

The Impact of China-OECD De-Risking Strategies

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(The views expressed herein are those of the authors and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.)

In the International Monetary Fund's latest Regional Economic Outlook for the Asia-Pacific region (IMF Regional Economic Outlook for Asia and Pacific, October 2023, Chapter 3: "How Will Trend Growth in China Impact the Rest of Asia?", by Diego A. Cerdeiro, Julia Estefania-Flores, Parisa Kamali, Siddharth Kothari, Dirk Muir, Chris Redl, and Weining Xin), we considered the economic impact of so-called de-risking strategies by OECD countries and China that aim to "reshore" production domestically or "friend-shore" away from one another. We find that significant de-risking scenarios can result in a sizeable drag on growth around the world and especially in Asia – global GDP could decline by 1.8% in the friend-shoring scenario and 4.5% in the reshoring scenario.

Introduction

Trade has been an engine of growth for Asia and the world, with China a crucial driver of regional trade integration. China's importance in the global economy and in global trade has increased dramatically over the past few decades, and its insertion into global value chains has underpinned this rise. Major forces such as convergence and demographics will partly determine China's future growth, but other key factors, including international geoeconomic developments, may alter this path significantly, with spillovers to the region.

Rising geopolitical tensions, including US-China trade tensions, have raised concerns around sharp fragmentation scenarios where the global economy divides into blocs with large swaths of trade and other flows between countries in rival blocs severely restricted or outright eliminated. In response to those concerns, researchers around the world invested heavily in estimating the potential impact of these scenarios. While such an extreme fragmentation scenario remains a possibility, there are increasing signs that the global economy may be headed toward what policymakers refer to as "de-risking", as countries aim to reshore and friend-shore supply chains in the aggregate. In addition, there are signs of policies totally undoing ties in narrow sectors to restrict access to high-quality inputs. Taken together, these two risks – global de-risking and sharp sectoral fragmentation – would imply some, but not a full, retrenchment in trade integration. In the following, we will thus focus on the potential impact from de-risking and sectoral export bans between China and the economies in the Organisation for Economic Co-operation and Development (OECD).

Though many Asian countries would not be directly targeted by trade restrictions or by a withdrawal of production, the region's close trade integration with China makes them susceptible to significant spillovers. We therefore assess the potential effects from a China-OECD de-risking on a broad set of economies in our macroeconomic model.

Given China's importance for the region, we find sizable costs for



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Asia. Non-OECD Asian countries can benefit from the trade diversion effects of "friend-shoring" by both China and the OECD, though those benefits largely dissipate once one accounts for the global slowdown caused by friend-shoring trends. And the reshoring dimensions of de-risking strategies are particularly harmful given that these involve putting trade restrictions on all countries, friends and rivals alike. In the specific case of export restrictions aimed at curtailing access to high-quality inputs, the analysis finds empirically significant potential losses on both sides, as the quality frontier is highly product specific.

China's Growing Importance in the Global Economy

China's weight in the global economy has increased dramatically over the past few decades. Its economy grew by more than 9% on average annually in the past three decades before the Covid-19 pandemic. Our analysis suggests that China's GDP growth during this time period – starting in the mid-1990s and accelerating in the 2000s – was significantly higher than what its per capita income levels would suggest. The overperformance was of 5.5 percentage points on average and with a gradual decline in the 2010s, a period that was also characterized by excessive investment and debt accumulation. China's above-average growth made it the second-largest economy in the world by the late 2010s, measured at market US dollar exchange rates.

China's importance in global trade grew accordingly, its share rising from less than 2.5% in 1997 to 12% in 2022, making it one of the largest trading nations. China's rise in global importance was underpinned by its insertion into global value chains (GVCs). GVCs refer to cross-border activity involved in producing goods or services. Typical GVC products include automobiles, electronics, textiles, or medical goods. China's share of global GVC exports, defined as exports that either use inputs from other countries (backward linkages) or become inputs into other countries' exports (forward linkages), have increased fivefold since the early 1990s. Initially, China's assembly of other countries' inputs drove this rise. Starting in the mid-2000s, however, China has increasingly become a supplier of inputs to other countries.

Trade Integration in Asia

Trade with China has been a key driver of trade integration in Asia over the past few decades. On the one hand, GVC trade links have been crucial in Asia as trade in intermediates has become increasingly important over time. On the other hand, the region also plays an important role in serving Chinese final demand and investment specifically.

Amid China's unprecedented growth over the last three decades, our analysis finds that greater trade integration with China also implied higher GDP growth on average for other countries. This positive effect is significantly larger when considering GVC linkages, particularly backward linkages, i.e., when intermediate goods imported from China were used as inputs in the production of exports. For example, going from the average backward linkages of non-Asian countries with China to that of Asian countries with China is associated with higher growth of about 0.5 percentage point. Consistent with earlier literature, this suggests that in addition to direct demand channels, GVC trade can also have other benefits, such as greater specialization to exploit comparative advantages, technology transfers, and knowledge diffusion.

Trade Fragmentation Risks

The rise of geopolitical tensions in recent years – first amid US-China trade tensions and accelerating in the wake of Russia's invasion of Ukraine and the war in the Middle East – has brought concerns that strategic competition and national security considerations will take precedence over the shared economic benefits of global trade. This raises the risk that the gains from trade integration seen in the last few decades, especially in China and Asia, will reverse.

Economists have studied the likely impacts of extreme fragmentation scenarios, including a US-China decoupling, in which large swaths of trade between the two nations would be eliminated, or the world would be divided into separate trading blocs. Model simulations suggest that these scenarios would carry large, permanent output losses that are especially high for Asia, given its significant role in global manufacturing and trade (“Asia and the Growing Risk of Geoeconomic Fragmentation” in *Regional Economic Outlook Asia and Pacific*, IMF, October 2022). But these scenarios

continue to be a tail risk, or low-probability event.

The IMF's baseline economic growth forecast for most economies over the next few years currently assumes that fragmentation pressures remain contained to specific products and sectors, without rising to a level that is critical to the overall economy. Yet, trade-restrictive measures continue to creep up and policies that distort trade and investment are proliferating. In addition, supply chain disruptions during the Covid-19 pandemic have heightened the focus on making supply chains more resilient, and growing evidence suggests that companies are exploring options to reshape their supply chains. In all, the downside risk coming into focus is not of extreme fragmentation but of a global de-risking, whereby firms in some countries reshore production home more generally and friend-shore away from certain partner countries. This shift in supply chains would lead to some, but not full, retrenchment of trade integration in the aggregate. In addition, de-risking could be accompanied by sharp fragmentation in certain sectors due to an escalation of recent export bans.

De-Risking, Friend-Shoring & Reshoring

We define de-risking as countries changing how they source goods and services along two dimensions. First, a friend-shoring dimension measures how much countries want to change between different foreign sources, while minimizing the change to overall dependence on foreign sourcing. Second, a reshoring dimension measures how much more countries seek to rely on domestic sourcing versus foreign sourcing, beyond an already-high home bias.

The de-risking scenario focuses on the relationship between China and the OECD economies. We focus in particular on the United States, the European Union and Switzerland, Japan, South Korea, and a group of other advanced economies. We assume other economies do not actively seek to friend-shore or reshore.

We consider significant de-risking shocks. The friend-shoring scenario assumes China reduces its reliance on OECD sources, and the OECD reduces its reliance on China sources, both sides sourcing from other countries instead. This reduction dials back the observed change in foreign sourcing that took place over the past two decades. For example, from 2000 to 2021, OECD countries moved from sourcing around 5% of their aggregate goods and services trade from China to sourcing around 13% from China. Breaking this down for different types of goods and services, the share increased by about 5 percentage points for GVC and non-GVC intermediates, and by about 10 percentage points for investment and consumption goods.

For the reshoring scenario, we assume the OECD and China reduce reliance on imports from all countries. Similar to the friend-shoring scenario, this reduction dials back the observed changes in foreign sourcing that took place between the years 2000 and 2021. In 2000, OECD countries procured about 10% of their investment goods from abroad, both from other OECD economies and from non-OECD economies. As of 2021, this figure had risen to about 13%.

Model-Based Analysis of De-Risking

To quantify the spillovers from a downside scenario of de-risking,

we rely on the IMF's Global Integrated Monetary and Fiscal Model (GIMF). GIMF is an annual, multi-region, micro-founded dynamic stochastic general equilibrium model (DSGE) of the global economy. For our analysis, GIMF comprises 10 regions: the US, the EU plus Switzerland, other advanced economies (Australia, Canada, Iceland, Israel, New Zealand, Norway, and the United Kingdom), China (mainland China and Hong Kong SAR), India, Indonesia, Japan, South Korea, other Southeast Asia (Brunei, Cambodia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam), and the rest of the world. The rest of the world includes emerging markets Russia, South Africa, and Turkey plus the regions of Africa, the Caribbean, Central Asia, Latin America, the Middle East, Oceania, and any other economy not accounted for elsewhere.

GIMF is a macroeconomic model extensively used within the IMF, here extended by a tradable sector related to GVCs. It includes households and firms, and assumes firms in every economy produce goods and services across three sectors. First, a non-tradable sector (i.e., goods and services that are produced and consumed domestically, for example retail or health services) and a domestically produced tradable sector (i.e., goods and services produced domestically and consumed abroad, such as agricultural goods or financial services), which use some combination of labor and capital for production. A third sector, the GVC sector, is more complex than the other two sectors as GVC goods are used both in final goods and as inputs in the production of other GVC goods. This sector is intended to represent industries such as semiconductors, with chips going into the production of computers sold to consumers (a final good), or as inputs into auto-parts (another GVC good). Production in the GVC sector combines capital and labor with already produced GVC goods, sourced both domestically and from abroad. The produced output is then split between inputs into final goods, both exported and sold domestically, or cycled back as intermediate inputs into the production of other GVC goods, both at home and abroad. Adding this sector allows us to capture the key role that GVCs have played in China's rise.

In the model, regions trade final goods and services for consumption and investment, both from the tradeable and the GVC sector, as well as GVC and non-GVC intermediate goods. The flows of these goods and services are tracked bilaterally. Trade flows react to demand, supply, and pricing conditions. The model captures barriers to trade using "non-tariff barriers" (NTBs), which affects the model's importers and exporters in ways similar to tariffs but does not generate fiscal revenues. Monetary and fiscal policies are set to passively respond to shocks according to pre-defined rules.

The model relies on assumptions to calibrate each region's economy. The sizes of the various sectors in each region's economy are calibrated using the OECD's Inter-Country Input-Output database which captures the flows of intermediate and final goods and services across industries and countries. Further specific parameterizations in the various sectors, such as consumption and international trade, help to fully calibrate the model. For example, a region's degree of openness to trade determines how activity in the rest of the world will spill over onto it, and how that region influences the rest of the world.

Simulation Results

In the friend-shoring simulation, we adjust nontariff trade barriers to alter the mix between foreign sources, assuming the OECD and China impose NTBs on each other to reduce mutual interdependence but do not restrict trade with other countries. Global GDP declines by 1.8%, with the economic losses being the largest for China, around 6.8% of GDP in the long term, because of reduced demand for Chinese goods by key trading partners and amplification through GVCs as higher input costs cascade through the supply chain. GDP losses are also large for OECD countries, with the extent of losses depending on the countries' dependence on Chinese inputs, which become more costly (*Chart 1*).

The economic effects are small for the rest of the world, with two offsetting forces at play. Higher NTBs between China and the OECD result in trade being diverted to other countries, increasing demand for their exports, which rise above the baseline in the short term. However, the large economic losses in China and the OECD notably lower their demand from the rest of the world, dampening the positive effects from trade diversion. Therefore, GDP and exports in the rest of world decline marginally in the long term, in the range of -0.2% to -0.7% for GDP.

In the reshoring scenario, we adjust NTBs on all countries, assuming China and the OECD reduce dependence on foreign inputs, resulting in large global output losses. These significantly larger global losses are about 4.5% of GDP in the long term as the distortions from NTBs lead to less-efficient resource allocation and higher input costs that are amplified through GVC linkages. China experiences a 6.9% GDP loss in the long term as the OECD regions are reducing their demand for foreign goods. For the OECD regions, losses range from 3.8% to up to 10.2% of GDP, with larger losses for more open economies with stronger China linkages.

For the rest of the world, the positive trade diversion effects of the

CHART 1

GDP losses from friend-shoring & reshoring scenarios (GDP levels, percent deviation from baseline)



Source: EORA GVC, and IMF staff calculations

friend-shoring scenario are no longer present because they also face higher NTBs from China and the OECD. For example, the other Southeast Asia region experiences a large GDP loss of 9.1% because it is highly open with strong trade links with China and the OECD economies, particularly in the GVC sector in relation to China. Therefore, the demand for its exports is falling enough to induce a large GDP contraction, with significant negative spillovers on the domestic economy.

Export Restrictions & Quality Downgrading

In addition to the de-risking scenarios, we study the impact of quality downgrading via export restrictions. In some narrow sectors we see policy actions that could result in elimination of trade as export restrictions have increasingly targeted access of countries to high-quality inputs. The intention, for example, is to prevent China from being able to procure advanced computer chips, potentially forcing the country to produce lower-quality outputs, such as slower artificial intelligence models or phones.

To evaluate the effect of these export restrictions, we estimate quality differentials for 200,000 traded products using the framework developed by Khandelwal (“The Long and Short (of) Quality Ladders” by Amit Khandelwal, *The Review of Economic Studies* 77 (4), 2010). The approach identifies quality by comparing market shares conditional on price: if two products with the same price have different market shares, then it is inferred that the product with a higher market share is of higher quality.

Everyone stands to lose from broadening restrictions – both in the aggregate and in critical areas such as the environment – as the quality frontier is highly product specific (*Chart 2*). In the specific case of semiconductor sectors, the median estimated Chinese product quality is about one-third lower than the median quality for the OECD. In a hypothetical situation in which China and the OECD cut off all access to each other’s semiconductor products, and assuming that both parties can easily substitute each other with a good-quality product from the rest of the world, the trade-weighted drop in quality is of about 5% for China and zero for the OECD.

However, such a stark asymmetry does not hold in general. In the case of environmental goods – where cooperation is critically needed – the trade-weighted average quality loss is of around 11% for China, and as high as 5% for the OECD, as different economies specialize in the production of different environmental goods. For all goods combined, both sides would see input quality drop by about 8%.

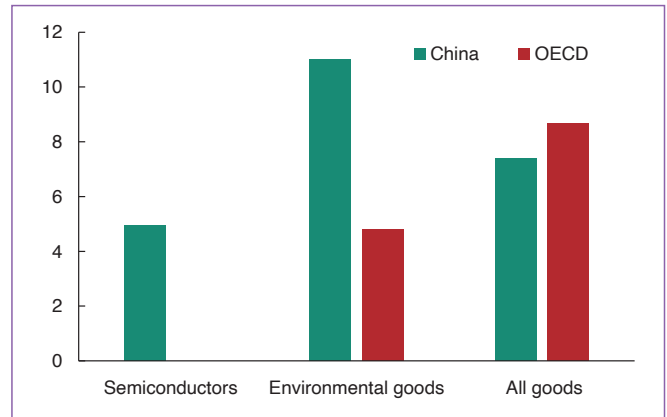
While this indicator is only a rough gauge of the impact of restrictions – for example, it does not account for different elasticities of substitution at the product level, i.e., the ease of switching between different products – it underscores that there can be significant losses from new export restrictions.

Conclusion

Our model results show the potential losses from China-OECD de-risking. Assuming significant de-risking, global GDP could decline by 1.8% in a friend-shoring scenario and 4.5% in a reshoring scenario. Put more broadly, for each percentage point change in the

CHART 2

Quality downgrading from loss of access to others’ inputs (In percent, accounting for rest-of-world sourcing)



Sources: USA Trade Online and IMF staff calculations

international sourcing of goods and services, long-term global GDP losses are about 0.25% for friend-shoring and 1.5% for reshoring. While these are, by definition, smaller than potential losses from extreme fragmentation, the estimates underscore how significant de-risking can still present a nontrivial drag in Asia and beyond. Notably, friend-shoring would not provide a boon to third countries due to the offsetting effects from contractions in China and the OECD.

In addition, export restrictions on a narrow set of sectors could add to these losses. Sharp fragmentation in certain sectors by restricting access to specific cutting-edge technologies and products have the potential for large drops in input quality for major economies. Even after accounting for possible third-country substitution, this would lead to large losses for both sides as the quality frontier is highly product-specific and both China and the OECD produce higher quality goods in certain areas.

What should Asian economies do, considering the potential losses from de-risking scenarios? For China, it underscores the need to pursue comprehensive reforms to reignite faster convergence to the economic frontier, which would bring large gains to China and the rest of Asia. Beyond China, the results show that economies should not expect to passively benefit from friend-shoring tailwinds. Integrating further into GVCs, like China did in the early 2000s, requires actively pursuing strong structural reform efforts. For all of Asia and beyond, the scenarios also highlight the need for constructive dialogue to resolve underlying sources of tensions and thereby resist fragmentation pressures that can be detrimental to everyone’s living standards.

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