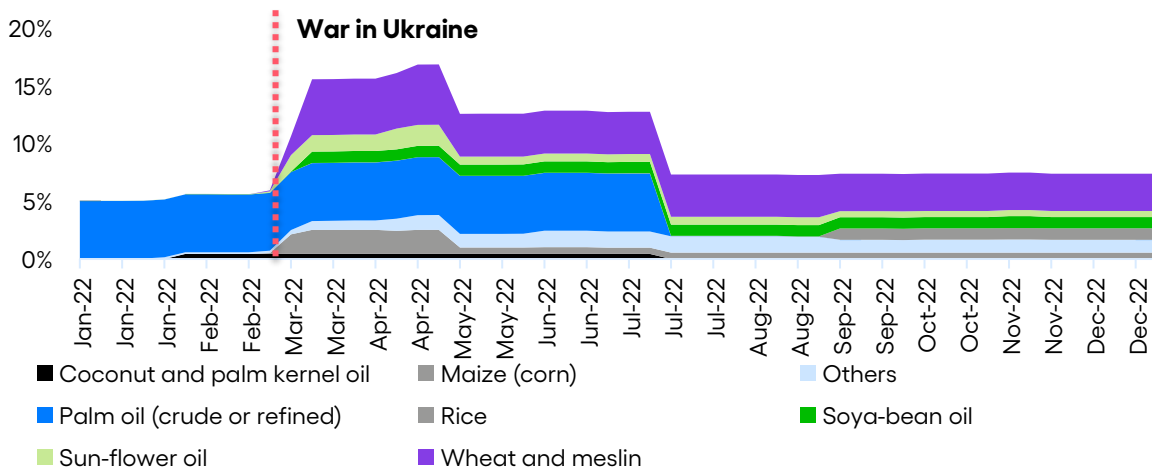
The pandemic and geopolitical tensions have led to a surge in export controls. At the outbreak of the war in Ukraine, countries implemented bans or limits on exports of food and fertilisers to protect domestic consumers from shortages. According to the International Food Policy Research Institute, the number of countries implementing food export restrictions jumped from four to peak at 25 between February and August 2022. The restrictions covered up to 17% of food exports (Figure 7). During 2022, 32 countries imposed 77 export restrictions in the form of export licensing requirements, export taxes or duties, outright bans or a combination of measures (Glauber et al, 2023). However, several restrictions still remain in place: 23 countries had implemented 29 food export bans, and 10 had implemented 14 export-limiting measures (World Bank, 2023).

¹ [Speech by President von der Leyen at the European Parliament Plenary on the preparation of the European Council meeting of 15 December 2022](#)

² [Japan Ministry of Finance, Highlights of the FY2022 Draft Budget](#)

Food restrictions have proliferated

Figure 7. Food export restrictions in 2022 by product, as a % of global food and feed exports (calorie basis)



Source: Glauber et al., *Food export restrictions have eased as the Russia-Ukraine war continues, but concerns remain for key commodities, 2023*

Export controls cover a wider range of products. Export controls apply to food and fertilisers, metals and technologies. Export bans on food covered up to 34% of traded wheat and 6% of traded corn (World Bank, 2022). According to Global Trade Alert, Western countries tightened export controls in 2022 with 55 new export control measures for machinery³, 54 for chemical products and 59 for cereals. New export restrictions aimed to hamper Russia's war effort.

Export controls on food and fertilisers contributed to food scarcity and higher global prices. The examples of wheat and corn highlight how export bans contributed to short-term increases in global prices. Before the Black Sea Grain Initiative, export controls on wheat affected nearly 35% of global wheat exports and resulted in a 15% increase of wheat price. Bans on exports of corn covered 6% of global exports and raised its price by 14%, accounting for more than three quarters of the overall increase. According to the IMF, a suspension of the Black Sea Grain Initiative would reduce global wheat and corn supplies by 1.5 percentage points, and in turn raise cereal prices by 10% within a year.

The proliferation of investment restrictions

Heightened national security concerns have also contributed to the proliferation of investment restrictions. Between 2021 and 2022, the number of capital controls jumped from 10 to 208 while the number of restrictions for Foreign Direct Investment (FDI) increased from 20 to 26. Countries that conduct FDI screening accounted for 63% of global FDI inflows (UNCTAD, 2022). In April 2022, the EU pushed member states to strengthen their screening mechanism for investments related to Russia and Belarus. With the CHIPS Act, the US clearly aims to restrict investments in semiconductors manufacturing in China or any other "country of concerns". The number of unique China-based entries in the Entity List⁴ has quadrupled since 2018, from 130 to 532 (Bateman, 2022).

³ Other special purpose machinery and part

⁴ Trade restriction list published by the United States Department of Commerce's Bureau of Industry and Security, consisting of foreign persons, entities or governments.

B. Digital fragmentation

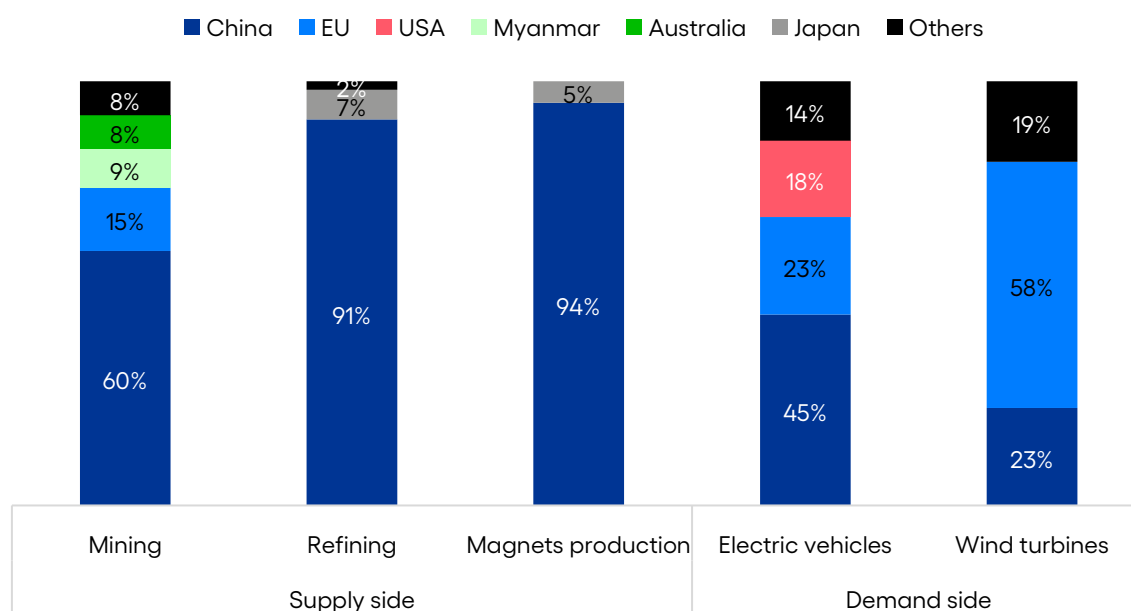
Digital fragmentation is both driving and mirroring geopolitical tensions. It can emerge from three sources: infrastructure, public policy or commercial business practices.

First, technology is becoming increasingly geopolitical and regionalised. As evidenced by the EU and US CHIPS Act, technology is seen as a competitive advantage for countries to ensure strategic autonomy and resilience as well as leadership in semiconductor technologies. In other words, technology is being nationalised and weaponised to ensure national security or strategic autonomy.

This is impacting supply chains associated with the digital economy, from upstream to downstream activities. China currently dominates most of upstream activities as it handles 60% of mining and 91% of refining of rare earth elements (Figure 8). Rare earths are essential components for wind turbines, EV motors and defence equipment. But, Great Britain⁵, Europe⁶, North America⁷ and Australia⁸ are planning to challenge the Chinese leadership by investing more in mining and processing. With their CHIPS Acts, the US and Europe want to lead midstream activities (production of hardware and software) as well as reduce their overdependence on Asia. Finally, competition is already fierce on downstream activities (platform businesses and digital delivery to customers) as most global digital platforms are based in the US or China.

China's dominance in rare earths

Figure 8. Countries' share in main steps of the value chain, in %



Source: Centre for European Policy Studies, *Developing a supply chain for recycled rare earth permanent magnets in the EU, 2022*

⁵ Resilience for the Future: The UK's critical minerals strategy (2022)

⁶ European Critical Raw Materials Act (2022)

⁷ Executive Order 13953 of September 30, 2020

⁸ Australia Critical Mineral Strategy (2022)

Second, the regulatory framework of the digital economy is fragmented, and the Internet is becoming more national and less global. Regulatory fragmentation is notably acute when it comes to storage, use, transfer of data as well as online content moderation. The US wants to retain the multistakeholder governance model of the Internet: open, decentralised and led by the private sector. By contrast, China and Russia rely on a cyber-sovereignty model: closed, centralised and government-led. Divergences also exist between the US and the EU, especially with regard to data privacy and regulation of artificial intelligence. Finally, emerging developing economies such as India are advocating for digital economic development and data regulation models based on keeping data inside national borders.

	US	China/Russia	EU
Approach to digital economy	<ul style="list-style-type: none"> Free market Led by private sector 	<ul style="list-style-type: none"> State intervention 	<ul style="list-style-type: none"> Regulations Control of data by individuals
Goal	<ul style="list-style-type: none"> Maintain leadership and access new markets 	<ul style="list-style-type: none"> Digital development part of the economic agenda Central role of cybersecurity in national security 	<ul style="list-style-type: none"> Digital sovereignty Protect the privacy of individuals
Cross-border data flows	<ul style="list-style-type: none"> Free data flows with no requirements on data or server localisation For national security reasons, restrictions for data inflows 	<ul style="list-style-type: none"> Strict regulations of cross-border data flows but also within the country For security and surveillance reasons: regulations on data inflows, hardware and software (mainly China) Restrictions on data outflows Sector specific data localisation regulations 	<ul style="list-style-type: none"> Free data flows within the EU and adequate states for personal and non-personal data Strict regulations for cross-border personal data flows

Source: UNCTAD, Digital Economy Report 2021, 2021

Regulatory fragmentation is growing. Between 2020 and 2022, the number of changes adopted or implemented by the EU, the US and China surged from 257 to 935. The three most active regulatory areas are data governance (45% of total), online content moderation (10% of total) and competition law enforcement (10% of total).

Fragmentation would reduce business opportunities, especially in developing economies.

Fragmentation and the lack of interoperability make access to supply chains more complicated and restrict data flows across borders, especially for small- and medium-sized enterprises. Between 2014 to 2018, Chinese manufacturing exports drop by US\$30.92 billion due to the increase in composite digital trade barriers in destination countries (Jiang, Liu and Zhang, 2022). In Latin

America, about 40% of companies consider data localisation barriers as a very significant challenge for cross-border online sales (Suominen, 2017). A fragmented Internet and global digital economy diminish the incentives for innovation and exacerbate trade tensions between governments. It also increases the risk of numerous crises as countries and businesses become less resilient to external shocks.

C. Debt fragmentation

The geopolitical tensions are hindering debt restructuring negotiations. As evidenced by the current situation, fragmentation makes it harder to resolve sovereign debt crises. The US is blaming China for holding up debt restructuring negotiations in Sri Lanka and Zambia while China wants multilateral lenders to share the pain of debt restructuring by agreeing on unprecedented “haircuts” on their loans. However, the World Bank and other multilateral lenders have rejected that proposal as they suffered losses during the debt forgiveness round in the early 2000s. As a result, both the Sri Lankan and Zambian economies are stuck in profound economic crises, waiting for an IMF bailout.

In the context of monetary tightening, prolonged negotiations could increase debt vulnerabilities. As monetary policy tightens to curb inflation, sovereign borrowing costs will rise, increasing debt service. Monetary tightening from the US Federal Reserve Bank could also accelerate capital outflows from developing economies and lead to currency depreciations. This will likely exacerbate imported inflation and increase countries’ debt burden. As a result, delays in debt restructuring could result in increasing debt vulnerabilities and narrow the fiscal space for governments to increase social and infrastructure spending.

Failure to agree on risks leading to another lost decade for several developing economies. The debt situation is currently alarming for several emerging and developing countries, especially in Africa. According to the IMF, about 15% of low-income countries are in debt distress, and an additional 45% are at high risk of debt distress. And among emerging economies, about 25% are at high risk and facing “default-like” borrowing spreads.

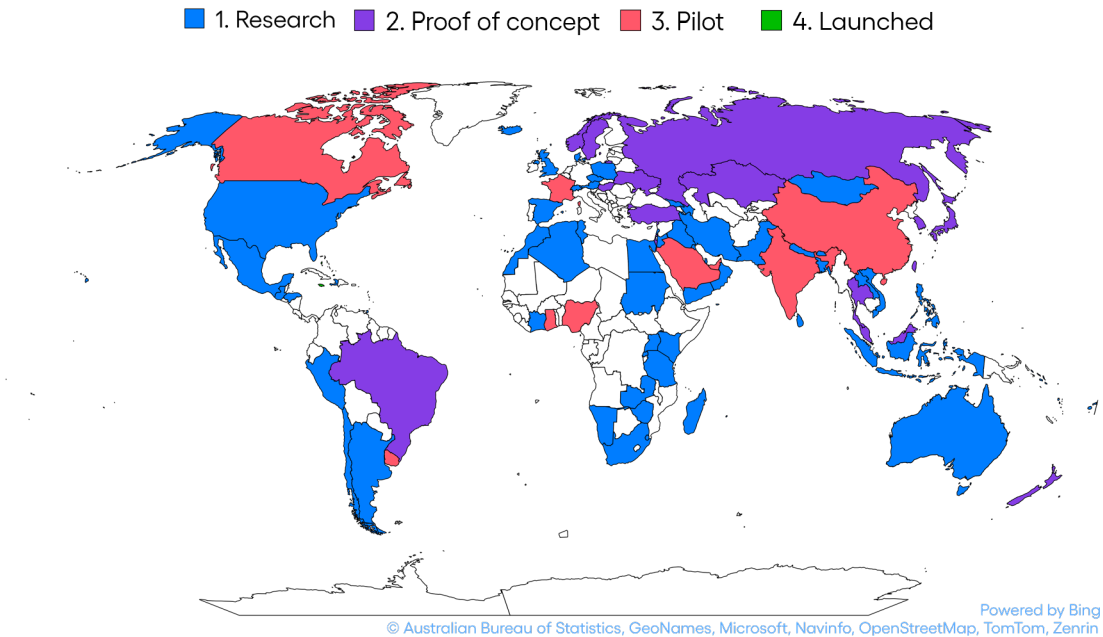
D. Payment fragmentation

Technological changes and shifts in global economic dynamics have accentuated payment fragmentation.

Technological innovations can bring structural changes in payment systems, which can lower the cost of cross-border payments. Cross-border payments are still expensive, slow and opaque. This is especially true for developing economies. Fintechs and decentralised finance (DeFi) have the potential to increase the speed and reduce costs for cross-border payments traditionally offered by banks (Bech et al., 2020). In that context, several central banks are rolling out their new digital currency (Figure 9). For instance, Berkmen et al. (2019) found that mobile operators and mobile money can transmit remittances at a relatively low cost (about 3% of the amount sent) compared to traditional financial service providers (6% of the amount sent).

The rise of digital currencies

Figure 9. Central Bank Digital Currencies Status



* Central Bank Digital Currencies have been launched in Jamaica and the Bahamas

Source: Central Bank Digital Currencies Tracker, as of March 2023

The lack of interoperability, regulation and cooperation for payment systems could increase the risk of fragmentation. Complying with multiple regulatory regimes adds to costs. Payment system interoperability has three dimensions: systems (technical standards, hardware and software infrastructure), semantic and business (Boar et al., 2021). Without interoperability between national payment systems, manual processes may be needed. Furthermore, the risk of money laundering and terrorist financing can be more difficult to manage for cross-border payments (Bech and Hancock, 2020). Achieving interoperability requires coordination and collaboration. In addition, DeFi and digital currencies must integrate some of the regulatory and self-regulatory practices that have brought functional stability to traditional finance.

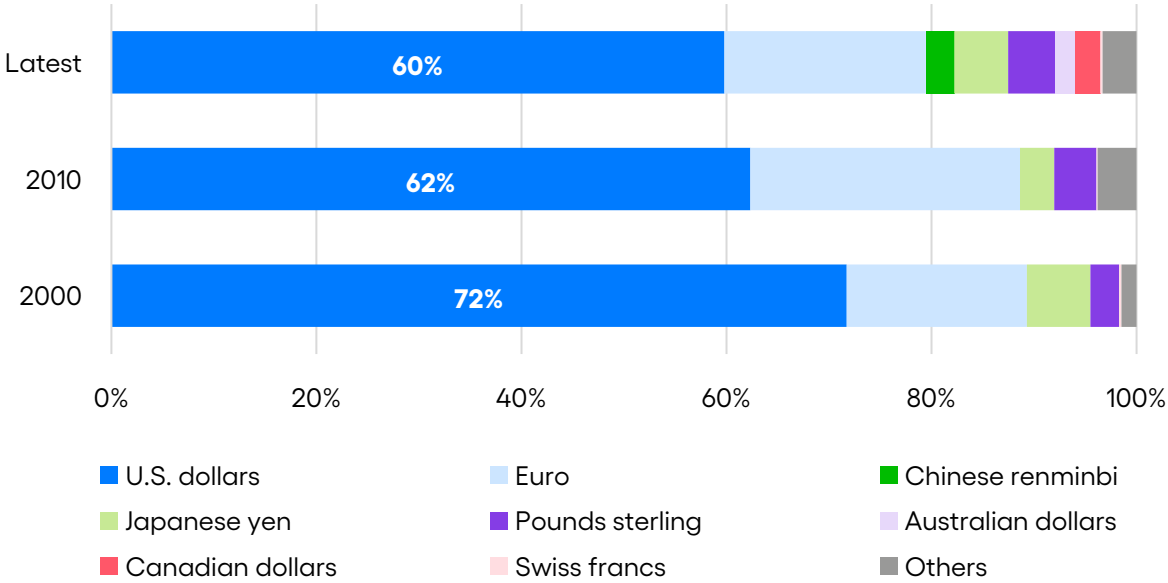
Geopolitical and trade tensions have reinforced existing trends of fragmentation in the international payment systems. Some countries have already developed alternative payment systems to SWIFT to mitigate the impact of potential economic sanctions. In 2022, Russia increased the use of the Financial Messaging System of the Bank of Russia (SPFS in Russian), an alternative to SWIFT, to counter Western sanctions and remain with access to global financial liquidities. A total of 440 entities joined this network, of which more than 100 are not based in Russia. Similarly, China launched the Cross-Border Interbank Payment System (CIPS) in 2015 to foster cross-border payments in renminbi, China's currency. Although CIPS is not a direct competitor to SWIFT, it processed around US\$14 trillion with about 1,280 financial institutions in 103 countries in 2022. Although CIPS and SPFS together process less than 1% of SWIFT's volume of transactions, they could create new inefficiencies and impose new costs.

In this context, these trends and initiatives could accelerate the erosion of the role of the US dollar.

The recent weaponisation of the US dollar could accelerate this ongoing diversification of foreign reserves as a “de risking management” strategy. The dollar’s share of global foreign-exchange reserves fell to 60% in the third quarter of 2022, extending a two-decade decline (Figure 10). By contrast, the currencies of smaller economies such as Australia, Canada, Sweden and South Korea have been rising over the years (Arslanalp, Eichengreen and Simpson-Bell, 2022). In the medium term, new payment alternatives could emerge at the regional level, ultimately leading to the establishment of different multilateral payment systems (Bilotta, 2022).

The US dollar remains the main currency but its role is eroding

Figure 10. World currency composition of foreign exchange reserves, in %



Source: IMF, World Currency Composition of Official Foreign Exchange Reserves, accessed in March 2023

Increasing payment fragmentation could lead to financial instability. Although some degree of fragmentation can enhance financial stability in specific cases (Claessens, 2019), it can also contribute to financial volatility. Countries that choose to diversify their foreign-exchange reserves may also face higher transaction costs and higher risks of reserve portfolios.

E. Cost of geoeconomic fragmentation

Increasing fragmentation requires businesses to adapt quickly their business models. As pointed out by the American Chamber of Commerce in France (2021), the coexistence of different standards, regulations and norms requires businesses to adapt their business models to regional and domestic markets in order to remain competitive. In other words, businesses need to further customise their model to different markets.

Reconfiguring supply chains takes time. As evidenced by Boehm et al. (2022), short-term trade elasticities to tariffs are lower than long-term elasticities. In other words, trade flows take time to adjust. This implies that short-term costs from trade fragmentation can be much greater than the long-term costs.

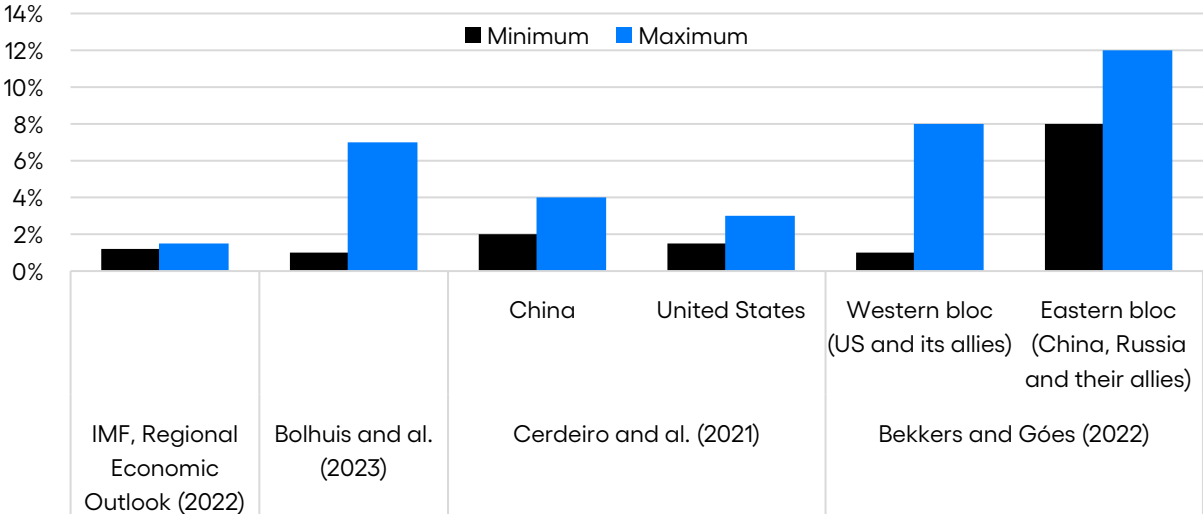
Trade and technological fragmentation can affect the global growth through different channels (Cerdeiro et al., 2021):

- It reduces trade flows as countries impose higher non-tariff barriers. This will lower demand for high-tech imports, hampering consumption and investment growth.
- It creates sectoral misallocation, which will lead to inefficiencies such as overcapacity. Supply and demand shocks will reverberate across domestic and foreign production value chains.
- It hinders the foreign diffusion of knowledge, which will restrain innovation and domestic productivity.

Economic losses from fragmentation could be considerable. The global cost of fragmentation increases with the degree of fragmentation, that is, the number of sectors and countries affected. The costs would include higher import prices, segmented markets and diminished access to technology, among others. According to several studies, the global cost could range from 1.2% to 12% of global output (Figure 11). The latter is equivalent to the output of Germany and Japan. By restraining spillovers, technological decoupling would be the most costly, especially for emerging and low-income countries. Countries from the Asia-Pacific region would heavily suffer from fragmentation as they are trade-intensive.

Trade and technological fragmentation could cost up to 12% of global GDP

Figure 11. Long-term output loss associated with fragmentation, in %



Source: IMF, Regional Economic Outlook for Asia and Pacific (2022); Bolhuis et al., Fragmentation in Global Trade: Accounting for Commodities (2023); Cerdeiro et al., Sizing up the effects of technological decoupling (2021); Bekkers and Góes, The impact of geopolitical conflicts on trade, growth, and innovation (2022)

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