EUROPEAN TRADE FINANCE

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Ewout Frankema discusses the economic divergence across the Global South

Michelle Bowman considers the evolving crossborder payments landscape

Patrick Leblond examines global governance of digital trade

A EUROPEAN PERSPECTIVE ON TRADE FINANCE

Foreword

Welcome to the Spring edition of ETF, a *World Commerce Review* supplement. This publication has been prepared in response to readership demand for an overview of trade finance from a European perspective.

In these turbulent and unique times issues such as geopolitical tensions, macroeconomic volatility, trade digitalisation, sustainability and shifting supply chains will be examined in forthcoming editions, with the most respected authors providing the reader with the most comprehensive information available.

Our brief is to provide all the data necessary for the readership to make their own informed decisions. All editorials are independent, and content is unaffected by advertising or other commercial considerations. Authors are not endorsing any commercial or other content within the publication. ■

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A framework for geoeconomics

Countries use their economic strength to achieve geopolitical goals. Christopher Clayton, Matteo Maggiori and Jesse Schreger present a novel framework to understand how a hegemon in the international system exerts its power within its economic network

Governments use their countries' economic strength from existing financial and trade relationships to achieve geopolitical and economic goals, a practice often referred to as 'geoeconomics'. Great power competition between the US and China has made geoeconomics part of daily news and an active policy choice in democracies and autocracies alike.

Recent examples include China's Belt and Road Initiative, the US attempting to restrict the use of Huawei's 5G technology in Western countries, and the US using the dollar-based financial system as part of a range of trade and financial sanctions against Russia.

In two landmark contributions, Hirschman (1945, 1958) relates the structure of international trade to international power dynamics and sets up forward and backward linkages in input-output structures as a foundation for structural economic development.

In a new paper (Clayton *et al* 2024), we introduce a framework, inspired by this work, that uses an input-output network model of the world economy to explain how geoeconomic power arises from the ability to consolidate threats across multiple economic relationships (eg. finance and technology jointly) to pressure a target entity.

In our model, a hegemon like the US exerts its power on firms and governments in its economic network by asking them to take costly actions that manipulate the world equilibrium in the hegemon's favour.

Geoeconomic power arises from the ability to jointly exercise threats from separate economic activities, for example, threatening to cut off a deviating entity from both financial services and critical manufacturing inputs.

We characterise the optimal strategy of a hegemon and show that a hegemon asks targeted firms to take costly actions such as imposing or accepting mark-ups on goods or higher rates on lending, but also import restrictions and tariffs.

The network nature of the world economy makes controlling certain strategic sectors more valuable for the hegemon. Strategic sectors increase the hegemon's power over other sectors or its influence over the world economy due to network amplifications.

Collective power over multiple entities gives rise to the hegemon's macro-power – its ability to reshape the world's equilibrium in its favour

We apply our framework to two prominent examples: (1) national security externalities in the setting of US-China competition; and (2) China's Belt and Road Initiative as a sovereign lending programme.

Hegemonic threats to friends and enemies

Hegemons build power by threatening to retaliate against a deviating entity across multiple economic relationships. For example, a target country might be importing both intermediate goods and foreign capital (Figure 1a). If these inputs are controlled separately, there is some value to individual threats.

Generally, however, threats to withdraw both inputs at once (Figure 1b) are more powerful in the sense of inducing greater losses for the target country if exercised.

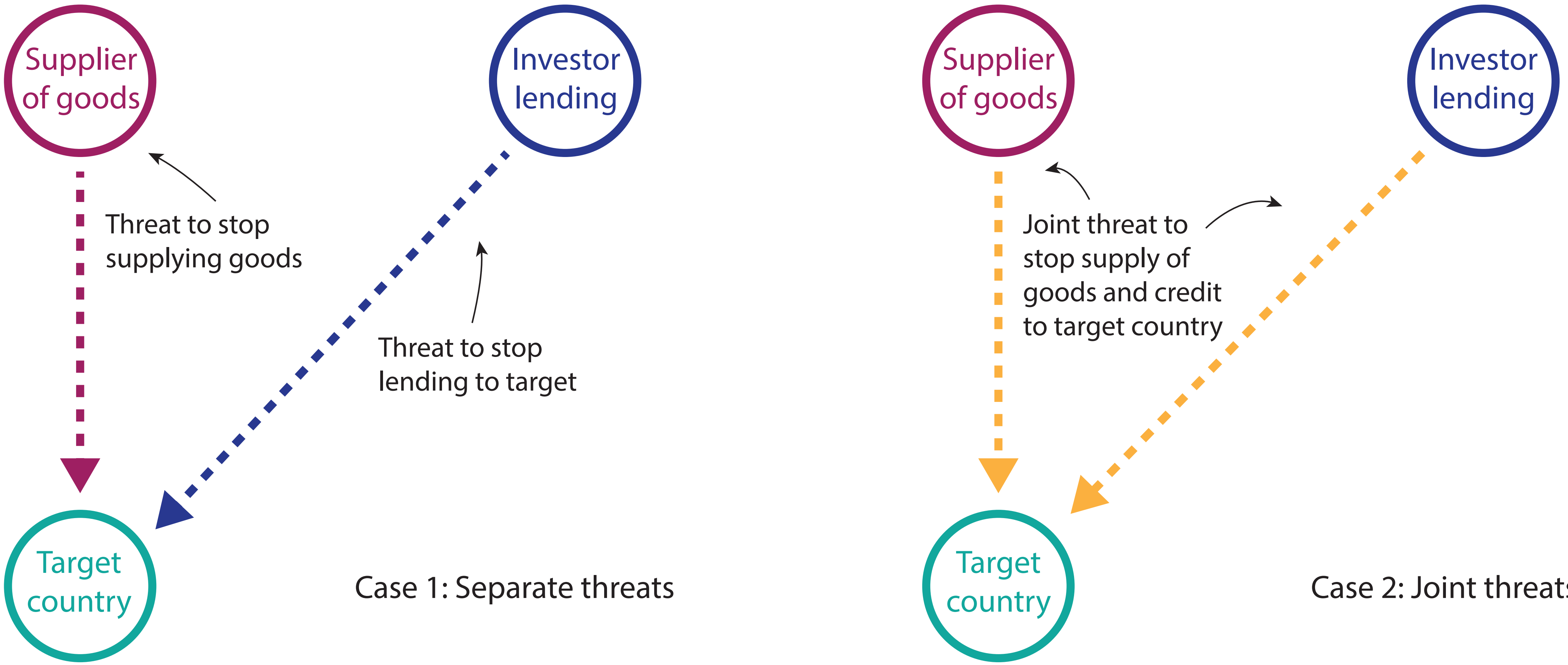
Many threats are either not feasible or not valuable. A threat is not feasible if the hegemon does not control the input. Not valuable means that the target country can easily find a substitute for the input that is withdrawn. For example, Russian threats to withdraw natural gas supplies are less powerful if alternative suppliers can be found.

A hegemon uses these threats to exert power over firms and governments in its network and ask them to take costly actions. These actions can take the form of monetary transfers, mark-ups on trade prices, and surcharges on loans, but also restrictions on import-export (tariffs and caps) and political concessions.

We provide a theory-based notion of friends and enemies of the hegemon (see also Kleinman et al. 2020). Our notion of friendliness is not based solely on nationality or political affinity, but on how an activity impacts the hegemon's welfare either directly or indirectly via its impact on others.

For example, the US might consider a sector producing semiconductor technology in the Netherlands unfriendly in as much as its output is indirectly increasing production of unfriendly technology by China.

Figure 1. Networks and joint threats



Which sectors are strategic?

The designation of an activity as 'strategic in the national interest' is often abused in economic policy. It can mask protectionist or nationalistic aims of government policy. The abuse is possible due to the lack of a clear definition and policy framework against which to assess a candidate policy.

In our framework there are two notions of power: micro-power and macro-power. Sectors are strategic if they increase these powers. A sector is strategic in the micro-power sense if it increases the hegemon's ability to make valuable threats on other entities.

We refer to this as micro-power since it takes as given all aggregate quantities and prices. Strategic sectors tend to supply inputs to other sectors that are widely used and are not easily substitutable. Some sectors have physical properties of this kind, for example rare earths.

Other sectors exhibit these properties because of increasing returns to scale and natural monopolies. An example is the dollar-based payment and settlement system that the US often uses in geoeconomic threats. The dollar system is so ubiquitous that on the margin countries that are excluded have only poor alternatives.

Collective power over multiple entities gives rise to the hegemon's macro-power – its ability to reshape the world's equilibrium in its favour. Some sectors have high indirect influence on world outcomes by affecting prices or quantities produced by other sectors.

These sectors are strategic because control over these sectors allows a hegemon to influence indirectly a large part of the world economy that it does not directly control. Research and technology, especially at the cutting edge or for military use, are sectors of this kind.

Understanding the US restrictions on Huawei

We consider the US hegemon demanding that countries in Europe stop using a technology input from China that is a national security concern for the US.

As illustrated in Figure 2, the hegemon US can pressure firms and governments in third party countries to curb their imports of Chinese company Huawei's 5G telecommunication infrastructure even though there are benefits to these users from using such technology.

This application highlights the power of endogenous amplification through the production network. We assume that this technology has a strategic complementarity: each user finds the technology more productive the more other users are also using the same technology. These complementarities are typical of information technology but are also present in financial technologies like payment systems.

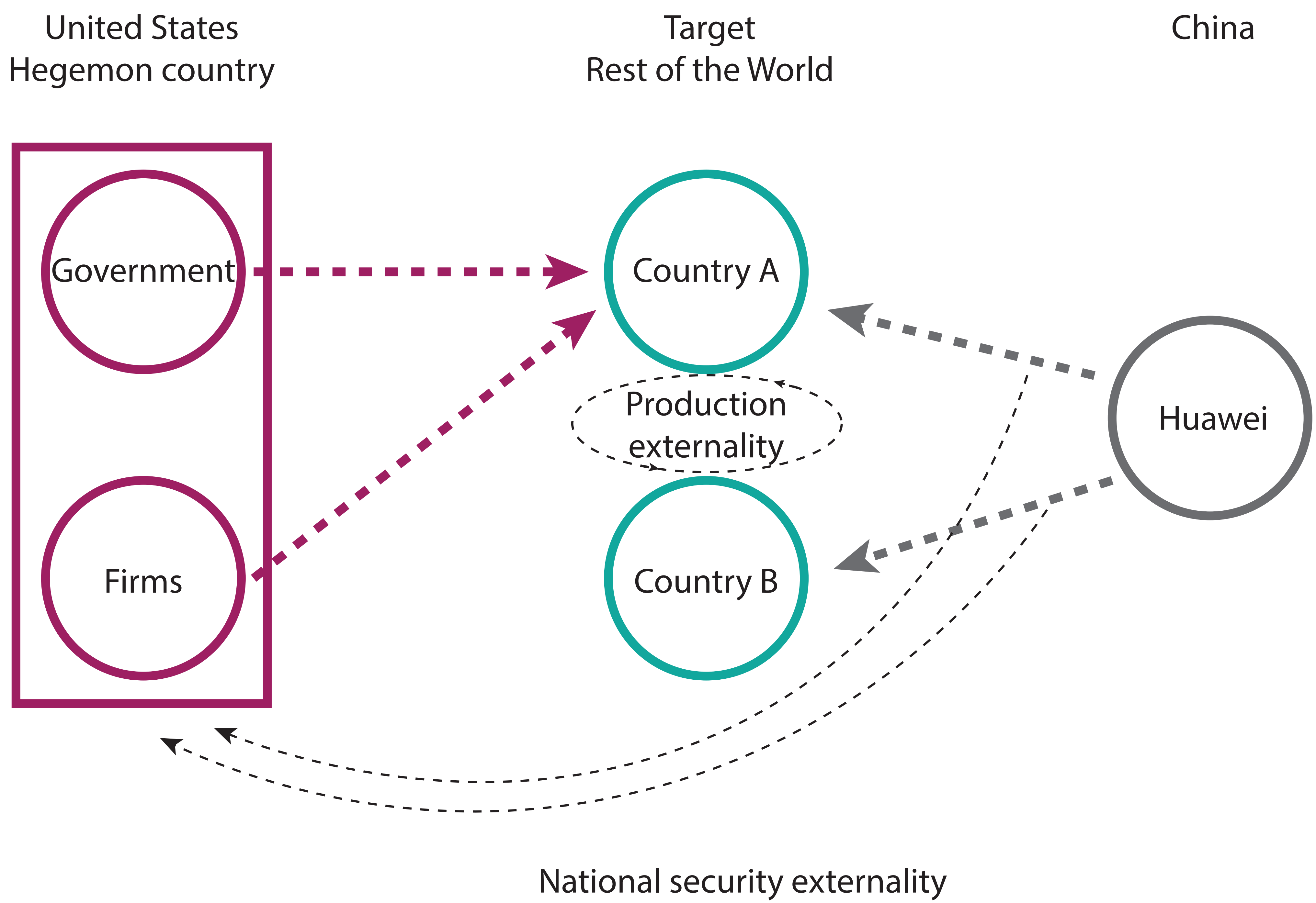
The US wields its macro-power by demanding entities in its network to curb the use of this technology. As targeted sectors use less of China's technology, the technology becomes less attractive also to other sectors that the US cannot directly pressure, increasing the overall impact of US demands.

Understanding the Belt and Road Initiative

China's flagship Belt and Road Initiative provides countries involved package deals of lending, infrastructure projects, and manufacturing inputs. China often extracts political concessions and or better access for its firms to new markets.

We model how China can combine lending and manufacturing exports to extract political concessions (Figure 3). We consider a target country with low legal enforcement, eg. an emerging or frontier market. In the absence of China's geoeconomic power, the country has limited willingness to repay the debt.

Figure 2. US national security and 5G infrastructure from China

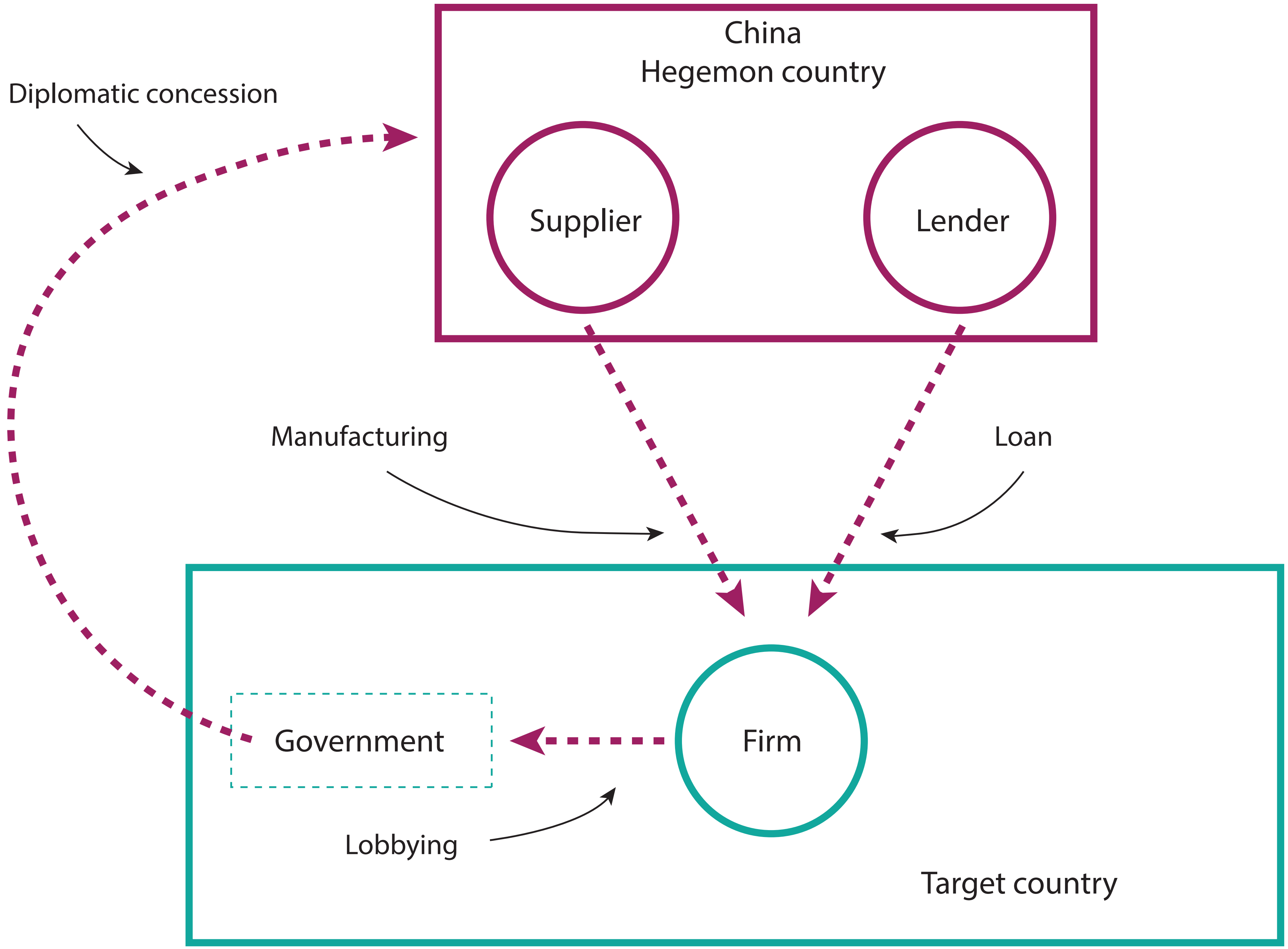


However, China can threaten to jointly stop the financing and reduce the supply of manufacturing goods if the target country does not repay the debt or attempts to expropriate the goods. This joint threat is very powerful, and it expands economic activity that can be carried out in the targeted country.

China extracts some of the value created in these economic relationships in the form of political concessions, for example, closer alignment over the recognition of Taiwan. ■

Christopher Clayton does research in finance, international macro-finance, and macroeconomics, Matteo Maggiori is the Moghadam Family Professor of Finance in the Graduate School of Business at Stanford University, and Jesse Schreger is the Class of 1967 Associate Professor at Columbia University

Figure 3. China's Belt and Road Initiative



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From the Great Divergence to South-South divergence

The long era of the Great Divergence has come to an end. Ewout Frankema argues that we need to focus on the economic divergence across the Global South

The Great Divergence debate has been the field-defining conversation in economic history for the past 25 years. This debate revolves around the question why the Industrial Revolution originated in Western Europe, and more specifically in Britain, and not in China, India, or Japan. By unifying scholars around this comparative research agenda, the debate has done much to globalise the field of economic history and to stimulate the construction of world-spanning databases on historical GDP, real wages, skill premiums, government revenues, terms-of-trade, human capital, land use, and more.

Such data collection and estimation efforts, in turn, have provoked heated discussion on the methodological and theoretical underpinnings of income and welfare measurements, and on the critical importance of reciprocity in comparative economic historical analyses.

As is the case for all major academic debates, however, at some point of their life cycle decreasing marginal returns are inevitable. Once original questions fade as new adjacent windows of exploration open.

Moreover, the long era of the Great Divergence – which is primarily, but not exclusively, understood as a Eurasian phenomenon – has come to an end with the rapid economic ascendance of Eastern Asia, and China in particular.

As Ken Pomeranz already observed in his seminal book *The Great Divergence* (Pomeranz 2000), the last quarter of the 20th was characterised by impressive rates of convergence, not divergence. In light of both developments, the academic and the historical, in a recent paper (Frankema 2023) I ask: what are the new comparative horizons in global economic history?

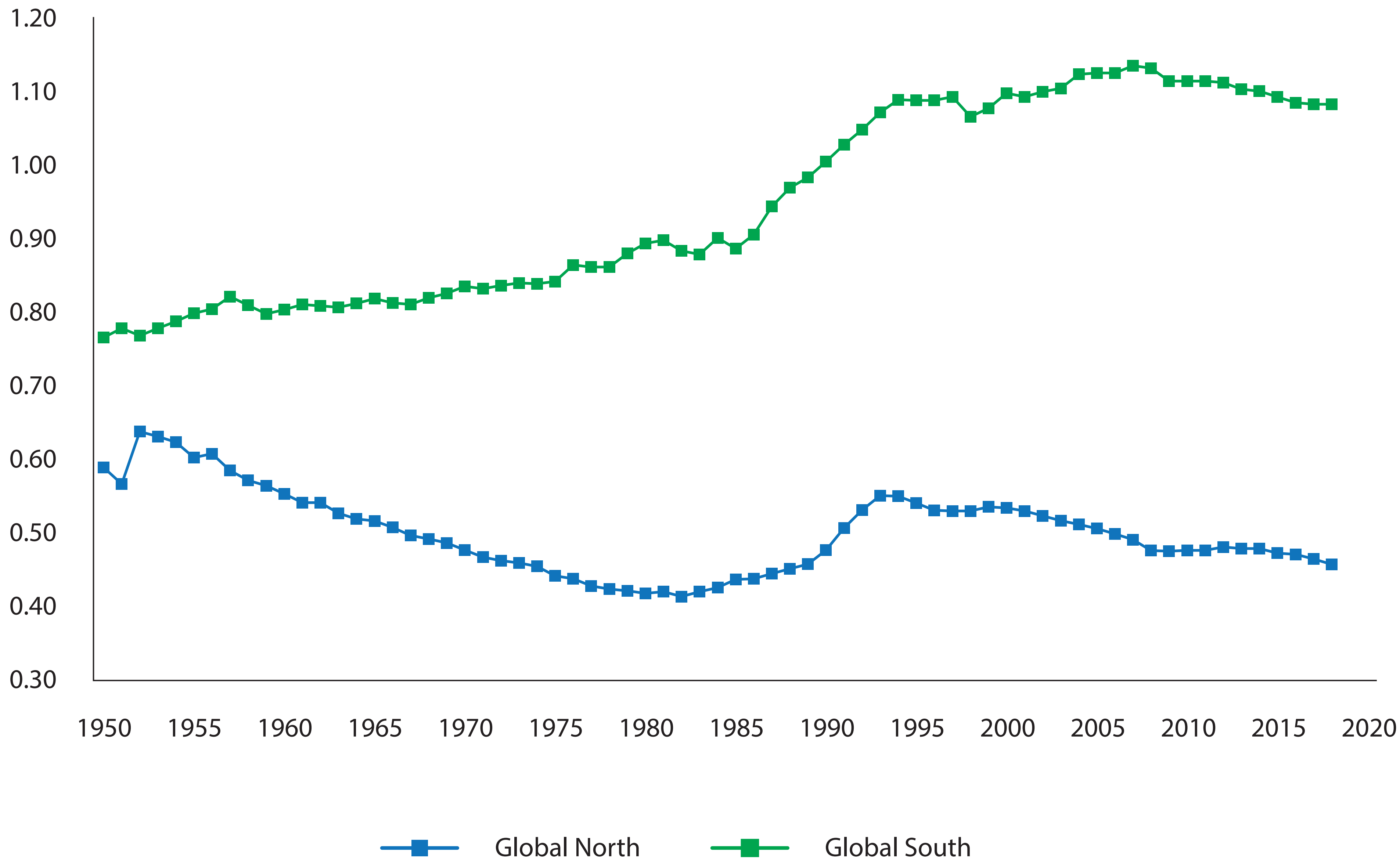
Beyond the Great Divergence

I argue that there is an urgent need to focus on the rapid, and more recent, economic divergence across the Global South. I refer to this new divide as South-South divergence. As the Eurasian gap in economic, industrial, and technological capacity began to shrink, the South began to experience growing disparities in labour productivity and per capita income.

This process of South-South divergence is illustrated in Figure 1, which shows the coefficient of variation of per capita GDP in the North and the South since 1950. In the South the income disparities widened, while in the North they narrowed, a trend that was only temporarily interrupted by the disintegration of former communist economies during the 1980s and 1990s. This phenomenon of South-South divergence warrants more attention than it has received thus far.

Economic historians have yet to define an agenda to analyse the causes and consequences of divergence in the Global South

Figure 1. Coefficient of variation of per capita GDP in the Global North and Global South, 1950-2018



Note: The coefficients of variation in GDP per capita are taken from a constant sample of 40 Northern and 105 Southern countries listed in Appendix 1. The Global South excludes the oil-rich Gulf Countries; the Global North excludes the former Soviet states that gained independence in the 1990s.
Source: GDP per capita from Maddison Project Database 2020.

To be sure, the attention that has been devoted to the economic history of developing regions has greatly increased over the past two decades. New research networks, conferences and journals have been established.

However, for the most part, these research communities have lacked an explicit trans-regional comparative agenda. They have made great progress on debating topics such as Latin American inequality, African colonial legacies, Middle Eastern culture and religious institutions, or comparative patterns of Asian industrialisation, but seldom do these communities venture out to discuss the nature and drivers of cross-regional divergence. Economic historians have yet to define an agenda to analyse the causes and consequences of divergence in the Global South.

Why care about South-South divergence?

Let me offer four reasons. First, whereas the Global South today already comprises more than 80% of the world population and generates close to 60% of world GDP, its demographic and economic weight is bound to increase further during the 21st century.

By 2100 the North is projected to hold just 12% of the world population, while Asia and Africa together will harbour more than 80% of the world population. The share of world GDP that will accrue to the South is projected to rise from 57% in 2020 to 72% in 2050.

Second, this reconfiguration of global economic gravity is having profound implications for global divisions of labour, capital flows, trade, food demands, investment, and migration patterns.

In fact, one of the most important consequences of South-South divergence has already materialised: the problem of extreme poverty, which had long been a predominantly Asian phenomenon, has shifted decisively towards sub-Saharan Africa.

Table 1. Population and income shares per world region, 1820-2100

	1820	1850	1900	1950	2000	2050	2100
Population							
Asia	0.66	0.62	0.53	0.54	0.60	0.53	0.43
Africa	0.06	0.06	0.06	0.09	0.14	0.26	0.39
Europe	0.22	0.24	0.28	0.23	0.12	0.08	0.06
Americas	0.03	0.05	0.10	0.14	0.14	0.13	0.11
Global South	**0.74**	**0.71**	**0.64**	**0.67**	**0.80**	**0.86**	**0.88**
Global North	0.26	0.29	0.36	0.33	0.20	0.14	0.12
GDP							
Global South	**0.58**	**0.46**	**0.28**	**0.26**	**0.43**	**0.72**	**-**
Global North	0.42	0.54	0.72	0.74	0.57	0.29	-

Note: Europe includes all former Soviet republics and Central Asian states; Asia includes New Zealand and Australia.
Source: 1820-1900 from Maddison Project Database 2020; 1950-2100 from UNDP, World Population Prospects, 2022 revision, medium variant.

While back in 1990 more than four out of five of the world's extreme poor were living in Asia, in 2020 two out of three of the world's extreme poor lived in Africa (ca. 65%).

Third, economic history students who have to be trained in recognising, studying, and interpreting the drivers of long-term divergence and convergence will have to be introduced to these global shifts in order to make sense of them. But where is the literature that we prescribe to teach the chapter on South-South divergence?

After all, the Great Divergence did not just end with the era of the Great Convergence (Baldwin 2016), it also shifted the locus of global inequality, a shift that is reconfiguring the 21st century world economy with dazzling speed.

And finally, fourth, in a field that has long been dominated by Western-centred research agendas and North-South perspectives, more systematic engagement with South-South comparisons can lead to new data collection efforts and can help to develop reciprocal comparisons without taking Western economic development as the mirror image.

In this regard, the South-South divergence agenda can take the call for reciprocal comparisons to a next level. Western imperialism may play an important role in understanding the roots of South-South divergence, but it does not have to serve as the ultimate benchmark to measure performance.

Is the South a useful category?

I admit that lumping the world together in two blocks may appear old-fashioned. The idea of juxtaposing the North versus the South goes back to 1980, when the *Brandt Report* published the famous map shown in Figure 2.

How useful is 'the South' as an analytical category given its enormous historical diversity in populations, cultures, states, and institutions? I argue that taking the South as a world on its own is defendable, if one allows for hybrid cases (eg. Japan, Turkey) and is willing to accept the notion of the 'quadruple challenge'. The quadruple challenge refers to the idea that virtually all Southern states had (or have) to, simultaneously, grapple with the questions of:

1. How to catch-up with technology leaders in the West while being at a considerable distance from the frontier.

2. How to overcome the variegated legacies of externally imposed institutions (colonialism) or extended phases of limited state autonomy as a result of imperialist and neo-colonialist pressures.

3. How to mediate the forces of accelerated globalisation, in particular the volatility of world commodity markets and rising capital flows in the context of their distance to global productivity frontiers.

4. How to deal with increasing constraints on cross-border mobility of labour in the context of heightened environmental pressures (the Anthropocene) including climate change.

If these binding elements suffice as a binding core of similarities, then the diversity in local institutions, geographies and colonial trajectories can provide ample material for analysing how these threads intertwine and have led to strongly divergent post-colonial development paths.

Leading questions

There are numerous big questions that can inspire a South-South divergence research agenda. My paper elaborates three of these. First, what explains the limited spread of the developmental state as it emerged in Eastern Asia, and how can other types of political-economic regimes be qualified?

Figure 2. The Brandt line

Source: Brandt et al (1980, p. 31-32) and front cover.

This question has been hitherto been mainly of interest to political scientists. Historians can contribute much to these debates by bringing in deeper time scales, diachronic comparative lenses, and more dynamic conceptions of colonial institutional development.

Second, why is development clustered in space and time? Is it nature (geography, agrarian structures, deep-seated cultures) or should we focus on nurture: how regional processes of integration and disintegration have taken shape in Latin America, sub-Sahara Africa, the Middle East or Southeast Asia?

Third, can the whole world be developed? To what extent do the newly industrialising economies of Asia jeopardise the opportunities of African economies to conquer new niches in world markets? How does the rising pressure and rising prices of scarce raw materials draw mining economies deeper into their paths of natural resource exploitation? These three questions are obviously not exhaustive, but they are all relevant for economic policymaking in the Global South.

In sum, my paper offers a plea to integrate the global South in the historiography of global economic development on its own terms, and to rethink, how new comparative horizons can open up to move the agenda away from the old question how the West got rich or weird (Henrich 2020), and to the new question why modern capacities to enhance human welfare have so far spread so unevenly across the globe. ■

Ewout Frankema is Professor of Economic and Environmental History at Wageningen University & Research

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The real effects of trade financing by export credit agencies

Poorya Kabir, Adrien Matray, Karsten Müller and Chenzi Xu discuss the effect of the effective shutdown of the Export–Import Bank of the US (EXIM) from 2015—2019 on firm outcomes

Exports are often seen as boosting economic growth. But exporting internationally requires upfront financing. Recognising this, around one hundred countries around the world have set up export credit agencies to provide subsidised trade financing to support their country's exporters. Today, such subsidies are the predominant tool of industrial policy around the world, especially in advanced economies (Juhasz *et al* 2022).

The rationale behind subsidising export financing is that international trade is complex and involves substantial frictions. For example, exporters need working capital for the period between the production of a product to its final sale. They also face a risk of non-payment from customers in foreign countries after a product is shipped, and these customers may need credit to finance a purchase.

This demand for financing creates a role for intermediaries in supporting exporters, and shocks to these intermediaries can potentially shape trade patterns over long periods of time (Xu 2022).

However, the same frictions limit the pool of institutions able to provide trade financing. As a result, the private market for trade financing is specialised and concentrated (Niepmann and Schmidt-Eisenlohr 2017), which could result in the under-provision of funds.

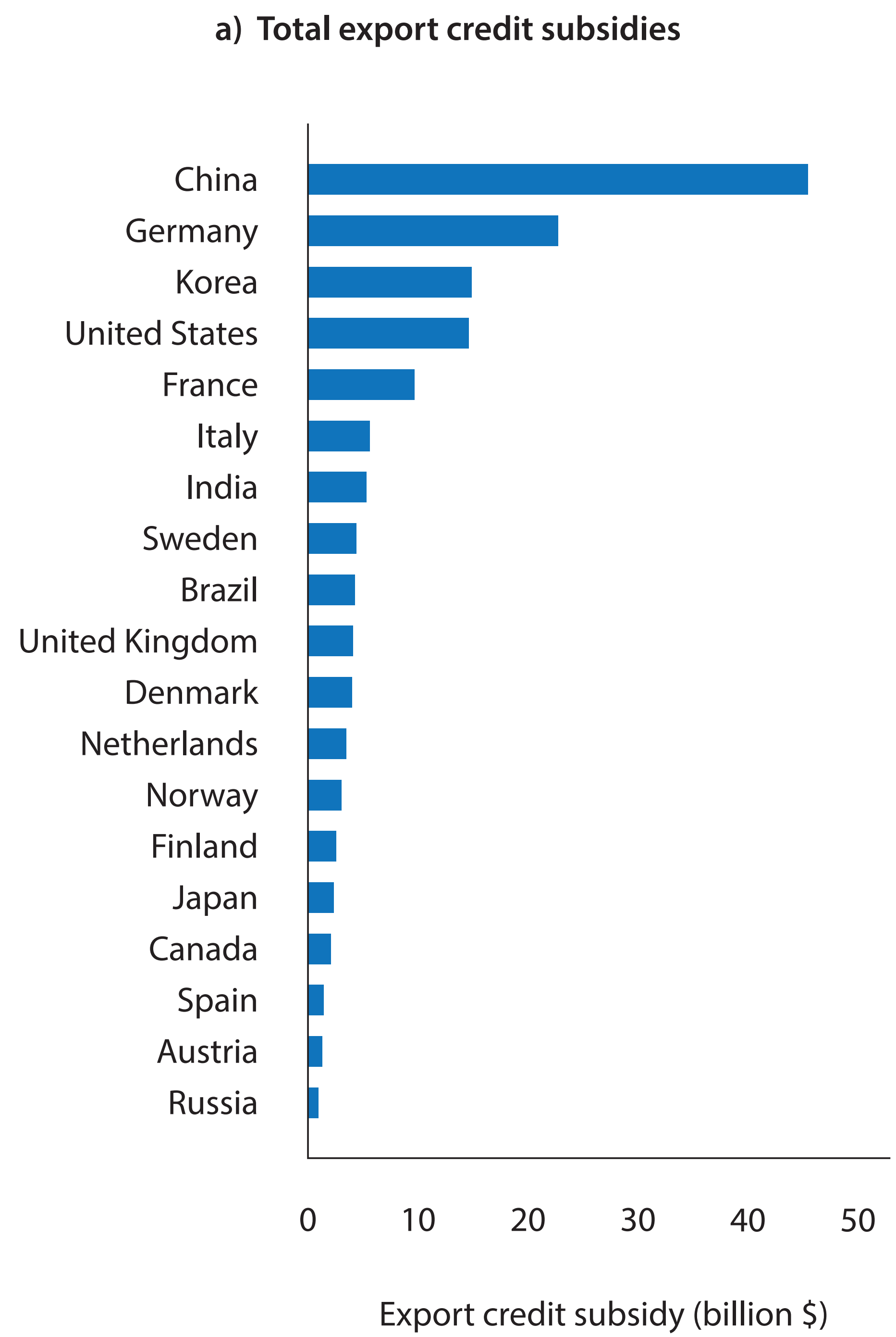
The role of export credit agencies

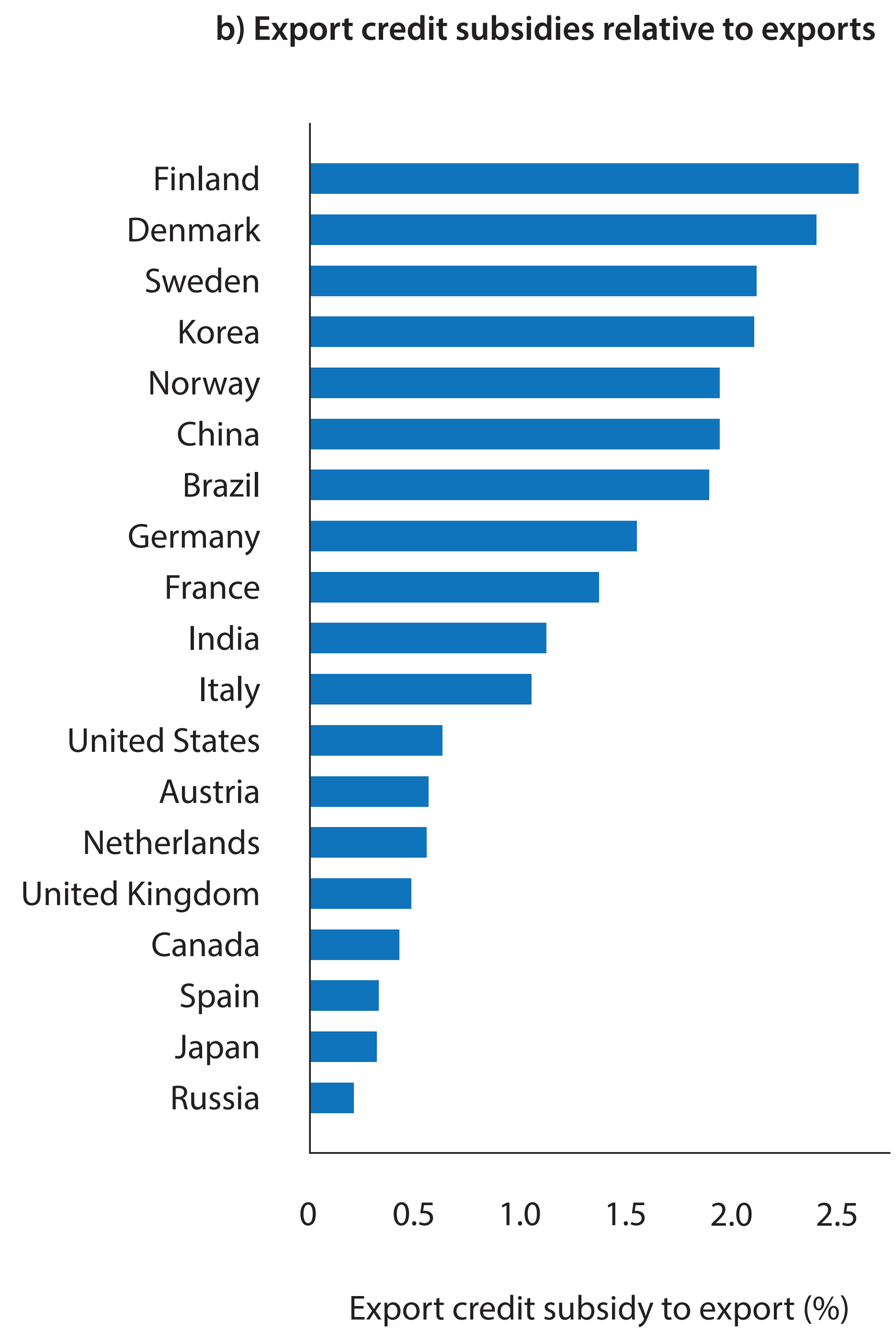
Export credit agencies (ECAs) are private or quasi-governmental institutions that act on behalf of national governments to issue insurance and guarantees for financing to exporters. Depending on their mandate, export credit agencies lend directly to exporters or their customers, or provide credit guarantees or insurance to lower the cost of financing of exporters or their customers.

In absolute terms, China, Germany, Korea, and the US spend the most on these programmes. The Scandinavian countries, as well as China and Korea, are among the heaviest users of export credit agency support relative to their exports as we show in panel B of Figure 1.

Can governments boost exports by providing targeted trade financing without distorting the allocation of resources? The results in this column, based on the natural experiment of EXIM's lapse of authorisation, suggests that the answer is yes

Figure 1. Export credit subsidies by country





Source: World Bank 2013.

There is an ongoing debate about whether such institutions should exist. Proponents argue that these agencies boost firm exports by alleviating a private market failure, which in turn can create jobs and promote economic growth.

Critics argue that they provide support to firms that would have been able to finance their exports regardless, and therefore have no effect on the beneficiary firms' performance. In this latter view, export credit agencies primarily provide transfers to well-connected firms at the expense of taxpayers, and simply boost beneficiaries' profits.

In addition to this transfer, agencies might also distort the allocation in the economy by shoring up low-productivity firms. This heightened misallocation would then lower aggregate productivity (eg. Hsieh and Klenow 2009, Bau and Matray 2023).

The US experiment

To better understand the role of export credit agencies, we study the temporary shutdown of the Export-Import Bank of the United States (EXIM) between 2015 and 2019, prompted by a lapse in its charter — a first since the agency's inception in 1945 – and lack of quorum on its board of directors.

The shutdown resulted in an 80% drop in the volume of EXIM-supported transactions in 2016 compared to 2014. The volume of export credit support provided by EXIM only returned to pre-shutdown levels after the resumption of full operations in December 2019.

We focus our analysis on publicly traded firms over the period 2010-2019, which were among the largest in the economy and had received over 80% of EXIM support prior to the shutdown. These firms were also the ones most likely to be able to access alternative sources of credit and to be the least constrained following EXIM's shutdown.

In this respect, it is most likely that we find limited real effects for the average firm and potential distortions in the allocation of capital in this sample of firms.

The large effect of EXIM's shutdown

To estimate the effect of EXIM's shutdown, we obtained detailed loan-level data from EXIM for the period 2010 to 2014 and compare firms that previously benefited from EXIM support with firms that did not. This allows us to tease out the effect of EXIM's shutdown on a host of outcomes using a standard difference-in-differences estimator.

The first conclusion of this analysis is that EXIM-dependent firms experienced a substantial drop in their global sales as we show in Figure 2. This large drop can be explained by a reduction in firm exports, which we are able to measure in several ways, including using proprietary data on the universe of firms' maritime export transactions.

The large drop in global sales resulted in a permanent reduction in capital and labour but did not affect firms' average return on assets. The combination of the large drop in global sales, capital, and labour with the lack of an effect on profitability is inconsistent with a view of inefficient 'capture' in which EXIM support is a pure transfer to beneficiary firms that allows them to earn higher profits without having real effects.

The combination of the large drop in global sales, capital, and labour with the lack of an effect on profitability challenges the prevailing scepticism about the efficacy of industrial policy, particularly the criticism that such interventions are mere transfers to large, well-connected firms without tangible economic benefits.

So why did firms not compensate for the loss of access to EXIM funding? We show that the loss in global sales is concentrated on firms with higher financial frictions, and that the drop in exports is larger for maritime exports than for other form of exports.

This sensitivity is consistent with the importance of financing frictions in explaining the effect of the EXIM shutdown since maritime exports, which tend to have longer shipment times and therefore higher working capital needs (eg. Ahn *et al* 2011, Xu 2022). This underscores the unique role that government-backed agencies like EXIM play in filling gaps left by the private sector, even in advanced financial ecosystems.

Did EXIM foster misallocation of capital and export?

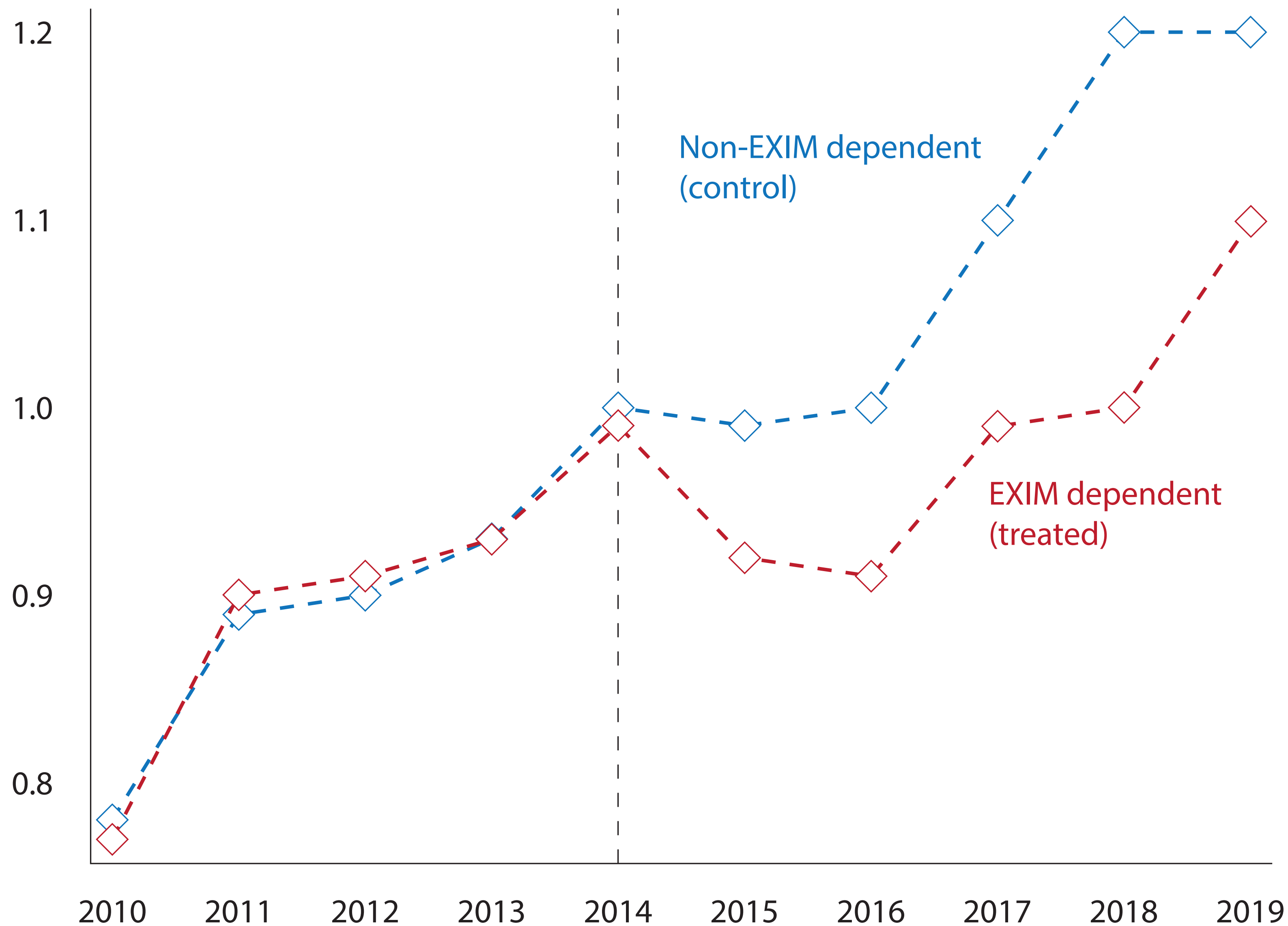
The average negative effects of EXIM's shutdown might be of limited consequence or could even be positive for total output if EXIM initially distorted the competition across US firms in a way that fostered a misallocation of capital.

This would happen if beneficiary firms were simply less productive than other firms, which could make exporting infeasible for these unproductive firms without EXIM credit. If this was widespread, shutting down EXIM could increase overall efficiency. This argument is one of the classic costs attributed to industrial policies, where the policy is wasteful because it only aids the preservation of low-quality firms.

We provide three pieces of evidence inconsistent with this hypothesis. First, we show that the reduction in global sales and capital accumulation induced by EXIM's shutdown is concentrated among firms with high exporting opportunities. In particular, we show that EXIM support is stronger for firms in industries that provide goods experiencing larger export growth in the world market.

Second, we rely on ex-ante differences in firms' marginal revenue products of capital (MRPK) before the shock in order to estimate how misallocation evolves after the reform, in a spirit similar to Bau and Matray (2020, 2023). We find that EXIM's shutdown led to a drop in global sales and capital that is around five times as large for high MRPK firms (firms above their industry's median MRPK) relative to low MRPK firms.

Figure 2. Evolution of global sales



The result that the capital response is larger for high MRPK firms implies that the reallocation of capital across firms worsened due to EXIM's shutdown, which would suggest that a reduction in export credit subsidies increases (not decreases) misallocation.

Third, using aggregate customs data at the product-destination-year level, we show that the EXIM shutdown also impacted total export activity. Industries with a higher reliance on EXIM support saw a reduction in exports relative to others, implying that the firm-level reduction in exports we document aggregate up to industry level.

Therefore, EXIM support creates new exports rather than just reallocating export market share among US firms in favour of firms supported by EXIM.

Conclusion

Can governments boost exports by providing targeted trade financing without distorting the allocation of resources? The results in this column, based on the natural experiment of EXIM's lapse of authorisation, suggests that the answer is yes.

Although there are a few caveats for interpreting our results, they are broadly inconsistent with a pure rent-seeking explanation. While EXIM-supported firms shrank considerably after the agency's shutdown, this effect was more (not less) pronounced for firms that were plausibly more productive before the shock and had more promising export opportunities.

We also find no evidence that the profitability of firms cut off from subsidies decreased over and above the reduction in firm size, which is inconsistent with these firms pocketing artificially high rates of profits through subsidies beforehand.

The results of our column speak to a renewed debate on the circumstances in which industrial policy can be successful in supporting the domestic economy (eg. Juhasz 2015, 2018, Juhasz *et al* 2023a, 2023b). Of course, our study only relies on a single unusual shock—the virtual shutdown of an export credit agency responsible for providing subsidised trade financing to the country's exporters.

While this setting enables us to credibly estimate the effect of export credit subsidies on domestic firms, it also limits the generalisability of our findings. We hope future work will shed light on the effects of industrial policies in other settings.

Our study speaks to the renewed debate on the circumstances in which industrial policy can be successful in supporting the domestic economy (eg. Juhasz *et al* 2023a, 2023b). While the results from EXIM's shutdown period do not conclusively settle the debate, they do provide concrete evidence of the positive impact that well-crafted industrial policies, such as export credit subsidies, can have on both firm-level performance and broader economic outcomes.

It suggests that the maturity of financial markets does not diminish the effectiveness of industrial policy. We hope future work will shed light on the effects of industrial policies in other settings. ■

Poorya Kabir is Assistant Professor of Finance at the National University of Singapore, Adrien Matray is visiting Assistant Professor at Stanford Graduate School Of Business, Karsten Müller is an Assistant Professor of Finance at the National University of Singapore's Business School, and Chenzi Xu is Assistant Professor Finance at the Graduate School of Business, Stanford University

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Advancing crossborder payments and financial inclusion

Payments are a vital part of the global and interconnected financial ecosystem. Michelle Bowman considers the evolving payments landscape

Introduction

We are all participants in a global and interconnected financial ecosystem, and payments are a vital component of this system. The payments landscape continues to evolve, through infrastructure upgrades, innovation, changing consumer preferences, and advancements in both the public and private sectors.

Faster, cheaper, more transparent, and more inclusive crossborder payment services offer widespread benefits for citizens and economies around the world, with the potential to support economic growth, international trade, global development, and financial inclusion.

This global ecosystem is comprised of individual jurisdictions, each with its own history, public policy objectives, payment infrastructures, and regulatory environments. Within these independent economies exist a wide range of businesses and consumers, all with vastly different needs and requirements.

As policymakers, we must consider not only how to foster safe, efficient, and accessible payment and settlement infrastructures to support the broader financial system but also how those same systems and infrastructures can support the needs of consumers, businesses, and financial service providers.

This includes support for responsible innovation and enabling providers, such as banks and other nonbank financial service providers, to meet the evolving needs of their customers.

In many cases, the policy tradeoffs we face domestically are amplified in the crossborder context. To foster safety and efficiency in the payment system, it is imperative to seek improvements that support an accessible and inclusive system that works for the broad spectrum of different participants, while still maintaining rigorous risk, fraud prevention, and compliance standards that are critical for protecting participants and the overall system.

It is also important to note that these issues are complex and will not be resolved through advances in technology alone. Rather, changes in technology must align with the evolution in individual behaviour and market conventions, and when this does occur, it does so only over time.

The payments landscape is complex, and it continues to evolve in response to consumer and business needs. Policymakers must continue to consider opportunities to improve domestic and crossborder payment and settlement infrastructures and seek to further broader access to the financial system

I will share my views on the evolving crossborder payments landscape, discuss how financial inclusion is framed within this broader context, highlight the roles that both the public and private sectors play, and identify actions that the Federal Reserve is taking to improve payment system infrastructures and support responsible innovation. Throughout, I will highlight the key challenges and public policy tradeoffs that we, as policymakers, should consider.

Complexity and challenges of the crossborder payments landscape

Crossborder payments face a number of challenges, including high costs, low speed, barriers to access, and limited transparency[1]. Today crossorder payments are carried out through a diverse, multilayered set of networks and are inherently more complex than domestic payments as they involve multiple participants, infrastructures, currencies, time zones, jurisdictions, and legal and regulatory frameworks.

These challenges add complexity and create frictions in the crossborder payments process, leading to higher transaction costs and slower processing times for consumers and businesses. To help address these frictions, the G20 countries agreed in 2020 to a multiyear roadmap to identify and develop improvements to crossborder payments[2].

The *G20 Roadmap for Enhancing Cross-Border Payments* is an instructive example of collaboration across jurisdictions, engaging in international dialogs and working with the private sector to identify how best to ease unnecessary frictions.

As one who values efficiency, I am generally supportive of opportunities to address unnecessary frictions. However, when considering frictions related to crossborder payments, some are necessary while others may not be necessary.

Any discussion of these frictions must be nuanced and properly contextualized since there are public policy tradeoffs and operational realities that must be considered.

Some frictions may be the result of intentional policy choices and safeguards implemented to protect the parties involved in a transaction while also protecting the financial system as a whole. Other frictions may result from consumer or business preferences. As policymakers, we must consider all of these frictions within this broader context.

Let's take compliance requirements as an example. Banks play a critical role in implementing compliance and reporting requirements that support public policy objectives, including the deterrence of financial crimes and countering terrorism finance.

In the United States and other jurisdictions, banks balance this need for transparency to deter crime with the need to protect the privacy of consumer financial data[3]. While regulatory compliance requirements add complexity, particularly in crossborder payments, it is a complexity that results from the discretion to apply various compliance frameworks in different jurisdictions.

With this in mind, we can consider ways to encourage more consistent implementation of rigorous international standards and continue to support the development of new technologies and solutions that help automate processes, reduce costs, and promote effective safeguards across jurisdictions.

As I have discussed in previous remarks, while conversations on payments innovation often focus on technological capabilities as the solution to realizing certain benefits, technology on its own is not always the driver of realizing these benefits since many of these issues are grounded in policy choices and operational realities[4].

However, it is still important to assess potential opportunities for technological innovation and the benefits technology could provide within the broader context of a robust, well-functioning global banking and payments system. I have long supported responsible innovation that solves specific problems and enables financial service providers to meet the needs of consumers and businesses in a safe and sound manner.

Despite the difficulty and complexity of overcoming crossborder frictions and challenges, we can work together, through the G20 and in other collaborative settings, to identify ways to make incremental and tangible progress.

There are many tools to consider—such as infrastructure improvements, sharing best practices across jurisdictions, improving data flows, and recognizing innovative technologies and business models. This work will likely require a combination of these tools to reduce unnecessary frictions while still achieving significant policy goals.

Payments and financial inclusion

I will turn now to discuss financial inclusion, which is an important lens through which policymakers should consider these challenges[5]. Many features of the payment system—such as access, cost, and speed—have profound implications for financial inclusion.

In my view, the payment system and the broader economy are most efficient and effective when there is broad participation, when unnecessary frictions are minimized, and when banks, especially smaller financial institutions, can provide services to meet consumer demand in a safe and sound manner. An inclusive financial system offers accessible choices that meet consumers' needs and enhance their financial wellbeing.

From a consumer's perspective, this means the opportunity to make payments, to build wealth and gain access to credit and other needed financial services to participate in an increasingly digital and interconnected economy.

Access to the payments system enables consumers to meet financial obligations by receiving and transferring money safely and in a timely manner. Reliable, cost-efficient payment services promote financial inclusion by providing consumers with options that meet their various needs. This is critical because financial inclusion is not a one-size-fits-all solution.

In the US, for example, consumers come from a wide range of economic circumstances; have varied perceptions of and experiences with the banking system; and, most importantly, have different needs when it comes to financial products and services.

It is also essential to note that gaps in financial inclusion differ across jurisdictions. In some cases, these gaps stem from the limited availability of and individual ability to access the various types of payment and financial services provided in different countries.

This varied access to services may be due in part to unique regulatory environments and consumer and business preferences. Thus, policymakers and service providers within each jurisdiction are best suited to tailor solutions within their own domestic context.

Although each jurisdiction is unique, we as policymakers should be willing to collaborate and assess opportunities for systemic improvements that could provide widespread benefits, including the work of the G20 in support of crossborder payments.

Minimizing unnecessary frictions is a worthy goal whether the intended beneficiary is an international financial institution, a small business or nonprofit managing cashflow with international customers, or a consumer simply seeking to send and receive payments, needing to do so safely without excessive fees or experiencing extended delays in receiving funds.

In the context of crossborder payments, global remittances can also play a significant role in expanding financial inclusion. In some countries, these remittances are an economic driver by serving as a key source of funding for some households, which can provide a path to a more inclusive economy.

As a result, it is critical that consumers can send and receive these types of payments safely, efficiently, and affordably. Research has shown that the ability to receive remittances increases the probability of having a bank account and contributes to economic engagement[6].

Yet, high fee structures for remittance services can have a significant impact on households sending money abroad. Recent data show the average cost for sending a $200 remittance from the United States was approximately 5.8 percent of the transaction amount, or about $12[7].

The G20 countries have reaffirmed the United Nations Sustainable Development target for reducing average remittance fees to below 3 percent by 2030[8]. Encouraging more cost-effective remittance services could result in a greater proportion of funds reaching the intended recipients, which could further bolster their economic capabilities.

Roles to be played by both private and public sectors

But how might we achieve some of these more efficient and cost-effective payment systems? Both public- and private-sector participants have critical and complementary roles in advancing financial inclusion within a given jurisdiction and improving the efficiencies of crossborder payments and remittances.

The payments industry has long relied upon innovation to meet the evolving needs and expectations of consumers and businesses. In an increasingly digital economy, these innovations offer valuable options for consumers and business to send and receive payments in more convenient and cost-effective ways.

Today, the private sector offers opportunities to expand access to digital payments and other financial services. For example, in the U.S., the Bank On program promotes a national standard for customer bank accounts that are both low cost and low risk[9].

Other jurisdictions have incorporated improvements in financial access through mobile money transaction accounts. Some payment service providers have established partnerships to expand upon the options available to consumers and businesses for sending and receiving funds.

Other private sector initiatives are exploring technology enhancements to offer more convenient digital options for consumers and businesses to send remittances or make payments across borders. These private sector developments complement ongoing public sector crossborder initiatives, including the G20 work.

Continued collaboration like these efforts across the public and private sectors must support responsible innovation, including a well-defined regulatory perimeter that protects consumers and the broader financial system.

I'd like to take a moment to highlight two instances in which the Federal Reserve has provided clarity to support financial inclusion within a framework of responsible innovation. First, the Fed issued an interagency statement in support of banks engaging in small-dollar lending[10].

This guidance underscores the importance of financial institutions offering small-dollar loan products to consumers and small businesses that support successful repayment outcomes and that avoid continuous cycles of debt due to rollover and reborrowing.

Additionally, the statement recognizes that these products can help borrowers transition into other types of credit-based financial products. Second, the Fed also issued an interagency statement on the use of alternative data in credit underwriting[11].

This guidance clarifies that with a customer's consent, a bank can use alternative data, like checking account balance activity, to help evaluate the creditworthiness of a potential borrower who might not otherwise qualify for a loan.

In both cases, timely guidance has sought to support responsible innovation and leverage the cashflow information on deposit accounts to meet their customers' needs.

While I have highlighted a few examples that illustrate the connection between payments and financial inclusion, the Fed supports and participates in several initiatives to broadly enhance these efforts. These efforts will continue to work toward fostering a US economy that works for everyone[12].

Payment system improvement and international collaboration

Finally, I would like to highlight some recent Federal Reserve activities that support domestic and international payment systems improvement and responsible innovation. The US financial and payment systems currently support the effective transmission of funds, and our work will continue to evaluate opportunities to improve upon an already safe and efficient system.

The recent introduction of the FedNow® Service, our new interbank system for instant payments, and our commitment to adopt the ISO 20022 messaging standard for the Federal Reserve›s wholesale payment service by March of next year demonstrate this ongoing effort[13].

Over the longer term, the Federal Reserve will continue to conduct research and assess innovative technologies and business models to better understand their potential role in the future payments and financial ecosystem. This analysis must include a consideration of potential opportunities, risks, and tradeoffs primarily for crossborder payments and secondarily for financial inclusion.

The Federal Reserve also works closely with our international counterparts on payments innovation and related topics. This includes work with multilateral institutions including the Bank for International Settlements, the G7, and the Financial Stability Board, as well as bilateral engagements with other central banks.

As I've discussed, continued collaboration among public-sector institutions and across the broader payments community will be essential for fostering progress toward a more inclusive, effective, and efficient crossborder payments system that works for everyone.

Conclusion

The payments landscape is complex, and it continues to evolve in response to consumer and business needs. Policymakers must continue to consider opportunities to improve domestic and crossborder payment and settlement infrastructures and seek to further broader access to the financial system.

At the same time, we must recognize that these challenges present opportunities to refine public policy decisions understanding the tradeoffs and the distinct needs and circumstances across jurisdictions and among consumers and businesses. Opportunities to discuss these issues are essential for creating opportunities to learn and collaborate.

Our progress will likely be incremental and slow, requiring a longer-term view. The safety of our financial system requires that we get this right, and our pursuit of improvements in the payments system must avoid the temptation to rely on new technology alone. This will require us to thoughtfully consider the many policy choices that lead to these improvements. ■

Michelle W Bowman is a Member of the Board of Governors of the Federal Reserve System

Endnotes

1. See Financial Stability Board, Enhancing Cross-Border Payments: Stage 1 Report to the G20 (PDF) (Financial Stability Board, April 2020).

2. For more information on the G20 crossborder payments improvement roadmap and its progress, see Financial Stability Board, Enhancing Cross-border Payments: Stage 3 Roadmap (Financial Stability Board, October 2020), and Financial Stability Board, G20 Roadmap for Enhancing Cross-border Payments: Consolidated Progress Report for 2023 (Financial Stability Board, October 2023).

3. See Board of Governors of the Federal Reserve System, Money and Payments: The U.S. Dollar in the Age of Digital Transformation (PDF) (Washington: Board of Governors, January 2022).

4. See Michelle W Bowman, "Responsible Innovation in Money and Payments" (speech at Roundtable on Central Bank Digital Currency, Harvard Law School Program on International Financial Systems, Washington, DC, October 17, 2023).

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6. Gemechu Ayana Aga and Maria Soledad Martinez Peria, "International Remittances and Financial Inclusion in Sub-Saharan Africa," Policy Research Working Paper (Washington: World Bank Group, Development Research Group, July 2014). David Malpass, "Remittances Are a Critical Economic Stabilizer," World Bank Blog, December 6, 2022.

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8. See United Nations Department of Economic and Social Affairs, Transforming Our World: the 2030 Agenda for Sustainable Development (United Nations), and Financial Stability Board, Targets for Addressing the Four Challenges of Cross-Border Payments: Final Report (PDF) (Financial Stability Board, October 2021).

9. See "Bank On," Cities for Financial Empowerment Fund. In the United States, approximately 95.5 percent of US households were 'banked' in 2021, meaning that at least one member of the household held a bank account. Federal Deposit Insurance Corporation, "2021 FDIC National Survey of Unbanked and Underbanked Households (PDF)" (July 2022).

10. Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, National Credit Union Administration, Office of the Comptroller of the Currency, "Interagency Lending Principles for Making Responsible Small-Dollar Loans," SR letter 20-14 / CA letter 20-8 (May 20, 2020).
11. Board of Governors of the Federal Reserve System, Consumer Financial Protection Bureau, Federal Deposit Insurance Corporation, National Credit Union Administration, Office of the Comptroller of the Currency, "Interagency Statement on the Use of Alternative Data in Credit Underwriting," CA letter 19-11 (December 12, 2019).
12. See Michelle W Bowman, "Building a More Inclusive Financial System through Collaboration and Action" (speech at the Aspen Institute, Washington, D.C., December 5, 2023).
13. For more information on the March 2025 implementation date, see Board of Governors of the Federal Reserve System, "Federal Reserve Board Announces Final Timeline and Implementation Details for Adoption of New Fedwire Funds Service Message Format," press release, June 27, 2022.

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Relationship stickiness in international trade

Supply chains are vulnerable to disruptions. Julien Martin, Isabelle Mejean and Mathieu Parenti introduce a new measure of 'relationship stickiness' which quantifies these vulnerabilities

Global supply chains have become a significant concern for policymakers worldwide, especially in light of the supply chain pressures arising from the COVID-19 pandemic and escalating geopolitical tensions (Baldwin *et al* 2023). The vulnerability of supply chains to disruptions related to trade, such as tariff wars, natural disasters, pandemics, wars, or other unforeseen events, is closely tied to the dynamics of firm-to-firm trade relationships within the supply chain.

Specifically, a firm's vulnerability tends to be more pronounced when it is entrenched in trade relationships (Antras and Chor 2013). Locked-in effects limit a firm's capacity to adapt to shocks by switching suppliers, which is a crucial aspect of shock mitigation in conventional trade models. The degree of such stickiness thus determines the cost of shocks, which influences the opportunity to adopt de-risking strategies (Baldwin and Freeman 2022).

Several factors contribute to locked-in situations, including the challenges of identifying alternative suppliers, the existence of long-term contracts, and investments specific to the relationship (Antras and Helpman 2004). In a recent paper (Martin *et al* 2023), we consolidate these elements under the term 'relationship stickiness'. While this concept is essential for describing the nature of trade ties, the existing trade toolkit lacks a well-defined measure of relationship stickiness.

A new measure of trade relationship stickiness

The question then arises: how can we measure and quantify relationship stickiness? Our hypothesis is that relationship stickiness predominantly varies *across* different product categories.

For instance, we anticipate minimal stickiness for commodities traded on spot markets but expect higher stickiness for products requiring extensive customisation for each client, such as car doors. Based on this premise, we develop a measure of product stickiness at the 6-digit Harmonized System (HS) level, which can be merged with widely available trade datasets.

We begin with a simple intuition: in sticky product categories, firms cannot easily switch from one supplier to another. Therefore, the *duration* of trade relationships becomes a valuable indicator of stickiness. Of course, relationships may last longer for reasons that are orthogonal to product-market characteristics, eg. because of a good match between the firm and its supplier.

Stickiness is anticipated to influence the resilience of international trade ties, the adjustments of trade flows, and the scope and design of de-risking strategies

We incorporate these considerations into a theoretical framework, enabling us to map the duration of firm-to-firm relationships to an indicator of relationship stickiness. Subsequently, we leverage detailed firm-to-firm data on French bilateral trade to estimate relationship stickiness.

We end up with a measure of stickiness for 5,000 HS6 product categories. A natural question is whether our measure correlates with established characteristics of product markets commonly used in the trade literature. The short answer is affirmative, but none of these measures, even when combined, explains a significant fraction of the estimated dispersion. More specifically:

- Product-level characteristics used in the literature, such as product differentiation, upstreamness, and product complexity, all correlate with our measure in the expected way. However, they jointly explain around 10% of the dispersion in stickiness. This implies that our measure captures dimensions of heterogeneity that are not encompassed by other variables.
- Our measure also correlates with proxies for search frictions and market thickness as well as measures of technological specificity. Market and technological determinants respectively explain about 12% and 14% of the dispersion in relationship stickiness.
- Stickiness explains 10% of the dispersion in the share of intra-firm trade in the US across industries. Note that causality operates bidirectionally here: firms might opt for integration with the producers of their most sticky inputs, yet vertical integration also generates mechanical stickiness in firm-to-firm relationships.

Stickiness with gravity

A nice feature of the measure is that it can be easily merged with widely used trade datasets, to revisit standard empirical facts. We analyse the interplay between distance and relationship stickiness in a gravity equation estimated on product-level multilateral data. Our estimates confirm the adverse effect of distance on the magnitude of trade.

Figure 1 further shows that the distance elasticity is magnified in stickier product markets. A possible interpretation is that the impact of distance is in part a consequence of trade involving monitoring costs, which are i) larger in stickier markets, and ii) increasing in distance (Head and Ries 2008).

Stickiness and the heterogenous impact of uncertainty shocks

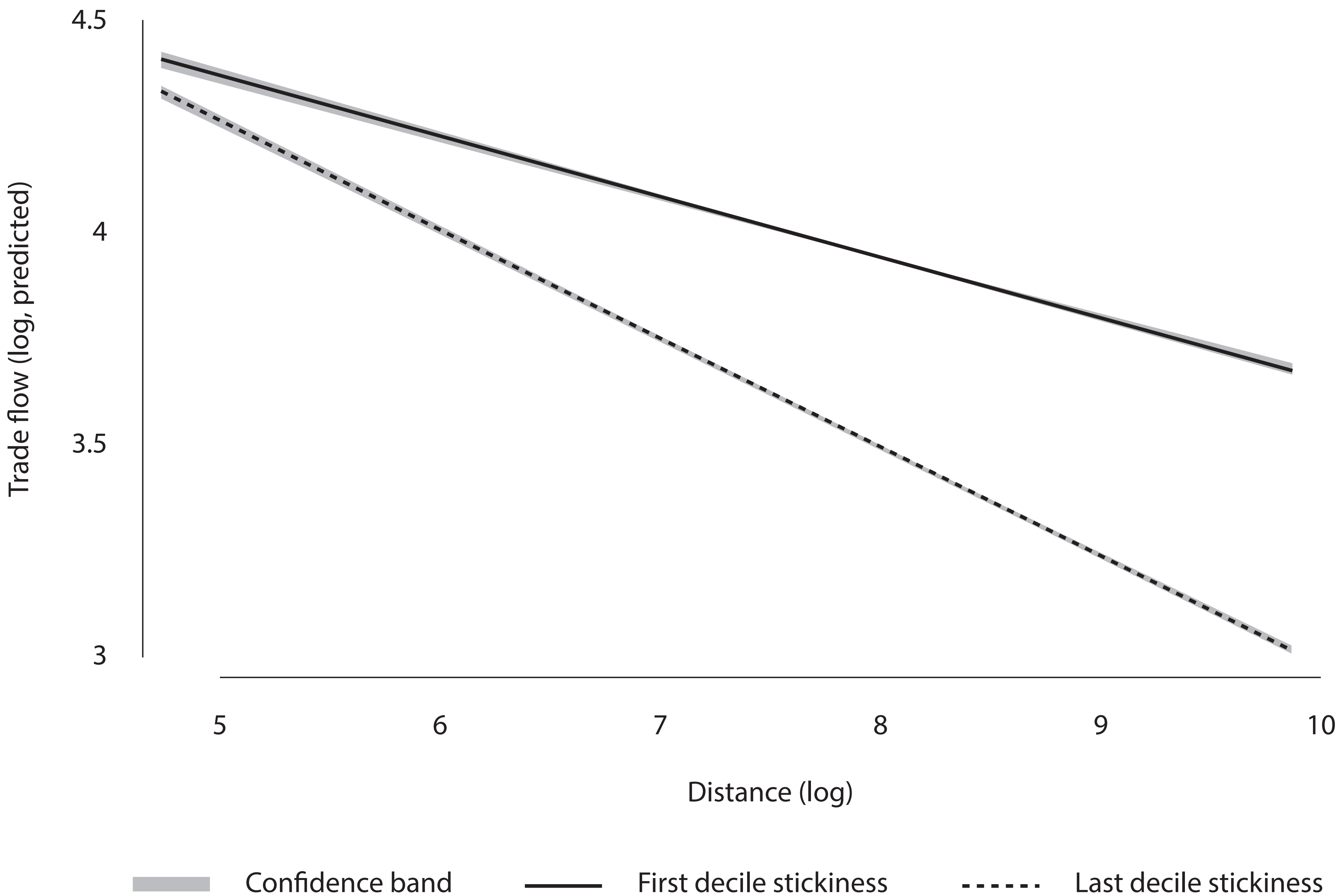
In our paper, we then explore how relationship stickiness shapes the adjustment of trade flows to macroeconomic shocks. Our focus is on uncertainty shocks, and we estimate the extensive margin response of French exports to an increase in uncertainty in the destination country.

The results of this analysis are summarised in Figure 2. The figure shows that high uncertainty episodes are associated with a significant reduction in the number of new firm-to-firm relationships, aligning with the intuitive notion that uncertainty discourages firms from engaging in new economic activities.

Importantly, the extensive margin response is stronger in sticky product categories compared to less sticky ones: in high-uncertainty episodes the number of new firm-to-firm relationships drops by 1.5% for products in the bottom quartile of the distribution of relationship stickiness versus 10% for products in the top quartile.

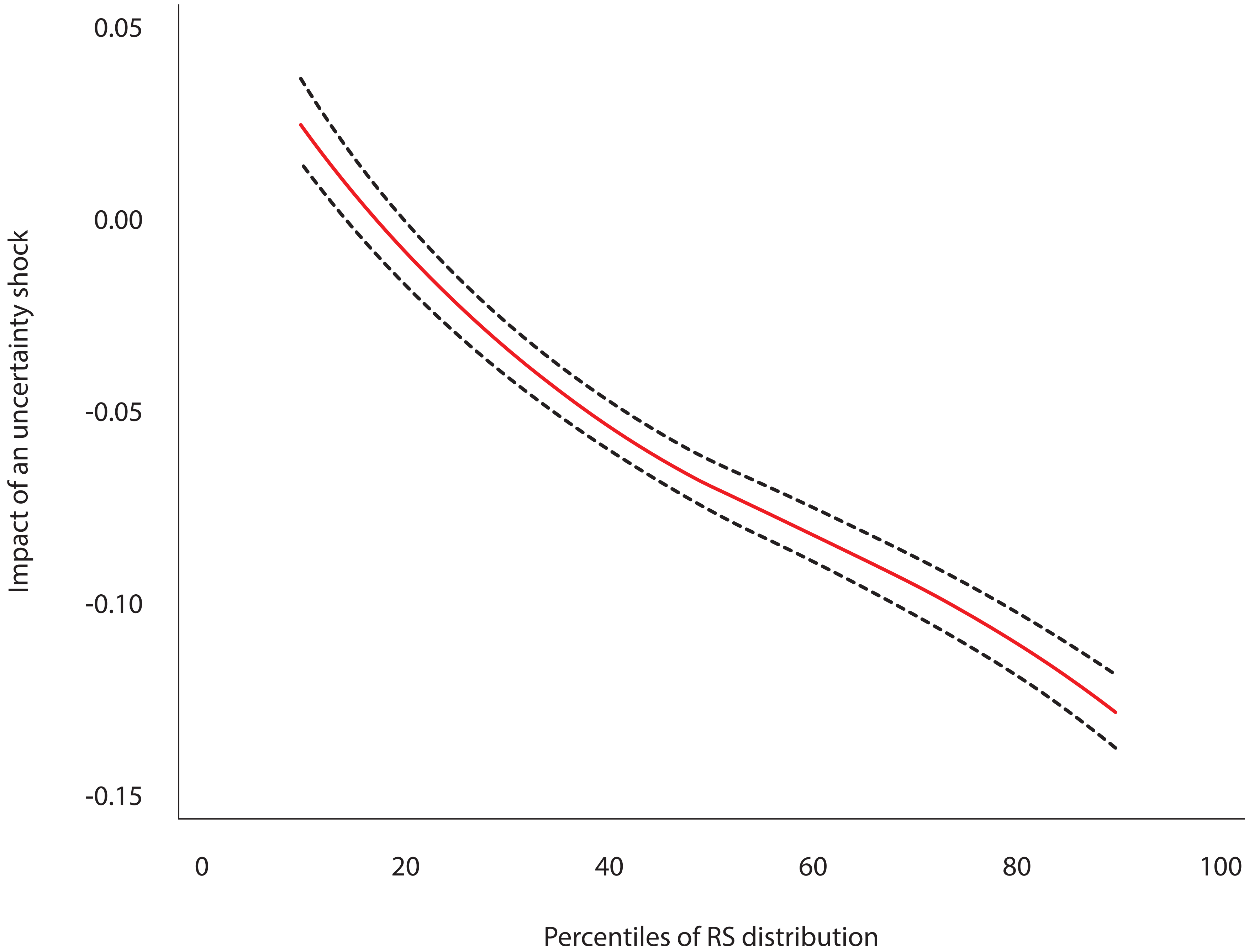
The paper further analyses firms' disruption of relationships and the intensive and extensive adjustment along the distribution of stickiness. All our findings consistently support the notion that trade adjustments are intricately shaped by the degree of relationship stickiness in product markets.

Figure 1. Predicted impact of distance on trade flows for products in the top decile vs. bottom decile of the distribution of our index



Note: Prediction based on Martin et al (2023); Column 4 Table OA.8.

Figure 2. Impact of an uncertainty shock on new relationships along the distribution of stickiness



Note: Percentage-point impact of an uncertainty shock on the number of new relationships.
Source: Martin et al (2023).

Stickiness during the COVID crisis

While in Martin *et al* (2023) we focus on uncertainty episodes, delving into the microeconomic underpinning of other crisis episodes can enhance our understanding of dynamic trade patterns. Figure 3 thus digs into the trade collapse around the COVID crisis.

The figure contrasts the evolution of French imports between high-stickiness and low-stickiness products at the end of 2019 and in 2020. It appears that product markets with a higher degree of stickiness experienced a milder impact from the trade collapse in March and April 2020.

This observation is largely attributed to the fact that the trade downturn was more pronounced in less sticky product markets. Further analysis reveals that the bulk of this has been driven by the extensive margin, ie. a drop in the number of bilateral import flows within a firm.

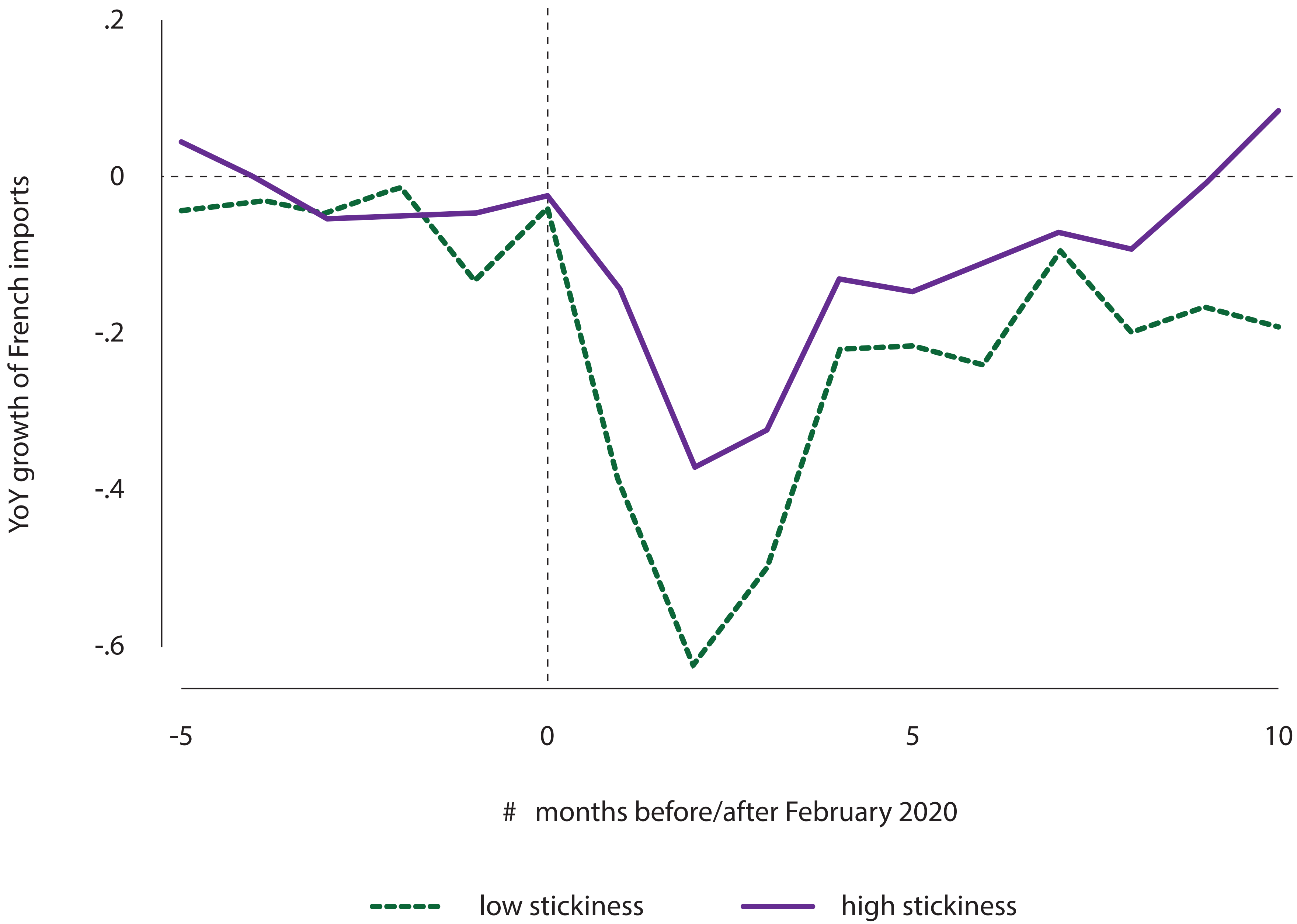
Whereas such descriptive evidence is by no means indicative of the specific mechanism behind this pattern, it illustrates how our index can be used to shed light on unexplored facets of trade flows.

Using relationship stickiness to refine the measures of trade dependencies

In a recent paper, Mejean and Rousseaux (2023) finally used the relationship stickiness index to identify trade dependencies exposing the EU to potential disruptions. The literature has proposed various heuristic measures to assess vulnerability associated with trade.

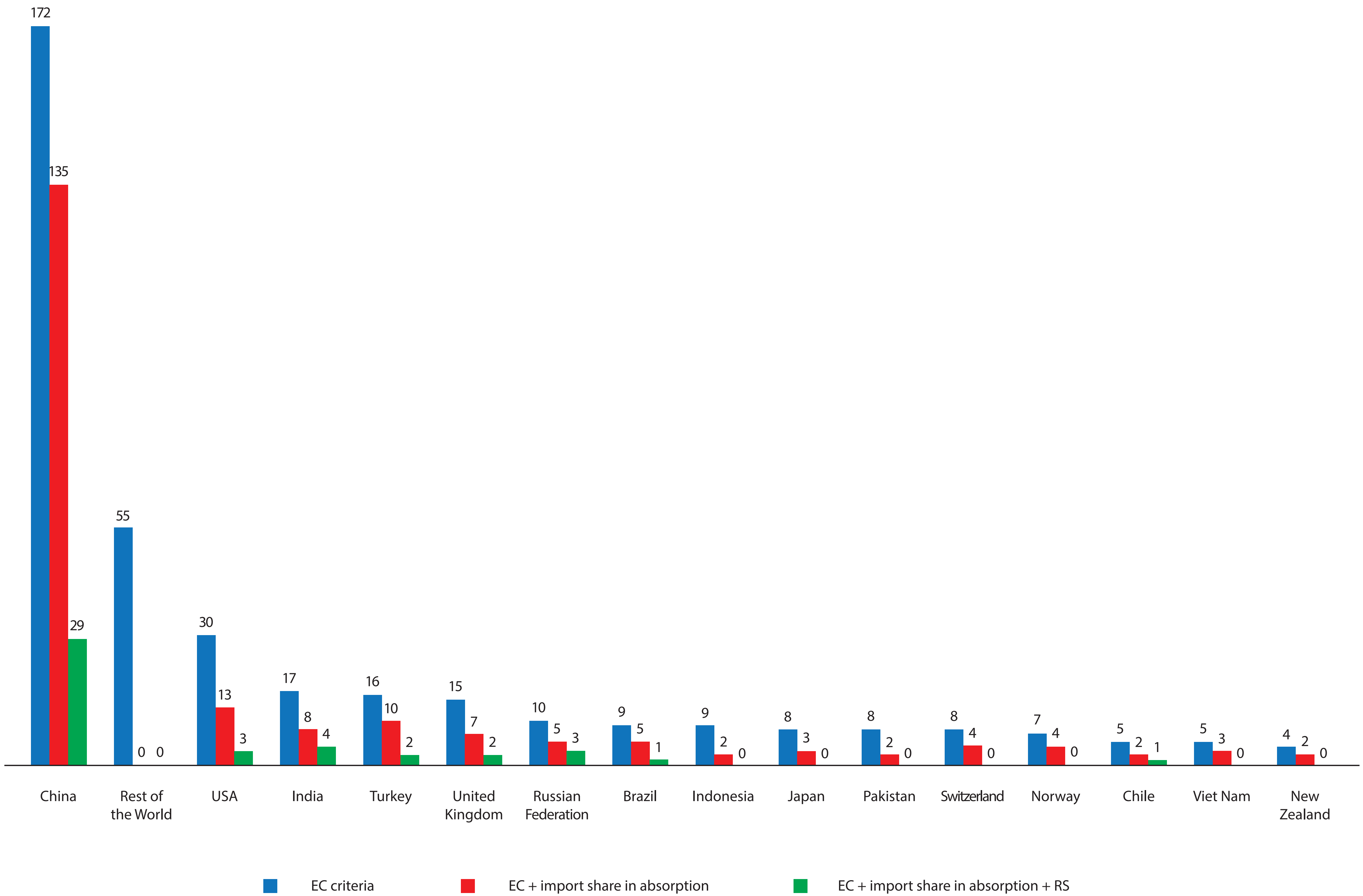
The European Commission (2021) thus identifies trade dependencies by the structure of global trade. Products imported from a limited number of producing countries are considered more vulnerable to trade shocks, especially

Figure 3. Year-on-year growth of French imports



Note: Sticky products are products in the top quartile of the distribution of our index. The least sticky products are in the bottom quartile.
Source: Martin et al (2023).

Figure 4. Comparison of the geographical distribution of three lists of strategic dependencies



Note: The figure illustrates the geographical distribution of identified strategic dependencies, using the European Commission methodology (blue bars), the strategy augmented with an absorption criterion (red bars) and the list that further incorporates the stickiness indicator (green bars).
Source: Mejean and Rousseaux (2023).

when domestic absorption heavily relies on foreign producers. Applying these criteria to the EU context, the authors identify 228 products as potentially vulnerable to shocks.

Relationship stickiness can be used to refine the diagnosis of vulnerability. Traditional criteria used in the literature focus on the ex-ante structure of trade and production, which may offer limited diversification opportunities when concentrated on a small number of producing countries.

The degree of relationship stickiness serves as a complementary indicator regarding the possibility of ex-post diversification. Trade disruptions in concentrated product markets are likely to be particularly costly if the product *also* displays a high degree of stickiness. Adding this criterion restricts the list to 48 vulnerable products. As shown in Figure 4, a disproportionate share of these products is sourced from China.

Conclusion

The literature on global value chains has consistently highlighted multiple contractual frictions that contribute to a significant level of stickiness in trade partnerships. This stickiness is anticipated to influence the resilience of international trade ties, the adjustments of trade flows, and the scope and design of de-risking strategies. Consequently, it is crucial to measure relationship stickiness in trade data. We propose such a measure that is available on our websites. ■

Julien Martin is a Full Professor at the Université du Québec à Montréal (ESG-UQAM), Canada, Isabelle Mejean is a Professor at Sciences Po Paris, and Mathieu Parenti is Assistant Professor of Economics at ECARES, Université Libre De Bruxelles

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Global governance of digital trade is fraught with unknowns

The US has dropped its support for unhindered international digital trade. Patrick Leblond argues that it now makes an e-commerce agreement at the WTO more likely

On October 25, the United States announced at the World Trade Organization (WTO) that it was dropping its support for provisions meant to promote the free flow of data across borders. Also abandoned were efforts to continue negotiations on international e-commerce, to protect the source code in applications and algorithms (the so-called Joint Statement Initiative process).

According to the Office of the US Trade Representative (USTR): *"In order to provide enough policy space for those debates to unfold, the United States has removed its support for proposals that might prejudice or hinder those domestic policy considerations."*

In other words, the domestic regulation of data, privacy, artificial intelligence, online content and the like, seems to have taken precedence over unhindered international digital trade, which the United States previously strongly defended in trade agreements such as the Trans-Pacific Partnership (TPP) and the Canada-United States-Mexico Agreement (CUSMA).

Although the USTR had informed its trade partners prior to the announcement, the news came as a bombshell to the trade policy and business communities in the United States and abroad; they did not expect Washington to alter its support for open digital markets and the free flow of data across borders, seen as beneficial to US firms.

The US Chamber of Commerce and many other major business associations immediately appealed to the National Security Council and National Economic Council by expressing their *"profound concern and disappointment"* about the USTR's decision, in an open letter.

Opposition to the USTR's change of heart did not just come from so-called 'big tech' (the companies that have been the main beneficiaries of the United States' previous position). A group of firms and associations representing 'startups, small businesses, and entrepreneurs in the global digital economy' also expressed deep concerns about the USTR's decision.

They pinpointed that barriers to crossborder digital trade are more harmful to them than to their bigger competitors: *"Unlike larger companies, smaller businesses with few product or service lines usually cannot shoulder the superfluous costs of data localization, technology transfer, prohibitions on encryption, and arbitrary application of regulation to American firms."*

The emergence of a noodle bowl of digital trade governance is the result of two strategic imperatives: one geo-economic, the other industrial

The irony of the USTR's decision is that it now makes an e-commerce agreement at the WTO more likely, removing the deadlock between China and the United States relating to exceptions to crossborder data flow and source code protection.

The problem is that such an agreement, if it comes to pass, will be ineffective in fostering international digital trade. As such, it won't be much different from the Regional Comprehensive Economic Partnership's digital trade chapter.

Where were we before?

Until the USTR's decision, the international governance of digital trade had been experiencing a proliferation of agreements. Stephanie Honey coined this trend the 'digital noodle bowl', in reference to Jagdish Bhagwati's 'spaghetti bowl', which described the increasing number of bilateral and regional trade agreements, some overlapping, agreed to in the 1990s.

Using noodles instead of spaghetti as the metaphor is meant to emphasize that the Indo-Pacific region is the centre of gravity for digital trade agreements as opposed to the traditionally dominant North Atlantic region.

The emergence of a noodle bowl of digital trade governance is the result of two strategic imperatives: one geo-economic, the other industrial. According to the geo-economic logic, a country's policy decisions regarding the governance of international digital trade is driven mainly by what other countries do.

The industrial logic, for its part, implies that governments devise their digital trade policies to improve their domestic economy's international competitiveness, with limited regard for what the rest of the world does. The goal here is to position their economy as a digital trade leader, in terms of both economic activity and standards setting.

The United States' approach to the governance of international digital trade began with an industrial logic: protecting US firms' access to foreign markets by imposing, in its trade agreements, strict provisions aimed at limiting crossborder digital trade flows.

This is what we find in the TPP's (now the Comprehensive and Progressive Agreement for Trans-Pacific Partnership, or CPTPP) e-commerce chapter and CUSMA's digital trade chapter. It was also the position espoused in the WTO negotiations until a few weeks ago.

In the last couple of years, however, the United States has moved toward a geo-economic logic in its approach to governing international digital trade, in response to China and the European Union. For instance, the Global Cross-Border Privacy Rules (CBPR) Forum is both a response to the European Union's General Data Protection Regulation and an attempt to take privacy rule governance out of the Asia-Pacific Economic Cooperation because the latter includes China.

The inclusion of the Global CBPR Forum within the US Indo-Pacific Economic Framework (IPEF) is also seen as a strategic response to draw countries in the region away from China's digital orbit. With respect to IPEF's other digital trade provisions, negotiations now appear to be on hold, following the USTR's October 25 decision.

For its part, the European Union has focused on establishing a whole set of laws and regulations to govern the digital part of Europe's economy and society in an attempt to promote a digital single market within its borders. Any influence on governance standards beyond its borders through the so-called 'Brussels Effect' has been secondary and primarily aimed at supporting the European Union's internal market.

However, the European Union has recently been negotiating bilateral digital partnership agreements (for example, with Japan, Singapore and South Korea). This new approach to governing digital trade can only be understood in response to such agreements being negotiated by other countries and the fear that it will be left out of China's and the United States' attempts to dominate digital trade governance in other parts of the world, especially the Indo-Pacific region.

China's approach to governing digital trade follows the United States' and the European Union's mixed logic. It began with an industrial logic in that the Digital Silk Road would be a means to support its home-grown digital giants in their competition with US giants in the Indo-Pacific region as well as in Africa.

More recently, however, China has responded to US actions on digital trade by asking to join the CPTPP and the Digital Economic Partnership Agreement (DEPA) between Chile, New Zealand and Singapore. Pursuing a mixed logic, it has also strengthened the governance of its domestic digital economic space to promote the latter as well as protect political stability.

Smaller countries have adopted a more polarized approach to governing international digital trade. For New Zealand and Singapore, digital trade agreements follow an industrial logic, namely, to position their economies for the digital revolution and try to influence its international governance by being first movers. The DEPA with Chile and the Digital Economy Agreement between Australia and Singapore are good examples of such an approach.

On the other side, Canada and Japan follow a geo-economic logic to international digital trade governance. In Canada's case, this logic is driven by its dependence on the US economy. Its strategic goal is to stay close to the United States to maintain necessary access to its markets while improving access to other markets to limit dependence on the US economy.

Similarly, Japan has adopted a geo-economic balancing act that aims to prevent China's political and economic domination of the Indo-Pacific region (ie. keeping it free and open) while continuing to do business with China, which is an important economic partner for Japan.

To achieve this balance, Japan has concluded bilateral digital trade agreements with the European Union and the United States. It is also party to the CPTPP, which has a chapter on digital trade (negotiated by the United States before the Trump administration pulled out).

Finally, it is a member of the Regional Comprehensive Economic Partnership, which includes China, and whose digital trade chapter is modelled after the TPP (albeit much weaker).

Where do we go from here?

One pathway for the future sees the digital governance noodle bowl getting bigger and messier. In this scenario, international digital trade suffers. Agreements continue proliferating but remain ineffective at fostering crossborder digital trade: either they remain hortatory with attempts at cooperation on non-strategic issues, or no one pays attention to the binding provisions because business can't keep up and governments want to retain their 'policy space'.

After all, why has there not yet been any dispute launched based on binding provisions in a digital trade agreement (either on its own or as part of a larger trade deal) when there has been increasing digital fragmentation?

The other pathway leads to the creation of a new international standards-setting and governance body (call it an International Digital Standards Board), like there exists for banking and finance. Countries that are members of such an international organization and effectively apply the commonly agreed standards become part of a single digital area where they can conduct crossborder digital trade without impediments. This is the only way to realize the G7's 'data free flow with trust' vision, originally proposed by Japan.

This second scenario is the only way to overcome the challenges to international digital trade posed by countries pursuing different strategic logics for governing international digital trade. As impediments to digital trade add up around the world because of an expanding noodle bowl, pressures for common international rules are likely to grow.

Ironically, perhaps, the United States' decision to abandon or suspend its historical position on some digital trade provisions to create 'policy space' for itself and others could make the creation of a plurilateral single digital area more feasible if the domestic policies that it ends up adopting are close to those of its key trade partners: for example, Australia, Canada, the European Union, Japan, New Zealand, Singapore, South Korea and the United Kingdom.

At a minimum, this scenario requires the Democrats to retain the White House and improve their position in Congress in next year's US general elections. ■

Patrick Leblond is a CIGI Senior Fellow and an expert on economic governance and policy. He is an associate professor and holder of the CN-Paul M Tellier Chair on Business and Public Policy at the University of Ottawa

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The dollar's international role

The dollar is by far the dominant currency. Christopher Waller does not expect to see the US dollar lose its status as the world's reserve currency anytime soon

My subject is the US dollar's primacy in global finance and the global economy, which some feel is under threat as never before. One headline asserts: *Why the Dollar's Reign Is Near an End*. Actually, it turns out this threat isn't so new. That headline was from 2011[1].

It is tempting to write off concerns about the dollar's status that never seem to come to pass, but I don't dismiss them. The role of the United States in the world economy is changing, finance is always changing, and I think it is important for policymakers to regularly consider if and why the dollar's role might change as well. That's what I aim to do in these remarks.

When people refer to the dollar and its reserve currency status, they typically mix together a variety of roles that it plays on the world stage. So I would like to start by clarifying these many roles. First, the term 'dollar' often refers to physical US currency and its use around the world. However, in certain contexts, it is used to describe financial assets, such as US Treasury securities, that are denominated in and promise redemption in US dollars.

Finally, the word 'dollar' is used to describe its use as the settlement unit of account in international transactions. I will use the word 'dollar' throughout this speech to refer to these various concepts, and I hope it will be clear which one I am referring to as I speak.

For many decades, the US dollar has had an outsized role in the global economy, supported by the size and strength of the US economy, its stability and openness to trade and capital flows, and strong property rights and rule of law. The dollar's international role has clear benefits for the United States, lowering transaction and borrowing costs for US households, businesses, and government and widening the pool of creditors and investors. The widespread use of the dollar can help insulate the US economy from shocks from abroad.

The rest of the world also benefits from the dollar's international role. The dollar serves as a safe, stable, and dependable form of money around the world. It serves as a reliable common denominator for global trade and a dependable settlement instrument for crossborder payments. In doing so, it reduces costs of engaging in international transactions for households and businesses including those outside of the United States.

Going forward, however, there are potential challenges to the dollar's international status, and some recent developments have the potential to boost the international use of other currencies

Recent commentary warning of a possible decline in the status of the US dollar raises concerns about the effects of sanctions against Russia, US political dysfunction, the rise of digital assets, and China's efforts to bolster usage of the renminbi.

Other commentary has warned of 'geoeconomic fragmentation' and whether trade and financial flows could realign in ways that adversely affect the dollar's outsized role. Against this backdrop, it's useful to review whether there has been any change in how the dollar stacks up against the standard measures by which we assess a currency's acceptance as an international currency.

Acceptance as an 'international currency' is typically assessed along three dimensions: its use as a store of value, as a medium of exchange, and as a unit of account. Alarmist headlines notwithstanding, the dollar continues to dominate in all three of these measures, and generally by a large margin compared with any other currency[2].

The 'store of value' dimension relates to the ability to save in a given currency and retrieve those savings in the future without a significant expected loss of purchasing power. A key measure of the confidence in a currency as a store of value is its use in official foreign exchange reserves. At almost 60 percent of global reserves in 2022, the US dollar is by far the dominant reserve currency[3].

The next leading competitor to the dollar is the euro, with a share of roughly 20 percent. Although some have pointed to a decreasing share of reserves held in dollars, the dollar share—though down somewhat from the mid-2000s—is actually little changed from the mid-1990s. And while there has been an increase in the share held in renminbi, that share is trivial at about 2 percent.

To the extent that there has been gradual diversification in reserves since the mid-2000s, it has been into a wide range of other currencies, such as Canadian and Australian dollars.

The majority of global dollar reserves are held in US Treasury securities, with the depth and liquidity of the US Treasury market reinforcing the desirability of the dollar as a store of value. Currently, foreign investors hold about one-third of Treasury securities outstanding.

There has been a steady decline in this share: foreign investors held roughly half of Treasury securities outstanding 10 years ago. A major reason for the decline, however, is that over the past decade, the stock of global foreign exchange reserves has grown much more slowly than the stock of Treasury securities outstanding, so foreign official investors are accounting for a declining share.

Foreign private investor demand for US Treasury securities, by contrast, has been sustained and has kept pace with the increased issuance in recent years. The roughly one-third of Treasury securities currently held by all foreign investors is now broadly comparable with shares of sovereign debt held by foreign investors in the euro area, the UK, and Japan[4].

The US benefits from foreign demand for US Treasury securities since it bids up the price of such securities, thereby lowering the interest expense paid on Treasury debt.

Another way to look at the dollar as a store of value for the global financial system is the demand for US dollar banknotes abroad. Determining exactly how much currency is held abroad is challenging, but research suggests that foreign investors hold roughly half of the dollar value of US banknotes outstanding[5].

This share is similar to or a bit higher than for euro banknotes, where recent research estimates suggest that between 30 and 50 percent of euro banknotes are held abroad, primarily in countries that are geographically close to the euro area[6].

'Dollarization' or 'partial dollarization' is a global phenomenon that refers to the use of dollars in foreign countries as a substitute for the domestic currency.

Typically, this practice occurs because of persistently high domestic inflation. While foreign citizens are free to use any other currency issued around the world, the dollar is the overwhelming choice for citizens in these countries. Fulfilling foreign demand for US currency allows us to earn seigniorage on banknotes held abroad.

So, by store-of-value measures, the dollar remains the most widely used currency, though its dominance may have edged down slightly over the past couple decades.

The dollar's attractiveness to private investors and businesses is especially apparent in its role as a medium of exchange—that is, in its use in trade invoicing, global banking, international debt issuance, and foreign exchange transactions.

To start with trade invoicing, the dollar is by far the dominant currency. Trade invoicing in dollars means that the terms of the contract are specified in units of the dollar and the dollar is the settlement object for the trade. Dollar invoicing accounts for at least three-fourths of export invoicing in all regions, except in Europe, and over 96 percent in the Americas.

Not surprisingly, the euro is the dominant invoicing currency in Europe, but even there, the euro share is only about 50 percent once intra-euro-area trade is excluded[7]. Dollar dominance on this dimension has major benefits for US firms, as it removes exchange rate risk and eliminates the need for complicated and costly hedging strategies when they engage in international trade.

Invoicing dominance is linked to a similarly dominant role in international banking and debt issuance. About 60 percent of international banking loans and deposits are denominated in US dollars. For international debt securities, about 70 percent of bonds issued in a currency other than the issuer's home country currency are denominated in US dollars[8].

These shares have been quite stable over the past 10 to 15 years. Dollar dominance in international banking has benefits for US households and businesses, since it means that foreign banks have strong connections to the US financial system, increasing the amount of credit available in the US and lowering the cost of borrowing.

For debt securities, dollar dominance means that when US firms issue debt in markets outside the United States, they can issue in dollars and don't have to bear exchange rate risk. And US investors can get exposure to foreign firms without incurring exchange rate risk.

The many sources of demand for US dollars show through to its very high share of foreign exchange transactions, where, according to the latest statistics from the Bank for International Settlements, the dollar remains by far the most commonly traded currency[9].

The size and depth of dollar foreign exchange markets mean the dollar is frequently used as a 'vehicle' currency: Even when firms and investors around the globe want to transact in two currencies that don't include the dollar, they typically find that it is easier and less expensive to first conduct a trade between the initial currency and the dollar and then conduct a second trade to exchange the dollars for the second currency[10].

The final role for an international currency is as a unit of account, and an important measure on this dimension is its use as an 'anchor currency' against which other countries may attempt to limit their exchange rate movements. Here, the research finds that the dollar's usage as an anchor currency has increased somewhat over the past two decades.

Not including the US, economies anchored to the dollar accounted for roughly 50 percent of world gross domestic product (GDP) by 2015. By contrast, the share of world GDP anchored to the euro was only 5 percent (not counting the euro area itself)[11].

To recap, by standard measures of an international currency's use, there has not been any notable erosion in the dollar's dominance over the past couple of decades. Going forward, however, there are potential challenges to the dollar's international status, and some recent developments have the potential to boost the international use of other currencies.

A shifting payments landscape—for example, the rapid growth of digital currencies—could reduce reliance on the US dollar. People often conjecture that cryptocurrencies like Bitcoin may replace the US dollar as the world's reserve currency. But most trading in decentralized finance (DeFi) involve trades using stablecoins, which link their value one-for-one to the US dollar.

About 99 percent of stablecoin market capitalization is linked to the US dollar, meaning that cryptoassets are de facto traded in US dollars. So it is likely that any expansion of trading in the DeFi world will simply strengthen the dominant role of the dollar.

A second potential challenge to the dollar could be increased prominence of the euro, the second most widely used international currency. Like the US, the European Union (EU) is a large economy with fairly deep financial markets, generally free trade, and robust and stable institutions.

Wider use of the euro as a reserve currency may have been held back by the lack of a deep and liquid market for EU debt, though there have been some notable recent developments. During the COVID-19 crisis, the EU issued an unprecedented amount of jointly backed debt, reaching about €400 billion by May 2023. While this is a noteworthy development for the EU, this amount is tiny compared with the $24 trillion outstanding in US Treasury securities[12].

The continued rapid growth of China and Chinese efforts to boost the use of their currency could make the Chinese renminbi a more attractive competitor to the dollar and increase its international use. Several factors currently weigh against the renminbi as an attractive asset for international investors: it is not freely exchangeable, the Chinese capital account is not open, and investor confidence in Chinese institutions is relatively low.

Recent endeavours by China to overcome these shortcomings include increased efforts to promote renminbi invoicing. For example, it reached an agreement with Brazil to allow Chinese and Brazilian companies to settle trade in their domestic currencies and has been in discussion with Saudi Arabia to potentially price oil trade in renminbi.

However, outside analysts generally view these agreements as symbolic and at most laying the groundwork for potential future use of the Chinese renminbi in very isolated instances.

Some commentators have also argued that sanctions imposed by the United States and its allies on Russia following the invasion of Ukraine could make the dollar less attractive as a reserve currency for the United States's geopolitical adversaries.

In practice, however, US adversaries have few practical alternatives to the dollar, as other prominent reserve currencies—such as the euro, Japanese yen, and British pound—are all issued by close US allies, who also participated in sanctions on Russia.

More generally, some worry that the dollar's role could be threatened by a move toward so-called geoeconomic fragmentation, in which trade and financial flows realign and become restricted within blocs of allied countries. The formation of a bloc that excludes the US—or even explicitly seeks to counter the United States' role in the global economy—could make some countries less likely to denominate international transactions in dollars.

This scenario sounds alarming, but thus far, trends that appear consistent with fragmentation largely can be explained by specific policy actions. One example is the dramatic reallocation of US–China trade in recent years, as firms in each country decrease reliance on imports sourced from the other.

While this shift has coincided with a period of heightened geopolitical tensions, the evidence suggests a simpler explanation: firms responding to changes in relative prices, in this case caused by the imposition of reciprocal tariffs by the two countries since 2018.

For example, while US imports of tariff-affected goods from China have plunged, imports of goods not subject to tariffs have continued to rise[13]. Despite the reallocation of trade flows across countries, at the end of the day, those trade flows continue to be invoiced mainly in dollars.

A final consideration regarding the international use of the dollar relates to financial stability concerns. In times of global financial stress, investors and governments seek a safe haven to protect the value of their assets and stabilize their own financial markets. When this happens, there is almost always a 'flight to the dollar' and heightened demand for US dollar assets.

We saw this in 2008 and again in 2020. This is the ultimate vindication that the US dollar is the world's reserve currency and is likely to remain so—in times of global stress, the world runs to the dollar, not away from it.

To conclude, for the reasons I have laid out here, I do not expect to see the US dollar lose its status as the world's reserve currency anytime soon, nor even see a significant decline in its primacy in trade and finance. Recent developments that some have warned could threaten that status have, if anything, strengthened it, at least so far. ■

Christopher J Waller is a Member of the Board of Governors of the Federal Reserve System

Endnotes

1. See Eichengreen (2011).
2. See Maggiori, Neiman, and Schreger (2019).
3. See Bertaut, von Beschwitz, and Curcuru (2023).
4. See Bertaut, von Beschwitz, and Curcuru (2023).
5. See Bertaut, von Beschwitz, and Curcuru (2023).
6. See Lalouette and others (2021).
7. See Bertaut, von Beschwitz, and Curcuru (2023).
8. See Bertaut, von Beschwitz, and Curcuru (2023).
9. See Bank for International Settlements (2022).
10. See Devereux and Shi (2013).
11. See Ilzetzki et al (2019).
12. See Bertaut, von Beschwitz, and Curcuru (2023).
13. See Bown (2022).

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