

WORLD COMMERCE WINTER 2025 REVIEW

A small white boat with a red trim is floating on dark blue water. The boat is empty and has some ropes and equipment inside. The water is calm with some ripples.

WINTER 2025

IGNACIO GARCÍA BERCERO
AND NICLAS POITIERS DISCUSS
THE NEXT STEPS FOR EUROPEAN
ECONOMIC SECURITY

DENNIS SNOWER
DISCUSSES HOW COP30
CAN TURN CLIMATE
GOALS INTO TRADE RULES

THE EU MUST SPEED UP ITS
INTEGRATION AMID MOUNTING
GEOPOLITICAL TURMOIL,
CHRISTINE LAGARDE WARNS

THE GLOBAL TRADE AND FINANCE PLATFORM

FOREWORD

Cast adrift

The year 2025 has witnessed an intensification of geopolitical fragmentation, propelled by decisive policy shifts in the United States under the Trump administration, alongside enduring conflicts and deep-seated structural rivalries. These forces have collectively accelerated a process of deglobalisation, manifesting in disrupted supply chains, escalating costs, and heightened financial volatility across the international economy.

The United States, long the architect of the post-war global order, has markedly retreated from its erstwhile commitment to globalism. This withdrawal has contributed to a growing polarisation within the multilateral system that once afforded a degree of stability. Norms, authority, and legitimacy are increasingly contested, exacerbated by the absence of unified global leadership and the erosion of collective purpose. In consequence, international institutions have struggled to mount effective responses to transnational challenges that demand coordinated action.

Amid this flux, a more pluralistic global landscape is emerging, characterised by the coexistence of established and novel institutions. Regional powers and middle-income states aspire to forge a more resilient and cooperative order through inclusive, rules-based frameworks that might reinvigorate multilateralism while enhancing national resilience.

Central to this reordering has been China's ascent as a proactive actor and purveyor of global public goods, capitalising in no small measure on American retrenchment. Beijing has advanced alternative architectures, extending its influence both within extant institutions and through innovative ventures such as the Belt and Road Initiative, the Asian Infrastructure Investment Bank, the Global Development Initiative, and the Global Security Initiative.

In so doing, China positions itself as a champion in addressing inequality and poverty, eschewing the Western insistence on democratic norms and human rights conditionalities. For many nations in the Global South, China's pragmatic model offers compelling opportunities for greater agency within the international system. States across Asia, Africa, and the Middle East, seeking infrastructure and economic advancement without the stringent preconditions often attached to Western aid, have found in Beijing an attractive partner.

The expanded BRICS grouping—now encompassing original members alongside Egypt, Ethiopia, Iran, the United Arab Emirates, and Indonesia—encapsulates many of these aspirations. Emphasising sovereignty, non-interference, and a development paradigm unencumbered by political strings, BRICS has, with China's substantial backing, emerged as a vital conduit for South-South cooperation.

Yet the multipolarity now taking shape does not herald the wholesale supplanting of one hegemonic order by another; rather, it entails the parallel operation of overlapping frameworks. Nations of the Global South, while vocal

in their critique of Western inconsistencies, remain cautious about excessive dependence on any single power. This strategic hedging may, paradoxically, engender a more equilibrated and responsive governance of global affairs.

Nevertheless, beneath these shifts lies an intensifying competition among the world's three pre-eminent economic blocs: the United States, China, and the European Union. Europe, in particular, possesses attributes that have historically defined great powers—a \$20 trillion economy, a population exceeding half a billion, premier universities, exceptional engineering prowess, world-leading infrastructure, vast capital reserves, and a currency that rivals the dollar in international transactions. By conventional measures, the European Union ought to rank as a geopolitical superpower. In nominal terms, the United States remains somewhat larger, while China is broadly comparable.

At the dawn of the twenty-first century, the American and European economies were of roughly equivalent scale, with China's a mere fraction thereof. The intervening quarter-century has dramatically altered this balance. Recent assessments, including those in the United States' 2025 National Security Strategy, warn that Europe's relative economic stagnation is overshadowed by graver concerns—chief among them the prospect of profound cultural and civilisational transformation in the decades ahead. Whether the European Union can arrest this drift and assert its latent potential remains one of the most pressing questions for the emerging global order. ■

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From resilience to strength

The EU must speed up its integration and overhaul a model of export-led growth that has faltered amid mounting geopolitical turmoil. Christine Lagarde warns that the EU is increasingly vulnerable to shocks and is lagging behind in areas that will drive growth such as AI

would like to start with a quote:

"The world around us does not stand still.

In recent years, the global environment has been transformed in ways that none of us could have imagined. We have seen the post-war global order fracturing, the rise of new – and some old – powers, rapid changes in technology, and an uncertain outlook for global trade and finance.

Uncertainty abounds and conventional wisdom is being challenged, in politics, in diplomacy and in economics. And, unavoidably, this calls on Europe to consider its place in the world and reset its ambitions."

This may sound like the kind of passage you have heard in many speeches this year. But, in fact, it is from the first speech I gave as ECB President –in November 2019¹.

In that speech, I urged Europe to recognise that its old growth model – built on export-led growth – was coming under strain. And I called for a shift: to focus instead on developing our domestic economy as a source of resilience in an uncertain world. My point was not to argue for protectionism or inward-looking policies.

It was about realism: recognising the world as it is. And it was about acknowledging that the solution was already in front of us: the untapped potential of our own internal market. Six years on, that diagnosis has only become clearer and stronger.

Europe has become more vulnerable, also due to our dependency on third countries for our security and the supply of critical raw materials. Global shocks have intensified, with rising US tariffs, Russia's invasion of Ukraine and stiffening competition from China.

At the same time, our internal market has stood still, especially in the areas that will shape future growth, like digital technology and artificial intelligence, as well as the areas that will finance it, such as capital markets. And yet – as Galileo famously said – *“it moves.”* Europe continues to show resilience, revealing sources of strength that could grow if only we allow them to.

So the question I would like to address today is: how do we move from being resilient but vulnerable to being genuinely strong? And what will it take to do so?

Europe's vulnerabilities stem from having a growth model geared towards a world that is gradually disappearing

Vulnerabilities in Europe's growth model

Europe's vulnerabilities stem from having a growth model geared towards a world that is gradually disappearing. We embraced globalisation more than any other advanced economy. In the two decades before the pandemic, external trade as a share of GDP almost doubled in the EU, while in the United States it barely moved².

This deep integration brought significant benefits: the number of jobs supported by EU exports³ rose by 75%, reaching almost 40 million⁴ – and for many years, this was a source of resilience. But today, that same openness has become a vulnerability. Exports have become a far less reliable engine of growth, reflecting the changing global landscape.

In mid-2023, for instance, ECB staff expected exports to grow by around 8% by mid-2025. In reality, they have not grown at all. And looking ahead, exports are projected to subtract from growth over the next two years⁵. This has been felt most acutely in countries with large manufacturing sectors, which have faced a prolonged slump in industrial production.

As a result, growth across the euro area has become more uneven. At the same time, this export-led growth model has resulted in a persistent current account surplus, increasing our reliance on other countries to generate our wealth – especially the United States.

Euro area residents now hold nearly 10% of their total equity investments in US stocks, totalling €6.5 trillion – about two times the amount they held at the end of 2015⁶. This has been a rational response: US markets have delivered returns roughly five times higher than Europe's since 2000. But it has created a vicious circle.

As US markets channel European savings into high-productivity sectors, the performance gap between our economies widens – prompting yet more European savings to flow across the Atlantic. The result is stagnating productivity at home and growing dependence on others.

Finally, we now face a new form of vulnerability shared by all major economies: the weaponisation of dependencies on key raw materials and technologies. ECB analysis shows that more than 80% of large euro area firms are no more than three intermediaries away from a Chinese rare earth supplier⁷.

Recent supply shocks – for example, the shortage of automotive chips – have shown how a single chokepoint can stall entire sectors. These vulnerabilities do not trigger dramatic crises. Instead, they erode growth quietly, as each new shock nudges us onto a slightly lower trajectory. Over time, the cumulative effect of this ‘lost growth’ and lost productivity becomes material.

In mid-2023, ECB staff projected that the economy would expand by 3.6% cumulatively by mid-2025. In reality, it has grown by only 2.3% – a shortfall equivalent to an entire year of growth in normal times, and productivity has turned out worse.

Sources of resilience in the domestic economy

Yet even as this changing world has exposed our vulnerabilities, 2025 has revealed Europe’s latent strengths. Our experience this year has shown that a resilient domestic economy can shield Europe against global turbulence.

Three sources of domestic strength have helped cushion the impact of global shocks – our *people*, our *potential* and our *policy*.

First, our people. We have benefited from an unusually strong labour market – one that has remained remarkably resilient even as growth has slowed. Typically, employment tends to grow at roughly half the pace of real GDP. Yet since the end of the pandemic, that relationship has been almost one-to-one in Europe⁸.

This strength has created a virtuous circle: rising employment has supported consumption, which in turn has sustained services output and created still more jobs – particularly in labour-intensive sectors⁹.

Second, our potential. Despite the notion that Europe is lagging behind in AI, European firms are moving quickly through the digital transition – and that is making investment more resilient to global uncertainty.

While tangible investment has fallen in the past two years as manufacturing has weakened, intangible investment has risen sharply¹⁰, keeping overall business investment broadly stable. Firms continue to invest in AI and digital infrastructure because, for any company that wants to stay competitive, these are no longer optional.

Third, our policy. Fiscal policy, in particular, has acted countercyclically, buffering the economy rather than amplifying downturns, as we saw after the financial crisis.

The fiscal packages now being implemented for defence and infrastructure – especially here in Germany – are coming at the right time for Europe and will have a measurable effect on growth.

ECB staff estimate that higher government investment between now and 2027 will offset around one-third of the trade shock¹¹. The ECB is also playing its part by delivering price stability. We have cut interest rates by 200 basis points from their peak, and this is increasingly feeding through into easier financing conditions, which is helpful to support demand. We will continue to adjust our policy as needed to ensure that inflation remains at our target.

Together, these three sources of resilience will help anchor growth at home. Domestic demand is set to become the main engine of expansion in the years ahead¹². And this shift should also help narrow Europe's current account surplus, which has already halved since its peak in 2018¹³.

The potential of the domestic market

This experience underlines the power of a resilient domestic economy, strengthened by open strategic autonomy. But it also exposes how much potential Europe continues to leave untapped.

Today, despite more than 30 years of the Single Market, trade barriers within the EU remain too high in key areas. ECB analysis finds that internal barriers in services and goods markets are equivalent to tariffs of around 100% and 65%, respectively¹⁴.

Of course, we should not expect these barriers to disappear altogether: not all products are equally tradeable, and national preferences will always play a role. Policy can reduce certain frictions, but it cannot eliminate them entirely¹⁵.

But we should expect two things. First, that barriers are low enough for the sectors that will shape future growth to operate in a truly European market. This is clearly not the case for digital services, which will drive future innovation, and capital markets, which must finance it.

Second, we should expect that being inside the Single Market offers a clear advantage over being outside it – in other words, that internal barriers are lower than external ones.

But this is also not currently the case for services: over the past 20 years, barriers to crossborder trade within Europe have been declining no faster than those faced by international firms seeking to operate here.

This helps explain why, even though services now account for three-quarters of Europe's economy, trade in services within the EU makes up only about one-sixth of GDP – roughly the same as our trade in services with the rest of the world.

This is a vast waste of potential – especially at a time when we must rely more on ourselves than on others. And the key point is that *achieving these gains would not require radical change*.

Our analysis shows that if all EU countries were merely to lower their barriers to the same level as that of the Netherlands, internal barriers could fall by about 8 percentage points for goods and 9 percentage points for services¹⁶. If we only did a quarter of that, it would be sufficient to boost internal trade enough to fully offset the impact of US tariffs on growth¹⁷. So the question we must now ask is: why are we not taking these steps?

Towards a new governance

The answer comes down to governance. Fully harmonising all national laws and regulations is not realistic, nor is it always even necessary. But we lack effective tools to overcome barriers in the areas where progress matters most.

I believe that three steps can help us move forward. The first is to revive the principle of mutual recognition – the very engine of liberalisation that powered the Single Market in the 1980s.

Mutual recognition means that if a good or service is lawfully provided in one member state, it should be allowed to circulate freely across the EU without the need to comply with every other country's rules. For example, in the EU there is a system of automatic recognition of professional qualifications for a number of sectoral professions.

Such mutual recognition is also visible in financial services. Today, banks benefit from a passporting system: a single licence granted by the ECB enables them to provide services across Europe. But they still face different rules in foundational elements of the framework they operate in. Completing the banking union and deepening our capital markets would therefore be transformative, accelerating our path towards a truly integrated home market.

The same logic applies to the digital economy. Just as passporting embodies mutual recognition in banking, the mutual recognition of digital identities, trust services and other credentials would dramatically improve interoperability and eliminate hidden costs that are slowing the growth of Europe's digital markets.

The second step is to streamline decision-making – by extending qualified majority voting to the areas on which Europe's future growth depends. While qualified majority voting has been instrumental in driving integration, it has now largely reached its limits. In several critical fields, the continued requirement for unanimity in the European Council still prevents meaningful progress towards completing the Single Market.

Taxation is the clearest example. Reforms such as harmonising VAT rules or establishing a common consolidated corporate tax base remain stuck because of national vetoes, leaving firms to navigate a maze of fragmented tax regimes.

This fragmentation is especially damaging in a world of digital business models and intangible assets, where tax policy cannot be managed within national borders alone. For example, a digital platform providing cloud or

software services across Europe must currently comply with 27 different VAT systems, each with its own definition of where value is created for tax purposes.

This complexity tilts the playing field towards large US firms that can absorb the associated costs – exactly the opposite of what Europe needs if it wants to nurture its own digital champions.

Moving to qualified majority voting, using the passerelle clause where necessary – which allows the European Council to shift specific areas from unanimity to majority voting without changing the Treaties – could help break this deadlock.

The third step is to take a more radical approach to simplification – and I do not mean simply trimming regulations through the Omnibus packages. The fastest way to achieve genuine simplification is not by repealing existing rules, but by creating new ‘28th regimes’ – optional EU legal frameworks that sit alongside national law rather than replacing it.

These frameworks would allow firms to opt into a single European rulebook in specific areas, without requiring full harmonisation across all member states. A prime candidate is company law¹⁸, as proposed in the Letta and Draghi reports.

A European company law regime would provide firms – in particular start-ups and scale-ups – with a simpler path to operate across borders, cutting through the complexity of 27 different national systems.

This approach has worked before. The EU Trademark (1993) and Community Design (2001) were both 28th regimes, offering optional EU-wide intellectual property titles alongside national rights. And both have been widely adopted, especially by firms active across multiple markets.

Their success shows how an optional EU framework can reduce fragmentation and even generate healthy 'systems competition': when firms choose the EU rules, national systems are put under pressure to adapt.

The European Commission is planning to present a 28th regime proposal as part of its renewed and welcome ambition to set clear deadlines for removing barriers identified in the 'Single Market Roadmap to 2028'. But progress will depend on political will.

The first step may be modest – such as creating a digital business identity, giving firms a single trusted profile to register and operate online across the EU – but it could set a powerful precedent for broader reforms to follow.

If we get this right, firms that could grow based on genuinely European regimes would also be best placed to access pan-European financing, helping to channel our vast savings into productive investment.

Completing the Single Market – in the real economy and in finance – is therefore a mutually reinforcing project, strengthening Europe's competitiveness and its capacity to invest in the future.

Conclusion

The world will not slow down for Europe – but we can decide how we move forward. If we make our Single Market truly single, Europe's growth will no longer depend on the decisions of others, but on our own choices. This was my message six years ago. Today, that message has only grown more urgent.

Another six years of inaction – and lost growth – would not just be disappointing. It would be irresponsible. But the experience of this year should also give us confidence. It has shown that our economy has real sources of strength – and that, if we act, those strengths can be multiplied.

The steps we need to take are not beyond our reach. They require no new treaties, no radical rewiring of our Union – only the political will to use the tools we already have. If we can summon that will, Europe can move from being merely resilient to being genuinely strong. ■

Christine Lagarde is President of the European Central Bank

Endnotes

1. Lagarde, C (2019), [“The future of the euro area economy”](#), speech at the Frankfurt European Banking Congress, Frankfurt am Main, 22 November.
2. External trade as a share of GDP rose from 26% to 43% in the EU, whereas it increased from 23% to just 26% in the United States.
3. To non-EU countries.
4. Rueda-Cantuche, JM, Piñero, P and Kutlina-Dimitrova, Z (2021), [EU Exports to the World: Effects on Employment](#), Publications Office of the European Union, Luxembourg.
5. See footnote 12 for details.
6. ECB (2025), [“Euro area quarterly balance of payments and international investment position: fourth quarter of 2024”](#), statistical release, 4 April.
7. Banin, M, D’Agostino, M, Gunnella, V and Lebastard, L (2025), [“How vulnerable is the euro area to restrictions on Chinese rare earth exports?”](#), Economic Bulletin, Issue 6, ECB.
8. Between the end of 2021 and mid-2025, cumulative employment rose by 4.1% – an increase of 6.3 million of people in employment – while real GDP increased by 4.3%. See Lagarde, C (2025), [“Beyond hysteresis: resilience in Europe’s labour market”](#), opening panel remarks at the annual Economic Policy Symposium “The policy implications of labour market transition” organised by the Federal Reserve Bank of Kansas City in Jackson Hole, 23 August.
9. Anderton, R, Aranki, T, Bonthuis, B and Jarvis, V (2014), [“Disaggregating Okun’s law: decomposing the impact of the expenditure components of GDP on euro area unemployment”](#), Working Paper Series, No 1747, ECB, December.
10. Excluding volatile Irish assets.
11. Lagarde, C (2025), [“Trade wars and central banks: lessons from 2025”](#), keynote speech at the Bank of Finland’s 4th International Monetary Policy Conference, Helsinki, 30 September.
12. Cumulatively, ECB staff expect domestic demand to add 3.1 percentage points to growth between the second quarter of 2025 and the fourth quarter of 2027, while exports are projected to subtract 0.6 percentage points. See ECB (2025), [ECB staff macroeconomic projections for the euro area](#), September.

13. Lagarde, C (2025), [“Opening remarks”](#), remarks at the panel on the “Global Economic Outlook” at the 40th Annual G30 International Banking Seminar, Washington DC, 18 October.

14. Bernasconi, R, Cordemans, N, Gunnella, V, Pongetti, G and Quaglietti, L (2025), “What is the untapped potential of the EU Single Market?”, *Economic Bulletin, Issue 8, ECB* (forthcoming). These “tariff equivalents” should be understood as measures of estimated trade frictions rather than actual policy-imposed tariffs. They reflect a combination of policy-related barriers and structural or cultural factors – such as consumer preferences and taste differences – that cannot be directly addressed through policy alone.

15. Head, K and Mayer, T (2025), [“No, the EU does not impose a 45% tariff on itself”](#), VoxEU column, Centre for Economic Policy Research, 13 November.

16. Bernasconi, R et al (2025), *op. cit.*

17. According to ECB simulations, this reduction in barriers would raise trade within the EU by around 3%, offsetting the 0.7 percentage point reduction in GDP growth between 2025 and 2027 caused by US tariffs and the related uncertainty.

18. So far, most legal reforms aimed at improving the business environment have relied on soft coordination, voluntary standards or limited harmonisation directives. This approach reflects national sensitivities in certain areas (eg. company law, tax law and labour law) that remain primarily a member state competence. However, previous attempts at soft convergence have only led to modest results.

This article is based on a [speech](#) delivered at the 35th Frankfurt European Banking Congress, Frankfurt am Main, 21 November 2025.

The next steps for European economic security

A large container ship is shown from an aerial perspective, sailing on a dark blue ocean. The ship is loaded with many colorful shipping containers and is leaving a white wake behind it. The title text is overlaid on the upper part of the image.

The world has changed fundamentally. Ignacio García Bercero and Niclas Poitiers argue that the EU needs a balanced strategy to cut reliance on the US and China while improving its capacity to counter coercive economic threats

Executive summary

The European Union's economic security strategy was initially developed at a time of close transatlantic cooperation and focused largely on risks linked to Chinese dominance of certain parts of global manufacturing. However, given the diminished commitment of the United States to its traditional alliances and to multilateral rules, EU economic security planning now also needs to take into account the risk of US coercive action.

The EU must combine a medium-term strategy to reduce dependencies on both China and the US in critical areas with the capacity to react in the short term to threats of coercion. This requires supply chain chokepoints to be identified. There should also be a political discussion with EU countries on the circumstances in which the EU Anti-Coercion Instrument should be deployed, and the appropriate measures to respond to coercion.

The EU's various tools for responding to urgent threats to its economic security need to be adapted to the new geopolitical context. The EU should prioritise support for research and development in relation to critical technologies and should ensure a more targeted and effective approach to state aid. It should avoid 'buy Europe' policies that contradict its international commitments and limit the scope for partnering with third countries.

On traditional economic statecraft tools, screening of foreign investment needs to be transformed to responding more effectively to economic security threats, while export controls need to be better coordinated. Given the need to de-risk relationships with both the US and China, strengthening economic partnerships has become ever more important.

Moreover, more robust governance structures to manage the use of economic security tools and partnerships with like-minded countries internationally need to be developed.

1 Introduction

In 2023, the European Commission published a European economic security strategy (European Commission, 2023a)¹. It was conceived at a time when the European Union could rely on close cooperation with the United States and was part of a coordinated transatlantic response to the risk of the weaponisation of economic dependence by China. China's dominant position in several manufacturing sectors, particularly in the processing of critical raw materials, was a particular focus.

The move to a new EU economic security doctrine deserves a broader discussion on how to mitigate risks in the new geopolitical environment

EU-US alignment on economic security justified using the G7 as institutional platform to coordinate responses to economic coercion and, potentially, to develop economic security standards. On the EU side, the 2023 strategy is now being developed into an economic security 'doctrine' that focuses on how different policy tools can contribute towards mitigating economic security risks.

The move to a new economic security doctrine, in addition to EU initiatives on critical raw materials and on industrial policies, deserve a broader discussion on how to mitigate economic security risks in the new geopolitical environment.

The world has changed fundamentally (Sapir *et al* 2025). The administration of US President Donald Trump has shown little interest in coordinating action with allies when it comes to 'de-risking' relations with China. The US has even threatened the EU and its members with coercive action. This threat remains despite the EU-US trade deal inked in July 2025 envisaging cooperation on economic security².

All of this is happening in the context of war on the European continent and the major threat from Russia. US weaponisation of economic interdependence, which was thus far mostly wielded in favour of common transatlantic objectives (Farrell and Newman, 2019), might now become detrimental to European interests. Meanwhile, China has shown its readiness to weaponise economic dependencies through its dominance of the processing of the critical raw materials relied on by EU manufacturing.

The 2023 EU economic security strategy triggered risk assessments in four areas³:

1. Supply chain vulnerabilities;

2. Critical infrastructure;

3. Technology security;

4. Economic coercion.

The strategy did not clearly define economic security but rather used economic security as an umbrella term for a collection of instruments (Chimits *et al* 2024). Such a lack of conceptual clarity could lead to confirmation bias or confusion about the instruments needed to respond to different types of economic security threat (Pisani-Ferry *et al* 2024).

Some ambiguity can be helpful in providing leeway when deciding on defensive action, but vague risk assessments can be problematic when trying to devise strategies to minimise risks. This implies that while it can make strategic sense to not be too tied down to reactive policies, proactive policies should be based on thorough risk assessments and definitions.

This is particularly the case for measures aimed at reducing supply-chain vulnerability, for which a balance is needed between industrial policies and foreign economic policies. Given the changing external threat environment, the EU economic security doctrine needs to be continuously reviewed and adapted. Since the economic security strategy was published, various steps have been taken as part of its implementation (Table 1).

The challenge now is for economic security is to move beyond a process of risk assessments to risk-mitigation strategies based on the coherent deployment of economic security tools. The foundation for economic security

Table 1. EU policy developments on economic security since 2023

Date	Document	Purpose
June 2023	Communication on an Economic Security Strategy (European Commission, 2023a).	Sets out the Commission's views on the economic security threats to be guarded against and the relevant EU policies for this purpose.
Oct 2023	Recommendation on further risk assessments on critical technologies (European Commission, 2023b).	10 critical technology areas identified for joint risk assessments by member states and the Commission; four to be done urgently.
Dec 2023	Adoption of the Anti-Coercion Instrument (ACI, Regulation (EU) 2023/2675).	Regulation allowing for a calibrated EU response in the event of economic coercion by a third country.
Jan 2024	Commission publishes five initiatives on technology security and research.	Proposal for a revision of the FDI screening regulation (European Commission 2024a); white paper on export controls (European Commission 2024b); white paper on outbound investment; white paper on R&D for dual use technologies (European Commission 2024c); and a proposal for a Council Recommendation on research security (European Commission 2024d).
Apr 2024	Letta report on the single market (Letta, 2024).	Suggests various improvements for economic security, including establishing an Economic Security Council, broadening the scope of de-risking and defining a framework for cooperation with 'rival partners'.
May 2024	Adoption of the Critical Raw Materials Act (CRMA, Regulation (EU) 2024/1252).	Seeks to reduce dependency on single sources (in particular China) for critical raw materials. It includes streamlined permitting and measures to improve recycling and circularity.
July 2024	Political Guidelines for 2024-2029 European Commission (von der Leyen 2024).	Calls for economic security to form one of the three pillars of a new 'foreign economic policy'.

Sep 2024	Draghi report (Draghi 2024).	Section 4 focusses on reducing vulnerabilities to external pressure and dependencies.
	Mission Letter to Commissioner-designate for Trade and Economic Security Maroš Šefčovič ⁴ .	Places economic security under the renamed Directorate General for Trade and Economic Security; calls for the development of a “new economic security doctrine, which outlines the strategic use of our economic security tools within the EU”; calls for the development of economic security standards with international partners for key supply chains.
Oct 2024	Adoption of the Internal Market Emergency and Resilience Act (IMERA; Regulation (EU) 2024/2747).	Aims to reduce impact of crises on the functioning of the single market and to ensure the availability of critical supplies.
Jan 2025	Recommendation on outbound investment screening (Recommendation (EU) 2025/63).	Calls on EU governments to review their companies’ outbound investments in non-EU companies in three crucial technology areas, which will inform whether further action at EU level is needed.

Source: Bruegel.

policies has to be a clearly articulated view about the geopolitical positioning of the EU and the relationship between economic security and the EU's overall economic strategy.

In this *Policy Brief* we assess the main threats to EU economic security (section 2) and then analyse and make recommendations on the roles of industrial policies, foreign economic policies and economic statecraft tools in mitigating the economic security risks facing the EU, and for the governance of economic security (section 3).

This is not to suggest that these instruments are the only tools for the mitigation of economic security risks. Horizontal policies that reinforce growth in the European economy, and notably underpin the single market and an open trade policy, are also critical enablers to promote economic security.

2 The main threats to EU economic security

2.1 Import dependency

Overreliance on crucial imports is a clear risk to the EU economy. The ability of countries to restrict access to these imports strengthens their coercive power. Moves by both the US and China to restrict certain exports of chips⁵ and raw materials⁶ show this risk must be taken seriously.

A particular challenge is that a de-risking strategy for sectors such as the processing of critical raw materials requires close coordination among like-minded countries and substantial investment before dependency can be reduced significantly. An effective strategy to develop alternative sources of supply for critical raw materials, for example, would have to be structural in scope and implemented over the medium to long term⁷.

The 2023 European economic security strategy listed various ways to identify dependencies, such as stress tests, and the Commission has developed some metrics already. The Commission's Joint Research Centre has published

a set of economic indicators to capture the EU's trade dependencies on third countries, broken down by exporting and importing countries and sector (Piñero Mira *et al* 2024).

However, both data and analytical challenges make identifying genuine import dependencies very hard (Mejean and Rousseaux 2024). It is difficult to measure substitutability, both intertemporally and cross-product. In other words, it is hard to know which products are genuinely critical to EU production or consumption.

Because of re-exporting and complex supply chains, it is also difficult to capture the EU's ability to produce the products in question in the event of a shock, and to identify ultimate import and export dependencies⁸.

Broader import diversification is welcome, especially given the documented churn in the products for which the EU has dependencies (Vicard and Wibaux 2023). Detailed risk assessments and attempts to reduce dependencies should be limited to areas for which weaponisation would lead to greatest macroeconomic or social impacts.

There is broad agreement that de-risking is necessary for a narrow category of goods. These include semiconductors, batteries, critical raw materials and some pharmaceuticals (Pisani-Ferry *et al* 2024). These dependencies relate primarily to China (Figure 1).

The attitude of the Trump Administration means that areas previously overlooked must now also be considered. For instance, a thorough examination of critical defence dependencies should be prioritised (Burilkov and Wolff 2025; Mejino-López and Wolff 2025). Similarly, while energy dependence has generally been associated with Russia, EU dependence on imported liquified natural gas (LNG) from the US since the Russia's 2022 invasion of Ukraine should be considered a potential pressure point (Keliauskaitė *et al* 2025).

Beyond these categories, it is difficult to know exactly where to de-risk. Thus, engagement with the private sector in critical sectors is crucial, especially to identify upstream inputs for which there may be significant bottlenecks. Another important factor is that not all dependencies require the same policy response. For some, the EU might want to diversify imports (eg. LNG), whereas in defence, it could prioritise boosting European production or procurement from close allies such as the United Kingdom and Canada.

More importantly, the fact that many import dependencies can only be reduced in the medium term implies the need to develop strategies to deter coercive action in the short term. More attention should be paid, in close cooperation with member states and the private sector, to the identification of chokepoints based on reverse dependencies (ie. chokepoints under EU control), which could be targeted in attempted economic coercion.

Identifying such chokepoints may be critical if the EU Anti-Coercion Instrument (ACI, Table 1) is to be used in a targeted way – the ACI empowers the EU to react with a broad range of retaliatory measures should it be threatened with economic coercion. In such cases, other measures may be more effective than import tariffs because affected countries may be able to diversify or simply absorb the tariff.

2.2 Export vulnerabilities

China has sought to apply economic coercion to the EU through restrictions on imports to its market (McCaffrey and Poitiers 2024). For example, Chinese attempts to sway member state decisions on the imposition of countervailing duties on Chinese electric vehicles included threats to limit access to the Chinese market for Spanish pork⁹ and French cognac¹⁰.

While such limitations are not macroeconomically significant, they have the potential to shape political outcomes. In the end, however, Chinese threats did not prevent the adoption by the EU of countervailing duties on electric

vehicles¹¹. But these types of threats might be more successful in areas in which the EU can only act on the basis of a positive qualified majority.

Understanding these risks is crucial. It is not always direct exposure that matters, as export restrictions may be applied further down the supply chain (China threatened to restrict imports of EU cars that contained parts from Lithuania in response to the opening of a Taiwanese representative office in Vilnius; McCaffrey and Poitiers 2024).

Such instances have helped firms understand that they may become casualties in this new geopolitical landscape, and firms seem to be diversifying supply chains and, in some cases, building secondary supply chains¹².

The conclusion of new free trade agreements would make a significant contribution to diversifying export markets and could go together with tools to facilitate trade and the integration of value chains, such as negotiation with FTA partners of a common protocol on rules of origin or a supply chain resilience agreement.

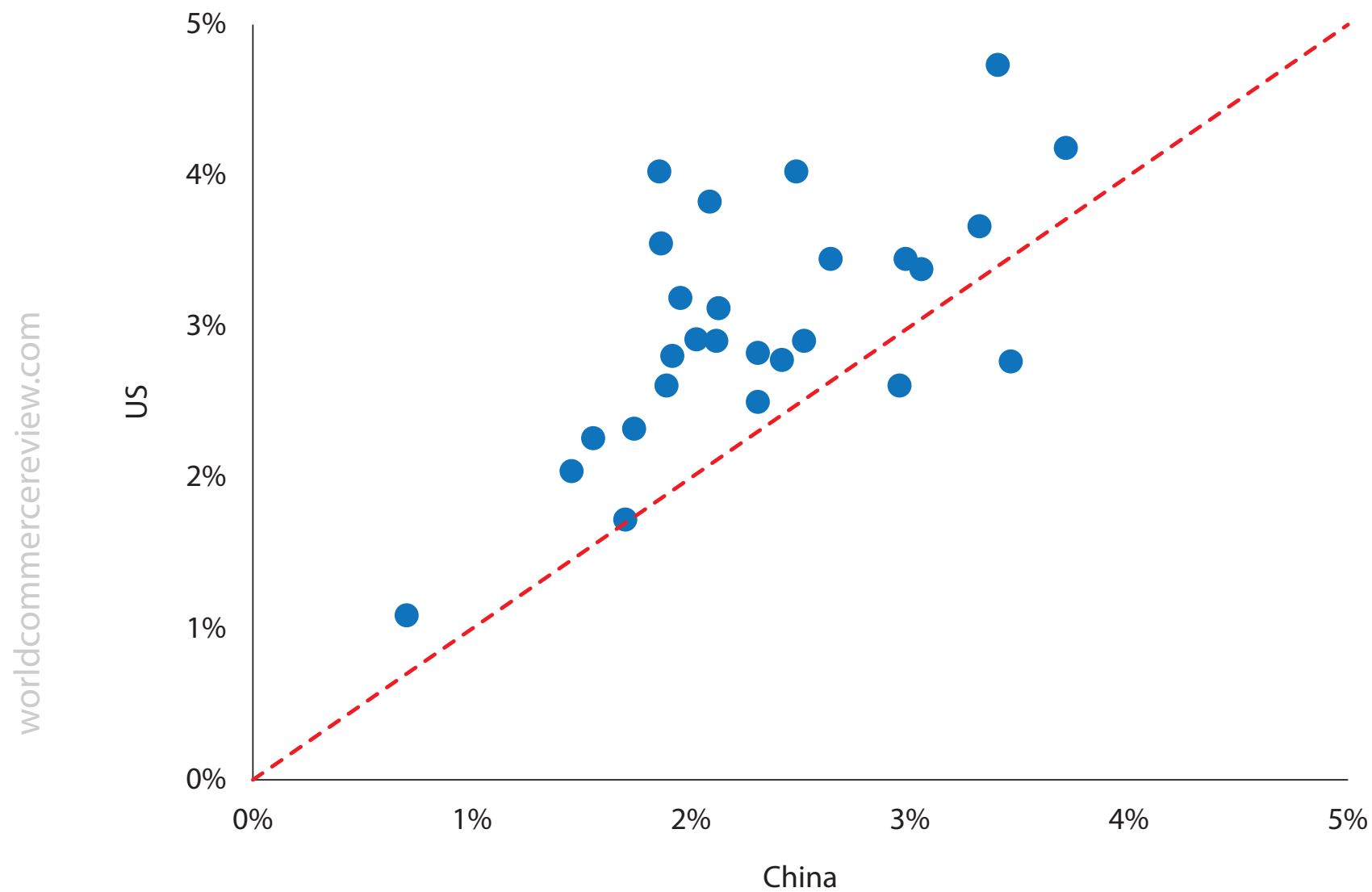
2.3 Foundational technologies

The area of foundational and emergent technologies presents the strongest case for active industrial policies in the name of economic security. These are technologies with the potential to significantly disrupt and reshape the global economy.

A strong presence in the development of such technologies will help ensure the EU's future strategic indispensability. In other words, the EU would be better equipped to hit back at the coercive measures of others and by doing so would change the decision-making calculus of would-be adversaries.

The semiconductor sector is a prime example. The EU does not control the fabrication of semiconductors, but, in ASML in the Netherlands, has a monopoly on the machines used for their production (Poitiers and Weil 2022b).

Figure 1. Dependencies of EU countries on US vs China (% of GDP, 2022)



Note: each dot represents a country and its position on an index that captures the “domestic gross value added generated by the exports of an economy to a trade partner directly and indirectly through third countries. This indicator is built up on domestic value added in exports and domestic value added in foreign final use” (Eurostat).
Source: Bruegel based on Eurostat trading partner exposure index.

This means the EU cannot be easily excluded from semiconductor value chains. On the other hand, allowing other economies to develop monopoly power in critical technologies would tie the EU's hands.

The EU needs to protect its lead in the areas in which it maintains a significant edge, such as the ultraviolet lithography machines produced by ASML. However, given the scale and speed of developments in these sectors, it is equally important to play a pioneering role in the next generation of foundational technologies.

The EU previously held a dominant position in research and development in clean tech, before falling behind China (García-Herrero *et al* 2024). Eulaerts *et al* (2025) have identified emerging critical technologies using a range of techniques and these could be a solid basis for guiding future R&D support.

2.4 Financial and digital dependencies

Given US dominance in finance, there may be a risk of US financial coercion, not only trade coercion¹³. This was a feature of the first Trump administration when, for instance, pressure was put on HSBC over its interactions with Huawei, and on Swift to disconnect Iranian banks. Given the US desire to maintain the dominant role of the dollar and trust in its financial system, it is unclear exactly how far coercion in this sector could go.

However, the record of the first Trump administration and the actions of the second to date imply that this risk should be taken seriously. This is especially important given that finance did not feature in the European economic security strategy and, therefore, preparations in this area may justify a specific new risk assessment¹⁴.

The EU also relies on US digital services in many areas. The US tech giants often enjoy monopolistic power, and there are often few alternatives, apart from Chinese providers. This dependency is a potential EU weakness, especially when it comes to critical digital infrastructure such as cloud services and satellites¹⁵.

European attempts to break these US monopolies and compete in digital services continue to be significant sources of friction in transatlantic relations, resulting in US threats of trade restrictions as a response to the enforcement of EU digital regulations¹⁶.

The EU should, therefore, prioritise reducing its reliance on US digital infrastructure and finding the most effective responses to US threats. As with critical raw materials dependencies, reducing dependencies linked to US digital or financial dominance requires a medium- to long-term strategy and a combination of different EU tools.

3 The development of risk mitigation strategies

3.1 Industrial policies

Economic security is often presented as a justification for more proactive industrial policies, boosting domestic industry, particularly through state aid. Important Projects of Common European Interest (IPCEI) are the main EU-level tool for this. These are large-scale industrial projects using novel technologies and serving a strategic European interest, supported by public subsidies.

The European Chips Act (Regulation (EU) 2023/1781) follows this mould, as a more lenient sector-specific version of an IPCEI. Its state-aid pillar uses the same R&D justification for state aid as IPCEIs and has the same conditionality, with the exception that it not only allows the promotion of completely new technologies, but also supports the introduction of technologies to the EU in the case of chip foundries (Poitiers and Weil 2022b).

For this type of industrial policy, there is a lack of clarity on the criteria for identification of industrial sectors for which an expansion of domestic production is both economically viable and necessary from an economic security perspective.

Whereas much of the focus has been on sectors for which there is an import dependency, not all import dependencies represent an economic security threat; in several sectors, diversification of import suppliers may be a better economic strategy. A better approach may be to subsidise R&D and its deployment in sectors that are at the technological frontier.

Moreover, IPCEIs have not been an unqualified success. Selection of individual large projects for significant subsidies has seen a number of notable failures. The Chips Act's flagship project was to be a semiconductor factory in Magdeburg Germany, slated to receive €10 billion in subsidies.

Meant to promote European high-end manufacturing, the project was halted in 2024¹⁷. Northvolt, a Swedish battery company that received significant ICPEI subsidies to build a battery supply chain independent of China went bankrupt in early 2025 (Tagliapietra and Trasi 2024).

ICPEIs are not the only policy tool intended to promote economic security by promoting investment in European strategic industries. The Critical Raw Materials Act (see Table 1) and the Net Zero Industry Act (NZIA, Regulation (EU) 2024/1735) introduce standards and procurement rules that seek to promote the diversification of European supply in sectors in which China has a market-dominating position (Le Mouel and Poitiers 2023; Tagliapietra *et al* 2023).

The main economic security tool under the NZIA has been the introduction of resilience criteria, sometimes combined with criteria related to sustainability or protection against cybersecurity risks. Resilience criteria require public buyers to diversify supply sources when procuring strategic technologies (ie. when the EU is dependent on a single supplier for more than 50 percent of its imports).

This approach needs to develop further. While the need to support certain industries through industrial policies (including subsidies) is clear, IPCEIs are not up to the task. The process of agreeing an ICPEI requires significant haggling between national government funders and large companies.

This favours established national industries over areas of import dependency, in which there is a lack of well-connected European industries. Furthermore, its use of an R&D state-aid exemption to support strategic industries makes the process onerous, while political pressure to approve projects under this narrow rule undermines the stringency of state-aid control (Poitiers and Weil 2022a).

Similarly, a better understanding of the problems that these policies try to solve is needed in order to design more targeted policies. The Chips Act's emphasis is on foundries producing high-end chips but this does not address the causes of shortages during the pandemic and the EU's strategic vulnerabilities relative to China.

The European Commission has also published work mapping the EU's import vulnerabilities to its comparative production advantages, a valuable exercise that should help to inform when and how to implement industrial policies (Arjona *et al* 2023; Poitiers *et al* 2024).

Trade and Economic Security Commissioner Šefčovič has been asked *"to develop economic security standards for key supply chains with our G7 and other likeminded partners"* (see footnote 2). As discussed in section 3.4, it is not clear that the G7 is the relevant forum for developing such standards. There is also a need for greater conceptual clarity about the reasons for such standards. For instance, should such standards be met to benefit from certain incentives, or as a condition of market access? So far, the only standard with a clear economic security rationale is the NZIA resilience criteria.

In relation to consumption subsidies for green products or preferences for green procurement, the promotion of lead markets would argue for standards based on well-defined carbon-footprint and circularity requirements, which in cases of high dependency may be combined with resilience standards.

However, the risk of the emergence of an amalgamation of unrelated requirements to establish an ill-defined 'economic security standard' could lead to discrimination and protectionism.

One particular concern is the introduction in the EU's February 2025 Clean Industrial Deal (European Commission 2025) of the concept of 'Buy Europe' or 'minimum European content', under which only products with a certain level of European content will benefit from access to government procurement or other benefits, such as consumption subsidies. Such policies would be incompatible with the EU's international obligations and could also become a major obstacle to developing partnerships as part of the economic security strategy.

Moreover, the introduction of such criteria is not necessary to de-risk from China since China is not a member of the World Trade Organization Government Procurement Agreement and 'resilience' criteria will often be sufficient for de-risking purposes outside of government procurement. A 'Buy Europe' policy could be a major obstacle to partnerships with likeminded countries and for the diversification of supply chains.

A more coherent approach to the deployment of industrial and foreign economic policies for economic security purposes requires a multi-step analysis:

1. Identify the most economically significant economic security risks in terms of supply chain dependencies and risks in relation to critical technologies;

2. Conduct an economic assessment of the extent to which the EU has the capacity to increase production in the EU, or to maintain its lead or develop foundational technologies;
3. Identify the most effective tools to achieve the industrial policy objectives; and
4. Develop partnership strategies for the diversification of external supplies as the most cost-effective approach to reducing vulnerabilities.

The economic security doctrine should contribute towards better governance on the use of industrial policy and its interface with trade and other external policies.

3.2 Economic statecraft instruments

In certain instances, the promotion of economic security justifies the introduction of export or investment restrictions. These are the two most traditional economic statecraft instruments, use of which has intensified in recent years. In the EU, they are managed at member state level, though there have been ongoing attempts to reinforce EU coordination.

The EU has also adopted a specific instrument to respond to economic coercion: the Anti-Coercion Instrument (ACI; Table 1), which empowers the European Commission to retaliate against economic coercion with a variety of coordinated measures. To be triggered, the Council of the EU decides whether an instance of economic coercion has taken place. Once this decision has been taken, the European Commission has broad powers to retaliate against the offending country in a proportionate manner.

At the time of writing, the EU has not yet deployed the ACI, though Chinese responses to the EU countervailing duties on EVs or President Trump's so-called reciprocal tariffs could have fallen within its scope. The unwillingness to deploy the ACI in circumstances of clear coercive threats raises serious questions about its credibility. The EU must be ready to deploy the ACI in case US threats of digital regulation materialise, or if China seeks to weaponise critical raw materials dependencies to influence EU decision making.

The identification of chokepoints and reverse dependencies is crucial in identifying possible response measures. The EU also needs to build the capacity to respond to possible escalation by the coercer. A discussion with EU countries should take place ahead of any invocation of the ACI to identify the appropriate tools to deter or respond to threats linked to digital regulation or the dependency on critical raw materials.

More broadly, the ACI should not be treated only a measure of last resort. The instrument allows targeted responses against measures or threats that seek to influence sovereign choices by the EU or its member states. Not responding to coercion would fundamentally weaken the EU as a geopolitical actor.

Another measure to protect European economic interests against foreign interference is screening of foreign direct investment. This is intended to protect strategic technologies from acquisition by potential geopolitical adversaries.

However, the European Commission plays only an advisory and coordinating role on FDI screening. EU governments decide themselves whether or not to block FDI, based on national-security concerns. The Commission has proposed reinforcing FDI screening (see Table 1) so that all EU countries have the capacity to screen investments in sectors that are critical for economic security; this would improve the coherence of investment screening.

The adoption of the Commission proposal (European Commission 2024a) is the minimum required to ensure adequate protection against risks of technology leakage, or relating to the protection of critical infrastructure.

The US has increased the use of export controls on dual-use technologies, particularly those related to semiconductors. China has introduced controls on critical raw materials exports, potentially causing major economic disruption. For the EU, greater coordination of export controls among member states is critical, in case escalating geopolitical tensions result in tit-for-tat export controls by the US and China.

The economic security framework should propose reinforced coordination of export controls at EU level, including an early warning mechanism under which the Commission and EU governments would be notified when a member state is considering the introduction of new controls.

3.3 Foreign economic policies

The two main foreign economic policies that can be deployed to reinforce economic security are trade policy and development cooperation policy. The EU's vast network of free trade agreements (FTAs) is an essential tool to reduce export dependencies at time when the EU is vulnerable to the combination of US protectionism, and the Chinese focus on exports as the main source of growth.

Of particular importance are trade agreements with emerging economies that are both highly protected and have a substantial growth potential, such as the Mercosur bloc, India and Indonesia. It is also essential that the EU seeks to maintain maximum stability and predictability by leading a broad coalition that prepares the ground for World Trade Organization reform (García Bercero 2025).

Since WTO reform will take time, the EU should also seek ways to reinforce linkages between its bilateral trade agreements. This could be done, for example, through a common protocol on rules of origin, or closer cooperation with likeminded partners on supply chain resilience.

The EU could work with the members of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership as the starting point for such reinforced cooperation. To develop partnerships with third countries, inward-looking economic security policies should be avoided and support for rule-based trade must be maintained.

However, FTAs alone are unlikely to make a decisive contribution to the diversification of imports because WTO-mandated most-favoured nation tariffs for the areas in which the EU is highly dependent on China are often zero or very low¹⁸.

Moreover, FTAs and the WTO often have limited disciplines on export restrictions, or on issues relating to the business environment. Clean Trade and Investment Partnerships (CITPs) such as that signed with South Africa in November 2025¹⁹ could fill this gap. To be successful, such partnerships should bring together all the relevant tools available to the EU to prepare balanced packages that are attractive to developing partners, including:

1. Identification of projects for which EU companies are ready to invest in the green value chain, including financial de-risking tools;
2. Rules relating to the business environment that address the main obstacles to investment in the country concerned;

3. An offer to provide technical cooperation and regulatory dialogue to facilitate compliance with European Green Deal regulations. This could include cooperation on carbon pricing or on the development of national deforestation plans, for instance.

CTIPs could be negotiated as self-standing agreements or in the context of broader FTA or investment facilitation agreement negotiations. For CTIPs to be effective, it is critical to have sufficient EU-level funding to support both financial de-risking and technical-assistance activities. This could be done through an 'external partnerships' window in the new Competitiveness Fund.

3.4 Governance of economic security

The implementation of economic security strategies raises a governance challenge. At EU level, there is a need to coordinate deployment of the various economic security tools, for which different parts of the Commission are responsible, and to ensure a robust framework for sharing information and for the coordination of EU and member state instruments. At international level, the relationship between WTO rules and economic security measures, and whether a new institutional framework is needed to coordinate economic security policies, must be clarified.

The creation of the role of European commissioner responsible for economic security was an important step towards better coordination of the work being done in the Commission, both on risk assessment and on ensuring synergy and coherence in the deployment of the different economic security tools. This would imply a reinforcement of cooperation between the relevant Commission services, with a coordinating role for the trade directorate-general.

At the political level, the Commissioners' Project Group on Economic Security²⁰ could steer work on risk-mitigation strategies and arbitrate in case of potential conflicts between services.

The Commissioners' Project Group could perform two critical functions. It should agree on the prioritisation of economic security threats and should ask a lead service to coordinate the preparation of risk-mitigation strategies, based on contributions from all relevant services.

Prioritisation of threats should be based on a rigorous analysis of the risk of weaponisation of dependencies, and on the economically efficient means to mitigate such risks. In this context, the Commissioners' group could seek an economic analysis from the Commission's economic and financial affairs directorate-general.

Such risk-mitigation strategies should assess how all available tools that can contribute towards risk mitigation can be deployed coherently. These strategies should then be discussed with member states to encourage consistency between EU and member state actions, and to provide a basis for a 'Team Europe'²¹ approach to engage with third countries to develop de-risking partnerships.

At the working level, the Commissioners' group should regularly update risk assessments and review cooperation activities with third countries. There should also be opportunities to consult the private sector when developing sectoral de-risking strategies.

In this context there may also be a need to develop instruments to gather the information needed to underpin economic security. This may require working more closely with those member states and economic operators present in priority value chains, to identify vulnerabilities that need to be de-risked. This work would be particularly relevant to identify reverse dependencies.

It is critical to fully involve member states in the assessment of risks, the development of risk-mitigation strategies and in seeking coordinated responses in areas of national competence, particularly when there is external pressure

to align with the US. The Commission has already established an Economic Security Network to promote integrated advice from member states.

This should be reinforced (Steinberg and Wolff 2023; Letta 2024) through the establishment of a Council Working Group on Economic Security. The group should also evaluate policies relating to investments and export controls, on which most decisions are made at member state level. At the ministerial level, a Council meeting of ministers responsible for trade and industrial policies should be held once a year.

The WTO framework provides a basis for the development of economic security policies, even if there are gaps that should be clarified as part of a plan for WTO reform (Pinchis-Paulsen 2025; Pinchis-Paulsen *et al* 2024). The current rule book provides enough policy space for countries to adopt sanctions in the event of war or other emergencies, or to adopt measures to restrict investments or exports of dual-use technologies. WTO rules are, therefore, no obstacle for the use of traditional economic statecraft tools or sanctions in response to hard security threats.

The WTO rules on subsidies are also sufficiently flexible to accommodate policies that may need to be adopted for economic security purposes, though there may be a need to reinforce these rules to prevent their use to generate dependencies and to clarify when resilience criteria can be applied. In other words, economic security should not become a justification for adoption of WTO-incompatible measures.

The WTO does not at this stage provide a forum in which economic security policies can be discussed. There are also questions about whether the WTO dispute-settlement mechanism is the most appropriate tool to address conflicts arising from the implementation of economic security measures. The WTO framework could, however, be critical role in preventing tit-for-tat escalation by ensuring that any response to measures based on essential security concerns remains proportionate.

For instance, instead of reviewing the legal justification for export controls on dual-use technologies, an arbitration panel could establish the economic impact of the measures and review the proportionality of possible responses. All of these issues could be part of the discussion on WTO reform.

Beyond WTO, the G7 has been important for discussions on economic security. However, it is unlikely that the Trump administration would be ready to enter into a genuine process of consultation on economic security policies and measures. When the US might try to coerce other G7 members, it is difficult to see how meaningful any discussions in a G7 anti-coercion forum would be.

Nevertheless, there may be scope to cooperate on policies aiming at de-risking import dependencies in certain priority areas, such as critical raw materials.

In the absence of effective G7 cooperation, the EU could seek to reinforce bilateral dialogues on economic security issues with likeminded partners, notably the UK, Japan, Canada, Australia and South Korea. This could provide the basis for an informal group to coordinate policies on the de-risking of critical value chains and on responses to coercion.

4 Recommendations and conclusions

Our main policy recommendations arising from the analysis in section 3 are:

- New economic security risk assessments should be started to evaluate risks associated with EU dependencies on digital and financial infrastructure;
- The Commission should accelerate work on the identification of supply-chain choke-points, based on reverse dependencies;

- Medium-term risk-mitigation strategies need to be developed for priority economic security risks, particularly related to dependencies on critical raw materials and digital and financial infrastructures;
- The Anti-Coercion Instrument should be made ready for deployment in case threats related to digital regulation or export controls on critical raw materials are used as a coercive instrument;
- The Commission should propose reinforced coordination on export controls, and the investment screening regulation should be reinforced based on the Commission proposal;
- Any proposal to use industrial policy for economic security reasons should be preceded by a robust assessment of the economic security risks and an economic analysis that establishes the proper balance between industrial policies and foreign economic policies;
- Measures inconsistent with the EU's international commitments should be avoided;
- The EU should include cooperation on economic security in its international trade and investment agreements, and should develop clean trade and investment partnerships as an instrument to support diversification of green value chains;
- A new Council Working Group should be established to discuss priority risk-mitigation strategies and to attend, at least once a year, a ministerial-level discussion on the implementation of the economic security strategy;
- At the international level, the EU should include discussions on economic security in its strategy on WTO reform, while coordinating policies with an informal group of like-minded countries and negotiating a

supply-chain resilience agreement with the Comprehensive and Progressive Agreement for Trans-Pacific Partnership.

The current geopolitical context implies that the EU needs to de-risk its relationships with China and the US, while facing a major hard security threat from Russia. This challenging environment makes it essential for the EU to develop broad alliances with countries that wish to maintain rules-based cooperation. The EU will need to stay decoupled from Russia economy for as long as it represents a threat.

The objective with China and the US should be to reduce dependencies while maintaining a maximum of mutually beneficial economic engagement. The extensive nature of dependencies implies the need for medium-term de-risking strategies, combined cooperation. However, the EU must also be ready to respond to threats of coercion.

Most economic security measures are preventive: an insurance policy to limit the risk of geopolitical tensions harming economic interests. In most instances economic security is not about responding to hard security threats, so it is essential to have institutional mechanisms that allow for the evaluation of trade-offs.

In particular, trade-restrictive economic security measures need to be balanced against the economic benefits of openness, or of achieving other essential EU objectives, such as the net zero transition. Whenever possible, win-win policies, including reinforcement of the single market, support for R&D, free trade agreements and support for green investment in developing countries, should be preferred over measures that restrict trade. ■

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Endnotes

1. See European Commission press release of 20 June 2023, [‘An EU approach to enhance economic security’](#).
2. European Commission, [‘The EU-US trade deal: Restoring stability and predictability’](#), undated. Despite the EU-US trade deal, there have been US threats of tariffs as a response to EU digital regulation (see section 2.4).
3. Other economies have also introduced policies and strategies aimed at bolstering their version of economic security. See Chimits et al (2024) for an overview of different countries’ measures.
4. [Mission Letter from Ursula von der Leyen to Commissioner-designate for Trade and Economic Security Maroš Šefčovič](#), 17 September 2024.
5. The US policy is evolving; see Michael Acton, Dimitri Sevastopulo and James Politi, [‘US scraps Biden-era rule that aimed to limit exports of AI chips’](#), Financial Times, 21 May 2025. See also Kana Inagaki, Sarah White, Ian Johnston and Ryan McMorro, [‘Carmakers gear up for chip battle after China curbs Nexperia exports’](#), Financial Times, 17 October 2025.
6. See Ryan McMorro and Dimitri Sevastopulo [‘China unveils sweeping rare-earth export controls to protect ‘national security’](#), Financial Times, 10 October 2025.
7. A European Commission intention to produce a ‘RESourceEU plan’ is a recognition of this. See [speech](#) of 25 October 2025 by Commission President Ursula von der Leyen at the Berlin Global Dialogue.
8. For a more detailed discussion, see Mejean and Rousseaux (2024) and Pisani-Ferry et al (2024).
9. Thomas Hale, Joe Leahy and Barney Jopson, [‘Spain’s Pedro Sánchez calls on EU to “reconsider” Chinese EV tariffs’](#).
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Securing strategic autonomy

Europe's lack of defence capabilities leaves it vulnerable to economic and foreign policy pressure. Philipp Hildebrand, Hélène Rey and Moritz Schularick outline key principles for establishing a European Future of Defence Architecture and a framework for its financing

Europe must urgently strengthen its defence capabilities to secure strategic autonomy. The absence of such capacity leaves the continent vulnerable to economic and foreign policy pressure, threatening the survival of the EU and its core values. Europe must also address the overwhelming dominance of US capital markets.

This column outlines key principles for establishing a European Future of Defence Architecture and the common framework for its financing. Such a framework would support the development of a safe and liquid European securities market at a propitious moment, as global investors are actively seeking alternatives to the dollar. It would address a critical and urgent collective security need. It would establish the governance and foundations necessary for the emergence of a European safe asset, which is a critical step forward for the integration of European financial markets.

By Europe, we refer to a coalition of willing EU countries – the ‘European Team’ – prepared to move quickly, as time is short.

European Future of Defence Architecture

This column does not address traditional expenditures such as personnel, munitions, and tanks. Instead, it focuses on the development of European strategic autonomy in next-generation military technologies such as a European sky shield, hypersonic weapons, strategic enablers such as the cloud, AI infrastructure, advanced software, quantum computing, cyber capabilities, satellite constellations, drones, robotics, and critical-mineral processing technologies.

Security needs and these technologies have a distinctly European dimension. These technologies cannot be deployed efficiently at the national level. Today, fragmented defence spending has produced duplication, inefficiency, and lack of scale. Europe lags in essential fields¹. To reverse this, the European Team must:

- Pool resources and engage in joint, predictable procurement over extended periods.
- Ensure some competition among the European Team firms for long-term contracts.
- Rely on long-term commitments to build industrial capacity and foster innovation.

The urgency cannot be overstated. Russian aggression, shifting US commitments, and global competition over trade, technology, critical minerals, talent, and intellectual property create a narrow window of political alignment. Europe must seize this opportunity to safeguard its autonomy and to finally develop and integrate its financial markets

Many of these technologies will be dual-use, contributing to both security and long-term productivity growth. Their relative novelty limits the entrenched influence of national champions and lobbies, giving policymakers an opportunity to pursue joint procurement without legacy obstacles. Digital technologies and satellites are prime examples of dual-use technologies, of transcending national borders, and of being crucial for our defence.

Governance of the European Future of Defence Architecture

Article 346 TFEU exempts the defence industry from standard EU Single Market provisions, including non-discrimination in procurement. Hence an intergovernmental treaty among European Team countries is necessary. The intergovernmental treaty should allow the coalition of countries to deliver on their future of defence goals quickly. For this a special attention to the robustness of the decision-making process and its rules will be called for.

Steering Committee of Defence and Technology Experts

This body, transcending national borders, should define forward-looking priorities, allocate resources within a multi-year budget, plan investments, and ensure quality control, scale, and interoperability.

- For its innovation mandate, the committee could draw on the DARPA² model of governance.
- The overall multi-year budget should be determined by European Team representatives, taking NATO commitments and other national defence needs into account.
- A Team Europe Military Purchase mechanism should be put in place (similar to US Foreign Military Sales) in order to simplify defence purchases by all European countries and allies (scope to be defined by the steering committee).

Financing

The European Defence Architecture is a joint investment and requires joint financing. Because of past underinvestment in European defence, defence spending needs to be front-loaded to catch up and therefore debt financing in the short run is needed. Individual countries cannot shoulder, nor perform efficiently, the necessary catch up in future of defence technologies, which have a European dimension.

Alongside the Defence and Technology Committee, a Steering Committee for Financing Future Defence should be created. The two steering committees should work in close cooperation.

Mandate of the Financing Committee

- Issue joint European Future of Defence Bonds to minimise financing costs (joint and several liabilities).
- Achieve sovereign status for these bonds³.
- Ensure eligibility for ECB refinancing operations.

Such a mandate would help accelerate the development of deeper, more liquid capital markets to compete with the growing dominance of the US capital market since the Global Financial Crisis.

Achieving sovereign status likely requires:

1. A predictable issuance calendar enabled by the recurring nature of defence financing.
2. Revenue streams attached to the bonds

3. Minimum issuance scale or predictable growth over time.

4. Transparency and credibility of the European Team's commitments.

Repayment shares using national revenues or the use of common tax resources should be decided by European Team representatives.

Sketch of a possible future of defence spending profile for a catch up

- Spending of 1% of GDP per year for the next ten years, going down to a steady 0.5% thereafter.
- Future of Defence issues 1% of GDP with ten-year maturity, each year for ten years and rolls over the new debt so there are no payments (on principal or interest) for the first ten years.
- The outstanding debt in 2035 would represent about 10% of GDP (at 3% annual interest rate). From 2035 on, the debt would be stabilised with member country fiscal resources. About 1% of GDP would be rolled over every year with member countries fiscal resources covering the interest costs (net of growth) and the flow of 0.5% of current future of defence expenditures.
- After 2035, the contribution of member country fiscal resources would be about 0.6% of GDP for a steady permanent defence spending of 0.5% of GDP and payment of interest to stabilise the debt-to-GDP ratio.
- With a GDP of €15.9 trillion in 2024 (team made of France, Germany, Italy, Spain, the Netherlands, Belgium, Luxemburg, Poland, Ireland, Sweden, Denmark, Finland, Greece, Estonia, Lithuania, Latvia), nominal growth of about 2%, cumulative spending would be about €1.8 trillion for ten years (2026-2035) for the catch-up phase⁴.

- If the team consisted of the entire EU, with a GDP of about €17.9 trillion in 2024, nominal growth of about 2%, this gives a cumulative spending of about €2 trillion for ten years (2026-2035) for the catch-up phase.
- Fiscal resources after ten years – for example, VAT receipts of each country could be allocated.

This defence spending profile can be scaled up or down depending on the identified military needs put forward by the Steering Committee of Defence and Technology Experts.

For example, for the team made of France, Germany, Italy, Spain, the Netherlands, Belgium, Luxemburg, Poland, Ireland, Sweden, Denmark, Finland, Greece, and the Baltic countries, a catching up phase spending of 0.5% of GDP per year for the next ten years would lead to cumulated spending of about €900 billion and a debt-to-GDP ratio of about 5% in 2035.

Governance of Future of Defence Bonds

We focus on one possible implementation, but there are several. For concreteness, we take an example where the Financing Committee could be housed within the European Stability Mechanism (ESM). Other possibilities include the European Investment Bank (EIB) or a new agency. If the ESM were used, one would need to create two distinct pillars:

- Pillar I: Current 'European Monetary Fund' functions (crisis management function)
- Pillar II: Financing functions for the European Defence Architecture (common investment function)

Advantages of using the ESM:

- Established via intergovernmental treaty.
- Experienced in bond issuance and well capitalised.
- Crucially, ESM debt is off member-state balance sheets – a key advantage given fiscal constraints and NATO commitments.

The ESM treaty (not yet ratified) should be amended to:

- Authorise lending not only to member states but also to agencies (eg. the Future of European Defence Agency).
- Reflect the creation of the second financing pillar of a very different nature from the first pillar. The second pillar is there to fund a common investment of Team Europe.
- Authorise some non-euro area and some non-EU members to be part of pillar II of the ESM.

One potential disadvantage of using the ESM for this initiative is the fact that the ESM was explicitly designed as a crisis mechanism for the euro area and not a general financing vehicle. For that reason, the creation of a new financing agency could instead be considered.

Composition of the European Team

- The European Team should begin with a subset of EU countries willing to move quickly, prioritising governance quality over size. It would be highly desirable to quickly associate non-EU countries such as Norway, the UK, Switzerland, and Ukraine.
- Once established, the framework should remain open to other volunteer countries.

This inclusiveness should be considered when revising the ESM treaty and building the legal framework or when setting up a new dedicated financing and issuing agency.

Why this approach would work

- Urgency: the geopolitical situation is recognised as critical across European capitals.
- European dimension: defence needs and technologies naturally transcend borders.
- Financing credibility: purpose-driven, efficient joint issuance contrasts with earlier Eurobond proposals.
- Market timing: global investors seek safe alternatives to dollar assets.
- Fiscal flexibility: enables member states to meet NATO commitments despite fiscal constraints.
- Economy: dual-use contributes to both security and long-term productivity growth. Proper governance of a common investment and joint financing helps build up the savings investment union and a European safe asset.

- Institutional blueprints: building on a NATO European branch/DARPA/ESM can help speed up the implementation.
- Historical context: allows Germany to channel large defence commitments into joint European projects, which is a plus given Europe's history.

Time horizon

- Treaty amendments and ratifications: approximately one year.
- Establishment of steering committees: similar timeframe.
- Strategy: begin rapidly with a small group and limited projects, ensuring sound governance, then scale up.

The urgency cannot be overstated. Russian aggression, shifting US commitments, and global competition over trade, technology, critical minerals, talent, and intellectual property create a narrow window of political alignment. Europe must seize this opportunity to safeguard its autonomy and to finally develop and integrate its financial markets. ■

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Endnotes

1. The current initiatives such as the 2023 EDIRPA (€300 million) to subsidise common procurement or the €150 bn loans to EU member states by SAFE (Security Action for Europe) are important and are complementary to this European defence architecture. They are key to address some of the current issues linked to the Ukraine war. But they are too small and insufficiently forward looking to provide incentives for innovation and industrial capacity building for the Future of Defence described in this column.
2. On the innovation side, DARPA is characterised by an agile governance structure – with experts in the relevant technological fields – to allocate funds to multiple research teams pursuing specific objectives, with clearly defined milestones evaluated before further disbursements are made. What characterizes DARPA is precisely this ability to set clear goals, provide incentives and resources, and ensure that those goals are achieved as quickly as possible.
3. The failure to obtain full sovereign status in the past meant that jointly issued debt by European countries or the European Commission has not been included in indices, therefore has more limited demand and less attractive financing terms. The goal of the Steering committee should be to issue Future of Defence bonds at close to zero spread compared to the best euro area bond market performers. Because of the sound institutional set up, Future of Defence bonds should benefit from a convenience yield within a short time horizon, which would decrease the spread of the Future of Defence bonds. Pure defence bonds might exclude some investors due to their investment policies, but that we do not believe this is a significant constraint.
4. If catch up spending of 2% of EU GDP was made during a five-year period (2026-2030) with stabilisation and steady spending afterwards, debt would be stable at 10% of GDP after 2030. Cumulative spending would be €1.9 trillion (2026-2030) for the EU.

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The rise and fall of globalisation

For over 400 years the world economy has seen greater globalisation. Steve Schifferes believes the weakness of international institutions and the limited visions of governments are not optimistic signs for the future of globalisation

For nearly four centuries, the world economy has been on a path of ever-greater integration that even two world wars could not totally derail. This long march of globalisation was powered by [rapidly increasing](#) levels of international trade and investment, coupled with vast movements of people across national borders and dramatic changes in transportation and communication technology.

According to [economic historian J Bradford DeLong](#), the value of the world economy (measured at fixed 1990 prices) rose from US\$81.7 billion (£61.5 billion) in 1650, when this story begins, to US\$70.3 trillion (£53 trillion) in 2020 – an 860-fold increase. The most intensive periods of growth corresponded to the two periods when global trade was [rising fastest](#): first during the “*long 19th century*” between the end of the French revolution and start of the first world war, and then as trade liberalisation expanded after the second world war, from the 1950s up to the 2008 global financial crisis.

Now, however, this grand project is on the retreat. Globalisation is not dead yet, but it is dying.

Is this a cause for celebration, or concern? And will the picture change again when Donald Trump and his tariffs of mass disruption leave the White House? As a longtime BBC economics correspondent who was based in Washington during the global financial crisis, I believe there are sound historical reasons to worry about our deglobalised future – even once Trump has left the building.

Trump’s tariffs have amplified the world’s economic problems, but he is not the root cause of them. Indeed, his approach reflects a truth that has been emerging for many decades but which previous US administrations – and other governments around the world – have been reluctant to admit: namely, the [decline of the US](#) as the world’s no.1 economic power and engine of world growth.

In each era of globalisation since the mid-17th century, a single country has sought to be the clear world leader – shaping the rules of the global economy for all. In each case, this **hegemonic power** had the military, political and financial power to enforce these rules – and to convince other countries that there was no preferable path to wealth and power.

But now, as the US under Trump slips into isolationism, there is no other power ready to take its place and carry the torch for the foreseeable future. Many people's pick, China, faces too many economic challenges, including its lack of a truly international currency – and as a one-party state, nor does it possess the democratic mandate needed to gain acceptance as the world's new dominant power.

Today, the greatest risk is the collapse of the US Treasury bond market, which underpins the global financial system and is involved in 70% of global financial transactions by banks and other financial institutions

While globalisation has always produced many losers as well as winners – from the slave trade of the 18th century to displaced factory workers in the American Midwest in the 20th century – history shows that a deglobalised world can be an even more dangerous and unstable place. The most recent example came during the [interwar years](#), when the US refused to take up the mantle left by the decline of Britain as the 19th century's hegemonic global power.

In the two decades from 1919, the world descended into economic and political chaos. Stock market crashes and global banking failures led to widespread unemployment and increasing political instability, creating the conditions for the rise of fascism. Global trade declined sharply as countries put up trade barriers and started self-defeating currency wars in the vain hope of giving their countries' exports a boost. On the contrary, global growth ground to a halt.

A century on, our deglobalising world is vulnerable again. But to chart whether this means we are destined for a similarly chaotic and unstable future, we first need to explore the birth, growth and reasons behind the imminent demise of this extraordinary global project.

French model: mercantilism, money and war

By the mid-1600s, France had emerged as the strongest power in Europe – and it was the French who developed the first overarching theory of how the global economy could work in their favour. Nearly four centuries later, many aspects of '[mercantilism](#)' have been revived by Trump's US playbook, which could be entitled *How To Dominate the World Economy by Weakening Your Rivals*.

France's version of mercantilism was based on the idea that a country should put up trade barriers to limit how much other countries could sell to it, while boosting its own industries to ensure that more money (in the form of gold) came into the country than left it.

England and the Dutch Republic had already adopted some of these mercantilist policies, establishing colonies around the globe run by powerful monopolistic trading companies that aimed to challenge and weaken the Spanish empire, which had prospered on the gold and silver it seized in the Americas.

In contrast to these 'seaborne empires', the much larger empires in the east such as China and India had the internal resources to generate their own revenue, meaning international trade – although widespread – was not critical to their prosperity.

But it was France which first systematically applied mercantilism across the whole of government policy – led by the powerful finance minister [Jean-Baptiste Colbert](#) (1661-1683), who had been granted unprecedented powers to strengthen the financial might of the French state by King Louis XIV. Colbert believed trade would boost the coffers of the state and strengthen France's economy while weakening its rivals, stating:

It is simply, and solely, the absence or abundance of money within a state [which] makes the difference in its grandeur and power.

In Colbert's view, trade was a zero-sum game. The more France could run a trade surplus with other countries, the more gold bullion it could accumulate for the government and the weaker its rivals would become if deprived of gold. Under Colbert, France pioneered protectionism, tripling its import tariffs to make foreign goods prohibitively expensive.

At the same time, he strengthened France's domestic industries by providing subsidies and granting them monopolies. Colonies and government trading companies were established to ensure France could benefit from the highly lucrative trade in goods such as spices, sugar – and slaves.

Colbert oversaw the expansion of French industries into areas like lace and glassmaking, importing skilled craftsmen from Italy and granting these new companies state monopolies. He invested heavily in infrastructure such as the Canal du Midi, and dramatically increased the size of France's navy and merchant marine to challenge its British and Dutch rivals.

Global trade at this time was highly exploitative, involving the forced seizure of gold and other raw materials from newly discovered lands (as Spain had been doing with its conquests in the New World from the late 15th century). It also meant benefiting from the trade in humans, with huge profits as slaves were seized and sent to the Caribbean and other colonies to produce sugar and other crops.

In this era of mercantilism, trade wars often led to real wars, fought across the globe to control trade routes and seize colonies. Following Colbert's reforms, France began a long struggle to challenge the overseas empires of its maritime rivals, while also engaging in wars of conquest in continental Europe.

France initially enjoyed success in the 17th century both on land and sea against the Dutch. But ultimately, its state-run [French Indies company](#) was no rival to the ruthless, commercially driven activities of the Dutch and British East India companies, which delivered enormous profits to their shareholders and revenues for their governments.

Indeed, the huge profits made by the Dutch from the Far Eastern spice trade explains why they had no hesitation in handing over their small North American colony of [New Amsterdam](#), in return for expelling the British from a small toehold of one of their spice islands in what is now Indonesia. In 1664, that Dutch outpost was renamed New York.

After a century of conflict, Britain gradually gained ascendancy over France, conquering India and forcing its great rival to cede Canada in 1763 after the Seven Years war. France never succeeded in [fully countering Britain's naval](#)

strength. Resounding defeats by fleets led by Horatio Nelson in the early 19th century, coupled with Napoleon's defeat at Waterloo by a coalition of European powers, marked the end of France's time as Europe's hegemonic power.

But while the French model of globalisation ultimately failed in its attempt to dominate the world economy, that has not prevented other countries – and now President Trump – from embracing its principles.

France found that tariffs alone could not sufficiently fund its wars nor boost its industries. Its broad version of mercantilism led to endless wars that spread around the globe, as countries retaliated both economically and militarily and tried to seize territories.

More than two centuries later, there is an uncomfortable parallel with what the results of Trump's endless tariff wars might bring, both in terms of ongoing conflict and the organisation of rival trade blocs. It also shows that more protectionism, as proposed by Trump, will not be enough to revive the US's domestic industries.

British model: free trade and empire

The ideology of free trade was first spelled out by British economists [Adam Smith](#) and David Ricardo, the founding fathers of classical economics. They argued trade was not a zero-sum game, as Colbert had suggested, but that all countries could mutually benefit from it. According to Smith's classic text, *The Wealth of Nations* (1776):

If a foreign country can supply us with a commodity cheaper than we ourselves can make, better buy it off them with some part of the produce of our own industry, employed in such a way that we have some advantages.

As the world's first industrial nation, by the 1840s Britain had created an economic powerhouse based on the new technologies of steam power, the factory system, and railroads.

Smith and Ricardo argued against the creation of state monopolies to control trade, proposing minimal state intervention in industry. Ever since, Britain's belief in the benefits of free trade has [proved stronger](#) and more long-lasting than any other major industrial power – more deeply embedded in both its politics and popular imagination.

This ironclad commitment was born out of a bitter political struggle in the 1840s between manufacturers and landowners over the protectionist [Corn Laws](#). The landowners who had traditionally dominated British politics backed high tariffs, which benefited them but resulted in higher prices for staples like bread.

The repeal of the Corn Laws in 1846 upended British politics, signalling a shift of power to the manufacturing classes – and ultimately to their working-class allies once they gained the right to vote.

In time, Britain's advocacy of free trade unleashed the power of its manufacturing to dominate global markets. Free trade was framed as the way to raise living standards for the poor (the exact opposite of President Trump's claim that it harms workers) and had strong working-class support. When the Conservatives floated the idea of abandoning free trade in the 1906 general election, they suffered a [devastating defeat](#) – the party's worst until 2024.

As well as trade, a central element in Britain's role as the new global hegemonic power was the rise of the City of London as the world's leading financial centre. The key was Britain's [embrace of the gold standard](#) which put its

currency, the pound, at the heart of the new global economic order by linking its value to a fixed amount of gold, ensuring its value would not fluctuate. Thus the pound became the worldwide medium of exchange.

This encouraged the development of a strong banking sector, underpinned by the Bank of England as a credible and trustworthy 'lender of last resort' in a financial crisis. The result was a huge boom in international investment, opening access to overseas markets for British companies and individual investors.

In the late 19th century, the City of London dominated global finance, investing in everything from Argentinian railways and Malaysian rubber plantations to South African gold mines. The gold standard became a talisman of Britain's power to dominate the world economy.

The pillars of Britain's global economic dominance were a highly efficient manufacturing sector, a commitment to free trade to ensure its industry had access to global markets, and a highly developed financial sector which invested capital around the world and reaped the benefits of global economic development.

But Britain also did not hesitate to use force to open up foreign markets – for example, during the [Opium Wars](#) of the 1840s, when China was compelled to open its markets to the lucrative trade in opium from British-owned India.

By the end of the 19th century, the British empire incorporated one quarter of the world's population, providing a source of cheap labour and secure raw materials as well as a large market for Britain's manufactured goods. But that was still not enough for its avaricious leaders: Britain also made sure that local industries did not threaten its interests – by [undermining](#) the Indian textile industry, for example, and [manipulating](#) the Indian currency.

In reality, globalisation in this era was about domination of the world economy by a few rich European powers, meaning that much global economic development was curtailed to protect their interests. Under British rule between 1750 and 1900, India's share of world industrial output **declined** from 25% to 2%.

But for those at the centre of Britain's global formal and informal empire, such as the middle-class residents of London, this was a halcyon time – as economist John Maynard Keynes would later **recall**:

For middle and upper classes ... life offered, at a low cost and with the least trouble, conveniences, comforts and amenities beyond the compass of the richest and most powerful monarchs of other ages. The inhabitant of London could order by telephone, sipping his morning tea in bed, the various products of the whole Earth, in such quantity as he might see fit, and reasonably expect their early delivery upon his doorstep.

US model: protectionism to neoliberalism

While Britain enjoyed its century of global dominance, the United States embraced protectionism for longer after its foundation in 1776 than all other major western economies.

The introduction of tariffs to protect and subsidise emerging US industries had first been **articulated in 1791** by the fledgling nation's first treasury secretary, Alexander Hamilton – Caribbean immigrant, founding father and future subject of a record-breaking musical. The Whig party under Henry Clay and its successor, the Republican Party, were both strong supporters of this policy for most of the 19th century. Even as US industry grew to overshadow all others, its government maintained some of the highest tariff barriers in the world.

Tariff rates rose to 50% in the 1890s with the backing of future president William McKinley, both to help industrialists and pay for generous pensions for 2 million civil war veterans and their dependants – a key part of

the Republican electorate. It is no accident that President Trump has festooned the White House with pictures of Hamilton, Clay and McKinley – all supporters of protectionism and high tariffs.

In part, the US's enduring resistance to free trade was because it had access to an internal supply of seemingly limitless raw materials, while its rapidly growing population, fuelled by immigration, provided internal markets that fuelled its growth while keeping out foreign competition.

By the late 19th century, the US was the world's biggest steel producer with the largest railroad system in the world and was moving rapidly to exploit the new technologies of the second industrial revolution – based on electricity, petrol engines and chemicals. Yet it was only after the second world war that the US assumed the role of global superpower – in part because it was the only country on either side of the war that had not suffered severe damage to its economy and infrastructure.

In the wake of global destruction in Europe and Asia, the US's dominance was political, military and cultural, as well as financial – but the US vision of a globalised world had some important differences from its British predecessor.

The US took a much more universalist and rules-based approach, focusing on the creation of global organisations that would establish binding regulations – and open up global markets to unfettered American trade and investment. It also aimed to dominate the international economic order by replacing the pound sterling with the US dollar as the global medium of exchange.

Within a week of its entry in the second world war, plans were laid to establish US global financial hegemony. The US treasury secretary, Henry Morgenthau, began work on establishing an *“inter-allied stabilisation fund”* – a playbook for post-war monetary arrangements which would enshrine the US dollar at its heart.

This led to the creation of the International Monetary Fund (IMF) and World Bank at the [Bretton Woods conference](#) in New Hampshire in 1944 – institutions dominated by the US, which encouraged other countries to adopt the same economic model both in terms of free trade and free enterprise. The Allied nations who were simultaneously meeting to establish the United Nations to try to ensure future world peace, having suffered the devastating effects of the Great Depression and war, welcomed the US's commitment to shape a new, more stable economic order.

As the world's biggest and strongest economy, there was (initially) little resistance to this US plan for a new international economic order in its own image. The motive was as much political as economic: the US wanted to provide economic benefits to ensure the loyalty of its key allies and counter the perceived threat of a communist takeover – in complete contrast to Trump's mercantilist view today that all other countries are out to 'rip off' the US, and that its own military might means it has no real need for allies.

After the war finally ended, the US dollar, now linked to gold at a fixed rate of \$35 per ounce to guarantee its stability, assumed the role as the free world's principal currency. It was both used for global trade transactions and held by foreign central banks as their currency reserves – giving the US economy an '[exorbitant privilege](#)'.

The stable value of the dollar also made it easier for the US government to sell Treasury bonds to foreign investors, enabling it to more easily borrow money and [run up trade deficits](#) with other countries.

The conditions were set for an era of US political, financial and cultural dominance, which saw the rise of globally admired brands such as McDonald's and Coca Cola, as well as a powerful US marketing arm in the form of Hollywood. Perhaps even more significantly, the relaxed, well-funded campuses of California would prove a perfect petri dish for the development of new computer technologies – backed initially by cold war military investment – which, decades later, would lead to the birth of the big-tech companies that dominate the tech landscape today.

The US view of globalisation was broader and more interventionist than the British model of free trade and empire. Rather than having a formal empire, it wanted to open up access to the entire world economy, which would provide global markets for American products and services.

The US believed you needed global economic institutions to police these rules. But as in the British case, the benefits of globalisation were still unevenly shared. While countries that embraced export-led growth such as Japan, Korea and Germany prospered, other resource-rich but capital-poor countries such as Nigeria only fell further behind.

From dream to despair

Though the legend of the American dream grew and grew, by the 1970s the US economy was coming under increasing pressure – in particular from German and Japanese rivals, who by then had recovered from the war and modernised their industries.

Troubled by these perceived threats and a growing trade deficit, in 1971 President Richard Nixon stunned the world by announcing that the US was **going off the gold standard** – forcing other countries to bear the cost of adjustment for the **US balance of payments crisis** by making them revalue their currencies. This had a profound effect on the global financial system: within a decade, most major currencies had abandoned fixed exchange rates for a new system of floating rates, effectively ending the 1944 Bretton Woods settlement.

The end of fixed exchange rates opened the door to the ‘financialisation’ of the global economy, vastly expanding global investment and lending – much of it by US financial firms. This gave succour to the burgeoning neoliberal movement that sought to further rewrite the rules of the financial world order.

In the 1980s and '90s, these policy prescriptions became known as the [Washington consensus](#): a set of rules – including opening markets to foreign investment, deregulation and privatisation – that was imposed on developing economies in crisis, in return for them receiving support from US-led organisations like the World Bank and IMF.

In the US, meanwhile, the increasing reliance on the finance and hi-tech sectors increased levels of inequality and fostered resentment in large parts of American society. Both Republicans and Democrats embraced this new world order, shaping US policy to favour their hi-tech and financial allies. Indeed, it was the Democrats who played a key role in deregulating the financial sector in the 1990s.

Meanwhile, the decline of US manufacturing industries accelerated, as did the gap between the incomes of those in the hinterland, where manufacturing was based, and residents of the large metropolitan cities.

By 2023, the lowest 50% of US citizens received just 13% of total personal income, while the top 10% received almost half (47%). The wealth gap was even greater, with the bottom 50% only having 6% of total wealth, while a third (36%) was held by just the top 1%. Since 1980, real incomes of the bottom 50% have barely grown for four decades.

The bottom half of the US population was suffering from a surge in [‘deaths of despair’](#) – a term coined by the Nobel-winning economist Angus Deaton to describe high mortality rates from drug abuse, suicide and murder among younger working-class Americans.

Rising costs of housing, medical care and university education all contributed to widespread indebtedness and growing financial insecurity. By 2019, a [study](#) found that two-thirds of people who filed for bankruptcy cited medical issues as a key reason.

The decline in US manufacturing accelerated after China was admitted to the World Trade Organization in 2001, increasing America's soaring trade and budget deficit even more. Political and business elites hoped the move would open up the huge Chinese market to US goods and investment, but China's rapid modernisation made its industry more competitive than its American rivals in many fields.

Ultimately, this era of intensive financialisation of the world economy created a series of regional and then global financial crises, damaging the economies of many Latin American and Asian economies. This culminated in the [2008 global financial crisis](#), precipitated by reckless lending by US financial institutions. The world economy took more than a decade to recover as countries wrestled with slower growth, lower productivity and less trade than before the crisis.

For those who chose to read it, the writing was on the wall for America's era of global domination decades ago. But it would take Trump's victory in the 2016 presidential election – a profound shock to many in the US 'liberal establishment' – to make clear that the US was now on a very different course that would shake up the world.

Making a bad situation more dangerous

In my view, Trump is the first modern-day US president to fully understand the powerful alienation felt by many working-class American voters, who believed they were left out of the US's immense post-war economic growth that so benefited the largely urban American middle classes. His strongest supporters have always been lower-middle-class voters from rural areas who are not college-educated.

Yet Trump's key policies will ultimately do little for them. High tariffs to protect US jobs, expulsion of millions of illegal immigrants, dismantling protections for minorities by opposing DEI (diversity, equality and inclusion)

programmes, and drastically cutting back the size of government will have increasingly negative economic consequences in the future, and are very unlikely to restore the US economy to its previous dominant position.

Long before he first became president, Trump hated the eye-watering US trade deficit (he's a businessman, after all) – and believed that tariffs would be a key weapon for ensuring US economic dominance could be maintained. Another key part of his 'America First' ideology was to repudiate the international agreements that were at the heart of the US's postwar approach to globalisation.

In his first term, however, Trump (having not expected to win) was ill-prepared for power. But second time around, conservative thinktanks had spent years outlining detailed policies and identifying key personnel who could implement the radical U-turn in US economic policy.

Under Trump 2.0, we have seen a return to the mercantilist point of view reminiscent of France in the 17th and 18th centuries. His assertion that countries which ran a trade surplus with the US 'were ripping us off' echoed the mercantilist belief that trade was a zero-sum game – rather than the 20th-century view, pioneered by the US, that globalisation brings benefits to all, no matter the precise balance of that trade.

Trump's tax-and-tariff plans, which extend the tax breaks to the very rich while reducing benefits for the poor through benefit cuts and tariff-driven inflation, will increase **inequality** in the US.

At the same time, the passing of the One Big Beautiful Bill is predicted to add some US\$3.5 trillion to US government debt – even after the Elon Musk-led "*Department of Government Efficiency*" **cuts** imposed on many Washington departments. This adds pressure to the key US Treasury bond market at the centre of the world financial system, and raises the cost of financing the huge US deficit while **weakening** its credit rating. Continuing

these policies could threaten a default by the US, which would have devastating consequences for the entire global financial system.

For all the macho grandstanding from Trump and his supporters, his economic policies are a demonstration of American weakness, not strength. While I believe his highlighting of some of the ills of the US economy were overdue, the president is rapidly [squandering](#) the economic credibility and good will that the US built up in the postwar years, as well as its cultural and political hegemony. For people living in America and elsewhere, he is making a bad situation more dangerous – including for many of his most ardent supporters.

That said, even without Trump's economic and societal disruptions, the end of the US era of hegemonic dominance would still have happened. Globalisation is not dead, but it is dying. The troubling question we all face now, is what happens next.

Why the world's next financial meltdown could be much worse with the US on the sidelines

Globalisation has always had its critics – but [until recently](#), they have come mainly from the left rather than the right.

In the wake of the second world war, as the world economy grew rapidly under US dominance, many on the left argued that the gains of globalisation were unequally distributed, [increasing inequality](#) in rich countries while forcing poorer countries to implement [free-market policies](#) such as opening up their financial markets, privatising their state industries and rejecting expansionary fiscal policies in favour of debt repayment – all of which mainly benefited US corporations and banks.

This was not a new concern. Back in 1841, German economist Friedrich List had **argued** that free trade was designed to keep Britain's global dominance from being challenged, suggesting:

When anyone has obtained the summit of greatness, he kicks away the ladder by which he climbs up, in order to deprive others of the means of climbing up after him.

By the 1990s, critics of the US vision of a global world order such as the Nobel-winning economist Joseph Stiglitz argued that globalisation in its current form **benefited the US** at the expense of developing countries and workers – while author and activist Naomi Klein focused on the **negative** environmental and cultural consequences of the global expansion of multinational companies.

Mass left-led demonstrations broke out, disrupting global economic meetings including, most famously, the World Trade Organization (WTO) in 1999. During this '**battle of Seattle**', violent exchanges between protesters and police prevented the launch of a new world trade round that had been backed by then US president, Bill Clinton.

For a while, the mass mobilisation of a coalition of trade unionists, environmentalists and anti-capitalist protesters seemed set to challenge the path towards further globalisation – with **anti-capitalism 'Occupy' protests** spreading around the world in the wake of the 2008 financial crash.

In the US, a further critique of globalisation centred on its **domestic consequences** for American workers – namely, job losses and lower pay – and led to calls for greater protectionism. Although initially led by trade unions and some Democratic politicians, this critique gradually gained purchase in radical right circles who opposed giving any role to international organisations like the WTO, on the grounds that they impinged on American sovereignty.

According to this view, only by stopping foreign competition whose low wages undercut American workers could prosperity be restored. Immigration was another target.

Under Donald Trump's second term as US president, these criticisms have been transformed into radical, **deeply disruptive** economic and **social policies** – with tariffs and protectionism at their heart. In so doing, Trump – despite all his grandstanding on the world stage – has confirmed what has long been clear to close observers of US politics and business: that the American century of global dominance, with the **dollar as unrivalled no.1 currency**, is drawing rapidly to a close.

Even before Trump first took office in 2017, the US had begun to withdraw from its leadership role in international economic institutions such as the WTO. Now, the strongest part of its economy, the hi-tech sector, is under intense pressure from China, whose economy is already **bigger** than the USs by one key measure of GDP. Meanwhile, the majority of US citizens are facing **stagnant incomes**, higher prices and more insecure jobs.

In previous centuries, when first France and then Great Britain reached the end of their eras of world domination, these transitions had painful impacts beyond their borders. This time, with the global economy more closely integrated than ever before and no single dominant power waiting in the wings to take over, the impacts could be felt even more widely – with very damaging, if not catastrophic, results.

Why no one is ready to take the US's place

When it comes to taking over from the US as the world's leading hegemonic power, the only viable candidates with big enough economies are the European Union and China. But there are strong reasons to doubt that either could take on this role – notwithstanding the fact that in 2022, then US president Joe Biden's National Security

Strategy **called China**: *“The only competitor with both the intent to reshape the international order and, increasingly, the economic, diplomatic, military and technological power to do so.”*

At times Biden’s successor, President Trump, has sounded almost **jealous** of the control China’s leaders exert over their national economy, and the fact they do not face elections and limits on their terms in office. But a one-party, authoritarian political system which lacks legal checks and balances is a key reason China will find it hard to gain the cultural and political dominance among democratic nations that is part of achieving world no.1 status – despite the influence it already wields in large parts of Asia and Africa.

China still faces **big economic challenges** too. While it is already the **global leader** in manufactured goods (rapidly moving into hi-tech products) and the world’s **largest exporter**, its economy is still very unbalanced – with a much smaller consumer sector, a weak property market, many inefficient state industries that are highly indebted, and a relatively small financial sector restricted by state ownership. Nor does China possess a global currency, despite its (limited) attempts to make the renminbi a truly **international currency**.

As I found on a reporting trip to **Shanghai in 2007** to investigate the effects of globalisation, there are also enormous differences between China’s prosperous coastal megacities – whose main thoroughfares rival New York and Paris – and the relative poverty in the interior, especially in rural areas. But nearly two decades on from that visit, with the country’s growth rate slowing, **many university-educated** young people are also finding it hard to find well-paid jobs now.

Meanwhile Europe – the only other contender to take the US’s place as global no.1 – is deeply politically divided, with smaller, weaker economies to the east and south far more sceptical about the benefits of globalisation, and increasingly divided on issues such as migration and the Ukraine war. The challenges of achieving broad policy

agreement among all member states, and the problem of who can speak for Europe, make it unlikely that the EU as currently constituted could initiate and enforce a new global world order on its own.

The EU's financial system also lacks the heft of the US's. Although it has a common currency (the euro) managed by the European Central Bank, its financial system is far more fragmented. Banks are regulated nationally, and each country issues its own government bonds (although a few [eurobonds](#) now exist). This makes it hard for the euro to replace the dollar as a store of value and reduces the incentive for foreigners to hold euros as an alternative reserve currency.

Meanwhile, any future prospects of a renewal of US global leadership look similarly unpromising. Trump's policy of cutting taxes while increasing the size of the US government debt – which now stands at [US\\$38 trillion](#), or 120% of GDP – threatens both the stability of the world economy and the ability of the US to finance this mind-boggling deficit.

Tellingly, the Trump administration shows no interest in reviving, or even engaging with, many of the international financial institutions which America once dominated, and which helped shape the world economic order – as US trade representative Jamieson Greer [expressed disdainfully](#) in the *New York Times* recently:

Our current, nameless global order, which is dominated by the WTO and is notionally designed to pursue economic efficiency and regulate the trade policies of its 166 member countries, is untenable and unsustainable. The US has paid for this system with the loss of industrial jobs and economic security, and the biggest winner has been China.

While the US is not, so far, withdrawing from the IMF, the Trump administration has urged it to [call out China](#) for running such a large trade surplus, while abandoning its concern about climate change. Greer concluded that the

US has “subordinated our country’s economic and national security imperatives to a lowest common denominator of global consensus.”

World without a global no.1

To understand the potential dangers ahead, we must go back more than a century to the last time there was no global hegemon. By the time the first world war officially ended with the signing of the [Treaty of Versailles](#) on June 28, 1919, the international economic order [had collapsed](#). Britain, world leader over the previous century, no longer possessed the economic, political or military clout to enforce its version of globalisation.

The UK government, burdened by the huge debts it had taken out to finance the war effort, was forced to make [major cuts](#) in public spending. In 1931, it faced a [sterling crisis](#): the pound had to be devalued as the UK exited from the gold standard for good, despite having yielded to the demands of international bankers to cut payments to the unemployed. This was a final sign that Britain had lost its dominant place in the world economic order.

The 1930s were a time of deep political unease and unrest in Britain and many other countries. In 1936, unemployed workers from Jarrow, a town in north-east England with 70% unemployment after its shipyards closed, organised a non-political ‘hunger march’ to London which became known as the [Jarrow crusade](#). More than 200 men, dressed in their Sunday best, marched peacefully in step for over 200 miles, gaining great support along the way.

Yet when they reached London, prime minister Stanley Baldwin ignored their petition – and the men were informed their dole money would be docked because they had been unavailable for work over the past fortnight.

Europe was also facing a severe economic crisis. After Germany's government refused to pay the reparations agreed in the 1919 Versailles treaty, saying they would bankrupt its economy, the French army occupied the German industrial heartland of the Ruhr and German workers went on strike, supported by their government.

The ensuing struggle fuelled hyperinflation in Germany. By November 1923, it took 200,000 million marks to buy a loaf of bread, and the savings and pensions of the German middle class were wiped out. That month, Adolf Hitler made his first attempt to seize power in the failed '[Beer hall putsch](#)' in Munich.

In contrast, across the Atlantic, the US was enjoying a period of postwar prosperity, with a booming stock market and explosive growth of new industries such as car manufacturing. But despite emerging as the world's strongest economic power, having financed much of the Allied war effort, it was unwilling to grasp the reins of global economic leadership.

The Republican US Congress, having blocked President Woodrow Wilson's [plan for a League of Nations](#), instead embraced isolationism and washed its hands of Europe's problems. The US refused to cancel or even reduce the war debts owed it by the Allied nations, who eventually repudiated their debts. In retaliation, the US Congress banned all American banks from lending money to these so-called allies.

Then, in 1929, the affluent American 'jazz age' came to an abrupt halt with a [stock market crash](#) that wiped off half its value. The country's largest manufacturer, Ford, closed its doors for a year and laid off all its workers. With a quarter of the nation unemployed, long lines for soup kitchens were seen in every city, while those who had been evicted camped out wherever they could – including in New York's Central Park, renamed 'Hooverville' after the hapless US president of that time, Herbert Hoover.

In rural areas where the collapse in agricultural prices meant farmers could no longer make a living, armed farmers stopped food and milk trucks and destroyed their contents in a vain attempt to limit supply and raise prices. By March 1933, as President Franklin D Roosevelt took office, the entire US banking system had ground to a standstill, with no one able to withdraw money from their bank account.

With its focus on this devastating [Great Depression](#), the US refused to get involved in attempts at international economic cooperation. With no notice, Roosevelt [withdrew](#) from the 1933 London Conference which had been called to stabilise the world's currencies – sending a message [denouncing](#) 'the old fetishes of the so-called international bankers'.

With the US following the UK off the gold standard, the resulting currency wars exacerbated the crisis and further weakened European economies. As countries reverted to [mercantilist policies](#) of protectionism and trade wars, world trade shrank dramatically.

The situation became even worse in central Europe, where the [collapse](#) of the huge Credit-Anstalt bank in Austria in 1931 reverberated around the region. In Germany, as mass unemployment soared, centrist parties were squeezed and armed riots broke out between communist and fascist supporters. When the Nazis came to power, they introduced a policy of autarky, cutting economic ties with the west to build up their military machine.

The economic rivalries and antagonisms which weakened western economies paved the way for the rise of fascism in Germany. In some sense, Hitler – an admirer of the British empire – aspired to be the next hegemonic economic as well as military power, creating his [own empire](#) by conquering and ruthlessly exploiting the resources of the rest of Europe.

Nearly a century later, there are some disturbing parallels with that interwar period. Like America after the first world war, Trump insists that countries the US has supported militarily now owe it money for this protection. He wants to encourage currency wars by devaluing the dollar and raise protectionist barriers to protect domestic industry.

The 1920s was also a time when the US sharply limited immigration on [eugenic](#) grounds, only allowing it from northern European countries which (the eugenicists argued) would not 'pollute the white race'.

Clearly, Trump does not view the lack of international cooperation that could amplify the damaging economic effects of a stock or bond market crash as a problem that should concern him. And in today's [unstable](#) world, for all the US's past failings as a global leader, that is a very worrying proposition.

How the US responded to the last financial crisis

Once again, the rules of the international order are breaking down. While it is possible that Trump's approach will not be fully adopted by his successor in the White House, the direction of travel in the US will almost certainly remain sceptical about the benefits of globalisation, with limited support for any worldwide economic rules or initiatives.

We see similar scepticism about the benefits of globalisation emerging in other countries, amid the rise of right-wing populist parties in much of Europe and South America – many backed by Trump. Fuelling these parties' support are growing concerns about income inequality, slow growth and immigration which are not being [addressed](#) by the current political system – and all of which would be exacerbated by the onset of a new global economic crisis.

With the global economy and financial system far bigger than ever before, a new crisis could be even more severe than the one that occurred in 2008, when the failure of the banking system left the world **teetering** on the brink of collapse.

The scale of this crisis was unprecedented, but key US and UK government officials moved boldly and swiftly. As a BBC reporter in Washington, I attended the House of Representatives' **Financial Services Committee hearing** three days after Lehman Brothers went bankrupt, paralysing the global financial system, to find out the administration's response.

I remember the stunned look on the face of the committee's chairman, Barney Frank, when he asked US Treasury secretary Hank Paulson and US Federal Reserve chairman Ben Bernanke how much money they might need to stabilise the situation:

"Let's start with US\$1 trillion," Bernanke replied coolly. "But we have another US\$2 trillion on our balance sheet if we need it."

Shortly afterwards, the US Congress approved a US\$700 billion rescue package. While the global economy has still not fully recovered from this crisis, it could have been far worse – possibly as bad as the 1930s – without such intervention.

Around the world, governments ended up **pledging** US\$11 trillion to guarantee the solvency of their banking systems, with the UK government putting up a sum equivalent to the country's entire yearly GDP. But it was not just governments. At the G20 summit in London in April 2009, a new US\$1.1 trillion fund was set up by the International Monetary Fund (IMF) to advance money to countries that were getting into financial difficulty.

The G20 also agreed to impose tougher regulatory standards for banks and other financial institutions that would apply globally, to replace the weak regulation of banks that had been one of the main causes of the crisis. As a reporter at this summit, I recall [widespread excitement](#) and optimism that the world was finally working together to tackle its global problems, with the host prime minister, Gordon Brown, briefly glowing in the limelight as organiser of that summit.

Behind the scenes, the US Federal Reserve had also been working to contain the crisis by quietly passing on to the world's other leading central banks nearly US\$600 billion in '[currency swaps](#)' to ensure they had the dollars they needed to bail out their own banking systems. The Bank of England [secretly lent](#) UK banks £100 billion to ensure they didn't collapse, although two of the four major banks, Royal Bank of Scotland (now NatWest) and Lloyds, ultimately had to be nationalised (to different extents) to keep the financial system stable.

However, these rescue packages for banks, while much needed to stabilise the global economy, did not extend to many of the victims of the crash – such as the 12 million US households whose homes were now worth less than the mortgage they had taken out to pay for them, or the [40% of households](#) who experienced financial distress during the 18 months after the crash. And the ramifications of the crisis were even greater for those living in developing countries.

A few months after the 2008 financial crisis began, I travelled to Zambia, an African country totally dependent on copper exports for its foreign exchange. I visited the [Luanshya copper mine](#) near Ndola in the country's copper belt. With demand for copper (used mainly in construction and car manufacturing) collapsing, all the copper mines had closed. Their workers, in one of the few well-paid jobs in Zambia, were forced to leave their comfortable company homes and return to sharing with their relatives in Lusaka without pay.

Zambia's government was forced to shut down its planned poverty reduction plan, which was to be funded by mining profits. The collapse in exports also damaged the Zambian currency, which dropped sharply. This hit the country's poorest people hard as it raised the price of food, most of which was imported.

I also visited a [flower farm](#) near Lusaka, where Dutch expats Angelique and Watze Elsinga had been growing roses for export for over a decade – employing more than 200 workers who were given housing and education. As the market for Valentine's Day roses collapsed, their bankers, Barclays South Africa, suddenly ordered them to immediately repay all their loans, forcing them to sell their farm and dismiss their workers. Ultimately, it took a [US\\$3.9 billion loan](#) from the IMF and World Bank to stabilise Zambia's economy.

Should another global financial crisis hit, it is hard to see the Trump administration (and others that follow) being as sympathetic to the plight of developing countries or allowing the Federal Reserve to lend major sums to foreign central banks – unless it is a country politically aligned with Trump, such as Argentina. Least likely of all is the idea of Trump working with other countries to develop a global trillion-dollar rescue package to help save the world economy.

Rather, there is a real worry that reckless actions by the Trump administration – and weak global regulation of financial markets – could trigger the next global financial crisis.

What happens if the US bond market collapses?

Economic historians agree that financial crises are endemic in the history of global capitalism, and they have been increasing in frequency since the 'hyper-globalisation' of the 1970s. From [Latin America's debt crisis](#) in the 1980s to the [Asia currency crisis](#) in the late 1990s and the [US dotcom stock market collapse](#) in the early 2000s, crises have regularly devastated economies and regions around the world.

Today, the greatest risk is the collapse of the US Treasury [bond market](#), which underpins the global financial system and is involved in 70% of global financial transactions by banks and other financial institutions. Around the world, these institutions have long regarded the US bond market, worth over \$30 trillion, as a safe haven, because these 'debt securities' are backed by the US central bank, the Federal Reserve.

Increasingly, the unregulated 'shadow banking system' – a sector now [larger](#) than regulated global banks – is deeply involved in the bond market. Non-bank financial institutions such as private equity, hedge funds, venture capital and pension funds are largely unregulated and, unlike banks, are not required to hold reserves.

Bond market jitters are already unnerving global financial markets, which fear its unravelling could precipitate a banking crisis on the scale of 2008 – with highly leveraged transactions by these non-bank financial institutions leaving them exposed.

Buyers of US bonds are also troubled by the Trump administration's [plan](#) to raise the US deficit even higher to pay for tax cuts – with the national debt now [forecast](#) to rise to 134% of US GDP by 2035, up from 120% in 2025. Should this lead to a widespread refusal to buy more US bonds among jittery investors, their value would collapse and interest rates – both in the US and globally – would soar.

The governor of the Bank of England, Andrew Bailey, [recently warned](#) that the situation has “*worrying echoes of the 2008 financial crisis*”, while the head of the IMF, Kristalina Georgieva, [said](#) her worries about the collapse of private credit markets sometimes keep her awake at night.

A bad situation would grow even worse if problems in the bond market precipitate a sharp decline in the value of the dollar. The world's 'anchor currency' would no longer be seen as a safe store of value – leading to more withdrawals of funds from the US Treasury bond market, where many foreign governments hold their reserves.

A weaker dollar would also make imported goods more expensive for US consumers, while potentially boosting the country's exports. This is precisely the course of action [advocated](#) by Stephen Miran, chair of the US president's Council of Economic Advisors – who Trump appears to want to be the next head of the Federal Reserve.

One example of what could happen if bond markets become destabilised occurred when the shortest-lived prime minister in UK history, Liz Truss, [announced](#) huge unfunded tax cuts in her 2022 budget, causing the value of UK gilts (the equivalent of US Treasury bonds) to plummet as interest rates spiked. Within days, the Bank of England was forced to put up an emergency £60 billion rescue fund to avoid major UK pension funds collapsing.

In the case of a US bond market crash, however, there are growing fears that the US government would be unable – and unwilling – to step in to mitigate such damage.

A new era of financial chaos

Just as worrying would be a crash of the US stock market – which, by historic standards, is currently vastly [overvalued](#).

Huge recent increases in the US stock market's overall value have been driven almost entirely by the 'magnificent seven' hi-tech companies, which alone make up a third of its total value. If their big bet on artificial intelligence is not as lucrative as they claim, or is overshadowed by the success of China's AI systems, a sharp downturn, [similar](#) to the dotcom crash of 2000-02, could well occur.

Jamie Dimon, head of the US's biggest bank JPMorgan Chase, has [said](#) he is *"far more worried than other [experts]"* about a serious market correction, which he warned could come in the next six months to two years.

Big tech executives have been overoptimistic before. Reporting from Silicon Valley in 2001 as the dotcom bubble was bursting, I was struck by the [unshakeable belief](#) of internet startup CEOs that their share prices could only go up.

Furthermore, their companies' high stock valuations had allowed them to take over their competitors, thus limiting competition – just as companies such as Google and Meta (Facebook) have since used their highly valued shares to purchase key assets and potential rivals including YouTube, WhatsApp, Instagram and DeepMind. History [suggests](#) this is always bad for the economy in the long run.

With the business and financial worlds now ever more closely linked, not only has the frequency of financial crises increased in the last half-century, each crisis has become more interconnected. The 2008 global financial crisis showed how dangerous this can be: a global banking crisis triggered stock market falls, collapses in the value of weak currencies, a debt crisis in developing countries – and ultimately, a global recession that has taken years to recover from.

The IMF's [latest financial stability report](#) summarised the situation in worrying terms, highlighting 'elevated' stability risks as a result of *"stretched asset valuations, growing pressure in sovereign bond markets, and the increasing role of non-bank financial institutions. Despite its deep liquidity, the global foreign exchange market remains vulnerable to macrofinancial uncertainty."*

I believe we may be entering a new era of sustained financial chaos during which the seeds sown by the death of globalisation – and Trump's response to it – finally shatter the world economic and political order established after the second world war.

Trump's high and erratically applied tariffs – aimed most strongly at China – have already made it difficult to reconfigure global supply chains. Even more worrying could be the struggle over the control of key strategic raw materials like the [rare earth minerals](#) needed for hi-tech industries, with China banning their export and the US threatening 100% tariffs in return (as well as hoping to take over [Greenland](#), with its as-yet-untapped supply of some of these minerals).

This conflict over rare earths, vital for the computer chips needed for AI, could also threaten the market value of high-flying tech stocks such as Nvidia, the first company to exceed US\$4 trillion in value.

The battle for control of critical raw materials could escalate. There is a danger that in some cases, trade wars might become real wars – just as they did in the [former era of mercantilism](#). Many recent and current regional conflicts, from the first Iraq war aimed at the conquest of the oilfields of Kuwait, to the civil war in Sudan over control of the country's [goldmines](#), are rooted in economic conflicts.

The history of globalisation over the past four centuries suggests that the presence of a global superpower – for all its negative sides – has brought a degree of economic stability in an uncertain world.

In contrast, a key lesson of history is that a return to policies of mercantilism – with countries struggling to seize key natural resources for themselves and deny them to their rivals – is most likely a recipe for perpetual conflict. But

this time around, in a world full of 10,000 nuclear weapons, miscalculations could be fatal if trust and certainty are undermined.

The challenges ahead are immense – and the weakness of international institutions, the limited visions of most governments and the alienation of many of their citizens are not optimistic signs. ■

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Can the World Trade Organization survive?

The foundations of the multilateral trading system have been shaken. Petros Mavroidis argues that reviving the WTO will require a determined effort from the key stakeholders to address issues that the membership has previously avoided

The second administration of United States President Donald Trump has shaken the foundations of the multilateral trading system by implementing unilateral tariffs on imports from most of its partners, and by signing 'deals' with a few of them. It is impossible to legally reconcile these actions with the letter and spirit of the World Trade Organization (WTO).

The fundamental purpose of the WTO is to promote non-discriminatory trade liberalisation, primarily through the most-favoured nation (MFN) principle, while subjecting disputes to compulsory third-party adjudication (CTPA).

The high, new US tariffs and so-called deals run afoul of MFN, CTPA and several other WTO legal institutions. The US view under Trump seems to be that legality should not stand in the way of political expediency when it comes to promoting US interests as understood by the current US administration.

This is happening when the policy relevance of the WTO had already been undermined. Geopolitical concerns have turned its traditional consensus-based voting mechanism into a formidable impediment to block its legislative functions. Its adjudicative function has been moribund since 2019, when the first Trump administration took steps to make the WTO Appellate Body largely redundant. While the WTO still has offices in Geneva, the emerging disequilibrium is hardly sustainable. The WTO has been practically reduced to redundancy, at least with respect to influencing relations between the US and each of its partners.

Assuming that current US policy does not change, the relevance of the WTO could wane further. Reviving the multilateral organisation will require a valiant effort from the key stakeholders, and the determination to address issues that the membership has previously avoided. This paper highlights some of them.

1 The lay of the land

'Unprecedented' best captures what has happened in United States trade policy since President Donald Trump returned to the White House for a second term. The kick off was 'Liberation Day' on 2 April 2025, when President Trump signed Executive Order 14257 'Regulating Imports with a Reciprocal Tariff to Rectify Trade Practices That Contribute to Large and Persistent Annual United States Goods Trade Deficits'¹.

The world is now entering a new era in which the US continues to be a member of the WTO while disrespecting its two core features: avoiding trade discrimination and unilaterally increasing protectionism

He hoisted a sizeable chart, prepared by Secretary of Commerce Howard Lutnick, and showed the world the new tariffs that the US would apply on imports originating in over 60 countries. In this, the second Trump administration was promising to be different from the first.

Within a couple of days, President Trump, most likely startled by the subsequent losses in the stock-market, announced that he would suspend the application of tariffs for 90 days². At the same time, he announced that he would pursue 90 trade deals in 90 days.

Instead of forming a worldwide coalition against President Trump's initiative – which violated the letter and the spirit of the World Trade Organization and shook the foundations of the multilateral system – nations rushed to the White House to negotiate and conclude these deals. In quick succession the United Kingdom, Vietnam, Indonesia, the Philippines, Japan, Korea and the European Union signed separate deals with the US³, while China agreed to a truce in retaliatory tariffs, which, at the time of writing, has since been extended twice.

Those that did not sign deals, either because they did not request one or because President Trump did not seek to negotiate one, had to await their fate. Free-trading nations seemingly forgot the famous quip attributed to Benjamin Franklin: *"We must all hang together, or assuredly we shall all hang separately."*

Tariffs are President Trump's favourite policy instrument. On assuming office in his first term, President Trump resuscitated Section 232, an almost forgotten legal instrument. He invoked it to restrict imports of steel products in the name of national security. Section 232 was enacted in 1955 and forms an integral part of the US Trade Agreements Extensions Act, but had since fallen into disuse⁴.

The first Trump administration used it to impose tariffs against a host of nations. Canada, China, the EU, India, Korea, Mexico, Norway, Russia, Switzerland and Turkey responded by filing complaints at the WTO. The choice of instrument that Trump used was calculated: Section 232 provides the US President with substantial discretion, as Section 232 does not address the effect of imports on the marketplace, but rather their potential unavailability in case of emergency.

A flurry of litigation followed at the WTO⁵ and all WTO panels concluded the same thing: US measures were inconsistent with WTO rules. The US circumvented enforcement of these rulings by 'appealing into the void'⁶. Undeterred by this experience, Trump introduced a new wave of Section 232 investigations on returning to the White House for his second term.

It is unclear what the link is between the Section 232 investigations/tariffs and the Liberation Day tariffs. In principle, these are distinct instruments: the former aims to address critical shortages, whereas the latter is meant to address entirely different policy objectives. The link between the Section 232 investigations and the Liberation Day tariffs became clear when the US administration announced, on 2 August 2025, the actual implementation of the Liberation Day tariffs.

Deborah Elms compiled an informative table showing that, with a few exceptions (including Brazil, Brunei and Philippines), the tariffs implemented on 2 August were lower than or equal to the tariffs announced on Liberation Day⁷. Shortly after 2 August, President Trump announced that imports from India would face a 50 percent tariff, instead of the announced 25 percent, because India was buying too much Russian oil⁸.

What is too much was never specified. The EU continues to purchase relatively small quantities of Russian oil (purchases should be phased out by 2028) but was spared additional tariffs. China, meanwhile, continues to

purchase substantial quantities of Russian oil, but President Trump decided to spare China from any additional tariffs.

The US administration seems determined to enforce the new tariffs and deals that it has signed. While it is very doubtful that it can achieve the stated goals (reduce the deficit, increase tariff income and encourage 'greenfield' investment in the US), the data so far points to some encouraging results for the US administration – enough to present the policy as a success to the American public.

President Trump can also count on the absence of domestic political opposition and the acquiescence of the world trading community. Even if the US Supreme Court⁹ rules against the Trump administration's actions, the likeliest scenario is that President Trump will use a different avenue to re-impose tariffs.

The world is now entering a new era in which the US continues to be a member of the WTO while disrespecting its two core features: avoiding trade discrimination and unilaterally increasing protectionism, in this case, its capped level of customs duties (tariffs). What does this mean for the WTO? Can it continue with 'business as usual', or is its effective end drawing near? This is the core question we ask in this paper.

2 The legality of US tariffs

At the time of writing, US tariffs – whether unilateral or the result of deals – share the following features in relation to WTO agreements:

- The WTO has not, so far, been notified of any trade deal or new tariff by the Trump administration. Judging from the information disseminated through the United States Trade Representative (USTR) webpage, all deals and new higher tariffs violate the obligation to notify the WTO (Article X of the GATT) as they fall under measures of 'general application'¹⁰;

- By imposing different levels of tariffs on the same product depending on its origin – either through unilateral increases or following the conclusion of a trade deal – the US also violates its obligation to treat all like goods originating from WTO members on a Most Favoured Nation (MFN) basis (Article I of the GATT);
- By increasing its duties above the level agreed following reciprocal negotiations during the 1986-1993 Uruguay round, the US is violating Article II of the GATT¹¹.

The signed trade deals might vary in content, but all of them share some elements:

- There is practically no quid pro quo when the US administration offers a trade deal – other than the US abandoning its unilateral Liberation Day tariffs and occasional, generic announcements about future relations – as it is always the party transacting with the US that commits to a certain behaviour. These deals are termed ‘reciprocal’ only because they reflect President Trump’s belief that the US has not received reciprocity in the past. It is, in other words, pay-back for the perceived, previously unfair treatment¹²;
- They are not formal international agreements. They are not written documents signed by both parties. It is usually the US that informs the public about their content by uploading a summary of the deals concluded on the USTR webpage. At the time of writing, some of the deals have not been published at all¹³;

The US is not prepared to submit itself to WTO adjudication for disputes arising from the implementation of these deals. It purports to resolve them bilaterally, thus violating Article 23.2 of the Dispute Settlement Understanding (DSU), which states that the WTO is the sole and exclusive forum for the resolution of all trade disputes¹⁴.

2.1 US tariffs and WTO law

At the time of writing, China (Dispute Settlements DS633 and DS638), Canada (Dispute Settlements DS634, DS635 and DS637) and more recently Brazil (Dispute Settlement DS640) have challenged the legality of US tariffs under WTO rules. A 25 percent duty is paid on all Canadian goods not complying with the United States-Mexico-Canada Trade Agreement, whereas Brazilian goods are subjected to a 50 percent tariff as a result of President Trump's displeasure with the legal proceedings against former Brazilian President Jair Bolsonaro¹⁵. Chinese goods are subject to a 30 percent tariff until a permanent agreement with the US has been negotiated and concluded¹⁶.

Canada's complaints concern specific product markets (autos, steel, non-energy goods). China's complaints will de facto be on hold until the trade truce ends and might be resurrected afterwards, depending on the outcome of US negotiations. Brazil's is the only complaint that specifically targets the Liberation Day tariffs¹⁷.

There is a question mark as to whether those who made a deal might be pre-empted from challenging the US measures. After all, they negotiated with the US and acquiesced to the measures. Because of this acquiescence, the legal argument goes, a complainant should be 'estopped' from challenging the validity of the deals at the WTO.

However, the WTO Appellate Body did not see a case for applying acquiescence or estoppel and has, in fact, ruled against its application in DS265: EC-Export Subsidies on Sugar (Mavroidis, 2022a, pp. 44-48). If this precedent is adhered to in future cases, the EU could turn against the US and challenge the adherence of its recent deal with the US to the relevant WTO rules.

In light of its stated aims¹⁸, could the US justify its measures by invoking the Security Exception (Article XXI) of GATT? No, is the short answer. Article XXI allows WTO members to take *"any action which it considers necessary for the protection of its essential security interests... in time of war or other emergency in international relations."*

The law under this provision¹⁹ makes it clear that what matters for a successful invocation of Article XXI is when the action is taken. 'Emergency' has been consistently interpreted quite narrowly by WTO panels, shown in the exhaustive survey of case law in Mavroidis (2025), and is confined to war-like situations, or extreme situations such as the disruption of diplomatic relations.

In DS597: US-Origin Marking (Hong Kong, China), the panel held that the fact that trade between US and China had shown no signs of breakdown indicated the absence of an emergency (§7.354)²⁰. Here, we are dealing with the exact opposite scenario: trading nations share the negotiating table with the US and peacefully conclude trade deals for the medium to long run.

Nvidia's situation provided additional confirmation that there is no emergency being addressed by these restrictions. Mavroidis (2025a) discussed how former US President Biden kept and strengthened the first Trump administration's restrictions on exports to China, making it practically impossible to export even legacy microchips to China. One might agree or disagree whether the prohibition of such exports serves US national security, but this is precisely what President Trump and President Biden aimed to safeguard through their measures.

The second Trump administration, following heavy lobbying by Nvidia's CEO, allowed the company to export H20s (an elaborate microchip) to China, conditional upon the payment of an export tax of 15 percent, baffling some US security experts along the way²¹. Evidently, President Trump seems to see little threat from China, even when trading in high-tech goods.

In doing so, President Trump was prepared to test the US Constitution. Article 1, Section 9, Clause 5 of the US Constitution (the 'Export Clause') prohibits Congress from laying taxes and duties on articles exported from any state²². The US Supreme Court has interpreted the Export Clause as requiring not simply an omission of a tax upon

exported articles, but also a freedom from any tax which directly burdens the process of exporting²³. Nvidia's 15 percent tax would, arguably, contravene this.

Note that President Trump's understanding of the term 'national emergency' is quite liberal, as the number of invocations of Section 232 show. His interpretation notwithstanding, he still allowed the export of an elaborate chip to China, even though he himself had previously labelled China a threat to US national security²⁴. Under the circumstances, it would be very hard indeed to defend the claim that the US measures are necessary to protect national security before a WTO panel.

The only appropriate, available option to justify these US measures is a 'waiver'. A waiver, if granted, would be akin to the WTO membership providing the US with a green light to provisionally waive its obligations under Articles I and II of the GATT. But, as per Article IX of the Agreement establishing the WTO, a waiver is granted only in exceptional circumstances, which must be explicitly stated.

What are the exceptional circumstances here? It would be a travesty indeed to equate trade deficits with exceptional circumstances. All members could then sooner or later ask for a similar exception, undoing the entire system of trade liberalisation through waivers. Additionally, a three-quarters majority of the WTO's membership must vote in favour of granting a waiver.

In fact, the threshold is even higher in these circumstances: unanimity is required for deviations from MFN. And it is precisely a deviation from MFN that the US would be requesting. How would Brazil or India or any other country that feels unfairly targeted by the US tariffs vote when the occasion arises? Waivers are granted for up to a year, and if a longer period has been agreed, an annual review follows the original waiver. But the US does not want multilateral review of its tariffs and trade deals to begin with.

US Trade Representative Greer made it clear that on trade, the US wants to be judge, jury and executioner, all in one (see footnote 14). At the time of writing, this discussion is hypothetical, as no request for a waiver has been tabled. But Greer's observation holds in more general manner: there is no mention of the WTO in any of the deals that the current US administration has signed.

It is worth noting that, outside of the Trump administration, there are few commentators who believe that the Liberation Day tariffs can be reconciled with the current WTO rules or could even 'save the WTO'²⁵. Such claims misconstrue, in our view, the letter and spirit of key WTO institutions overseeing activities such as the re-negotiation of tariff commitments.

Even assuming that the US was interested in renegotiating its tariffs – a generous assumption, given that the US has shown no interest in WTO procedures – it would have to request the initiation of a process whereby it would need to consider compensation, usually in the form of lower tariffs. But the US does not seem to be willing to lower the tariff level in any product market.

The Liberation Day tariffs apply to all imports across the board originating in the targeted countries. Article XXVIII of GATT is not constructed to address the circumstances that the world trading community is now facing.

Additionally, a renegotiation of tariffs under Article XXVIII leads to new MFN (most-favoured nation) non-discriminatory tariffs, which is precisely what the Trump administration has sought to avoid. Opting for MFN (eg. non-discriminatory) tariffs would run afoul of the aims of the Liberation Day tariffs, which is to force bilateral deals and diminish the multilateral regime.

Pauwelyn (2025) argued that the Liberation Day tariffs could be accommodated within the WTO and, in fact, that they could prove to be its saviour by inciting negotiations under Article XXVIII of GATT. We disagree. The Trump administration has thus far demonstrated no willingness to negotiate within the structure of the WTO.

Past experience, as noted, also does not support a similar endeavour, as Article XXVIII negotiations are not wholesale negotiations; they are for renegotiating specific tariff lines. Most importantly, this instrument is meant to reestablish reciprocity by realigning tariffs. Reciprocity would be measured using the preexisting tariff levels as benchmark.

For instance, if the US wanted to increase protectionist tariffs on textiles from five to 10 percent, it would be called on to reduce its protections in another area for the sake of reciprocity. Of course, the US does not want to realign its tariffs – it wants to increase them without compensating anyone affected.

Nevertheless, the best response to the claim raised by Hervé Jouanjean, Jennifer Hillman and Joost Pauwelyn (see footnote 25) was given by the USTR Jamieson Greer (see footnote 14) after the US-EU Turnberry deal. Paying no heed at all to WTO legal disciplines, he simply asserted that the ‘ancient régime’ is obsolete and pronounced the advent of the new ‘fair and balanced’ scheme that the Trump administration is unilaterally attempting to impose.

Even if it was to lose before a WTO panel, the US could always circumvent the ruling by appealing into the void. The policy choices of the Trump administration are thus, in recourse and in intent, unconstrained by WTO law.

2.2 US tariffs and US law

While some critical voices against the prolific use of Section 232 tariffs have been raised, the Trump administration has not suffered any major domestic pushback against its policies²⁶. Destler (2005) and Mutz (2021) have shown

that both major US political parties have been generally aligned on trade policy over the last two to three decades²⁷.

Private citizens, nonetheless, have contested the legality of tariffs under US law. Is it then likely that Liberation Day tariffs will soon be a thing of the past after intervention by the US judiciary? We believe not, and here is why.

While WTO law sets the benchmark to judge the legality of President Trump's actions as the international commitments that the US has adopted, under US law it is the doctrine of the separation of powers, embedded in the US Constitution and related documents, that serves as a benchmark.

Responding to a complaint lodged against the Liberation Day tariffs, the Court of International Trade (CIT) – a US Federal Court – cast doubt on their legality. In its decision²⁸, the CIT found that President Trump had exceeded his authority when imposing the tariffs to address a national emergency, predicated on the constitutional doctrine of separation of powers.

The CIT found that Section 122 of the Trade Act of 1974 limits the President's authority to impose tariffs for the purpose of addressing trade deficits through the International Emergency Economic Powers Act (IEEPA)²⁹. The President thus cannot impose tariffs when invoking the IEEPA. The same court issued an injunction.

The CIT decision was appealed before the CAFC (Court of Appeals for the Federal Circuit). The CAFC confirmed the CIT decision in substance. It found that the President could not have legitimately invoked the IEEPA to impose the Liberation Day tariffs, given that the text of the statute does not grant any power to impose them.

It was slightly more nuanced, though: it held that the IEEPA confers powers on the President to regulate trade in times of emergency. Invoking the Yoshida precedent³⁰, the CAFC distinguished the 'Reciprocal' and 'Trafficking and Immigration Tariffs'³¹ from tariffs that were upheld in Yoshida arising under IEEPA's predecessor statute, the Trading with the Enemies Act (TWEA). It found that the more limited tariffs in Yoshida did not exceed the authority granted to President Richard Nixon by TWEA.

Conversely, the Reciprocal and Trafficking and Immigration Tariffs were unbounded in scope, amount, and duration. In other words, IEEPA may or may not authorise some tariffs, but it definitely does not authorise the Liberation Day tariffs.

While both decisions agreed that there must be some limits on any tariffing authority under IEEPA, and that the Liberation Day tariffs did not fall within those limits, the CIT imposed a hard limit by way of the Trade Act, whereas the CAFC identified no principled limit at all. CAFC went on to remand the case back to CIT to decide on whether there was room to call for permanent injunction³².

Neither of the two US courts interpreted the term 'emergency'. They still both alluded to the possibility that without a review of the President's understanding of the term, abuses cannot be excluded. So, the two courts on the one underscored the need to interpret the term 'emergency' (in order to avoid abuses), but on the other refused to do so themselves.

At the moment of writing, the US Supreme Court has agreed to hear the case in November 2025. A decision will realistically not be issued before 2026, and may be delayed until summer 2026. Several questions make it hard to predict its decision: will it base its decision on an interpretation of the term 'emergency' (US courts have rarely done this in the past), or will it instead aim to understand whether the IEEPA includes powers to impose tariffs?

Or will it do both, providing a comprehensive resolution of the dispute? Will it follow the argument of the CAFC and try to distil whether, in emergency situations, the President can impose some tariffs – but of what magnitude?

Even if the Supreme Court curtails his powers, President Trump could still impose tariffs through different methods, though he might not end up as close to his desired outcome. Section 122 of the Trade Act³³ is the most promising avenue: it allows the President to impose duties of up to 15 percent or quotas for up to 150 days on imports from all countries, or selectively against countries that maintain unjustifiable or unreasonable restrictions on US commerce. If triggered, Trump could then supplement it after the 150-day cutoff with actions under Section 301³⁴. Still, neither of these two acts would guarantee the same horizontal impact of the Liberation Day tariffs if they were upheld under the IEEPA.

2.3 Unconstrained (de facto) by law...

It is not the aim of this paper to delve into why deals were signed³⁵. They are there, and the higher tariffs agreed in these deals are likely to stay for some time, even if the US Supreme Court judges the Trump administration's actions under the IEEPA to be unconstitutional. Our analysis shows that it is unlikely that they will be rolled back for legal reasons.

On the other hand, if the higher tariffs and deals do meet the stated objectives – a highly unlikely proposition³⁶ – the Trump administration will still claim victory over the critics and keep them in place: even marginally achieving their stated targets would provide the Trump administration with enough ammunition to present its policies as successful.

The second Trump administration has not, like the first, openly threatened departure from the WTO³⁷, and thus we should be prepared for a world with the WTO and US tariffs simultaneously in place. And more tariffs are on their

way. While litigation regarding the legality of Liberation Day tariffs is pending before the Supreme Court, at the time of writing the Trump administration has launched two new Section 232 investigations covering a wide range of products³⁸. Unsurprisingly, most analysts agree that the tariffs are here to stay³⁹.

If any confirmation was needed, USTR Greer (2025) stated it in so many words: *"It took over 50 years from that first meeting at Bretton Woods until the creation of the WTO. It has been 30 years since. Fewer than 130 days from the beginning of the Trump Round, the Turnberry system is by no means complete, but its construction is well underway ..."*

3 The way forwards (or backwards): preferences and policy options

Nations sign trade agreements to create certainty about the cost of transacting, as Handley and Limão (2017), among others, have argued – not for the opposite purpose. As the Trump administration keeps inventing new reasons to impose additional tariffs, either sector-specific or across the board, uncertainty looms.

European Commission President Ursula von der Leyen hailed the EU's deal with the US, going so far as to state that *"today's deal creates certainty in uncertain times"*⁴⁰. But the EU and the US did not sign a formal, binding, international agreement enumerating the responsibilities of the transacting parties in case of breach. All von der Leyen can count on is the word of President Trump.

Experience suggests that new tariffs might be imposed for new reasons (extensive margin), and that the level of tariffs agreed might be increased again if the current measures do not produce the expected effects (intensive margin).

Neither of these risks are small. Deficits, for one, might reappear unless the consumption to savings ratio has been addressed. What if the current deals do not, for example, reduce the deficit to the satisfaction of the US? How can anyone, under the circumstances, speak of certainty?

Consider: initially the US imposed higher tariffs to reduce its deficit, to incite investment in the US and to replace tax income. Later tariffs were imposed to address the perceived unfair treatment of the former president of Brazil Jair Bolsonaro, to punish those buying too much oil from Russia, or to threaten punishment for those recognising the Palestinian state.

The reasons for imposing tariffs risk being extended further. There are inconsistencies, too: India is being punished for buying Russian oil, but the EU is not; neither the UK nor France were threatened with additional tariffs for recognising a Palestinian state either.

A look into the Trade Policy Uncertainty (TPU) Index is quite telling in this respect⁴¹. More uncertainty should, all things being equal, lead to more trade contraction. Can the WTO still play a role? Adherence to its rules-based system provides certainty in international transactions. Can Trump's 'Turnberry system' do that? Can it prove to be the WTO-ersatz?

3.1 Tariffs and deals under the WTO's roof: an uneasy relationship (with no end in sight)

As things stand, some WTO members – especially those that have signed trade deals with the US – think that these deals and the WTO can coexist. The same may be true for those that are now facing higher tariffs when exporting to the US, as they have so far not taken action against it. In this scenario, members are likely to tolerate higher tariffs and US-dictated deals for as long as they last, while continuing to go about their other WTO business as usual.

After all, the WTO does not know of ex-officio complaints. It operates a decentralised system of enforcement that was put into place with the advent of the DSU. This perspective seems realistic, since the US does not for now question its ongoing participation in the WTO.

For some time, it seemed that the Trump administration was wavering on leaving the WTO, though it never formally announced its withdrawal. The appointment in July 2025 of Jennifer DJ Nordquist⁴² at the WTO to cover the post of Deputy-Director General is evidence that the US administration entertains no thoughts of quitting. But the current US Administration is not consistent.

On 29 August 2025 (just a month after Nordquist's appointment), the US announced that it will stop paying its contributions to the WTO. The WTO annual budget is largely financed from contributions by its members⁴³, calculated based on each member's share of international trade⁴⁴. It is easy to understand why the US' contribution matters, as the US is one of the world's largest exporters.

The White House adopted a 'rescission package', stating that it would stop funding some international organisations, including the WTO, *"that do not support major US policies or priorities or have been operating contrary to American interests for many years. This account funded: ... \$29 million to the toothless World Trade Organization (WTO), which has for decades aided and abetted global trade cheating by the Chinese Communist party"*⁴⁵.

'Aided and abetted global cheating' are harsh words, indeed. The Trump administration was following in the footsteps of the Biden administration, which had also not paid the annual contribution to the WTO during its final year – though without using similar language⁴⁶. Note that non-payment of dues does not lead to exclusion⁴⁷.

Regardless, a few days after being first issued, the rescission package was revised without much fanfare, this time not listing the WTO among the organisations to which the US would stop paying its agreed contributions⁴⁸. For now, the US is a member of the WTO with no stated intention to withdraw from the organisation.

No one can predict for sure whether the US has definitively decided to turn the page. In fact, while has not threatened withdrawal in the weeks prior to the publication of this paper, it does not behave in WTO-consistent manner either. The continued implementation of its Liberation Day tariffs is the best proof of this.

Is it sustainable, though, to continue participating in an organisation in which 165 members respect MFN rules when transacting with each other, but not when transacting with the 166th member (which happens to be the largest one)? For how long can this continue? If WTO members take the view that the present is a mayfly, a temporary aberration, then such an attitude could be justified. But can anyone vouch that the Turnberry system will soon be no more?

We mentioned above the disputes that Brazil, Canada and China have initiated against the US at the WTO. The US, however, does not seem to care much about its WTO obligations at this stage, and one can assume that it will appeal to the void should there be a panel report against it. But this is not the only recourse these countries have.

Brazil (or Canada, or China, or anyone who has not made a trade deal with the US) could also initiate a complaint against the EU, UK or anyone who has undertaken WTO-inconsistent commitments⁴⁹. What is the guarantee that Brazil will sit back and accept not only the higher US tariffs, but also the alienation of its MFN rights in the EU market as a result of the EU deal with the US? Recall that those who made deals with the US condoned WTO-noncompliant actions, including by opening their market on non-MFN basis to the US.

In case of a complaint against it, the EU would have the choice to appeal into the void or face countermeasures – assuming that they would prefer not to jeopardise their trade deal with the US. But this choice is not altogether safe, either. Brazil, Canada and China are Multi-Party Interim Appeal Arbitration Arrangement (MPIA) members⁵⁰: their appeals can be hosted outside of the main appeals process.

This means that the EU, the UK and other members will have to accept the imposition of countermeasures against them if they continue to honour their deal with the US. The attitude of those affected by the non-MFN deals is a risk factor for the stability of the current, precarious equilibrium.

Another risk factor is an obstructive attitude on the part of the US. Why would the US allow the value of its current strategy to be eroded by further liberalisation? What would be the interest for the US in standing by and allowing deeper integration across the rest of the world, risking the evisceration of its deals⁵¹?

In this vein, one should not discard the fact that it is the US that is judge, jury and executioner of these trade deals. Borrowing from Olson (1993), we could go so far as to state that we are observing the emergence of a 'roving bandit', uninterested in investing in the current regime and quite willing to extract as much value as possible from its partners for as long as it has the power to do so.

Being the self-proclaimed judge, jury and executioner of these trade deals, what would stop the US from turning the tables once again in the future if the deals do not yield the expected outcome?

Thus, to guarantee the longevity of the current status quo, the WTO membership would need to enforce the deals and simultaneously agree to non-enforcement of their WTO rights, while accepting the exorbitant privilege of the US administration to decide whether the terms of the bargain have been honoured. This would mean that members will not only avoid challenging the US, but also each other, for violating MFN.

If challenges do occur, those who will suffer most will be the 'small fish'; that is, the members of MPIA with little bargaining power that will be called to face countermeasures. These members might be eventually called on to

accept the imposition of countermeasures against them if they want to continue honouring their 'deal' with the US⁵².

The lack of stability inherent in the current situation was perfectly illustrated in the case of DS641⁵³. China submitted a dispute against Canada because the latter introduced a tariff quota and imposed a surtax on steel products. Arguably, Canada did that to address steel over-capacity.

It is quite clear though, that President Trump's aggressive policy on steel (which led to high tariffs on various steel products) exacerbated the problem. Canada, in its attempt to cut its losses, engaged in beggar-thy-neighbour tactics and imposed part of the cost on innocent bystanders, ie. its trading partners. China reacted by lodging a dispute. Others might follow.

Finally, even if we assume that somehow everyone will show maximum tolerance, those who still have faith in the WTO's function risk losing interest in the organisation if the current status quo is prolonged. For how much can the WTO achieve under the circumstances, with the US unwilling to support multilateral solutions? How will the WTO legislate non-discriminatory trade liberalisation when one of its key members opposes it? And why would 165 trading nations continue to commit to an under-performing institution? Why would they invest in it⁵⁴? WTO DG Okonjo-Iweala put it succinctly in the following terms: *"the status quo is not an option"*⁵⁵.

It is clear that the WTO needs reform. Its foundational documents need rewriting to address issues including the role of the state in the market, the collective effort to address global challenges such as climate change and the continuing quest for development. It needs to address the crisis of the Appellate Body being in abeyance for six years and counting. But it can only do that if its members agree that it is a forum worth investing in.

The last thing the WTO needs at this stage is further undermining of its authority. The WTO is one of the last global organisations in which global solutions to global problems should and could be sought. Alas, the very founder of the regime, the US, is turning its back on multilateralism, and there is no obvious substitute for the leadership gap that it is leaving behind.

A genuine 'Kindleberger trap' is arising: theorists predict that, in the absence of an engaged hegemon, as Kindleberger (1973) understood the term, none of the three global powers (China, the EU and the US) has the incentive to assume the requisite cost and lead negotiations on the establishment of a new and much-needed international order. Carvalho *et al* (2025), in an excellent study, explained that, at best, each of them would be incentivised to be a free-rider on the others' efforts.

This is roughly the current situation, with China, the US and the EU being almost equally pre-eminent in the trade sphere. Each of them acting separately risks a hostile reaction by the other two, especially given differences in their worldview on international trade. They face a competitive fringe, in other words.

As per Kindleberger, a hegemon only has the incentive to create a rules-based system; maintaining it in a multipolar world, after the hegemon ceases to enjoy its privileged position, could happen through the concerted efforts of other nations who see it in their interest to continue their cooperation⁵⁶. This much, in the absence of empirical proof so far, could be true in the realm of a real, multipolar world.

In the context of the current bipolar (or tripolar) world, though, in which the leading countries all have market power, keeping a rules-based regime afloat can be harder, as each of the leading nations has the power to influence the regime, to some extent, to its advantage.

The analysis by Carvalho *et al* (2025) goes against the idea that, even in the absence of a hegemon, a collective hegemony (that is, the idea that two or three states can cooperate to sustain the order that the progressively weakened hegemon has established) is possible. At the very least, Carvalho *et al* (2025) qualify this idea by pointing to the lack of incentives for any of the two or three leading players to invest in keeping (and updating) the existing regime.

Carvalho *et al* (2025) do not hypothesise about what replaces multilateralism. The re-regionalisation of trade emerges as possibility. So, what are the options if Okonjo-Iweala's statement (see footnote 55) about the non-sustainability of the status quo is proved right? We see two: a return to the spirit of multilateralism as reflected in the WTO of 1995 (or even the GATT as it evolved through the years), or a farewell to multilateralism and the espousal of regionalised trade. These are outlined next.

3.2 Return to multilateralism

A return to the WTO as it was originally planned is possible only if the US decides to forego its new approach to trade deals. Otherwise, it is the US that should walk out – there is no other way. To save the WTO and preserve the spirit of multilateralism, the US and the WTO would have to part ways if the US does not change its attitude⁵⁷. However, this does not seem to be the US's wish.

The WTO membership could provoke a 'USexit' by invoking Article 60 of the Vienna Convention on the Law of Treaties and asking the US to leave the organisation for failing to observe the most fundamental obligations of the organisation⁵⁸. A unanimous decision by the membership on this seems unlikely, as Howse (2025) correctly observed; as a result, this option is a long shot.

Members could attempt a last-ditch negotiation to bring the US back to the multilateral house, and they should be prepared to amend the WTO's rules in order to lure the US back to the spirit of multilateralism. The red line should be the MFN principle. In this context, it would be advisable to distinguish between a short-term agenda that would make it palatable for the US to reverse course and a medium-term agenda that would benefit the institution at large.

The initial agenda should take care of the US's legitimate (or half-legitimate) concerns. The introduction, for example, of flexibility in the current Safeguards Agreement is long overdue, as Sykes (2006) argued⁵⁹. In similar vein, bringing in an antitrust framework for crisis cartels⁶⁰ to address the over-supply of steel products could also go some way in persuading trading nations that the world trading system can still deliver.

To sweeten the multilateral lure further, the members could mull over the wisdom of Compulsory Third-Party Adjudication (CTPA). The US was behind the idea of amending the GATT and introducing CTPA in the world trading system in the form of Article 23.2 of the DSU, during the Uruguay Round negotiations (1986-1994). Things have changed, and it is unlikely that they will change back, as the US seems to be generally averse to international adjudication.

Why not emulate the International Court of Justice regime and provide the members with discretion with respect to accepting CTPA (on reciprocity grounds). This is, of course, a second-best solution, but probably a price worth paying if it proves enough to persuade the US to abandon unilateralism and return to the WTO house⁶¹.

In line with Tucker's (2022) apt suggestion, adherence to the WTO should be accompanied by a pledge to never aggress other members. 'Doux commerce' should find its institutional home by contract, since it could not do so by custom.

The medium-run agenda should aim to update and modernise the WTO. The renegotiation of the WTO Subsidies Agreement should be a priority: as it stands now, this is largely an outdated agreement. It contains no safe havens for subsidies that provide public goods. It is further quite inappropriate for dealing with global value chains. The same could be said about 'economic security', a concept that has emerged as a key concern for many trading nations.

The discussion on the link between trade on the one hand, and development and environment on the other, should start in earnest this time. It would be wise in this context to introduce changes in the current regime that would facilitate recourse to variable geometry.

3.3 Farewell to the WTO – in search of new pastures

Commission President Von der Leyen recently called for a rapprochement between the EU and the signatories of Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), with the goal of establishing an international trade framework⁶². While clearly not seen as alternative to the WTO, a rapprochement seems necessary to reinforce the multilateral spirit that the overwhelming majority of trading nations still abide by. Similar thinking has been developing in various circles for some time now, and the Trump administration's tactics have accelerated it.

The WTO has long been in dire straits. The CTPA has been paralysed, but most importantly, its legislative function is moribund. At the current juncture, when the key impediments are internal barriers, like-mindedness is crucial to successful trade integration. Like-mindedness, in turn, is a function of preferences, priorities and the capacity to act. The sub-Saharan Africans might be as concerned as Sweden or Norway about climate change. Their priority, however, is to address malnutrition at home.

The WTO is no club for like-minded players anymore, and the trading community has painfully realised that heterogeneity and deep integration of their club is a zero-sum game.

The second Trump administration has added a new dimension to this discussion. The country that commentators considered to be a key player in moving trade integration further and faster has, for some time now, decided to disengage from WTO affairs. Those who still believe that they can and should go further and faster in advancing multilateralism could decide to form a new club.

The EU-CPTPP rapprochement is an example of this discussion⁶³ and can operate in the background of the WTO. If the WTO falls into complete paralysis because of the attitude of the current US administration, it will be for the EU-CPTPP leaders to decide whether they will attempt to weather the crisis or simply move to new pastures. For now, the thinking in Brussels is that the EU-CPTPP is a complement and not a substitute to the WTO⁶⁴.

Judging by the GATT experience⁶⁵, it is probably wiser to start with the EU-CPTPP structure before opening up to, at the very least, some key G20 members that would like to come aboard. A move along these lines would likely anger the US. The EU-CPTPP forum together represents over 30 percent of global GDP and close to 50 percent of international trade⁶⁶. This fact alone might persuade them to build the alliance that they did not build on 2 April 2025, when the Liberation Day tariffs were announced.

The consensus rule was the key legitimising force in the GATT era. In the current geopolitical situation, it has become hostage to the exercise of veto power. Uninhibited by the shackles of consensus-based rule that apply in the WTO, the leaders of countries that still believe in reciprocity, ex ante and not ex post, could charge ahead with a new institution. Of course, this could be achieved even while keeping the WTO open for business in Geneva. However, the policy-relevant decisions will have de facto migrated elsewhere.

4. All is not yet lost (or is it?)

Reinert (2023) warned forcefully about the risks associated with economic nationalism and the ensuing decline of global cooperation. A lack of international cooperation risks negative spillovers beyond international trade. This is certainly a graver risk⁶⁷.

Since the establishment of the multilateral trade order, the big players have largely led by example. Indeed, the success of the regime is largely due to their unwavering support and commitment. The US not only led the effort to found the initial regime but was instrumental in updating and strengthening it. Some eyebrows were raised in 1971 when President Nixon imposed a tariff surcharge, but any parallels with the current situation are misguided. At the time, the US was facing a true emergency as the Bretton Woods system of fixed parities was becoming increasingly untenable.

A more suitable comparison would be the extensive recourse by the US to Section 301 during the last years of the Reagan administration, a policy that his successor George HW Bush did not halt. Legitimately annoyed with the EU's refusal to adopt a series of GATT panels condemning the Common Agricultural Policy, the US retaliated unilaterally⁶⁸. Nonetheless, legitimate annoyance does not amount ipso facto to legality.

The US subsequently used sticks and no carrots asking Brazil, India, Japan and a few other countries to open up their services markets and guarantee a certain level of protection for intellectual property rights. Bhagwati (1990) provided an excellent analysis of the perils of unilateralism, but the US remained tone-deaf. During the Uruguay Round (1986-1994), it equally pursued its agenda to establish a multilateral compulsory third-party adjudication regime.

The quid pro quo for abandoning unilateralism for the US was the advent of three new WTO Agreements: the General Agreement on Trade in Services, the Agreement on Trade-Related Aspects of Intellectual Property Rights and the Dispute Settlement Understanding. The US, in other words, used its bargaining power to deepen and expand the multilateral trading order.

That was then – it surely is not now. The second Trump administration is using its bargaining power to undo the multilateral trading order as we knew it and to erect new barriers to trade. The MFN is certainly a constraint for players with substantial bargaining power. They cannot profit enough from bargaining power asymmetries, and free-riding can and does occur⁶⁹.

But the US leaders in the period immediately following the Second World War had learned the lessons of isolationism, having experienced the consequences of the disastrous Smoot-Hawley Tariff Act. The Roosevelt and Truman administrations were prepared to assume the requisite cost and establish a rules-based system that would provide stability and keep trading nations together.

This is not the case anymore. The second Trump administration is exploiting its power asymmetry to achieve an outcome in the short term that risks upending the order built. There should be no illusion that the collateral damage of the current policies is not limited to fewer trade opportunities for those who face higher tariffs, as well as those who rushed to make a deal with the US. This is a blow to the rules-based system.

Will genuine reform that preserves the spirit of the Bretton Woods institutions ever take place with the US inside the multilateral house? It seems increasingly likely that we are headed towards decoupling and segmented markets. The only unknown is whether the WTO will still be around when and if the spirit for a global accord returns in the

key capitals of the world. Our preferred solution would be for a return to the WTO along the lines discussed in section 3.2.

Alas, this looks increasingly unrealistic. It seems that the realpolitik choice is between a farewell to the WTO and finding room for the US's new trade deals under its roof. The difference between the two is that the former leads to the WTO's demise in one decisive strike. The latter option is best described as 'Chinese torture or death by a thousand cuts (or deals)'.

Just before this paper was written, President Trump announced a new flurry of duties on pharma products, big trucks, kitchen cabinets and bathroom vanities, all in the name of national security⁷⁰. Nowadays the rest of the world is left to react. The EU first announced that it planned tariffs on Chinese steel imports⁷¹, followed by Taiwan's announcement that it would curb exports of semiconductors to South Africa⁷². Russia announced its decision to block exports of petrol⁷³ and China of electric vehicles⁷⁴.

It seems that the world, in the name of geopolitics, has opened the Pandora's Box of trade uncertainty. There is nothing the WTO can do about any of these initiatives, unless its members decide to complain about it. But, so far, none have. The trade order established in 1948 and strengthened in 1995 is being replaced by disorder – a situation in which order has no place at all. Will the 'adults in the room' stand aside like Nero and watch Rome surrender to the flames, or will they do something about it? It remains to be seen.

In his acceptance speech for the presidential nomination at the Democratic National Convention in 1952 in Chicago, Adlai Stevenson said⁷⁵:

“When the tumult and the shouting die, when the bands are gone and the lights are dimmed, there is the stark reality of responsibility.”

May this spirit guide the leaders called to decide the future of multilateralism. ■

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Endnotes

1. This phrase is admirably precise and refreshingly truthful. The US, as we explain later on, is not addressing the trade deficit *per se* through this instrument, but only the trade deficit in the context of goods-trade. The US is, in fact, running a persistent trade surplus in the realm of services trade. Services represent 80 percent of US gross domestic product (GDP). See World Bank, [‘Services, value added \(% of GDP\) - United States’](#).
2. The S&P 500 index of US companies had fallen by 12.1 percent by the time markets closed on 8 April 2025 as investors panicked about tariffs potentially causing a recession in the US. However, it was not just US shares that lost value. In the UK, markets fell by 10.8 percent by 9 April. Simon Evenett and Johannes Fritz astutely observed that the Liberation Day tariffs constituted a shift: the US is not targeting China anymore; is targeting the entire world. See Simon Evenett and Johannes Fritz, [‘US Reciprocal Tariffs: Upending the Global Trade Policy Landscape’](#), VoxEU, 3 April 2025.
3. At the time of writing, only three of the deals appear on an official US government webpage, namely: White House, 8 May 2025 [‘General Terms for the United States of America and the United Kingdom of Great Britain and Northern Ireland Economic Prosperity Deal’](#); White House, 21 August 2025, [‘Joint Statement on a United States-European Union framework on an agreement on reciprocal, fair and balanced trade’](#); and White House, 22 July 2025, [‘Joint Statement on Framework for United States-Indonesia Agreement on Reciprocal Trade’](#).
4. Tucker (2022) mentioned that this instrument had been used six times in the past, as US presidents before Donald Trump had acquiesced to only six of 49 petitions. For a full discussion, see Mavroidis (2025).
5. See World Trade Organization, [‘DS556 United States — Certain Measures on Steel and Aluminium Products’](#), 26 January 2023.
6. ‘Appeal into the void’ is the consequence of the first Trump administration’s decision to stop renewing the mandate of the WTO Appellate Body members (the second instance court). The Dispute Settlement Understanding (DSU), the agreement organising adjudication within the WTO regime, was not amended, and as a result the Appellate Body continued to exist as a sort of legal fiction. So, a losing party can always appeal a hostile panel report to an Appellate Body that lacks the capacity to adjudicate. During the appeal process, the report does not enjoy any legal status and

consequently cannot be enforced. The US appeal into the void did not stop the EU and others from rebalancing their tariffs on steel vis-à-vis the US. President Biden sought a deal with the EU exempting its exports from tariffs for two years in a row. See Reuters, [‘Biden extends EU steel, aluminium tariff exemption for 2 years’](#), 28 December 2022.

7. Deborah Elms, [‘Napkin deals and trade edicts: The only certainty in global trade is uncertainty’](#), Hinrich Foundation, 5 August 2025.

8. Chris Kay, Krishn Kaushik and Andres Shipani, [‘Narendra Modi Tells Indian He Will Never Compromise in Face of 50% Tariffs’](#), The Financial Times, 7 August 2025.

9. The legality of tariffs has been challenged on constitutional grounds, as we explain later.

10. Some details about these deals have emerged – even though the WTO continues to be officially unaware of them. It was reported that Japan had 45 days, counting from 2 September 2025 when President Trump formally enacted the terms of the deal, to invest \$550 billion in areas earmarked by the President himself, and revealed details about the splitting of profits between the US and the investor (Japan). See Aime Williams and Leo Lewis, [‘Trump to Direct Japan’s \\$550 billion Investment in US After Deal with Tokyo’](#), The Financial Times, 6 September 2025. Their story makes claims by developing countries, dating from the 1980s and regarding the direction of investors and distribution of benefits, pale in comparison to the US-Japan deal.

11. It has been hinted that the EU and the US have signed a WTO-consistent FTA. If this were the case, then of course, at least the violation of the MFN would have been ‘healed’. But this is hardly the case from a legal point of view. Article XXIV of GATT allows for deviations from the MFN if two or more parties reduce or eliminate their tariff protection. Here we observe the opposite trend. Furthermore, there is nothing like a plan that has been worked out to reduce/eliminate the current tariff protection in the foreseeable future. Hence, this argument should be discarded. See Joost Pauwelyn, [‘Wait a minute, did the EU and the US just conclude a free trade agreement in line with WTO rules?’](#) LinkedIn, undated.

12. Feaver (2024) formulated in prescient terms his claim that the second Trump administration would keep “transactionalism” as the cornerstone of its foreign policy, despite having little to show from its experience during the first administration. See Peter D Feaver, [‘How Trump Will Change the World’](#), Foreign Affairs, 6 November 2024.

13. Except for the three deals published on the USTR webpage (footnote 3), President Trump has further published some features of the deal with Korea via his Truth Social account. See [here](#).
14. The WTO endorses Compulsory Third-Party Adjudication (CTPA), and it is WTO panels that will be called on to adjudicate all disputes on the subject-matter which comes under the jurisdiction of the WTO. The current USTR, Jamieson Greer, left no doubt that this is not an option for the Trump administration, when stating: "... Importantly, these commitments are actionable, and the United States will enforce them. Rather than the drawn-out dispute settlement process favoured by the old guard of trade bureaucrats, the new US approach is to closely monitor implementation of the deals and swiftly reimpose a higher tariff rate for noncompliance if needed. President Trump uniquely recognizes that the privilege of selling into the world's most lucrative consumer market is a mighty carrot. And a tariff is a formidable stick." See Jamieson Greer, [‘Why We Remade the Global Order’](#), New York Times, 7 August 2025.
15. On 11 September 2025, the highest Brazilian Court sentenced Bolsonaro to 27 years in prison for inciting an insurrection against the legitimately elected government of Brazil. At the time of writing, it remains to be seen how the US government will react to the news. See Ana Ionova and Jack Nicas, [‘Bolsonaro Sentenced to 27 Years in Prison for Plotting Coup in Brazil’](#), New York Times, 11 September 2025.
16. Reportedly, the truce between the US and China was extended for 90 more days, until November 2025. See James Politi and Ryan McMorro, [‘Donald Trump Extends Trade War Truce with China’](#), The Financial Times, 12 August 2025.
17. We would like to underscore here that Brazil is not contesting the legality of a deal under the WTO rules, but simply the legality of higher tariffs.
18. White House, [‘Statement on President Trump’s Declaration of a National Emergency’](#) 2 April 2025.
19. Discussed in detail in Mavroidis (2025).
20. See WTO, [‘DS597: United States — Origin Marking Requirement’](#).
21. Michael Acton, Tim Bradshaw, Aimee William, James Politi and Demetri Sevastopulo, [‘Donald Trump Threatens 100% Tariffs on Chips but with a Carve-Out for Apple’](#), The Financial Times, 7 August 2025.
22. This provision has been consistently interpreted widely; see, for example, *United States v. U.S. Shoe Corp.* 523 U.S. 360 (1998).

23. *Fairbank v. United States* (1901), 181 U.S. 283, 293; *A.G. Spaulding & Bros. v. Edwards* (1923) 262 U.S. 66, 69, 70.
24. White House, '[Fact Sheet: President Donald J. Trump Takes Action to Address the Threat to National Security from Imports of Copper](#)', 30 July 2025.
25. Hervé Jouanjean, Jennifer Hillman and Joost Pauwelyn, '[How the US Reciprocal Plan Could Save the WTO](#)', *International Economic Law and Policy Blog*, 24 February 2025.
26. Most vocal among them, US Senator Jacky Rosen issued a letter arguing that the Section 232 tariffs were running against the interests of US small and medium enterprises; however, no US Senator has defended the global trade order. See Office of Jacky Rosen, '[Rosen Statement on Trump's Cost-Raising Tariffs Going Into Effect](#)', 1 August 2025.
27. Many of those who do oppose Trump's policies, like Michael Froman, still take issues with the relevance of MFN. See Michael Froman, '[After the Trade War](#)', *Foreign Affairs*, 11 August 2025.
28. The CIT found that both the Liberation Day, as well as the 'trafficking' tariffs (eg. the tariffs against Canada, China and Mexico for not effectively addressing the trafficking of opioids), violated US law as the President could not have invoked emergency powers under the International Emergency Economic Powers Act to impose them. See *V.O.S. Selections Inc., v. Donald J. Trump*, 25-1812.
29. IEEPA refers to the International Emergency Economic Powers Act, a 1977 US federal law that authorises the president to regulate economic transactions after declaring a national emergency related to a foreign threat.
30. *Yoshida Int'l v. United States*, 378 F. Supp. 1155, 1175–76 (Cust. Ct. 1974).
31. These are the two sets of tariffs imposed by President Trump. The reciprocal tariffs refer to the Liberation Day tariffs, and the court here was using the name that the Trump Administration had officially applied. The 'trafficking' tariffs were a more specific set targeting imports from China, Mexico and Canada because of their alleged roles in facilitating illegal immigration and fentanyl trafficking.
32. The CIT could still decide on an injunction, but it is quite doubtful that this will be the case. Between the CIT and CAFC decisions, the US Supreme Court in *CASA v. Trump* (606 U.S. 2025) made it almost impossible for Federal Courts to issue nation-wide injunction relief. Instead of universal relief, Federal Courts are to provide 'complete relief' only to the specific

plaintiffs who have standing in the case before them. Thus, they can only address the specific harm suffered by the actual parties to the litigation. Litigants seeking to affect a larger group of people must pursue their claims as a class action under Federal Rule of Civil Procedure 23. Of course, all this might be a pure academic discussion, as the Supreme Court could step in to stay an injunction until it has decided itself in definitive manner. See [CASA v. Trump \(606 US 2025\)](#). Pahis (2025) provided an excellent and succinct account of this litigation.

33. Section 122 of the Trade Act of 1974 gives the President the authority to impose a temporary tariff of up to 15 percent for up to 150 days to address “large and serious United States balance-of-payments deficits.”

34. [Section 301 of the Trade Act of 1974 \(1974\)](#) (Public Law 93-618).

35. EU trade officials went on record stating that the ‘deal’ they signed with the US had nothing to do with economics. See Janan Ganesh, [‘Europe’s Necessary Appeasement of Donald Trump’](#), The Financial Times, 24 September 2025.

36. See Joseph Gagnon, [‘Why Higher Tariffs Won’t Shrink the Trade Deficit’](#), Realtime Economics, 24 February 2025, Peterson Institute for International Economics.

37. Woodward (2020) included in his account of the Trump Presidency the following dialogue between President Trump and WTO Director-General Roberto Azevêdo (p. 225): “Roberto, you treat us very badly. The United States is considered this very wealthy place, and China is considered a developing nation, and India’s a developing nation. If you’re a developing nation, you get things that nobody else will get. We’re going to be a developing nation. When Azevedo protested, Trump said ‘Here’s what I’m doing. I’m pulling out of the World Trade Organization’”.

38. US Department of Commerce [‘Notice of Request for Public Comments on Section 232 National Security Investigation...’](#), Docket No. 250924-0160, 26 September 2025; US Department of Commerce [‘Notice of Request for Public Comments on Section 232 National Security Investigation’](#), Docket No. 250924-0161, 26 September 2025.

39. For example, Harry Murphy Cruise, [‘The Future of Trade: Tariffs, Taxes, and Economic Trends’](#), Oxford Economics Blog, 5 August 2025, and Alan Wolff, [‘Are Trump’s Tariffs a Path to a New World Trade Order?’](#), Realtime Economics, 11 August 2025, Peterson Institute for International Economics. They add that President Trump has not established a new trade order but has simply set requirements for dealing with the US.

40. European Commission, *'Statement by President von der Leyen on the deal on tariffs and trade with the United States'*, 27 July 2025.
41. This Index measures the level of uncertainty surrounding trade policy by tracking the frequency of news articles that mention both 'trade policy' and 'uncertainty' keywords. It was developed by Federal Reserve economists and helps to gauge the potential impact of trade policy uncertainty on the economy. See [Policy Uncertainty website](#).
42. World Trade Organization news of 28 July 2025, *'DG Okonjo-Iweala appoints new Deputy Director-General'*.
43. The US has also been strengthening its critique of the WTO Secretariat for overstepping its mandate without, however, offering persuasive arguments to substantiate its claims. See James Bacchus, *'Another Misguided US Attack on the WTO'*, Cato at Liberty, 28 March 2025, Cato Institute. See also [WTO Doc. G/C/M/150 of 27 January 2025 at pp. 81](#).
44. See the WTO Secretariat Budget for 2025 [website](#).
45. White House, *'Historic Pocket Rescission Package Eliminates Woke, Weaponized, and Wasteful Spending'*, 29 August 2025.
46. There are no provisions in the WTO Financial Regulations (WTO doc. WT/L/156/Rev. 4 of 2 February 2023) to expel members that are in arrears with their payments. Only the Administrative Measures mentioned in Annex B of the quoted document can be applied. The severity of sanctions escalates as they fall further behind with their payments. After the third year that they have been in arrears, members will be designated 'Inactive'. But this does not mean that they cannot vote (and thus block consensus). The most severe penalty is that a defaulting member cannot have its delegates chair WTO committees – hardly a threat for those defaulting. The list of members in arrears is read out at the end of every General Council meeting. It is also reflected in the minutes of the meetings. This is some form of 'name and shame', but it has hardly been effective. The personal engagement by former Directors-General of the WTO, who raised the issue in bilateral meetings with ministers of defaulting members, is probably the most effective way to persuade a defaulting member to pay up. It is doubtful that this would work in the present circumstances.
47. The European Commission has lost no time in proposing the tariff reductions necessary to honour the deal struck with the US. See European Commission press release of 28 August 2025, *'EU proposes tariff reductions to implement EU-US deal'*.

48. See White House from 29 August 2025 (footnote 45). See also Olivia Le Poidevin, Andrea Shalal and Emma Farge, [‘White House drops World Trade Organization from list of funding cuts’](#), Reuters, 4 September 2025.
49. We read, for example, in §1 of the Joint Statement between the US and the EU “(...) that the European Union intends to eliminate all tariffs on U.S. industrial goods”. §4 of the same document refers to rules of origin that the two partners will negotiate to ensure that benefits under their deal will accrue predominantly [sic] to the US and the EU. See European Commission, [‘Joint Statement on a United States-European Union framework on an agreement on reciprocal, fair and balanced trade’](#), 21 August 2025.
50. The Multi-Party Interim Appeal Arbitration Arrangement (MPIA) is an agreement among several WTO members to provide an interim appellate mechanism for disputes, as the WTO’s Appellate Body is currently unable to function. The MPIA is based on Article 25 of the DSU.
51. Mexico has been weighing the pros and cons of imposing tariffs on non-FTA partners. See David Alire Garcia and Amy Stillman, [‘Mexico Weighs Tariffs on China, Others Without Trade Deal \(1\)’](#), Daily Tax Report, 5 September 2025. If this happened, then we might be witnessing a domino effect on tariff re-alignment. This sort of behaviour is yet another risk factor casting doubt on the longevity of the current status quo.
52. The Philippines, for example, applies an MFN rate of 20 percent on motor cars coming under HS 877021010. It imposes a five percent duty on its imports originating in FTAs it has signed with WTO members (WTO Tariff & Trade Data, Integrated Database and Consolidated Tariff Schedules). And it agreed to apply zero percent duty on imports of US motor cars.
53. WTO, [‘DS641: Canada — Surtax and Tariff Rate Quotas on Imports of Certain Steel and Aluminium Goods, Including Goods Containing Chinese-Origin Inputs’](#).
54. Interestingly, Helpman (2025) noted that trade within the ‘China bloc’ and within the ‘US bloc’ (assuming we can speak of two blocs) is increasing faster than international trade in general.
55. Ngozi Okonjo-Iweala, [‘A Stress Test for the WTO’](#), The Financial Times, 4 September 2025.
56. Referring here to the work of Keohane (1984) and Snidal (1985).

57. As argued by Anne O Krueger, *'Trump's Tariffs Chaos Could Reverse 80 Years of Economic Progress'*, The Project Syndicate, 23 April 2025; and Kristen Hopewell, *'To Save the Global Economy Kick the US Out of the WTO'*, Politico, 7 July 2025. See also Horn and Mavroidis (2025).
58. See the discussion of this provision in Horn and Mavroidis (2025) and Howse (2025).
59. The [WTO Safeguards Agreement](#) allows signatories to temporarily close their markets when facing unanticipated volumes of imports. Alas, case law has interpreted it in very strict manner, making recourse to this instrument almost impossible. A 'flexibilisation' of the current regime would help address the concern of the US that it should be able to close its market whenever warranted, without being subjected to onerous countermeasures.
60. Crisis cartel refers to the collaboration between government and private sector, or even between organisations, during unprecedented conditions (eg. an economic crisis) to counter the effect of disruption.
61. Mavroidis (2022a) provided a succinct account of the negotiating history of the DSU, paying particular attention to the role of the US, a catalyst by any reasonable benchmark in this context.
62. CPTPP is a free trade agreement between 12 countries: Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, the United Kingdom and Vietnam. See European Commission press release of 23 June 2025, ['Joint read-out from the meeting between President von der Leyen and Prime Minister Luxon'](#).
63. But recall that the analysis by Carvalho et al (2025) cast doubt on whether an EU-CPTPP coalition would be incentivised to invest in a new global regime. It seems likelier that this will become a 'club' agreement, which willing players might join.
64. See Ursula von der Leyen, *'2025 State of the Union Address'*, 10 September 2025.
65. Irwin et al (2008) argued persuasively that the like-mindedness of participants was key to the successful negotiation of a trade-cum-security agreement that probably seemed unattainable a few months before the negotiation had started.
66. Calculated using WTO membership fees as a proxy. Using the same calculation methodology, the US represents approximately 11.5 percent of world trade.

67. The unravelling of cooperation does not necessarily entail the elimination of blocs; see Gideon Rachman, *'The relationship between Xi and Putin is built to last'*, *The Financial Times*, 20 May 2024. Goddard (2025) argued that in President Trump's conception of things, three blocs should emerge out of the destruction of the multilateral order, one led by the US, one by Russia and one by China. It is of course, hard to predict what happens next, but the signals that the current US administration sends to denote its dissatisfaction with the current international order are both loud and clear.
68. Mavroidis (2022b) provided the full list of disputes in which the US prevailed, and when faced with intransigence (since the European Economic Community as it was then known refused to adopt the reports), the US had recourse to unilateral retaliation by increasing its duties in a series of products of interest to key European lobbies.
69. Bagwell and Staiger (2004) astutely observed that there are mechanisms built into the GATT/WTO legal system which aim to reduce the potential for free-riding, but they also conceded that these mechanisms reduce but do not eliminate free-riding.
70. Ana Swanson, Rebecca Robbins and Peter Eavis, *'Trump Will Slap Tariffs on Imported Drugs, Trucks and Household Furnishings'*, *New York Times*, 26 September 2025.
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72. Debby Wu, Yian Lee, Antony Sguazzin and Loni Prinsloo, *'Taiwan Pauses South African Chip Export Curbs After Two Days'*, *Bloomberg News*, 25 September 2025.
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Reforming the global trading system

The global trading system needs to reform. Ignacio García Bercero considers a first step in coalition building where two of the world's major trading blocs have signalled their willingness to work to repair a system undermined by the US and China

An initiative to reform the global trading system, on the basis of cooperation between the European Union and the twelve nations of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), took a first significant step on 20 November. Trade ministers from the two blocs met and **issued a statement** expressing concerns about economic coercion and market distorting practices leading to excess capacity.

This can be read as criticism of both the United States and China, though neither were named. Other shared understandings reflected in the statement include a commitment to ensure that measures impacting on trade are *“implemented in a transparent manner consistent with existing rules governing trade and investment.”* At a time when there is a risk of the EU adopting measures contrary to its World Trade Organization and free-trade agreement (FTA) commitments, this is an important message.

CPTPP members represent 13% of world GDP and about 15% of global trade. The EU, for which the figures are **about 15% and 16%**, respectively, already has FTAs with all CPTPP members except Australia, Malaysia and Brunei, and it is negotiating such agreements with the first two. The CPTPP was initially negotiated with the US and many of its rules are based on the model the US follows in its FTAs.

There are therefore major differences between the CPTPP provisions and those in EU FTAs. For the EU to join the agreement would have little added value. It is therefore fitting that the two blocs plan instead to reinforce cooperation with the common objective of strengthening rules-based trade at a particularly challenging time.

There has been some speculation that EU-CPTPP cooperation could be the basis for an alternative trading system in light of the crisis around the WTO. To counter such perceptions, much of the 20 November joint statement

is dedicated to signalling support for work to reform the WTO. This is framed as reinforcing the relevance and effectiveness of the WTO in addressing challenges *“including practices which distort trade and investment flows.”*

There is also support in the statement for the incorporation into the WTO of open plurilateral agreements, in particular the [Agreement on Electronic Commerce](#), agreed in 2024, and the 2023 deal on [Investment Facilitation for Development](#). Because of the difficulty of reaching a multilateral agreement on reform of the WTO’s main

The trade ministers’ 20 November statement could prove to be a first step in building a coalition to reform the global trading system. But this also requires all participants to avoid measures that contradict their WTO commitments, or those entered into in FTAs

dispute settlement mechanism – which is [presently non-functioning](#) – there are calls to avoid measures that block the resolution of ongoing disputes and to expand participation in the [Multi-Party Interim Appeal Arbitration Agreement](#), an alternative set up in 2020 to the currently stuck WTO procedures. EU/CPTPP cooperation should be intensified in the lead up to the next WTO Ministerial in March 2026, the statement said.

The statement also identifies work streams for EU-CPTPP bilateral cooperation, beyond WTO reform efforts. These include expanding bilateral trade in goods and services, improving customs procedures, addressing non-tariff barriers and streamlining border and regulatory processes. On digital trade and supply-chain resilience, there is a suggestion that the EU and CPTPP may be open to negotiate common rules, although the language remains very cautious. Such cooperation could be discussed by trade ministers at next year's WTO Ministerial.

In the meantime, officials working to prepare the next round of talks should focus on three initiatives:

- Preparing joint proposals on WTO reform: these could include a proposal to start preparatory work on updating subsidy rules;
- Evaluate the options on digital trade and supply-chain resilience: this could start with a comparative analysis of agreements that have been concluded on those issues by the EU or CPTPP members; from this, a recommendation to start negotiations could be prepared for ministers.
- Commissioning a study on possible further steps to facilitate trade between the EU and the CPTPP: this could include a common protocol of rules of origin, simplification of customs procedures and/or mutual recognition of conformity assessments.

The trade ministers' 20 November statement could prove to be a first step in building a coalition to reform the global trading system. But this also requires all participants to avoid measures that contradict their WTO commitments, or those entered into in FTAs. ■

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The shifting landscape of trade and investment



China's BRI has reorganised global value chains. Yasuyuki Todo, Shuhei Nishitatenno and Sean Brown reveal that the initiative has triggered strategic and divergent responses among major investor countries, depending on their economic and political relationships with China

 hina's Belt and Road Initiative (BRI) was launched in 2013, first aiming at the development of transport infrastructure between China and the rest of the world, including Asia, Europe, and Africa, and then expanding to energy and digital projects.

By 2024, 149 countries had signed Memorandums of Understanding (MoUs) for the BRI with China, and BRI engagement boasted US\$71 billion in construction contracts and \$51 billion in investments – the highest level since its start (Nedopil 2025). As a result, the BRI has reshaped international economic and political ties among countries and reorganised global value chains.

Some research in the dense empirical literature on the BRI has examined how it has affected trade with China, while others focus on foreign direct investment (FDI), an important part of global value chains. Generally, FDI from China to BRI countries is found to increase, possibly because of improved infrastructure that lowers production and transport costs and strengthened political relationships with China that reduce investment uncertainty (Nugent and Lu 2021, Yu *et al* 2019, among many others).

In addition to FDI from China, the BRI may affect FDI from other countries for several reasons. First, improved infrastructure may attract FDI from any country, not restricted to China. Second, participation in the BRI signals closer political alignment with China because China intends to assert greater international influence through the BRI (Huang 2016).

Under these circumstances, Western nations that are not comfortable with China's expansion in international politics could react to BRI countries in various ways. If Western nations feel that investing in BRI countries which strengthen political ties with China is risky, they could reduce FDI in BRI countries. However, if Western nations

consider they need to compete against China for political and economic leadership in BRI countries, they should increase FDI.

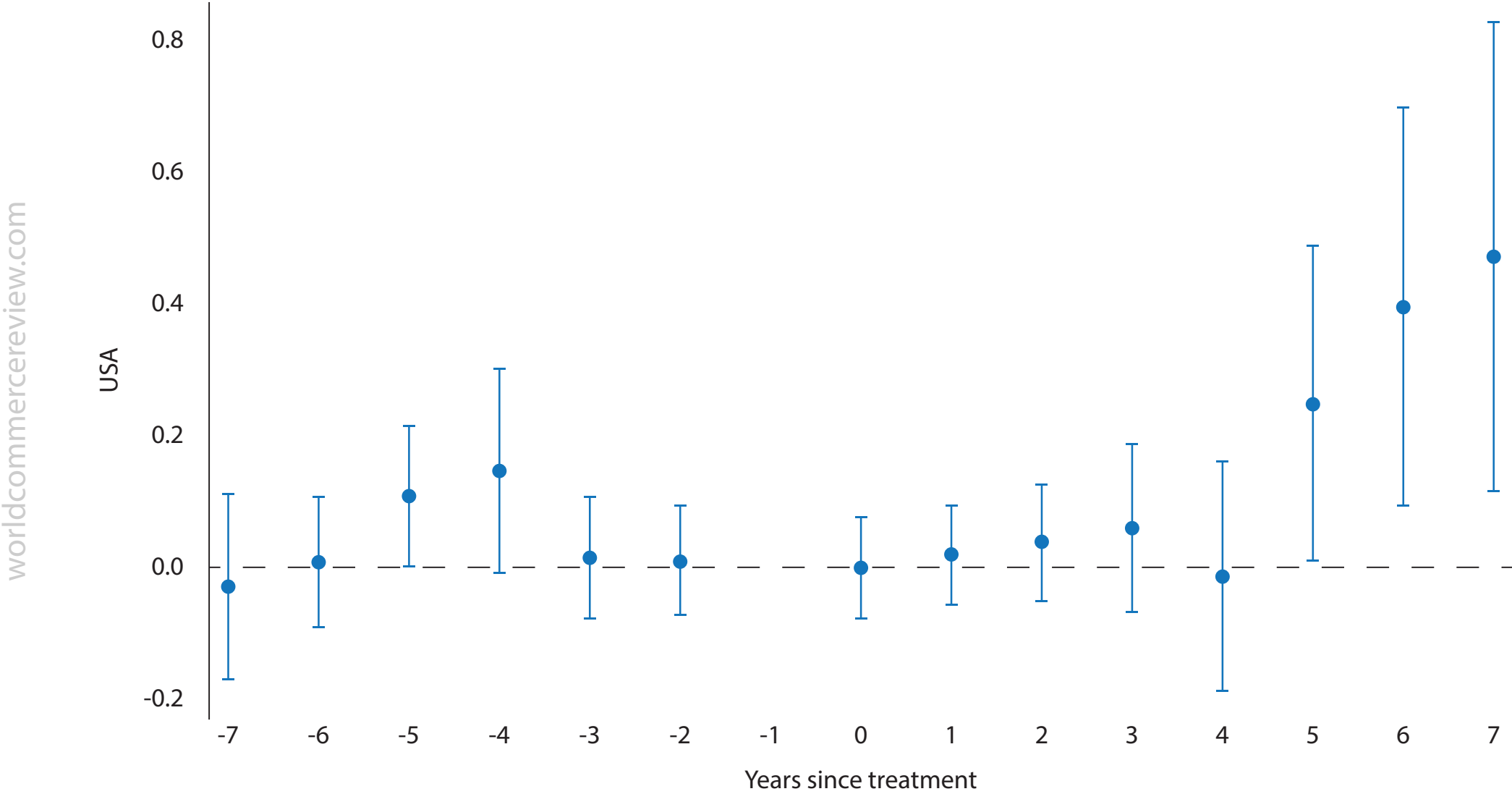
Our study (Todo *et al* 2025) examines the possible differences in the effect on FDI into BRI countries from various Western countries such as the US, Japan, and European countries, in addition to China, adopting the staggered difference-in-differences (DID) estimations to data for global bilateral FDI.

We reveal how the BRI has triggered strategic and divergent responses among major investor countries, depending on their economic and political relationships with China. The findings underscore the reality of a world where investment is no longer driven only by economic fundamentals, but also by political and security factors.

Investment is no longer driven only by economic fundamentals, but also by political and security factors

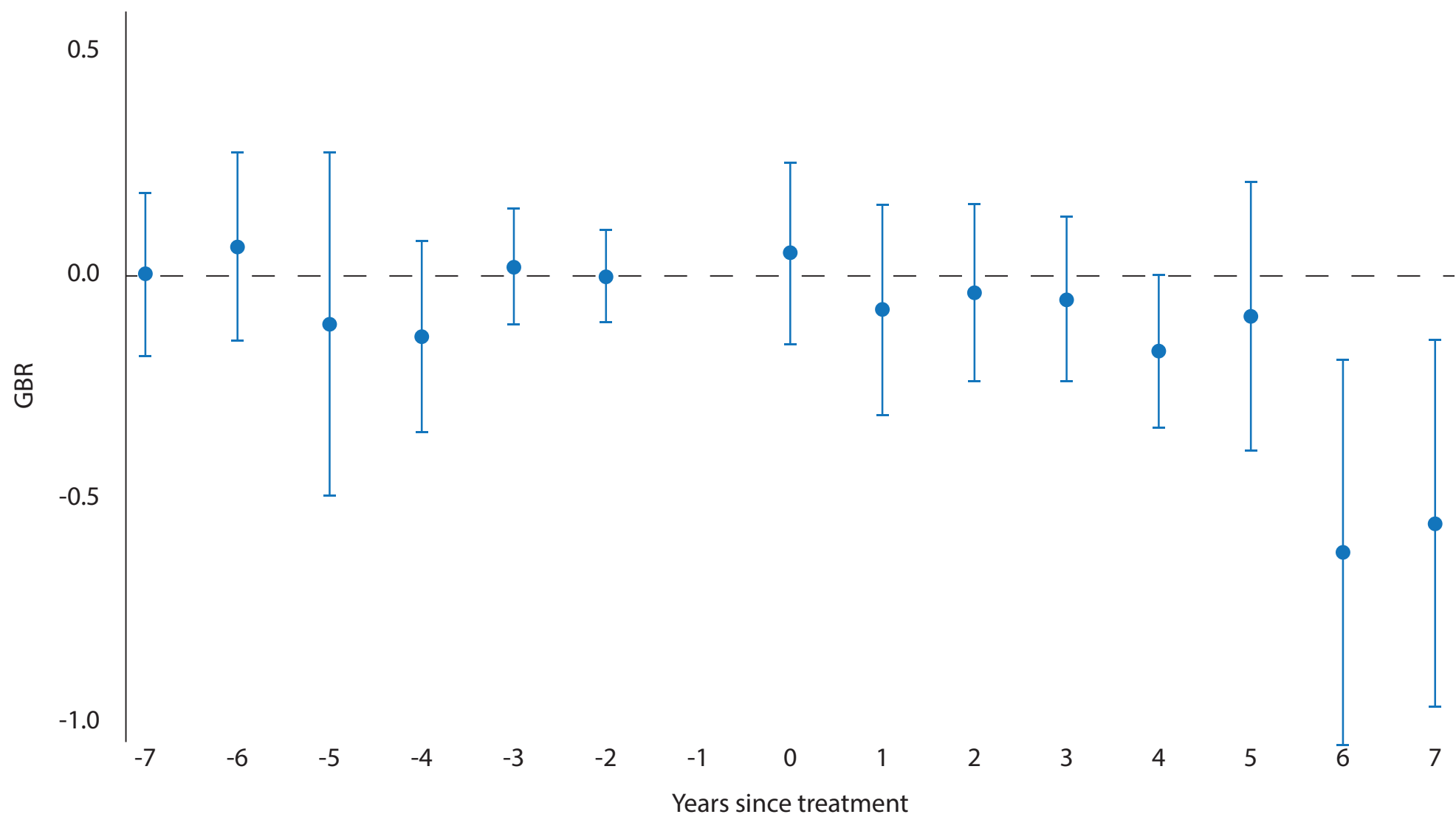
Figure 1. FDI from major Western investors to BRI countries

a) United States



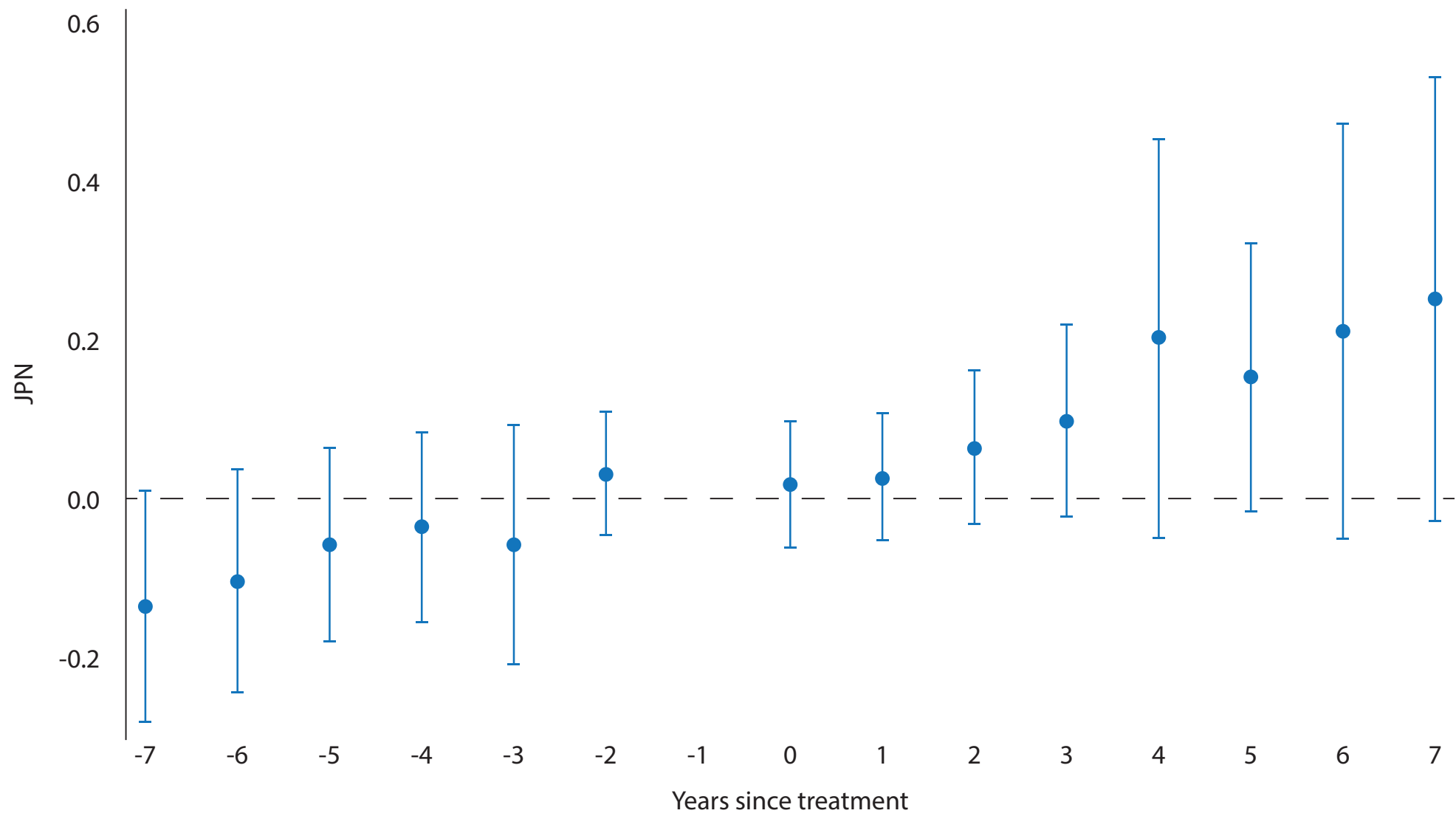
Note: The horizontal axis shows years since one year before the signing an MOU between China and the BRI country.

b) United Kingdom



Note: The horizontal axis shows years since one year before the signing an MOU between China and the BRI country.

c) Japan



Note: The horizontal axis shows years since one year before the signing an MOU between China and the BRI country.

The US: competing against China through FDI in BRI countries

First, our empirical results show that despite refusing to join the BRI, the US actually increased its investment in BRI countries after they signed MOUs with China, as shown in Panel (A) of Figure 1. Our study suggests strategic competition is a major reason for that investment.

China becoming an economic and technological superpower and strengthening economic and political ties with other countries through the BRI and other measures have added fuel to the US-China rivalry (Li 2021). Through initiatives like the Blue Dot Network and the G7's Build Back Better World, the US has sought to provide alternatives to the BRI (Savoy and McKeown 2022). FDI is part of that toolkit.

In practice, US firms and development finance institutions have targeted the same infrastructure and energy sectors where China is most active. For example, former US President Biden visited Angola in December 2024 and initiated a 1,344 km railway project together with other G7 countries in order to compete with China, which had already invested heavily in Angola's railways (BBC 2024).

This dynamic illustrates a key point: the BRI does not crowd out Western engagement everywhere; sometimes it provokes it.

The UK: avoiding risks of supply chain links with BRI countries

By contrast, the UK has reduced its FDI in BRI participant countries (Panel (B) of Figure 1). This retreat reflects a growing perception of political and supply chain risks linked to China, especially after 2018 when concerns over 5G, technology transfer, and national security intensified.

Notably, the UK government's view of China and the BRI shifted from positive to substantially negative in 2019, formally stating 'systemic challenges' from China as the reason for this shift (Ashbee 2024).

The recent literature on supply chains has demonstrated that global supply chains are vulnerable to foreign economic shocks that arise due to geopolitical issues (Alfaro and Chor 2023). Private efforts to mitigate these supply chain disruption risks seem to have resulted in a negative effect on FDI from the UK.

Japan: not strategic to deal with the BRI

Japan's pattern is more muted. We show that Japanese FDI in BRI countries rose after BRI participation, but the increase is statistically insignificant (Panel (C) of Figure 1). The result implies that the positive effect through strategic rivalry with China and the negative effect through minimising supply chains with unfriendly BRI countries cancel each other out.

Moreover, when the effect of host-country fixed effects are controlled for, we find that FDI from Japan was quite stagnant both in the pre- and post-BRI periods. This implies that host-country characteristics that do not clearly appear in data such as the levels of transport infrastructure and institutions with potential for investment led to the increasing (although insignificant) trend in FDI from Japan in the post-BRI period. This analysis confirms that Japan's FDI to BRI countries is not largely affected by its strategic stance toward China.

Autocracy and investment

We further analysed how the level of democracy of BRI countries affects FDI to these countries, finding that autocratic BRI members attracted more FDI from both China and the US than democratic members. For China, this is consistent with its preference for regime-compatible partners, where infrastructure deals face fewer transparency constraints (Huang 2016).

For the US, these findings are in line with our interpretation that the US invests in BRI countries to strategically compete with China. Because autocratic BRI countries are more likely to strengthen their economic and political ties with China than democratic BRI countries, the US is better motivated to invest in autocratic countries.

What should the West do?

Until recently, the BRI had been criticised because it caused debt crises and labour disputes in many of the member countries. However, because US President Trump has imposed high tariffs on most countries, closed down USAID, and shrunk foreign aid, countries in the Global South are currently more willing to strengthen their economic and political links with China. China has responded to this shift quickly and increased the amount of investment in BRI projects to the maximum level in 2024, after a drop during the COVID-19 pandemic period (Nedopil 2025).

Our results indicate that the Western nations did not react uniformly to the BRI by increasing FDI to BRI countries. Regardless of this, reducing economic ties with the Global South may lead to increased vulnerability of supply chains for Western nations, because diversified supply chains are found to increase their resilience (Ando and Hayakawa 2021, Kashiwagi *et al* 2021).

In addition, shrinking economic ties may also shrink political ties. Therefore, Western nations may have to change their strategic responses to the resurgence of the BRI and strengthen economic and political ties with the Global South to promote supply chain resilience and national security. ■

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The Great Divergence and the Great Reversal

The economic and political gaps between China and the West is one of the defining challenges of the modern era. Avner Greif, Joel Mokyr and Guido Tabellini argue that institutions and culture played a key role in setting Europe and China on divergent paths well before the Industrial Revolution

The economic and political gaps between China and the West is one of the defining challenges of the modern era. This contrast has deep historical roots, as the two civilizations followed starkly different paths of economic and institutional development. A thousand years ago, Europe was backwards and poor, while China had a rich and sophisticated civilisation.

Yet, Europe became the birthplace of democracy and of the Industrial Revolution, while China stagnated until the end of the 20th century and was consistently ruled by autocracies. Why did this happen, and what does it teach us about the modern world?

For more than two decades, the answer to this question has been dominated by Kenneth Pomeranz's seminal book, *The Great Divergence* (Pomeranz 2000). His analysis is nuanced and sophisticated, but Pomeranz's main argument is simple. The divergence occurred only after 1750 and was driven primarily by the Industrial Revolution.

Post-1750 growth occurred in Europe mostly for contingent reasons. Europe was fortunate to be close to coal and to the Americas, but its Industrial Revolution was not the result of intrinsic cultural, institutional, or technological superiority over China.

Given the persistent institutional divergence between China and the West, this argument has important implications for the future. We may be at the cusp of another dramatic technological revolution, which this time originated in the US, but where Europe, and not China, is now the laggard.

The dismissal of institutions and culture, however, may have been premature. In a recent book (Greif *et al* 2025), we argue that both factors played a key role in setting Europe and China on divergent paths of economic and

political development, well before the onset of the Industrial Revolution. But the role of culture and institutions was mediated by a critical difference between China and Europe: the nature of their prevalent social organisations.

Social organisations and local cooperation

In the distant past, the reach of the state was severely limited by difficulties in transportation and communication. Yet the functioning of society required forms of protection, dispute resolution, education, risk sharing, infrastructures, and religious services.

Time will tell if Chinese institutions can remain supportive of continued growth in an autocratic polity in which personal freedom and access to information are tightly controlled by a centralised government

In both societies these basic public goods were supplied locally, through forms of cooperation sustained by non-state organisations. But, due to their different cultures, the social organisations that became prevalent in these two parts of the world were very different.

In China, during and after the Song dynasty, local cooperation mostly took place within multi-purpose kin-based organisations, like the clan. The diffusion of dynastic organisations was driven by, and in turn supported, the Neo-Confucian culture that became increasingly influential in the second millennium.

The emphasis on loyalty to one's kin and the willingness to cooperate within extended families increasingly became the foundation of Chinese society at the local level (Freedman 1958, Wang 2022). Ancestor worship, an ancient feature of Chinese society, became more pronounced as clan members realised that a shared ancestry was the common denominator that kept them together. Clans developed detailed books of rules in which the loyalty of members and their obligation to cooperate with one another were specified, and the right of 'elders' to remain in control was stressed.

This evolution of social arrangements was welcome by the Imperial government, which increasingly relied on clans to maintain local law and order and enforce tax collection.

At roughly the same time, much of Western Europe moved in the opposite direction. Extended families remained important, but much of the cooperation that mattered after c. 1000 was gradually taken over by corporations. These were associations held together by a common purpose, not by shared ancestry.

For instance, medieval guilds sustained economic and social cooperation. Monasteries and universities provided religious and educational services. Self-governing cities developed the concept of citizenship and enforced

cooperation on a range of issues. These corporations provided mutual insurance, conflict resolution, education, and other local public goods, just like Chinese clans, but they rested on very different cultural foundations and governance principles.

Unlike Chinese clans, European corporations were open to strangers, scalable, had an exit option, relied on formal governance and enforcement, and their members often belonged to several overlapping associations.

This divergence in European versus Chinese social arrangements co-evolved with cultural divergence. In Europe, the rise of corporations and the demise of extended families were supported by the Catholic Church, which in turn derived benefits from its symbiotic relationship with monasteries and autonomous towns (Goody 1983).

In China, the clan system, the growing influence of Neo-Confucianism, and the proliferation of ancestor worship were synergistic. In this sense, the Great Divergence was a self-reinforcing process.

By about 1500, this social divergence was more or less complete. Europe had become a world where people mostly lived in nuclear families and cooperated within local corporations. In contrast, China was organised in clans that gradually assumed the functions of the imperial administration.

Social organisations and institutional divergence

The distinct social structures of Europe and China profoundly shaped their political institutions. Three aspects stand out. The first is their legal systems. In China, where the state was stronger from the beginning, the legal system was designed top-down with two main goals: to maintain stability and to govern relations between the administration and its subjects.

Civil law was secondary, as commercial disputes were usually settled by clans through arbitration, with magistrates intervening only when these failed.

In Europe by contrast, where the state was initially much weaker, the legal system had a bottom-up origin. Legal principles first emerged from private contracts within corporations and merchant communities during the Commercial Revolution of the 12th and 13th centuries, eventually becoming codified law due to the work of legal scholars in universities (which themselves were an example of a corporation).

This early focus on civil law had several implications: it clarified the legal personality and rights of corporations, strengthened them politically, and influenced state formation. Justice and law enforcement were among the first state functions, anchoring the principle of the rule of law – limiting sovereign authority and establishing equality before the law (Strayer 1970).

This early judicial role also underpinned the rise of national parliaments, which early on adjudicated elite disputes, oversaw officials and handled petitions (Boucoyannis 2021). In Europe, estates and assemblies proliferated after 1150 and laid the foundations for participatory government and the emergence of representative assemblies that negotiated with rulers.

Second, the rise of corporations – particularly autonomous cities and religious organisations – created countervailing powers to monarchs. To secure taxation, rulers granted these bodies ‘immunities’, or rights of self-government, often in exchange for revenue. These immunities anticipated modern civil and political rights, granting privileges to members of specific economic and political groups rather than by birth or ethnicity.

In China, the absence of corporate organisations and of self-governing cities meant that privileges could not be assigned to such groups. Powerful clans probably enjoyed preferential treatment in the recruitment of the state bureaucracy and exerted greater influence, but they had no formal rights or representative institutions comparable to those in Europe.

Finally, European corporate governance provided models for constitutional design. Corporations had to solve problems of hierarchy, decision making, accountability, and conflict resolution. Medieval jurists, drawing on their experience with guilds, universities, and religious orders, adapted these principles to the governance of polities, linking corporate organisation to constitutional thought. Nothing like this could happen in China, given the nature of its prevailing organisations.

Social organisations and economic development

The different social arrangements in Europe and China also shaped economic development and knowledge accumulation. European corporations (monasteries, universities, and later scientific societies and academies) were central to the creation and accumulation of knowledge that ultimately led to the Industrial Revolution.

Moreover, political fragmentation within and between European states allowed innovators to escape censorship and suppression. Autonomous cities were central to the creation of a network of intellectuals who could find shelter from reactionary priests and rulers.

In China, by contrast, education and knowledge were largely controlled by the state. Clans provided schooling, but its purpose was to prepare candidates for the imperial civil service exams. The curriculum, dominated by neo-Confucian doctrine and administered by officials, prioritised moral order and regime stability over scientific inquiry.

Beyond their contributions to knowledge accumulation and discoveries, European corporations advanced economic development in two other ways. First, they facilitated the growth of deep financial markets and long-distance trade through impersonal, legally supported institutions such as the East India Companies and other joint stock companies.

Second, European corporate structures also encouraged a capitalist organisation of production, where owners of capital have control rights and are the residual claimants of the returns on investment, while workers earn a fixed wage. This structure incentivised labour-saving innovation and the exploitation of economies of scale.

In China, by contrast, interactions were mostly between related individuals, and this slowed down the transition from a local to an impersonal economy (Harris 2020). Moreover, household production and labour-sharing arrangements were more widespread, which made labour-saving innovations less attractive.

Due to their different social arrangements, cultural traits evolved in opposite directions in China and Europe, and this too directly affected economic development. The absence of ancestor worship and lower respect for seniority made Europeans more prone to criticise accepted wisdom and to innovate.

More generally, comparing a wide range of societies, Henrich (2020) and Schulz *et al* (2019) have found that stronger kinship ties are negatively associated with specific cultural traits that are generally deemed to favour economic growth, such as impersonal trust, moral universalism, analytic thinking, individualism, willingness to cooperate with strangers.

Modern China

The Great Reversal was partially undone during the 20th century. Did this happen because Mao Zedong was able

to eradicate the cultural legacy of Confucianism and the social influence of clans? The answer is no. Mao did try to do that, and his campaigns damaged traditional structures. But they failed to eliminate kinship values, which re-emerged after Mao's death.

Even at the height of Maoist totalitarianism, kinship ties continued to play a significant role and mitigated the effects of the disastrous policies that led to the Great Famine of 1959-61 (Chen *et al* 2024).

On the contrary, a key factor behind China's remarkable economic resurgence under Deng Xiaoping was its capacity to adapt traditional institutions and cultural practices to the needs of a modern economy.

In the absence of strong property rights and formal legal institutions, kin-based networks helped sustain market activity and economic growth. Informal cooperation, rooted in kinship and local community ties, substituted for the legal and financial infrastructures that had supported Western development.

Unlike the emperors who ruled after the fall of the Song dynasty in 1279, China's modern leadership has pursued explicitly pro-growth policies, which fuelled the country's exceptional economic progress since the early 1980s. Time will tell if Chinese institutions can remain supportive of continued growth in an autocratic polity in which personal freedom and access to information are tightly controlled by a centralised government. ■

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Sanctions without borders?

Thematic sanctions are being increasingly used as a foreign policy tool. Henrietta Worthington and Jaime Rosenberg consider the benefits and challenges for multinational organisations operating across jurisdictions

Since the introduction in the US of the Global Magnitsky Human Rights Accountability Act in 2016, the EU, UK and US have increasingly used thematic sanctions as a foreign policy tool. This means that sanctions regimes have been established based on themes (ranging from corruption to terrorism) rather than being tied to a specific country.

The intention of these regimes is to establish accountability for prohibited practices as a global principle (such as protecting human rights or fighting corruption), rather than one limited by borders. This shift has several important implications across political, legal, and economic dimensions.

Thematic sanctions allow governments to freeze assets and ban travel for individuals or entities anywhere in the world which they deem to be responsible for violations of the values-based standards that they have set. There are currently ten regimes in effect across the EU, UK and US and new regimes are still emerging based on domestic and foreign policy priorities.

However, the use of these measures has also been subject to pushback from those who claim the sanctioning states are using them as a form of politicised global law enforcement.

Benefits

One of the key benefits of the establishment of thematic sanctions regimes is their flexibility. Allowing sanctioning states to act quickly to apply pressure on individuals or entities makes them extremely adaptable to emerging issues. At the same time, they reduce the potential for diplomatic fallout caused by the targeting of specific countries. Their global nature also strengthens deterrence by signalling that no one is beyond the reach of sanctions, regardless of geography.

The regimes have been used effectively by the various sanctioning states both as a coordinated measure (for example human rights designations), and also to tackle specific concerns in a particular jurisdiction. For example, the US has developed a regime to combat international drug trafficking by targeting narcotics traffickers and their associated organizations.

The Foreign Narcotics Kingpin Designation Act (the Kingpin Act) originated to target and isolate members of the powerful drug cartels in Colombia during the 1980s and 1990s. Under the Kingpin Act, the President of the United

Thematic sanctions mark a strategic evolution in coercive diplomacy: more targeted, value-driven, and flexible, but also more legally and politically complex

States may designate individuals and entities on the US Department of the Treasury's Office of Foreign Assets Control's (OFAC) Specially Designated Nationals and Blocked Persons List (SDN List) as "*Significant Foreign Narcotics Traffickers*" subjecting them to strict economic sanctions.

Meanwhile, in the UK, where illegal migration has become a significant political concern, the Global Irregular Migration and Trafficking in Persons Regulations 2025¹ (the Regulations) were introduced in July 2025. The Regulations grant the power to designate individuals and entities involved in people-smuggling, trafficking in persons, and the instrumentalisation of migration for destabilising purposes.

The Regulations provide for asset-freezes, travel bans and director disqualifications against designated persons. The first wave of 25 designations were made in July. The extent to which the measures are having any practical effect, such as disrupting finances, or preventing the operations of smuggling networks is not yet known.

However, to bolster the measures, the Global Irregular Migration and Trafficking in Persons Sanctions (Overseas Territories) Order 2025² came into effect in October which applies the migration sanctions measures to the UK's overseas territories.

Challenges

The rise in thematic sanctions has created major compliance challenges for companies, especially multinational organisations operating across jurisdictions. Companies can no longer focus compliance just on 'high-risk countries', but rather risk assessments must now address both behavioural risk (what the counterparty does), as well as geographic risk (where they are located).

The rise of these regimes increases the importance of robust due diligence and beneficial ownership tracing. Companies must apply a risk-based approach and ensure that their due diligence measures go beyond name-based checks to thoroughly examine counterparties' activities, ownership, and affiliations. This should include sufficient scrutiny of ownership structures and identification of the ultimate beneficial owner.

They should also ensure that their policies and procedures are regularly updated, and establish procedures for handling potential matches, including internal training and clear escalation protocols.

In addition to the complex compliance burden, there have been questions over the efficacy of thematic sanctions and whether they will have sufficient 'bite'. They are more symbolic in purpose: signalling the condemnation of certain behaviours.

However, whether they can serve as an effective coercive economic measure remains to be seen. Further, whilst they can be used to diffuse political fallout, they may also act to strain diplomatic relations with countries whose nationals are targeted, if not used carefully. Additionally, there have been concerns raised about the overuse of sanctions measures (both thematic and geographical) and whether this serves to undermine their value, by pushing companies to use other currencies or other circumvention measures.

One regime that has received pushback is the current US Administration's sanctions on individuals currently serving on the International Criminal Court (ICC). In February 2025, the Administration issued Executive Order (EO) 14203 *"Imposing Sanctions on the International Criminal Court,"* which states that, *"[t]he ICC has, without a legitimate basis, asserted jurisdiction over and opened preliminary investigations concerning personnel of the United States and certain of its allies, including Israel, and has further abused its power by issuing baseless arrest warrants targeting Israeli Prime Minister Benjamin Netanyahu and Former Minister of Defense Yoav Gallant."*

The EO also states that the ICC does not have jurisdiction over the United States or Israel, not being signatories to the Rome Statute. In a press release, experts at the United Nations expressed concern regarding the EO stating that, these sanctions *“are a direct assault against the independence of the tribunal”* and that *“[t]he US Government must uphold the rule of law and the independence of judges and prosecutors by rescinding these sanctions.”*³

Thematic sanctions mark a strategic evolution in coercive diplomacy: more targeted, value-driven, and flexible, but also more legally and politically complex. Their effectiveness will depend on transparency, international coordination, and whether they produce measurable behavioural change rather than simply symbolic condemnation. ■

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1. <https://www.legislation.gov.uk/uksi/2025/902/introduction/made>.
2. <https://www.legislation.gov.uk/uksi/2025/1092/made>.
3. <https://www.ohchr.org/en/press-releases/2025/08/us-sanctions-icc-officials-undermine-independence-tribunal-and-justice#:~:text=%E2%80%9CSanctioning%20ICC%20judges%20and%20prosecutors,the%20Court%2C%E2%80%9D%20they%20said>.

Trump's tariffs as fiscal folly

In 2025 the US government underwent a large fiscal switch. Kimberly Clausing and Maurice Obstfeld evaluate tariffs as a broad tool of fiscal policy, reviewing both tax policy and macroeconomic considerations, and concludes that this fiscal switch will leave most Americans worse off

In 2025, the US government underwent a large fiscal switch. The US Congress enacted large income tax cuts, while the second Trump administration put new tariffs on goods at levels not seen in the US since the Great Depression. Such high tariffs are unheard of in the modern experience of most rich nations.

Typically, in high-income countries, tariff revenues account for a mere 1.25% of the value of goods imports and less than 2% of total government revenues¹.

While there are ample analyses of the first Trump administration's China tariffs² and detailed histories of the use of tariffs in the US (Irwin 2017), the full implications of the administration's 2025 fiscal pivot will take time to unpack. In a recent paper (Clausing and Obstfeld 2025), we begin by evaluating tariffs as a broad tool of fiscal policy, reviewing both tax policy and macroeconomic considerations.

By these criteria, this fiscal switch will leave most Americans worse off. The negative distributional effects of tariffs are compounded by high efficiency costs, negative political economy consequences, and the twin macroeconomic pressures of negative supply shocks – upward price pressures and reduced economic growth.

While tariff revenues have burgeoned under the new Trump tariff policies, reaching about [\\$30 billion per month in August 2025](#), several factors will determine the long-run revenue potential of US tariffs, including increasing rates of pass-through over time (as companies raise prices more if tariffs prove long-lasting), behavioural responses, tax avoidance, and the ability of firms to lobby for exemptions.

Other key considerations also reduce the fiscal benefits from tariffs, including mechanical reductions in other parts of the tax base (as tariff dollars cannot be simultaneously taxed elsewhere), payments to industries losing market share abroad (eg. farming), and the effects of reduced economic growth on the overall tax base.

Figure 1. US effective tariff rates: Customs duties relative to total spending on goods imported, 1929-2025



Note: Actual revenues may be lower than those implied by this rate due to myriad exemptions.
Source: Data on customs and imports are from the US Bureau of Economic Analysis. The 2025 tariff is from Budget Lab (2025a).

There are also legal uncertainties regarding the President's tariff regime. If the US Supreme Court backs lower court rulings that invalidate the President's broad use of tariff authority under the International Emergency Economic Powers Act (IEEPA) – as many legal scholars deem highly possible – that will reduce the administration's flexibility in raising tariffs and is likely to substantially dampen tariff revenue. In 2025, most new US tariff revenues flow from IEEPA tariffs.

While tariffs can be a useful tool for some circumstances in a rules-based system, the Trump administration's ad hoc deployment of high tariffs against nearly every country in the world does serious harm to US international economic and political relations

If such broad tariffs survive legal challenges, tariffs could net about \$2 trillion in revenue over the coming ten-year budget window. While projected US tariff revenues are insufficient to pay for the tax cuts enacted as part of the 2025 budget legislation (\$3.4 trillion over the budget window), they may prove hard for future US administrations to forgo, given the high current path of US deficits and debts³.

Still, potential tariff revenues are limited. Even if tariffs were levied at revenue-maximising rates, they would finance less than one-fifth of current US federal personal income tax revenue. Even tariffs at today's rates come with serious downsides.

We calculate that tariffs have efficiency costs that approximate 30% of revenue raised at current (September 2025) US tariff rates, and efficiency costs would reach 90% of revenue raised at revenue-maximising tariff rates⁴.

Moreover, tariffs are a more regressive tax than the income tax, since poorer households save very little of their income in comparison with richer households. (While tariffs are less efficient than value-added taxes, they have similar distributional effects; saving is exempt from both taxes.) The 2025 tax and budget legislation (OBBBA) cut Medicaid and food assistance, generating negative income effects for the bottom three deciles of the US population.

The legislation has a further regressive impact overall because tax cuts are a higher share of after-tax income for households higher in the income distribution. The tariffs add to this regressivity, and they generate a negative net impact for most households. For all but the top decile of the US income distribution, tax increases from tariffs outweigh the gains from OBBBA tax cuts (Budget Lab 2025b).

In addition to their economic costs, tariffs create political dysfunction, as they encourage rent-seeking and corruption. Foreign governments, firms, and lobbyists seek better treatment than their competitors (through lower tariff rates or tariff exemptions).

Adding to the distortions, the Trump administration has levied tariffs in a highly coercive manner, forcing several foreign governments to offer unprecedented terms including promises of multi-hundred billion dollar investment funds that apparently would be directed by the Trump administration.

US tariffs have also been used as a punishment based on criteria completely divorced from trade. As just one example, the US levied a 50% tariff on Brazilian products due in large part to displeasure with the Bolsonaro prosecution⁵.

The current implementation of US tariff policy is haphazard and uncertain, adding both opportunities for rent-seeking and substantial unpredictability. In less than eight months (though end of August), more than 87 major policy developments have shifted the US trade environment (Bown 2025). At the same time, de minimis exceptions that streamline the customs treatment of small packages were abruptly ended, and complex new rules have complicated compliance.

These factors create administrative frictions that are particularly burdensome for smaller enterprises, and they raise costs for US importers and customs officials alike.

Supporters of tariffs may quibble with elements of implementation yet still describe the costs to households as 'worth it' to ensure two laudable aims: addressing US trade imbalances and increasing US manufacturing

production and employment. Yet tariffs will not address US imbalances, since they do not address the root cause of the imbalances.

The US is a net international borrower, driven in large part by the large fiscal imbalances of the US federal government; US budget deficits now exceed 6% of GDP in a time of peace and full employment. So far, 2025 budget deficits are following a pattern that is nearly identical to those of 2023 and 2024 (Congressional Budget Office 2025), and the OBBBA will expand budget deficits relative to pre-OBBBA forecasts in the coming years.

Further, the Trump administration's insistence that countries commit to larger foreign investment in the US, if effective, would increase trade imbalances by driving up the financial inflows that are the mirror of US current account deficits.

Although tariffs will reduce imports, they will also reduce exports through several channels. First, tariffs reallocate resources in the economy toward import-competing industries and away from export industries. All else equal, tariffs generate dollar appreciation which helps drive this reallocation⁶.

Second, exports are harmed by retaliation; the current plight of US soybean farmers is just one example of shirking markets for US exporters. Third, many US exports contain imported inputs, so tariffs raise input costs, generating negative competitiveness effects.

Beyond macroeconomic imbalances, the tariffs are also failing to lead a US manufacturing renaissance. This fact is unsurprising to those that studied past tariff episodes, including the China tariffs levied during the first Trump administration, which reduced job growth⁷.

US production in many industries has been harmed by disruption, uncertainty, and competitiveness shocks due to higher input costs. On net, the efficiency costs of tariffs will harm economic growth.

Ultimately, tariffs are a negative supply shock. Beyond harming output, they also generate upward price pressure, as both imports and goods that compete with them (or that use imported inputs) become more expensive. Upward price pressure takes time to propagate through the system for several reasons.

There was some import stockpiling before tariffs were levied, there are lagged effects of tariffs on intermediate goods, and some firms may be reluctant to raise prices until tariffs are more certain.

Indeed, there are serious uncertainties about the future path of tariffs, due to the mercurial nature of policy implementation as well as the strong possibility that the tariffs will be overturned by the Supreme Court. Still, tariffs inevitably lead to higher price levels, and the data indicate that this process is already underway.

In the end, the Trump administration's use of tariffs is misguided. Combining income tax cuts with large tariff increases risks makes the tax system less efficient, less progressive, and more prone to political abuse. The Trump tariff regime also generates stagflationary headwinds and reduces goodwill with foreign partners.

While tariffs can be a useful tool for some circumstances in a rules-based system (for example, as a remedy or safeguard), the Trump administration's ad hoc deployment of high tariffs against nearly every country in the world does serious harm to US international economic and political relations.

The underlying policy aims of tariffs, some of which are laudable, would be far better addressed through other tools. For instance, many other changes in the tax system can raise general revenue, the income tax system can

redistribute income, and subsidies can encourage strategic industries, all at a lower efficiency cost than deploying tariffs. ■

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Endnotes

1. Calculations are based on high-income OECD countries using import data from Harvard Atlas of Economic Complexity and tariff and tax revenue data from the OECD.
2. See Amiti et al (2019), Cavallo et al (2021), Fajgelbaum et al (2020a, 2020b), Fajgelbaum and Khandelwal (2022), Flaaen et al (2020), Houde and Wang (2023), Flaaen and Pierce (2024), Russ (2019), Russ and Cox (2020a, 2020b), Autor et al (2024), and Handley et al (2025).
3. Congressional Budget Office (2025b) estimates the budgetary impact of the 2025 legislation. The Congressional Budget Office (CBO) also has a static estimate of revenue potential from tariffs of \$3.3 trillion in Congressional Budget Office (2025c), higher than the \$2 trillion we note here and close to the cost of OBBBA. However, as CBO notes, tariffs will shrink the size of the economy, which will lower this estimate; CBO also does not account for some of the other relevant considerations acting to lower revenues over time. We discuss the range of tariff revenue estimates more fully in Clausing and Obstfeld (2025).
4. Revenue-maximising tariff rates are about 43%, averaging results from the two import demand specifications in Clausing and Obstfeld (2025).
5. In contrast, the Milei government in Argentina, more kindred in spirit to the Trump administration, has been promised a “whatever it takes” financial bailout, although the terms and success of this bailout remain to be seen.
6. During 2025, the US dollar has broadly depreciated. This departure from the theoretical prediction likely reflects other factors that are operating at the same time, including retaliation, political attacks on the Federal Reserve’s independence, and a possible US economic slowdown. Still, econometric studies that control for macro variables suggest that tariff shocks typically lead to appreciation and little change in trade balances (Ostry et al 2025, Furceri et al 2020, 2021).
7. See sources in footnote 2.

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The flawed rationale behind America's reciprocal tariffs

The Trump administration imposed 'reciprocal tariffs' using powers granted under the International Emergency Economic Powers Act. Gene Grossman and Alan Sykes argue that the tariffs do not meet two core requirements for the exercise of emergency powers under the Act

On 2 April 2025, US President Trump issued an Executive Order declaring a national emergency, which stated that *“large and persistent US goods trade deficits”* have caused a *“hollowing out”* of US manufacturing and a loss of manufacturing jobs, resulting in threats to national security, critical supply chains, and the defence industrial base.

The President’s Executive Order went on to suggest that the merchandise trade deficit was increasing at an alarming rate and was caused *“in substantial part by a lack of reciprocity in our bilateral trade relationships”* (The White House 2025). To address the declared emergency, the President announced the imposition of new reciprocal tariffs, consisting of a baseline tariff on all merchandise imports, and additional tariffs ranging up to 50% on goods from countries with which the US runs a bilateral merchandise trade deficit.

Under the President’s formula, the tariff rate increase for each country was set equal to the ratio of the merchandise trade deficit with that country to the total value of imports from it, subject to a minimum rate hike of 10%.

The tariffs were imposed using emergency powers given to the President under the International Emergency Economic Powers Act (IEEPA), which empowers the President, after a national emergency declaration, to undertake measures *“to deal with any unusual and extraordinary threat, which has its source in whole or substantial part outside the United States, to the national security, foreign policy, or economy of the United States.”*

A variety of private and public sector plaintiffs sued in response, arguing that IEEPA does not authorise the reciprocal tariffs. These lawsuits were successful in courts of first instance including the Court of International Trade. The Federal Circuit Court of Appeals subsequently affirmed that decision in a 7-4 ruling declaring the tariffs to be unlawful under IEEPA. The matter is now on expedited appeal before the US Supreme Court, with oral argument scheduled for 5 November.

In a recent paper (Grossman and Sykes 2025), we offer an economic and historical perspective on the reciprocal tariffs, their rationale as stated in the Executive Order, and the question of whether the US Congress would plausibly have intended to delegate to the President through IEEPA the power to impose the sweeping reciprocal tariffs. We focus on the parochial case for tariffs from the US perspective and put to one side the harm done to US trading partners for present purposes.

It strains credulity to imagine that Congress would intend for these procedural and substantive standards to be waived, potentially indefinitely, merely because the President is willing to declare an 'emergency'

In brief, we conclude that the rationale for the tariffs is economically incoherent, and that the reciprocal tariffs are not rationally connected to any conceivable ‘emergency’ in the US manufacturing sector, assuming *arguendo* that one exists.

Accordingly, two core requirements for the exercise of emergency powers under IEEPA – that measures are needed to respond to an *“unusual and extraordinary threat”* originating abroad, and that the measures undertaken must *“deal with”* that threat – are not met.

We further argue, based on the historical relationship between Congress and the President in trade policy formulation, that the emergency powers granted by IEEPA could not have been intended to permit the President to rewrite the entire US tariff schedules, painstakingly negotiated over three quarters of a century, by simply declaring an ‘emergency’ based on nebulous assertions of difficulties in the manufacturing sector.

Beginning with the claim in the Executive Order that the US merchandise trade deficit is a burgeoning problem, *“having grown by over 40% in the last five years alone,”* the data present quite a different picture when properly interpreted. Most of the nominal growth in the deficit can be explained by inflation and the growth of the economy. The deficit as a percentage of GDP rose from 3.98% in 2019 to 4.16% in 2024. To place these levels in historical context, the deficit to GDP ratio was at a maximum in 2006, at 5.7%.

As for the claim that merchandise trade deficits are caused by a lack of bilateral reciprocity in trade relations, and the further statement that *“despite a commitment to the principle of reciprocity, the trading relationship between the United States and its trading partners has become highly unbalanced, particularly in recent years”*, the supporting evidence presented in the Executive Order consists of a few anecdotes regarding the tariff rates on individual items

in the US and elsewhere, along with some scattered statistics about differences across a handful of countries in their *“simple average tariff rates.”*

The discussion ignores the reality that there is no reason to expect bilateral trade to balance between pairs of countries that have different preferences on the consumer side and different areas of comparative advantage. Bilateral imbalances are ordinary features of a multilateral trading system and not indicative of asymmetric trade barriers.

Moreover, throughout the history of WTO/GATT negotiations, a norm of reciprocity was observed so that each party expected their aggregate exports to increase by an amount roughly equal to their aggregate imports following each liberalisation episode. The US State Department undertook calculations during negotiating rounds to confirm that US concessions were approximately reciprocated in this sense (Bagwell *et al* 2020).

And the Executive Order presents no evidence that US free trade agreements negotiated since the formation of the WTO (including agreements negotiated in the first Trump administration with Canada, Mexico and Korea) are the source of asymmetric trade barriers.

Finally, as a net borrower nation over the past four decades – with total investments exceeding national savings – US current account deficits are inevitable. Given the persistent surplus in services trade, a sizeable merchandise trade deficit is likewise unavoidable.

More fundamentally, the Executive Order’s claim that merchandise trade deficits have ‘led to’ problems in the manufacturing sector reflects a misunderstanding of cause and effect. Merchandise trade deficits are endogenous, as are manufacturing output and employment; neither can meaningfully ‘lead to’ the other.

Rather, both reflect underlying economic forces that simultaneously influence manufacturing performance and the trade balance. For example, Kehoe *et al* (2018) provide evidence that the loss of manufacturing jobs in the United States has been largely attributable to productivity growth.

Thus, the economic foundation for the assertion of a manufacturing ‘emergency’ is theoretically and empirically unsound. Although the Executive Order claims that a growing lack of reciprocity has caused burgeoning merchandise trade deficits, and that those deficits in turn have caused vaguely specified problems in the US manufacturing sector that are so exigent as to constitute an ‘emergency’, facts and logic undermine each step in that chain of reasoning.

Given the dubious underpinning of the national emergency declaration, the Executive Order fails to identify an ‘unusual and extraordinary threat’ originating outside the United States that warrants any measures under IEEPA.

Even setting this conclusion aside and assuming *arguendo* that some circumstances in the manufacturing sector could warrant an ‘emergency’ designation, the reciprocal tariffs do not constitute a coherent response. Moreover, they are unlikely to achieve any meaningful ‘rebalancing’ of US merchandise trade, contrary to the tariffs stated objective.

The assertions in the Executive Order regarding the “hollowing out” of manufacturing, threats to national security and critical supply chains, and the like provide no specifics. They do not identify the firms or industries purportedly affected, making it impossible to assess whether the reciprocal tariffs could plausibly address these problems.

Rather than offering targeted relief to manufacturers facing genuine emergency conditions, the tariffs resemble a randomised tax on all imported goods, applied according to factors with no clear connection to those conditions. Any constructive response to an actual 'emergency' would occur entirely by coincidence.

Meanwhile, many of the tariffs will harm US manufacturers. They apply to all products, including intermediate goods, and have already been linked to significant reductions in profitability for some firms, such as General Motors. The discriminatory design of the reciprocal tariffs can also trigger costly supply chain restructuring and the abandonment of valuable sunk investments abroad.

Retaliation by trading partners – such as China's retaliatory tariffs, reduced purchases of US agricultural exports, and restrictions on rare earth exports – has unquestionably created difficulties for US firms in both manufacturing and agriculture.

It is far from clear that the tariffs will materially reduce US merchandise trade deficits or 'rebalance' US merchandise trade, the stated objective of the measures, since they do not address the macroeconomic imbalances at their root. Moreover, pursuing such rebalancing is largely misguided from the outset.

The mainstream view among economists holds that trade policy has little effect on the current account balance. If that view is correct, any insipient rebalancing of merchandise trade is likely to be offset by reduced US net exports of services – an area in which the US is technologically advanced and enjoys a clear comparative advantage.

Some recent research suggests that trade policy can affect current account balances under certain conditions (Costinot and Werning 2025). This possibility underscores the link between the merchandise trade balance and net inbound investment. The Trump administration has promoted various 'deals' promising new foreign investment

in the US manufacturing sector, involving both national governments (such as Japan and Korea) and private firms (such as Taiwan Semiconductor and Roche).

Any additional net inbound foreign investment must, of course, be financed, which requires an increased current account deficit and, in all likelihood, growth in the merchandise trade deficit. Rebalancing on one hand, and new foreign investment in US manufacturing on the other, are thus inherently at odds.

For all these reasons, the reciprocal tariffs do not meaningfully “deal with” any emergency conditions that might plausibly exist in the US manufacturing sector, as is required by IEEPA. There is no reason to believe that the tariffs will mitigate serious challenges facing US manufacturing firms, or that any ‘rebalancing’ of US merchandise trade would be constructive.

Finally, a core issue before the Supreme Court is whether IEEPA, with its vague language regarding the President’s power to ‘regulate...importation’ in an emergency, can reasonably be interpreted to permit the sweeping revision of US tariff schedules and the accompanying repudiation of US commitments under international trade agreements undertaken by the Trump administration.

The US Constitution explicitly grants the power to set tariffs and regulate foreign commerce to Congress under Article I. Under the Supreme Court’s ‘major questions’ doctrine, a statute must provide a clear and unambiguous delegation of authority before it will be interpreted to allow the Executive Branch to act alone on matters of ‘vast economic and political significance’.

There is no doubt that US tariff policy qualifies as a ‘major question’ and, consistent with other commentators, we believe that the text of IEEPA does not contain a clear delegation of sweeping tariff authority.

We further note, based on the history of US trade policy and the interaction between the President and Congress, that any Congressional intent to delegate sweeping tariff authority is highly implausible. Congress has zealously guarded its authority over tariffs and other aspects of trade policy by requiring the President to negotiate with Congress in advance of major trade negotiations to obtain 'fast track' or 'trade promotion authority', specifying negotiating objectives and limiting the tariff changes the President may make in exchange for an up-or- down vote on any resulting agreement.

Moreover, Congress has enacted several statutes granting the Executive Branch authority to address trade-related challenges to US industries, including safeguard measures, national security protections, and remedies for 'unfair' trade practices abroad that burden US commerce. These statutes are sufficiently broad to address the types of problems identified by the Executive Order in the manufacturing sector.

All require agency investigations and public findings establishing that the statutory conditions for Executive action have been met, along with an explanation of how any new trade measures directly respond to the underlying problem.

It strains credulity to imagine that Congress would intend for these procedural and substantive standards to be waived, potentially indefinitely, merely because the President is willing to declare an 'emergency'. ■

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Rewiring trade for a warming world



United Nations
Climate Change

COP30
BRASIL
AMAZÔNIA
BELÉM 2025

The challenge for policymakers is to build rules that function amid disagreement in a divided world.
Dennis Snower discusses how COP30 can turn climate goals into trade rules

COP30 in Belém has made one thing unmistakably clear: environmental sustainability can no longer be siloed from global trade. The next frontier in climate policy lies in reshaping the rules of international commerce so they reflect the real ecological costs – and benefits – of economic exchange. Yet we live in a divided world, fractured not only by wealth and power but by fundamentally different value systems across generations, regions, and discount rates.

In this column, I outline how trade rules can be made responsive to environmental costs in such a context – by distributing policy authority across institutions, leveraging ‘coalitions of the willing’, and aligning finance with principles of precaution and proportionality.

The proposals build on insights from climate economics (Stern 2007, Weitzman 2014), global governance (Hovi *et al* 2016), policy analysis under deep uncertainty (Lempert *et al* 2024), as well as policy contributions on climate clubs, carbon pricing, and sustainable trade (eg. Campolmi 2024, Lashkaripour 2022, Snower 2022, Pisani-Ferry *et al* 2023, Weder di Mauro and Zettelmeyer 2025).

Mapping the political economy of environmental trade rules

Environmental trade measures inevitably generate winners and losers – not only across countries, but also across time. Four major divides define the problem:

1. Current versus future generations, where short-term economic interests dominate long-term ecological sustainability.
2. Rich versus poor countries, where carbon-intensive exporters fear ‘green protectionism’.
3. Politically powerful versus weaker states, where the latter struggle to shape standards.
4. High versus low discount-rate constituencies, which value environmental risks differently.

A robust trade framework must remain operational even when actors disagree about environmental costs. That requires procedural fairness, redistributive mechanisms, and adaptive governance – principles familiar to economists but still absent from trade law.

Trade must now serve as a channel for managing uncertainty, not amplifying it. That means institutionalising precaution, embedding redistribution, and rewarding participation in coalitions of the willing

From principles to practice: institutional roles

National governments

Governments remain the central actors in implementing climate-responsive trade rules. They can:

- Conduct trade and environment impact assessments (TEIAs) that include long-term, low-discount evaluations of environmental externalities in export sectors.
- Enact border carbon adjustments compatible with WTO rules under Article XX (General Exceptions) – provided they use transparent, internationally verified emissions data.
- Earmark carbon revenues for intergenerational investment funds, similar to sovereign wealth funds but targeted at ecosystem restoration.

These measures align with the precautionary principle, ensuring trade does not cause irreversible harm before evidence is complete (Cooney 2004).

International organisations

The WTO, UNEP, and OECD can establish shared methodologies for measuring the carbon and biodiversity footprints of traded goods. The WTO's Committee on Trade and Environment can help clarify how Article XX applies to climate-linked trade measures, reducing litigation risk.

The World Bank and regional development banks can co-finance adjustment costs for developing countries – aligning with the 'common but differentiated responsibilities' (CBDR) principle.

Businesses and consumer organisations

Firms can internalise environmental costs via green certification schemes and supply chain disclosures (such as

the EU's Corporate Sustainability Reporting Directive). Consumer associations can amplify these mechanisms by verifying that labels and digital product passports reflect real environmental data.

Insurers and financial institutions

Insurers and institutional investors can price environmental risk into trade finance. By linking premiums or credit spreads to carbon and biodiversity metrics, they create a financial gradient that rewards low-impact trade.

This market-driven risk adjustment aligns with Weitzman's (2014) argument that fat-tailed climate risks justify higher precautionary costs today to avoid catastrophic losses later.

The role of coalitions of the willing

Because universal agreement is improbable, coalitions of the willing – clusters of like-minded states – can pioneer climate-trade integration. Climate clubs (Hovi *et al* 2016) or sectoral alliances (eg. the Clean Energy Materials Club or the Zero Deforestation Supply Chain Coalition) can set common standards for carbon accounting, circular production, or deforestation-free trade.

These clubs can offer:

- Reciprocal trade preferences (eg. lower tariffs or procurement access for members).
- Technology-sharing agreements and joint certification systems for green exports.
- Revenue-sharing schemes, where proceeds from BCAs finance green transitions in low-income partners.

Club-like structures can overcome global coordination failures by creating credible incentives for cooperation while avoiding free-riding.

Financing the transition

Implementing climate-aligned trade policy requires new fiscal architecture:

- Carbon border revenues can be recycled into green transition funds under international supervision, with disbursement linked to measurable outcomes (emission cuts, reforestation).
- Green bonds and blended finance mechanisms can leverage private capital for exporters facing adjustment costs.
- Insurance and reinsurance pools, backed by development banks, can cover climate-related export disruptions.

This financing logic reflects Stern's (2007) insight that upfront investment in mitigation and adaptation yields long-term welfare gains – effectively treating ecological stability as capital formation.

Balancing precaution and proportionality

A recurring tension in trade governance is whether to apply the precautionary principle (restrict potentially harmful trade until safety is proven) or to maintain the onus of proof on regulators (allow trade unless harm is demonstrated).

For climate-linked trade, the answer must be context-dependent:

- When environmental harm is irreversible (eg. deforestation, biodiversity collapse), the precautionary principle should dominate.
- When evidence is ambiguous but reversible, proportionality and due process should guide policy, ensuring restrictions are temporary, targeted, and reviewable.

This pragmatic balance is consistent with WTO jurisprudence and EU environmental law, allowing environmental ambition without violating the principle of open trade.

Towards a resilient global trade system

COP30 has reframed trade as an instrument of planetary stewardship. The challenge for policymakers is not to reach universal agreement on the exact 'price' of carbon, but to build rules that function amid disagreement – rules that redistribute fairly, evolve adaptively, and reflect long-term ecological value.

Trade must now serve as a channel for managing uncertainty, not amplifying it. That means institutionalising precaution, embedding redistribution, and rewarding participation in coalitions of the willing.

The 2026 US G20 presidency will test whether an 'America First' mindset can evolve into 'Earth First Trade' – one that recognises that in an interconnected economy, the health of global trade depends on the health of the planet. ■

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The EU's digital deregulation push

The European Commission is seeking to reduce the burden of its digital rulebook. Mario Mariniello discusses a new framework and shows how EU digital reforms must balance efficiency with transparent recognition of distributive consequences

Executive summary

To boost the European Union's digital economy, the European Commission is seeking to reduce the burden of its digital rulebook. However, the Commission's deregulatory strategy lacks a rigorous, evidence-based analysis of the expected effects entailed by proposed burden reductions, is insufficiently transparent and accountable in relation to potential distributive trade-offs and is overly focused on a narrow geopolitical goal of 'catching up' with the United States, which may neglect Europe's distinct social and institutional priorities.

This paper introduces a framework to analyse these issues. It distinguishes between efficiency effects that enhance total societal value, and distributive effects which determine how value is shared within society. The framework explains how total factor productivity (a proxy for competitiveness) may have a complementary and a substitutive relationship with digital regulatory protection.

The Commission's deregulatory initiatives may entail both efficiency and distributive effects, but that the Commission typically only acknowledges the former. This misrepresentation leads to unrealistic goals, such as EU companies matching the same level of data use as US companies without compromising European privacy standards.

Digital regulation can be designed to generate value and can distribute that value in accordance with the goals the Commission intends to pursue. A distinction should be introduced between 'mitigating' distributive effects, in which the proposed initiatives shift the distribution of value among players without fundamentally altering business models, and 'steering' distributive effects, in which proposed initiatives may encourage the development of alternative approaches to technological development.

In pursuing a deregulatory strategy, the Commission should be more transparent about its aims. The Commission should ground reforms in robust impact analysis, without a preconceived goal in terms of the desired amount of reduction in regulatory burden. It should also clearly identify the end goals while detailing potential trade-offs between them, and adopt measurable indicators for efficiency, mitigating distributive effects and steering distributive effects, in order to assess the potential effectiveness of its initiatives and to understand their actual impacts.

The entire EU digital deregulatory strategy hinges on a presumed goal of 'catching up' with the US

1 Introduction: The European Commission's deregulatory strategy

On a number of indicators, European Union technological markets are trailing the United States, particularly in the development of artificial intelligence. In 2024, for example, only four of the world's top 50 technological companies were European.

Also in 2024, European AI startups raised \$12.8 billion, compared to \$80.8 billion raised by their US-based counterparts¹. The US ranks first in 'Global AI Vibrancy', a composite index developed by the Stanford Institute for Human-Centred AI (SIHC)². The top EU country according to this index, France, ranks sixth, scoring 22.5 compared to the US's 70.

The EU's lagging performance is seen as worrying because thriving technological markets are considered crucial for future prosperity. Digital technologies play an infrastructural role and increasingly support the production and delivery of public goods, including public services, education, environmental policies and military security (McMillan and Varga 2022). They can significantly boost productivity (Brynjolfsson *et al* 2025). When used effectively, they may foster inclusivity (UNCTAD 2019).

The EU's priorities for the digital economy have typically been framed in regulatory terms. The EU has come to be perceived as a 'referee' of digital markets, rather than a successful, active player³. A substantial number of EU regulations directly applicable to digital markets have been introduced.

Among the most important are the General Data Protection Regulation (GDPR, Regulation (EU) 2016/679), the Digital Markets Act (DMA, Regulation (EU) 2022/1925), the Digital Services Act (Regulation (EU) 2022/2065), the Data Act (Regulation (EU) 2023/2854) and the Artificial Intelligence Act (AI Act, Regulation (EU) 2024/1689) but the overall list is much longer (Bruegel Dataset 2023).

The EU digital rulebook is consistent with a traditionally risk-averse regulatory approach enshrined in the EU Treaty⁴. EU digital laws are based on a precautionary approach, imposing limitations on companies ex ante, protecting public interests and preventing possible irreversible harm before it emerges (Draghi 2024). By contrast, in other jurisdictions – most notably the US – regulators tend to intervene only after evidence of harm emerges: a regulatory approach generally considered more innovation-friendly, as companies face fewer regulatory hurdles when launching new products or services⁵.

The persistent question for the EU therefore is whether its digital rulebook contributes to the technological gap between the EU and comparable economies? If so, should a deregulatory agenda be pursued to close that gap? The European Commission appears to believe the answer to both questions is ‘yes’ and is pursuing an approach that involves a structural recalibration of focus from regulation to competitiveness. In other words, it is primarily preoccupied with fostering development and growth of digital technologies, rather than protecting against potential harm.

The Commission’s strategy to reduce the EU’s digital regulatory burden entails plans to facilitate companies’ compliance with existing rules, making compliance less costly. It also includes policies with potentially substantial implications, such as easing regulatory reporting requirements for companies⁶.

The Commission is grouping such measures into so-called ‘Omnibus’ packages. An ‘Omnibus IV’ proposal in May 2025 was intended to ease GDPR compliance for smaller companies⁷. A ‘Digital Omnibus’ proposal, published on 19 November 2025⁸, meanwhile, seeks to boost AI development by broadening access to data for companies, a vital issue for AI training and operation.

For example, it would expand the definition of ‘non-personal’ data, putting it beyond the scope of personal data protection. This might be done for pseudonymised data, from which the original data subject supposedly cannot be reidentified by the data processor – though another processor might be able to do so (Henriksen-Bulmer and Jeary 2016). This would create substantial new risks for data subjects.

The deregulatory strategy may also manifest passively, with the Commission choosing to refrain from acting, or abandoning or delaying previously planned proposals. For example, the EU has considered supplementing the AI Act to protect workers from potential misuse of AI in the workplace, but has not yet done so, despite prodding from the European Parliament (2025). In February 2025, the Commission withdrew a proposal to regulate standard-essential patents, despite it having already been approved by the European Parliament⁹.

Finally, the strategy also involves implementation delays. There have been many requests for a lengthening of the AI Act’s tight compliance timeline¹⁰. Among other things, the AI Act requires European standardisation organisations to develop standards to help providers and deployers of high-risk AI systems demonstrate compliance. These standards have yet to be developed, and in the November 2025 Digital Omnibus the Commission laid the ground to postpone the enforcement of the obligations from August 2026 to December 2027¹¹.

The Commission’s initiative may have substantive implications and we therefore term it ‘deregulatory’, rather than the Commission’s preferred term of ‘simplification’ (European Commission 2025a). We use the term ‘deregulatory’ to describe any action to reduce the burden of EU digital regulation, regardless of whether it involves lowering regulatory standards or is limited to cutting compliance costs without reducing protection. The term ‘simplification’ can be misleading, implying that the strategy will have no substantive implications.

In fact, the Commission's digital deregulatory strategy has three main shortcomings:

1. The deregulatory process lacks solid evidence. The Omnibus proposals have not been supported by impact assessments (IA) and have not gone through the structured ex-ante processes normally applied to evaluate the potential economic, social and environmental effects of the Commission's initiatives. The Commission argues that IAs could not be conducted because it would take too long, while the demand for deregulation is urgent (European Ombudsman, 2024)¹². However, IAs could, for example, recommend that reporting obligations cannot be further reduced, because this might have significant social or environmental repercussions.
2. The process lacks transparency. The lack of empirical evidence makes it difficult to assess whether the Commission's strategy can effectively reduce regulatory burdens for companies. Most importantly, it hampers understanding of whether the strategy might make certain constituencies worse off, because of the proposed changes or because of regulatory inaction. This results in diminished accountability, as the Commission fails to assume responsibility for the distributive choices it implicitly asks EU legislators to make.
3. The entire digital deregulatory strategy hinges on a presumed end goal of 'catching up' with the US and reclaiming lost ground compared to its global competitors (as expressed in Draghi 2024). The urgency of the deregulatory strategy is justified by the technological gap between the EU and the US in terms of, for example, investment in digital infrastructure, such as data centres, funding of AI companies and adoption of digital technologies by traditional industries. The goal itself is not problematic: there is a compelling need to keep pace with the technological frontrunners and to increase the competitiveness of the European economy. However, it is risky to direct the entire strategy solely towards that specific objective, for two reasons:

First, comparing technological markets in the EU and the US is analytically unsound, for instance, because the two systems protect personal rights differently, and it is therefore obvious that markets perform differently.

Second, focusing mainly on imitating US investment strategies risks missing an opportunity to develop alternative approaches to technological development. For example, the Commission might be more concerned with the *amount* of AI innovation produced or adopted, rather than with *which kinds* of innovation gain traction in Europe. Minimising systemic differences with the US, moreover, could be hazardous by making EU technological markets more vulnerable to systemic shocks (such as the potential bursting of an AI bubble). This does not mean that the EU should not attempt to boost competitiveness, including by learning from the US. Rather, this should not be the EU's only strategic goal.

This paper sets out a simple analytical framework to explain why these three problems risk undermining the Commission's overarching digital goals. To address the problems, the Commission should be clear about its goals and should be more transparent on the potential effects of its regulatory and deregulatory initiatives.

The discussion in this paper, however, should not lead to the conclusion that regulation or deregulation can play a pivotal role in ensuring success in the digital economy. Quite the contrary: the roots of Europe's problems are deep and EU regulation is only one potential contributor – and probably not the most important¹³. Regulation is also only one tool that policymakers must pursue to achieve public goals. It should be considered a complement rather than a substitute for industrial policy.

To analyse the effects of regulation alone, an assumption must thus be made that investing economic or political resources in changing the regulatory framework does not imply crowding out other policy instruments (which would be the case, for example, if significant political capital is invested in adopting an Omnibus proposal, reducing

the chances of adopting a new subsidy scheme). This assumption is significant but necessary to evaluate the Commission's deregulatory strategy on a standalone basis.

The next section explains the theoretical foundation of the framework proposed in this *Policy Brief*¹⁴. Section 3 analyses the scope for efficiency improvements to the EU digital rulebook. Section 4 discusses the distributive choices entailed by regulation. Recommendations are set out in section 5.

2 A model for efficiency and distribution in EU digital regulation

Regulatory changes can have two types of effects: *efficiency* effects and *distributive* effects¹⁵. Efficiency effects increase the economic value created, while distributive effects determine how that value is allocated within society¹⁶. Differentiating between them is often challenging, since a regulatory norm can produce both kinds of effects.

For example, a regulation designed to encourage market competition may have efficiency effects (as competition boosts productivity and innovation, while also reducing the risk of abusive conduct that may harm consumers) and distributive effects (by shifting value from sellers to buyers). The efficiency and distributive effects triggered by competition are highly relevant for digital markets, which tend to have a structural tendency towards concentration¹⁷.

The dynamics underpinning efficiency and distributive effects can be more easily understood through a simple economic model. Consider an economy – the EU – with an administration – the European Commission – that aims to maximise its citizens' prosperity. It does so by producing two sets of public goods¹⁸:

The first relates to competitiveness, to how productive the EU economy is. This can be measured by total factor productivity (TFP), the part of economic growth not explained by increases in labour or capital (TFP thus depends on technological innovation, development and adoption). TFP can be considered a public good because a higher TFP means higher average incomes and tax revenues. It is associated with higher levels of prosperity, from which citizens cannot be excluded (for example, TFP is positively correlated with average wages).

The second set of public goods relates to digital fairness (DF), an umbrella term encompassing the security, safety, resilience and trustworthiness of the EU digital economy. DF includes privacy protection, online safety, cybersecurity, consumer protection, digital inclusion and AI ethical standards. DF is a public good because everyone benefits from reducing the average risk of harm when dealing with digital technologies. DF can be interpreted to include also strategic autonomy, or the EU's ability to develop, adopt and regulate digital technologies independently, without relying excessively on foreign countries' supply chains.

In the model, the Commission can deploy only one production factor: regulation¹⁹. Depending on how regulation is designed, it results in varying levels of TFP and DF in the economy (for example, a regulation designed to reduce barriers to entry and boost competition can produce more TFP and DF).

From a regulatory perspective, TFP and DF can be complementary but also substitutes: regulatory design may sometimes increase both TFP and DF. However, there can also be a trade-off, with one of the two indicators increasing and the other decreasing.

To illustrate the effects, consider privacy protection. Data privacy may increase overall productivity. For example, it may address market inefficiencies, increase consumer trust and expand and stabilise market demand, particularly in the long term. Lefouili *et al* (2024) showed that, when a sufficiently large proportion of the population is privacy-

conscious, privacy regulation may increase demand among users to such an extent that a company's incentive to innovate and generate additional revenue is enhanced (see also Choi *et al* 2019; Acemoglu *et al* 2021; Niebel 2021; Blind *et al* 2024; Adepeju *et al* 2025).

However, there is also significant evidence that privacy constraints can reduce corporate profitability by limiting their ability to tap into data (eg. Goldfarb and Tucker 2011; Campbell *et al* 2015; Jia *et al* 2021; Frey and Presidente 2024). For example, a rule that forces companies not to use personal data without consent, if binding, necessarily implies a suboptimal choice for the company.

Other examples of such constraints include rules on consumer protection, online safety, digital inclusion, AI ethics and cybersecurity. In all these examples, a case can be made for a potential negative relationship with competitiveness²⁰. There may also be a significant trade-off between competitiveness and strategic autonomy (Meyers 2025).

For example, Lysne *et al* (2019) found that banning the use of Huawei telecoms equipment for security reasons increased 5G rollout costs significantly. Thus, while the relationship between TFP and DF is not linear, for the purposes of the model, it is sufficient that they can be negatively correlated, even if only occasionally²¹.

Finally, the model assumes that EU citizens have variable preferences related to TFP and DF and want them in differing combinations. A digital company's shareholders may attach relatively more value to TFP than members of a minority population group at higher risk of online discrimination, for example. Thus, within this model, efficiency effects arise whenever, in the wake of Commission regulatory or deregulatory action, the sum of TFP and DF increases, expanding total economic value. Conversely, for distributive effects to arise, it is sufficient that one of the two variables decreases.

Figure 1 represents the model graphically using a typical economic illustration of a production trade-off under resource scarcity. The slopes represent different levels of prosperity (V = economic value). The EU economy is currently at the starting point – S in Figure 1. Through value-enhancing regulation, it can move upwards and/or outwards, until it reaches the maximum value that can be produced with the available resources. This maximum is represented by the purple line, known as the production-possibility frontier.

Figure 1 Panel A shows how the Commission typically presents regulatory initiatives. The Commission might argue that GDPR streamlining proposals will serve a public goal (for example, simplifying compliance and increasing competitiveness) without compromising privacy protection (eg. European Commission 2025d).

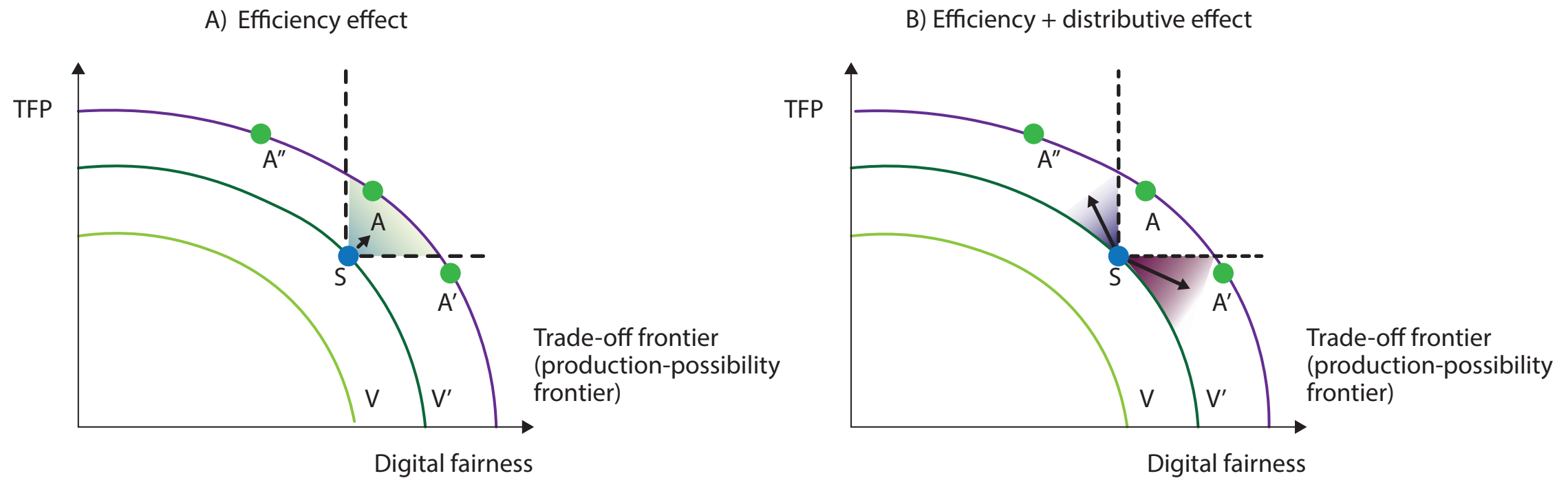
In the November 2025 Digital Omnibus, the Commission has proposed controversial measures that may, for example, allow companies to use pseudonymised data that would have previously considered as personal data and thus subject to stricter protection. This could generate new risks of discriminatory conduct by data controllers²².

Nonetheless, in the introduction to the Digital Omnibus, the Commission states: *“the measures are calibrated to preserve the same standard for protections of fundamental rights”* (European Commission 2025c).

Conversely, the Commission might assert that introducing stricter privacy rules will not harm competitiveness. For example, the impact assessment accompanying the GDPR proposal more than a decade ago claimed that the new regulatory framework would support innovation and growth in the digital single market (European Commission 2012).

None of the impact assessments accompanying a sample of 14 significant Commission digital regulatory initiatives since 2019 mentions possible negative effects on growth (TFP in the model), instead often anticipating significant net positive effects on competitiveness and innovation²³. In other words, the Commission generally expects its

Figure 1. Regulation and the production-possibility frontier



Source: Bruegel.

proposals to encourage the EU economy to shift from S to another equilibrium within the area highlighted in green (for example, to point A; Figure 1, Panel A).

But reality is harsher. Even if regulatory initiatives increase economic value, they are likely to also have significant distributive effects. Figure 1 Panel B shows how the economy might move to other equilibria (to A', where TFP is lower – the purple area – or to A'', where DF is lower – the blue area – for example). Distributive effects should always be disentangled from efficiency effects and, if possible, quantified.

For example, Aridor *et al* (2021) found that an opt-in requirement in the GDPR for online tracking led to a 12.5 percent reduction in consumers using a major online travel intermediary, lowering advertising revenues (this loss was partly offset by the valuable information that those customers who consented to share their data conveyed to the intermediary).

Similarly, the AI Act obliges providers of high-risk AI systems to ensure that datasets are relevant, representative and free of bias, and to implement procedures to detect, prevent and mitigate discriminatory effects. Von Zahn *et al* (2022) demonstrated that removing gender bias from AI prediction models in e-commerce led to an 8 percent to 10 percent increase in financial costs for model promoters. That is the cost requiring fairness in AI: if companies cannot use gender to predict consumer behaviour, they lose a tool to increase profits (Von Zahn *et al* 2022).

These exercises focused solely on distributive effects: lost profits induced by the AI Act or the GDPR are not the result of inefficiencies in the design or enforcement of the regulatory framework. This is important because many studies that seek to quantify the effects of regulation on productivity are based on comparisons of average productivity in the market with and without regulation.

In such comparisons, it is often unclear whether the productivity effects result from flawed regulatory design (which can be corrected) or to deliberate choices by the legislator, which pursues multiple, conflicting goals.

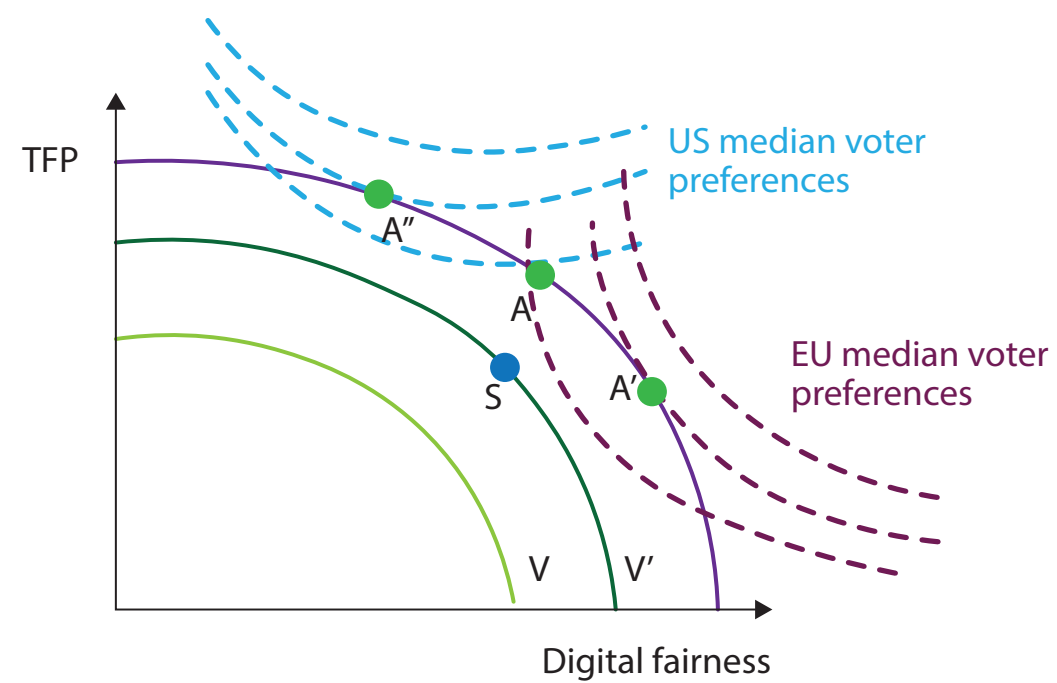
Despite strong evidence of distributive trade-offs, however, the narrative that regulatory or deregulatory actions can pursue incompatible objectives remains firmly embedded in the public debate. For example, Mario Draghi, the former Italian prime minister and author of a major report on competitiveness intended to guide the European Commission, has said that for European companies, *“one of the clearest demands is for a radical simplification of GDPR,”* which has *“raised the cost of data by about 20 percent for EU firms compared with US peers”* (Draghi 2025).

The GDPR, however, increases data costs by design. It includes the principle of data minimisation, requiring data controllers to restrict data processing to what is necessary. US companies that are not subject to the GDPR when operating outside the EU might instead collect and process data without a clearly defined purpose. It thus makes little sense to compare data use in the EU and US and blame lower EU data use on the GDPR’s supposed inefficiencies.

Figure 2 illustrates these dynamics. The blue lines are ‘indifference curves’, or different combinations of TFP and DF that bring the same value to the individual, for US and EU median voters. The US median voter is assumed to have flatter indifference curves than the EU median voter, meaning she values TFP over DF relatively more than her EU counterpart²⁴.

Survey evidence supports this assumption. Germans, for example, tend to attribute a higher value to privacy when using digital technologies than Americans (Prince and Wallsten 2022; Despres *et al* 2024). Bellman *et al* (2004) demonstrated that cultural preferences influence regulatory approaches, with US internet users generally less

Figure 2. Differences in citizens' preferences entail different equilibria



Source: Bruegel.

concerned than Europeans about online safety. This provides a possible explanation for the EU's precautionary approach and the US's risk-based regulatory approach.

Since the European Commission aims to maximise its citizens' prosperity, it should seek through regulation to reach the point at which the EU median voter's preferences coincide with the trade-off frontier (Figure 2, point A'). At this point, TFP is inevitably lower than at point A'', which would be the equilibrium if the EU median voter had the same preferences as the US median voter.

The model shows that failing to distinguish efficiency from distributive effects results entails overlooking the fact that some differences between the economic performances of the EU and the US are structural and cannot be eliminated through better regulatory design. Digital fairness may imply a TFP cost. That cost should be acknowledged. The Commission should dispel the misconception in its deregulatory agenda that, simply by streamlining the EU digital rulebook, protection and competitiveness can always be maximised simultaneously.

3 Efficiency gains: increasing value with EU digital regulation and deregulation

EU digital regulation creates value primarily by expanding digital markets from national to European level. It does this establishing common supranational rules that override national approaches: it fosters the digital single market (DSM). Since digital business models greatly benefit from economies of scale, the value created in a fully developed DSM would exceed the total of the values generated within each EU country, if considered separately. A completed DSM would reduce uncertainty for businesses and boost competition²⁵.

Therefore, when EU regulation tackles issues such as data use that would otherwise be regulated at national level, it prevents fragmentation and thereby creates value gains. For example, the GDPR and another law, the Regulation for the Free Flow of Non-Personal Data (Regulation (EU) 2018/1807), were designed, taken together, to facilitate

the seamless transfer of data across the EU, overcoming national barriers and expanding the data market from the national to the EU level, with notable efficiency benefits (European Commission 2025b)²⁶.

The DSM remains incomplete, however. Regulations that appear effective on paper often fail to deliver in practice. The GDPR is not enforced uniformly across the EU as originally intended, for example (Gentile and Lynskey 2022). It is this inconsistency that is likely the main reason for the EU's competitive disadvantage, and lack of digital champions, compared to the less-fragmented US and China (Letta 2024; Draghi 2024).

The EU's fragmented market hinders businesses from starting up, securing funding and expanding. Rather than being a drag on competitiveness, EU regulation, if well designed, has the potential to foster, rather than impede, the emergence of European champions.

But regulation is often not well-designed and for that reason can impose significant compliance costs on companies. Annual compliance costs related to the GDPR have been estimated up to €500,000 for small and medium-sized enterprises (SMEs) and up to €10 million for large organisations (Draghi 2024). Most importantly, regulation can create unwarranted distortions in technological markets. Whenever regulators constrain companies' behaviour, they interfere with natural market dynamics, potentially resulting in inefficient outcomes.

For instance, regulators may reduce competition by (intentionally or inadvertently) erecting barriers to market entry. Alternatively, they may favour companies that do not deserve to be advantaged because they are less efficient than their competitors.

The GDPR, for example, introduced a mandatory data-management process for companies that handle large or highly sensitive datasets. These processes entail high fixed costs and thus larger firms have a comparative

advantage, as the cost of GDPR compliance is relatively lower for them than for SMEs, because of economies of scale. Peukert *et al* (2022) provide evidence that web technology service markets have become more concentrated since the introduction of the GDPR. One aim of the Commission's May 2025 Omnibus IV proposal (European Commission 2025d) is to address this issue.

The risk of distortion can never be entirely eliminated when regulation is introduced. However, it can be minimised by ensuring that regulations are linked closely to the market failure they address. In other words, regulation should not target issues that the market is expected to resolve within a reasonable timeframe. Often, instead, the EU regulates where not strictly needed.

For example, the AI Act obliges that high-risk AI systems with the greatest potential to cause harm to be accurate, robust and cyber-secure. Competition in AI system design is intense (HAI, 2025), and accuracy is one of the principal parameters on which developers compete.

Therefore, one should expect that the market will incentivise and reward more accurate AI systems. The need for accuracy requirements in regulation is thus not obvious.

The potential for value gains through both regulatory and deregulatory digital measures in the EU thus seems significant. The GDPR, for instance, could be improved by streamlining enforcement, ensuring it is more consistent and effective across the single market and emphasising higher-risk use cases. Reporting processes could be streamlined to reduce duplication with overlapping obligations under other regulations, such as the Digital Services Act or the AI Act²⁷.

Additionally, the GDPR could incorporate greater automation in processing users' consent for their personal data and could standardise consent requirements, easing compliance for low-risk data controllers. The November 2025 Digital Omnibus proposal requires automated privacy signals from browsers to overcome cookie consent fatigue, and this is no doubt a good step towards a more efficient regulatory framework.

4 The distributive effects of regulation

Fixing market failures (such as correcting the lack of market competition) entails both efficiency and distributive effects. Regulation, however, can also be designed primarily to have distributive effects (ie. to move along the efficiency frontier in Figure 1), without targeting a specific market failure. This is often true in the digital economy for three reasons.

First, correcting market failures takes time and is often outpaced by technological progress. The Digital Markets Act, for example, contains norms to enhance competition structurally, such as reducing the costs of switching between large online platforms (Article 6(6) DMA), and also fairness measures, such as preventing large platforms from exploiting non-public commercial data obtained from their business users in order to compete against those users (Article 6(2) DMA)²⁸.

EU lawmakers assumed rightly that, even if the DMA Article 6(6) increases competition in digital markets by correcting the market failure arising from low levels of competition, ultimately reducing the likelihood of abuse, it will take a considerable amount of time to see results²⁹. Therefore, Article 6(2) was also needed to prevent exploitation directly.

Second, perfectly functioning markets exist only in theory, and given the highly dynamic nature of digital markets, it would be naive to expect regulation to resolve all potential market failures indefinitely. The third reason is that

even if markets did not fail and the economy was permanently at the efficiency frontier, it would not necessarily mean a distribution of value considered fair by society's members, even if those members operate and manifest their preferences via the economy's markets³⁰.

Consider, for example, economic discrimination, or the practice of treating comparable economic actors differently to extract value from them. The data economy is based on the idea that users' information can be used to generate value. The more producers know about their customers, the better they can tailor their offerings.

Online e-commerce platforms, for instance, can set higher prices for buyers who are more willing to pay (Borreau and de Streel 2018). On an aggregate level, this might be efficient because the supplier (the e-commerce platform) sells to everyone and maximises sales (in other words, price discrimination can get you closer to the efficiency frontier).

However, most of that overall value is captured by the discriminating platform. In the extreme case of first-degree price discrimination³¹, the economy may be at the efficiency frontier but buyers are left only with the value of their consumption. They gain no 'surplus', ie. the potential difference between what they are willing to pay and what they actually pay. Since all pay different prices, buyers might feel they are being treated unfairly.

The EU digital regulator opposes discrimination, as demonstrated by several explicit regulatory provisions. For example, Article 10(2) of the AI Act requires data-governance measures to mitigate discrimination by high-risk AI systems. Article 26(3) of the Digital Services Act forbids the use of sensitive information, such as sexual orientation or political beliefs, for targeted advertising.

Such provisions reflect a distributive-oriented choice by the regulator because, on pure efficiency grounds, discrimination could in theory be justified³². Discrimination might expand the economic value produced in the economy.

4.1 Mitigating vs. steering distributive effects

Regulation can have different types of distributive effects. In the analytical framework outlined in this paper, mitigating distributive effects, in which proposed laws shift the distribution of value among players without fundamentally altering business models, should be distinguished from steering distributive effects, in which proposed laws may encourage the development of alternative approaches to technological development.

The DMA contains an example of a potential mitigating distributive effect, as it prohibits large platforms from favouring their own services (prohibition of self-preferencing, Article 6(5)). This principle does not aim to change the business model, but rather to prevent abuse. However, it has distributive effects because it shifts value from platforms to their rivals, and this is not necessarily value-enhancing. In fact, self-preferencing may be pro-competitive, increasing consumer welfare (Katz 2024).

The GDPR, meanwhile, generates steering distributive effects, as it pushes companies to develop more privacy-friendly businesses and to adopt technologies that minimise data use (GDPR Article 25). Martin *et al* (2019) showed that the GDPR steers innovation in startups in data-intensive sectors towards privacy-preserving software.

Steering distributive effects are particularly important for the digital economy because they enable regulation to influence systemic choices. Through steering distributive effects, regulation can establish the foundation for alternative technological development paths, rather than those dominated by the US or China.

The need for systemic choices is urgent given the nature of digital technologies, which are increasingly deeply embedded in EU society and the economy. AI is progressively becoming the 'infrastructure of infrastructures'³³.

However, systemic choices are only feasible at an early stage of development. Once the economy has adapted to a new technological system, it can be extremely difficult to change it through regulation. David (1985) and Arthur (1989), for example, described this as technological path dependency: early coordination on a technology (cars, VHS) commits society to a specific trajectory that is hard to change.

Furthermore, significant risks are associated with the implicit decision to match the EU's digital deregulatory agenda with the US. First, it is unlikely that the US's technological lead can be matched, given its strong first-mover advantage. This is evident in how large US AI firms can utilise extensive data and computing facilities and thus benefit from substantial economies of scale (Krakowski *et al* 2023).

Second, as shown in the model described in section 2, bridging the EU-US divide would inevitably involve compromising the EU's approach to technology, which is grounded in applying regulation to promote a human-centric digital economy (European Commission 2022). Aligning the US would diminish the EU's comparative advantage. By lowering safety or security standards, the EU could, for example, become less attractive to foreign talent.

Third, steering distributive effects can be beneficial for strategic autonomy goals, as they can support the development of technologies for which foreign powers lack a comparative advantage. The more these technologies become widespread, the greater the EU's bargaining power. For instance, the principle of privacy by design enshrined in the GDPR might favour data-processing technologies that handle data closer to data subjects³⁴.

Adoption of such technologies has been underwhelming so far but with support from complementary industrial policies, they could become more significant, exerting competitive pressure on the cloud market, enabling local, sovereignty-preserving alternatives that make centralised services less necessary.

Finally, by focusing its efforts on joining the AI gold rush, the EU maximises its exposure to potential systemic risks affecting the AI system. AI may be nearing an investment bubble. If the bubble bursts, the economic impact would be less severe if the EU had diversified its technological investments and prioritised a long-term perspective, taking into account AI's ethical, societal and environmental impacts (Floridi 2024).

Regulation alone cannot compel systemic choices; however, it can support them. For instance, regulation can offer a strategic edge in technologies that may follow AI as the next major trend, such as quantum technologies. It could establish interoperability standards, design faster assessments of safety, security and regulatory compliance of quantum systems, or introduce public procurement rules, such as cybersecurity requirements, that promote the adoption of quantum technologies. By boosting demand for quantum, regulation would assist in directing investment towards it.

Regulation can likewise potentially prompt radical changes in digital business models or directly prohibit certain harmful uses. The Digital Services Act, for instance, could be enforced in a manner that brings about fundamental changes to social network business models, reducing addiction or doomscrolling by requiring adjustments to recommendation algorithms and engagement-driven design features.

Labour-market regulation could steer technological progress by boosting workers' bargaining power and shaping incentives so that innovation focuses on augmenting labour rather than just replacing it; this implies banning or heavily restricting the use of monitoring or surveillance AI-enabled applications (Acemoglu and Johnson 2023).

5 Recommendations for a transparent and effective digital deregulatory strategy

The European Commission's deregulatory digital strategy: 1) lacks an evidence base; 2) lacks transparency, and the Commission is not accountable for the distributional choices it makes; 3) is implicitly aimed at the unrealistic goal of catching up with the US while maintaining the EU's level of protection from harm caused by digital technologies (section 1).

The Commission should not ignore the potential for distributive effects, assuming that its deregulatory strategy will only have efficiency effects. The Commission may use regulation or deregulation to pilot the economy to generate more value (section 3) and to distribute that value according to the goals it intends to pursue (section 4). But to be effective, it must acknowledge trade-offs and be transparent about the cost its initiatives entail.

The Commission's deregulatory strategy should therefore:

1. Design an effective methodology to support any future regulatory or deregulatory initiatives with solid economic evidence. The claim that the urgency to take action prevents the carrying out of impact assessments overlooks the potential for substantial distributive effects³⁵.
2. Relatedly, the Commission's strategy should not specify from the outset fixed goals for the level of regulatory burden it aims to cut. The strategy's efficiency target must be to maximise the value generated by the EU digital economy. Reducing the compliance burden is a means to achieve that aim but not a goal in itself.
3. Whenever a full impact assessment is not feasible, the Commission should still accompany initiatives with broad analyses of the potential effects. Analyses need not be detailed, but must be thorough and sound,

highlighting all relevant dynamics, at least at the theoretical level³⁶. The public goods involved should be identified clearly and whether they are in a complementary or substitutive relationship should be explained.

For example, if the Commission proposes to exempt AI companies from the ban on using sensitive personal data to train algorithms, it should clearly outline all academic literature indicating that using sensitive data for AI training may jeopardise human rights. Similarly, the Commission must establish the theoretical basis that supports the expected efficiency effects.

4. The Commission should state clearly the ultimate purpose of its deregulatory strategy. If the aim is solely to narrow the gap between EU and US tech markets, it should state this explicitly and outline the kinds of distributive decisions that will be needed to achieve that aim.

Conversely, if the goal is to help bridge the EU-US gap while also allowing for different visions of technological development to emerge, it should recognise that, in some areas, the EU-US gap might never be fully closed. For example, access to data in Europe will always be more costly (and, therefore, lower) than in the US, if the EU maintains higher privacy standards.

5. Finally, the Commission should establish metrics to assess the potential effectiveness of its initiatives ex ante and to validate them ex post. In this respect, technology can also be considered an enabler, rather than just the target of Commission proposals: large language models can speed up data analysis and improve its quality, and it is increasingly hard to justify regulatory proposals that lack quantitative backing. The Commission should propose:

- Indicators to measure efficiency effects, such as: total reduction of compliance costs; lower exposure of personal data to potential abuse; increase in investment in technological infrastructure; increase in private and public adoption of digital services; reduction of cybersecurity risk; increase in online safety; quantitative increases in technological innovation.
- Indicators to measure mitigating distributive effects, such as: changes in the balance of expected revenues between different kinds of market players (of different sizes or operating in different sectors); loss of established rents in relation to the creation of new safeguards from online harm; gains of new rents by specific market players in relation to loss of established consumer protections.
- Indicators to measure steering distributive effects, such as: relative changes in the balance of different kinds of technological innovation (for example, the ratio between safety-oriented and monitoring-oriented AI-powered applications in the workplace); shifts in investment between different kinds of technologies; creation of new technological business models.

Proponents of deregulation, such as the European Commission, often assert that deregulation will cause no harm. Conversely, opponents tend to argue that boosting trust in digital technology through regulation reinforces the sustainability of tech business models. Neither claim is fully convincing, and a polarised debate may impede EU efforts to improve its regulatory framework and support the growth of European tech markets. The Commission should therefore adjust its deregulation strategy by increasing transparency about its aims and taking full responsibility for its actions. ■

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Endnotes

1. See Statista, [‘The 100 largest companies in the world by market capitalization in 2024’](#), 30 May 2025, and Dealroom (2025).
2. See the [Global AI Vibrancy Tool](#). The composite index includes metrics such as research output, investment, infrastructure and policy.
3. Guntram Wolff, [‘Europe may be the world’s AI referee, but referees don’t win’](#), Politico, 17 February 2020.
4. As seen in the EU approach to environmental policy; Art. 191(2) of the Treaty on Functioning of European Union.
5. This, however, is not necessarily true when also considering the qualitative aspects of innovation. See Klinke and Renn (2002), for example.
6. A move to simplify sustainable finance rules has been criticised for its potential to distort sustainable-finance markets by significantly reduce companies’ reporting; see Sylvia Merler, [‘Streamlining or hollowing out? The implications of the Omnibus package for sustainable finance’](#), First Glance, 3 March 2025, Bruegel.
7. European Commission, [‘Omnibus IV’](#), 21 May 2025.
8. See European Commission press release of 19 November 2025, [‘Simpler EU digital rules and new digital wallets to save billions for businesses and boost innovation’](#).
9. Francesca Micheletti and Mathieu Pollet, [‘EU’s red tape bonfire stokes tech patent rows’](#), Politico, 12 February 2025.
10. The AI Act is a comprehensive framework governing the development, market placement, deployment and use of AI systems within the EU. It entered into force in August 2024, but its full applicability is being phased in.
11. See European Commission press release of 16 September 2025, [‘Commission collects feedback to simplify rules on data, cybersecurity and artificial intelligence in the upcoming Digital Omnibus’](#). The 19 November 2025 Digital Omnibus gives the option to the Commission to decide to delay enforcement.
12. Drafting an impact assessment can take more than a year (European Commission, 2009). In relation to the Omnibus proposals, the results of impact assessments in any case may have been predetermined to some extent: Commission President Ursula von der Leyen has said that she considers necessary a reduction in reporting obligations for large

corporates of at least 25 percent, and for small and medium enterprises, of at least 35 percent. See Ursula von der Leyen, [‘Mission Letter Valdis Dombrovskis, Commissioner-designate for Economy and Productivity, Commissioner-designate for Implementation and Simplification’](#), 17 September 2024.

13. Most of European companies’ compliance costs originate in EU countries’ national legislation. In addition, European companies do not consider regulation as the main obstacle to investment (EIB, 2024).

14. This paper draws extensively from, and expands on, Mariniello (2025).

15. This classification is broadly consistent with the mainstream economic literature on regulation. See, for example, Joskow and Rose (1989) and Baldwin et al (2011).

16. Value is an all-encompassing concept used to indicate how prosperous an economy is. It is equivalent to total welfare or total utility. It can include measurable quantities (such as domestic output) and less objectively quantifiable benefits (quality and accessibility of services).

17. Digital services, for instance, tend to benefit from scale and network externalities, which naturally lead to market concentration.

18. A public good is a good defined by two properties: non-rivalry (one person’s consumption of the good does not reduce its availability to others) and non-excludability (individuals cannot easily be excluded from benefiting once the good is provided).

19. This is a drastic simplification, of course. TFP and DF depend on many other factors, and the Commission has many different policy tools to produce them. The purpose of this model is, however, to isolate the effect of regulation. The model thus assumes that all the other factors or policy tools affecting TFP and DF are given.

20. Consumer protection increases liability risks and may deter innovation or market entry for new technologies; online safety may divert resources to moderation and compliance; digital inclusion may imply pricing constraints and reduced profitability; AI ethics limits companies in using sensitive data to optimise pricing strategies; cybersecurity increases operational costs.

21. Researchers have attempted to explain that the dichotomy regulation vs competitiveness does not necessarily hold (see, for example, Bradford 2024). However, this does not imply that such a dichotomy never holds.

22. Mario Mariniello, *'The European Commission's Digital Omnibus could increase risks, not growth'*, First Glance, 13 November 2025, Bruegel.
23. The examined initiatives are: the Digital Services Act, Digital Markets Act, AI Act, Data Act, Cyber Resilience Act, NIS2 Directive, European Digital Identity Regulation (eIDAS 2.0), Data Governance Act, Platform Work Directive, European Health Data Space, Gigabit Infrastructure Act, Interoperable Europe Act, European Media Freedom Act and the revision of the Product Liability Directive.
24. The flatter the indifference curve, the more units of the good on the X-axis are needed to compensate for a reduction of one unit in the good on the Y-axis, for the individual to be indifferent when two bundles of goods are compared.
25. EIB (2024) found that uncertainty was considered a major obstacle to investment by 44 percent of European companies, while regulation was considered an obstacle by 32 percent.
26. The Digital Omnibus repeals Regulation (EU) 2018/1807 because it has been de facto superseded by the Data Act.
27. The Digital Services Act establishes an EU regulatory framework for online intermediaries, attempting to enhance transparency, accountability and user protection, reducing the spread of illegal and harmful content online.
28. The DMA requires online platforms with significant market power to make some of their services compatible with others. Without this regulation, competition in those markets would remain low because the major platforms benefit from large network effects, giving them a significant advantage over potential challengers. By opening markets to competition, the DMA aims to unlock their potential and encourage the creation of more value for the economy than they currently generate.
29. Increasing market competition reduces the ability of incumbent players to abuse their market power. In the extreme (and theoretical) scenario of perfect competition, no abuse is possible because no market player has the power to commit it.
30. What 'fairness' amounts to is a matter for political philosophy. See, for example, Rawls (2001) and Rawls (2005).
31. First-degree price discrimination occurs when a supplier has full information about its customers' willingness to pay for its products. For an overview, see Mariniello (2022).

32. There are many reasons why discrimination can reduce or increase efficiency. It depends on the context. For an analysis, see Papandropoulos (2007).
33. Robin Berjon, *'Infrastructure Shock'*, 23 September 2024.
34. 'Fog' computing, for example, moves cloud capabilities closer to end devices by processing data locally within a network. 'Edge' computing processes data directly on or near devices, minimising latency and bandwidth use.
35. Draghi (2024) may have been the catalyst for the Commission's strategy, but lacks granularity to justify specific regulatory design choices.
36. The 207-page European Commission Staff Working Document accompanying the November 2025 Digital Omnibus proposals dedicates just slightly more than one page to measuring the distributional impact of the proposed GDPR amendment on pseudonymised data. See European Commission (2025e), pages 54-55.

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AI and central banking

Artificial intelligence could be revolutionary. Michael Barr discusses the opportunities presented by AI relevant for central bankers as well as the potential risks AI may pose that policymakers should consider

It is a pleasure to discuss the transformational nature of artificial intelligence. Like other central banks around the world, we at the Federal Reserve have been exploring the use of AI in our operations for quite some time as well as considering the implications of AI's adoption for the financial sector and the broader economy.

At the Fed, we've been interested in the effects of AI on the economy and its role in the financial system for decades. Remarkably, in 1997, Governor Susan Phillips delivered a speech noting the use of AI in consumer loan underwriting¹. In the past year, no fewer than seven speeches by Fed Governors have had 'AI' in the title.

I'll discuss the opportunities presented by AI relevant for central bankers as well as the risks it may pose that policymakers should consider. I will leave you with three main takeaways.

The state of AI innovation and deployment

My first main point is that while AI is a big deal that will transform economies, there are a range of outcomes for how it could do so.

AI—algorithms that mimic human thought, communication, and choices—has been with us for decades, but AI entered a new era with the launch of ChatGPT in late 2022. Generative AI (GenAI) captured our imagination with convincing conversations in which it is possible to go deep on a wide range of topics. Earlier forms of AI were often the bailiwick of digitally native companies, but GenAI is spreading rapidly through the economy. As of 2024, three in four large companies were using GenAI, though some report it has yet to improve their bottom line².

Smaller companies have been slower to adopt GenAI, with adoption rates reported in the high single digits, albeit with a high degree of heterogeneity among sectors. Also, one could surmise, based on other surveys of individuals, that work-related use is more widespread among employees than their CEOs realise³.

A recent survey by the Federal Reserve Bank of New York showed that firms plan to retrain their workforces to take advantage of AI to enhance productivity, with widespread layoffs limited⁴. But survey respondents also report that AI has led firms to scale back hiring, a development that may be contributing to the recent low levels of job creation in the US economy, a concern for many workers and particularly for newer entrants to the job market.

Taking a step back, as I have noted in the past, I see two basic scenarios for how AI can transform the economy⁵. In the first scenario, there is incremental adoption of GenAI that augments existing tasks and jobs. In the second scenario, a revolution occurs. GenAI transforms the nature of work and leisure, boosting the efficiency of research and development, remaking industries, and creating firms with new—perhaps radically new—business models.

AI has the potential to fundamentally change the economy and society. And as central bankers, we need to keep up

Right now, it is difficult to predict which scenario (or perhaps one or more intermediate scenarios) will come to pass.

We can already see incremental change as GenAI is increasingly integrated with standard workplace software. With its natural language interface, GenAI is inherently user friendly, so few workers need special skills or unusually onerous training to use it. At the same time, some start-ups have a more revolutionary flavour because they are centred on AI from the outset.

One indicator of how the labour market is evolving toward deeper integration with AI is the skills mentioned in job postings. While overall the share of job listings that mention AI-related skills is small—about 5 percent—in the information sector, it is about 20 percent. The financial sector, where firms are always looking for a technological edge, is not far behind, with 1 in 10 job postings mentioning AI⁶.

So we can see that the skills needed in some key sectors are already changing. The speed of that change is likely to increase. If the AI changes happen gradually, workers and firms will have time to adjust, but if they happen rapidly, there may be significant dislocations in the short term.

A massive wave of data centre investment has begun, pointing to signs of confidence among leading AI companies that the use of AI at scale throughout the economy is just around the corner. If they're right and AI is useful enough to keep what is currently projected to be \$3 trillion of new data centre capacity utilised effectively, we can expect significant changes in economies.

Investment in capital generally raises labour productivity and offers the potential for higher output growth without pressure on inflation over the longer term. As I have discussed in previous remarks, if these changes are significant,

they can also affect the conduct of monetary policy⁷. Of course, it may be the case instead that investment exceeds short-term demand, in which case there may be losses and adjustments to the AI sector.

AI and the financial sector

The second key point I would like to make is that the financial sector is adopting AI quickly, and while there are many benefits to this adoption, the risks will need to be managed carefully.

So far, AI adoption in the financial sector appears to be most concentrated in areas that can enhance operational efficiency, including applications that involve text analysis, classification, and information search inside the firm, as well as customer-facing functions. These incremental improvements to common business functions are a key reason to be hopeful about AI raising labour productivity in that sector.

At the same time, there is significant investment in experimentation with AI for core functions for financial services. Data-driven financial-sector-specific tasks, including credit decision support, fraud detection, and trading are using AI-specific tools. Ensuring that AI is used appropriately for these functions faces appreciable challenges.

First, the amount of organisational change needed by financial services firms to utilise GenAI may be substantial. History suggests progress may be slow. Adoption of machine learning, an AI technology that preceded GenAI, was concentrated in firms that were highly digitised from their founding—and even in those cases, adoption was a long process⁸.

Fintech firms organised to exploit AI from their founding can play a key role in driving efficiency forward in the sector, providing services to the incumbent firms⁹. But productivity may even decrease in the short term, as heavy investments in business-process improvements take time to play out to productivity gains.

A second challenge is the practical constraints of rushing into AI for core business activities in the financial sector, as firms need to ensure that the resulting processes and outcomes are consistent with relevant laws and appropriate risk management. Large institutions are exploring the use of GenAI, including agentic AI, in their financial models—but doing so requires care.

To successfully leverage the potential of GenAI on a sustainable basis, decisions based on those models must be well controlled, numerically and legally precise, explainable, and replicable. AI developers still struggle to some extent with all of those criteria. We need to reduce the risk that AI reinforces biases in consumer lending.

And we also need to guard against the risks that could result from the use of AI in financial markets. For example, profit maximisation by AI-powered trading algorithms may result in tacit collusion, market manipulation, or trading strategies that result in significant market volatility or even systemic risk¹⁰.

We will need innovation that is responsive to these risks to see additional advances in the use of AI for a broad array of core financial services functions.

AI and central banking

A third and final point I would like to leave you with is that central banks, including the Fed, need to keep up with AI by increasing our speed of adoption for our own operations.

The nature of central banking work is inherently careful, considered, and measured when evaluating anything new. This is particularly true for any new technologies¹¹. But it seems clear already that the many advantages offered by AI could assist central banks in at least some of their operations, and the speed at which this technology is moving makes it appropriate to proactively engage in using AI for our own operations.

That is why the Federal Reserve is using AI, where appropriate, to increase staff efficiency and effectiveness. My view is that GenAI is a transformative technology that central banks need to remain engaged with to ensure an ability to execute as technology evolves.

As we push ahead on efficiency gains, it is important that we leverage the right tools for the task at hand, recognizing that GenAI is not always the best choice. Some of the challenges that we face can be addressed by robotic process automation or traditional AI methods. These are the same kinds of questions that every business and organisation considering AI should be weighing.

At the Federal Reserve, we have focused on ensuring we can leverage AI capabilities by establishing an AI program and governance framework for the use of AI technologies¹². We are taking an enterprise-wide approach of learning-by-doing and broadly adopting high-value uses of GenAI, such as writing, coding, and research activities. We have taken a 'hands on keys' approach to having staff engage with it. We are identifying the business processes that can be improved and transformed with the technology.

One internal application of GenAI I am particularly excited about that helps us achieve all these goals is technology modernisation. We are applying GenAI-enabled tools within clear guardrails to translate legacy code, generate unit tests, and accelerate cloud migration. So far, the result of this usage is faster delivery, improved quality, and enhanced developer experience. And it will likely mean better outcomes in support of the American people.

Given AI's current and prospective role in economic activity, we are devoting the necessary resources to understanding it, including by analysing not only AI's economic and financial implications, but also exploring how AI can enhance our financial stability work, strengthen supervisory and regulatory capabilities, and ensure the smooth functioning of our payment systems.

These are just some of the ways that the Fed, like other organisations, is using AI to make us more productive and capable. These efforts may also help us understand the effect of AI on the economy, the banking system, and the payment system. That task will be a major job for central banks in the years ahead. AI has the potential to fundamentally change the economy and society. And as central bankers, we need to keep up. ■

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The views expressed here are my own and are not necessarily those of my colleagues on the Federal Reserve Board or the Federal Open Market Committee. This article is based on a [speech](#) delivered at the Singapore Fintech Festival, Singapore, November 11, 2025.

How authorities should tackle AI challenges

AI is transforming finance faster than the authorities can adapt. Jon Danielsson argues that while AI enhances the financial system's efficiency, it also poses new, poorly understood risks, and ineffective supervision will mean a higher risk of financial crisis

Artificial intelligence differs from other technological advancements in finance, such as the initial adoption of computers and automatic trading systems. As Norvig and Russell (2021) note, AI is a rational maximising agent, one that not only analyses and recommends but also makes decisions.

Even though many would wish to, the financial authorities cannot slow down the move towards autonomous AI systems in the private sector, nor should they persist in demanding features such as explainable models that reflect pre-AI concerns. Banks that deploy AI gain an immediate competitive advantage, forcing their competitors to follow while leaving the supervisors no choice but to go along.

The financial authorities are in an AI ‘arms race’ with the private sector – one they currently seem set to lose. This increases the risk of an ineffective supervisory structure and costly financial crises. Our research (Danielsson *et al* 2023, Danielsson and Uthemann 2025) examines how AI affects systemic risk and the effectiveness of financial regulation. We build on that work here, focusing both on the operational realities that face the financial authorities and how they can best respond.

How AI affects the financial authorities

The financial authorities face a difficult dilemma. The same AI that helps them in executing their mission also undermines their control. At the micro-level, AI excels at finding regulatory arbitrage and designing pricing algorithms that master price discrimination or even abuse. Technically, this AI might comply with the authorities’ rules, but in ways they might not find palatable. Existing approaches for preventing abuse might be inadequate to meet challenges from AI.

AI helps those intent on exploiting and damaging the financial system, whether criminals and terrorists or hostile nation states. Those attackers need only one successful breach, whereas the defenders must guard the entire system. We call this the ‘defender’s dilemma’, and it can only get worse with time.

AI creates risks that current monitoring frameworks miss. When AI takes over critical functions, most importantly, liquidity management, it is likely that extant systemic risk dashboards based on past performance and practices will not detect new forms of emergent risks.

Ultimately, AI gives rise to wrong-way risk when the risk it creates is the highest at times when we have the greatest exposure to that risk factor.

AI accelerates the speed of crises through its unmatched capacity to monitor the system, evaluate strategic alternatives and execute complex decisions at a speed no human can match

AI crises

Financial crises occur when banks shift from maximising profits to survival, the *one-in-a-thousand-day problem* discussed in Danielsson (2024). Speed is always of the essence, as the first bank to act decisively in a crisis is the most likely to survive, while the laggards face massive losses and even bankruptcy.

AI accelerates the speed of crises through its unmatched capacity to monitor the system, evaluate strategic alternatives and execute complex decisions at a speed no human can match. When a shock occurs, the AI engines rapidly parse vast streams of market, macroeconomic, political and competitor data, updating forecasts and adjusting positions.

This speed advantage means that by the time supervisors register an abnormal market move, significant shifts in liquidity or asset pricing may already have taken place. There is a significant competitive advantage in acting quickly, as the first to react to a shock minimises losses, while the last faces significant losses and even bankruptcy.

Strategic complementarities arise when AI engines monitor and react to one another's visible market footprints. When one system moves in response to stress, others may interpret it as confirming evidence and adjust accordingly. The result is self-reinforcing action across institutions, creating a rapid convergence of behaviour even without direct coordination. This is not illegal, and there is nothing the authorities can do to prevent this behaviour.

Similarity in AI design and operation reinforces this tendency towards synchronisation. Many, if not most, private sector institutions procure systems from the same small set of vendors, train them on overlapping datasets and optimise for comparable objectives.

The combined effect is to compress the timeline of crises. Events that once unfolded over days or weeks can now play out in minutes or hours, leaving almost no window for policy intervention.

While such systems smooth out minor fluctuations in calm markets, their tendency towards rapid, coordinated action under stress increases the probability and severity of extreme market moves. This dynamic lowers observed day-to-day volatility but produces a fatter-tailed distribution of outcomes.

Supervision

The fundamental motivation for regulating the financial system is to align the interests of the private sector with society. In technical language, this is a principal–agent problem, where the principal (the supervisor) seeks to make the agent (the financial institution) act in the interest of society.

That relationship changes with AI, as the one-sided principal–agent problem becomes two-sided: principal–agent–AI. The supervisors seek to control the behaviour of banks, while both must control their AI. Unfortunately, the way we now incentivise – the carrots and sticks inherent in the supervisory structure – does not work with AI.

In effect, the supervisors' traditional levers of incentives, penalties and reputational pressure lose traction when key decisions are delegated to autonomous systems.

Banks cannot effectively explain how AI works, nor how it makes decisions. Meanwhile, the supervisors cannot effectively regulate algorithms to which penalties, reputational damage and bonus clawbacks mean nothing.

Ultimately, this implies that the current slow and deliberate human-centred control system is ill-suited to controlling a far more agile AI system.

AI brings new challenges in accountability. It is already very difficult to hold individual bankers accountable. That becomes even harder as AI use proliferates, creating new avenues for those intent on exploiting the system for private gain.

Policy responses

The authorities cannot outpace the private sector, but they can narrow the gap. To begin with, they need to develop their own AI capabilities directly within the operational functions of the authorities. Financial stability, monetary policy and supervision should take the lead on AI in their organisations, and not leave it to auxiliary divisions such as IT, data or innovation.

One challenge is the implementation of AI engines. The authorities are justifiably reluctant to use commercial systems, especially from vendors in foreign jurisdictions, as there is a significant chance of data leakage and confidentiality violations. The alternative is to develop their own internal engines, either directly or by using open-source engines.

While seemingly attractive, we suspect that most authorities will find it difficult, if not impossible, to allocate the necessary financial and human capital resources to set up their own engines to match the capabilities of private-sector systems.

The vast middle ground might be engagement with vendors in the local jurisdiction to set up high-quality AI engines for authority purposes. Doing this in the local jurisdiction is important as it allows the authority to exercise the necessary control.

The financial system is global, but the authorities operate within narrow and jealously guarded silos. Here, AI can help. Authorities across multiple jurisdictions could set up a single AI engine for a common purpose and to meet global challenges. However, restrictions on data sharing preclude doing that today.

The authorities can leverage a technique called federated learning: training takes place locally inside each authority and on data it controls, while only model weights are shared. Federated learning allows authorities to train a shared model across jurisdictions without sharing the underlying data.

Since consequent neural networks are significantly over-parameterised and the result of optimisation across multiple jurisdictions, there is practically no way to reverse the engine weights onto individual data points. This protects confidentiality while enabling collective intelligence.

Furthermore, AI creates new ways for real-time supervision. It is technically straightforward to set up direct AI-to-AI communication links (known as API interfaces) that allow the authority AI to communicate directly with the private-sector AI so that it can test responses and benchmark regulations.

These ideas build on early experiments in interactive stress testing, such as the Bank of England's 2024 'system-wide exploratory scenario', which incorporated interactive elements that allowed participants to adjust strategies in response to emerging conditions during the simulation.

Fast crises require fast responses, and current crisis-intervention facilities are likely to be too slow. This suggests that the authorities should set up automated facilities to pre-empt a crisis, perhaps to release liquidity at the same time that private-sector AI contemplate whether to run in response to an external shock.

Finally, the authorities should keep track of AI use in their monitoring frameworks. Directly identifying AI adoption at a divisional level in the private sector (such as risk management, credit and treasury functions) is a fruitful avenue. This would include the type of AI engines used, how they are trained and where they are procured from.

This same framework should also monitor vendor concentration, since dependence on a small set of providers increases the risk of synchronised behaviour during stress.

Conclusion

The financial authorities find it difficult to meet challenges arising from AI. If they proactively engage with AI, the authorities can markedly improve the supervisory process and stabilise the financial system. If they do not, the likely outcome is more misbehaviour, fraud, instability and financial crises.

Unfortunately, much of the authorities' public discussion of the impact of AI on the financial system does not seem to engage with the most important threats arising from AI. Instead, much of their AI policy analysis appears to remain grounded in traditional, pre-AI methodological approaches.

Ultimately, the effectiveness and stability of the financial system depends on whether the authorities can master the same AI technologies that already are revolutionising the way private-sector firms operate. ■

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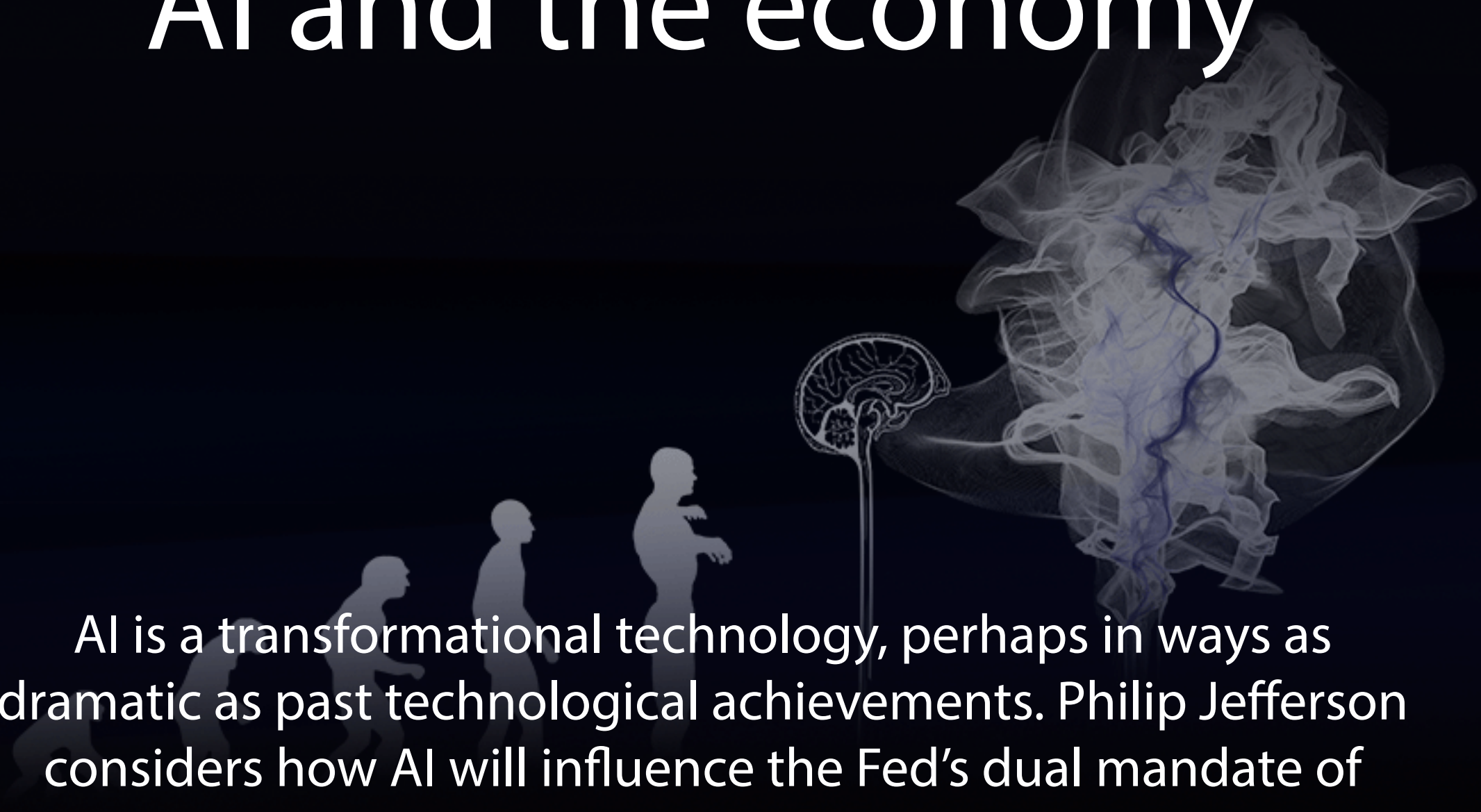
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AI and the economy

An illustration on a dark background showing the evolution of man from an ape-like ancestor to a modern human. To the right of the modern human is a detailed cross-section of a brain, with a blue, wispy, smoke-like cloud emerging from it, symbolizing artificial intelligence or complex thought.

AI is a transformational technology, perhaps in ways as dramatic as past technological achievements. Philip Jefferson considers how AI will influence the Fed's dual mandate of promoting maximum employment and stable prices

Often, when I gather with students, consumers, or businesspeople, the conversation quickly turns to AI. And it is easy to understand why—you do not even need to ask a chatbot! AI has the potential to transform how we work and how we live, and it could have a profound effect on the economy.

I will talk about AI's rapid growth and how I approach thinking about AI by examining it through the lens of the dual mandate given to the Federal Reserve by the US Congress. That mandate instructs America's central bank to pursue maximum employment and price stability. I will describe the effects that AI may have on both sides of that mandate.

AI's rapid growth

In a few short years, AI morphed from the realm of science fiction to a tool that high schoolers use to help them do their science homework! Seriously, it is amazing to see school children use AI to generate quizzes to prepare for exams, home chefs use it to create recipes for a wholesome dinner, and jobseekers use it to consider career trade-offs, among many other purposes. Consumer use of AI has grown rapidly, and it is integrated into a multitude of existing products, including search engines, phones, and vehicles.

As of last month, ChatGPT, which is just one of a growing number of generative AI models, is used by more than 800 million people every week, an increase from 500 million a week at the end of March¹. Enterprise use of AI has been growing too. A recently released study showed that the proportion of Americans using AI at their jobs has also been growing at a fast clip.

Researchers found that workers' adoption of generative AI rose from 30.1 percent as of December 2024 to 45.9 percent as of June and July of this year². And among survey respondents who had adopted AI tools, about a third said they use them daily.

That same study found that AI is most used at jobs by younger, more highly educated, and higher-earning workers and that productivity for workers increased substantially when using AI tools.

There is strong evidence that AI can increase labour productivity in various industries and occupations. For example, a paper from Stanford economist, Erik Brynjolfsson, and coauthors showed the effects of AI implementation among customer support agents³.

So, what do these still-developing labour and price effects mean for monetary policy? The short answer is that it is likely still too soon to tell

They found that AI tools increased productivity—as measured by issues resolved per hour—14 percent, on average, and the improvement in productivity for novice and low-skilled employees was much larger.

AI is also advancing productivity in highly technical scientific research. Take protein folding, for example. Proteins are the building blocks of the human body and life itself. They assume an almost infinite variety of shapes. Predicting those shapes—which determine their function—is vital for understanding how cells and diseases work and for finding drugs to treat them.

Just five years ago, scientists had a good understanding of the structures of just 17 percent of the roughly 20,000 proteins in the human body⁴. For each protein, that knowledge was earned through months or years of hard work and a potential cost of tens of thousands of dollars or more. Thanks to the development of the AlphaFold model, an AI system that predicts a protein's structure, scientists now know the structures of all the proteins in the human body—and some 200 million more⁵.

More broadly, like many others, I see the promise for AI technology to be transformative, perhaps in ways as dramatic as past technological achievements, such as the printing press, steam engine, and the internet, which are known as general purpose technologies for their wide-ranging effects.

Labour market and prices

When I think about this technology, I consider how it will affect both sides of the Fed's dual mandate of promoting maximum employment and stable prices. As such, it is something that economists and policymakers must monitor.

AI can allow a worker to complete tasks in moments that previously took many minutes, if not hours. That has caused many to question whether AI will lead to notable job loss. This potential disruption of labour is a real risk. By automating certain tasks, it could lead to a reduction in some types of jobs.

But increased productivity leads to economic growth, which may create new employment opportunities. AI is also expected to create new job categories and transform existing ones. There has been robust competition among high-tech firms for workers who possess the skills to develop this technology⁶.

Many have legitimate concerns that AI will cause job loss. At least for certain firms and workers in certain occupations, this is likely to be true. There are many examples where transformative technologies, such as the personal computer, did cause some workers to lose their jobs, but we also saw new industries and occupations emerge because of the innovation.

Indeed, some large employers have recently indicated they are lowering overall hiring plans in light of advances in AI and other forms of automation⁷. Some research has also suggested that AI is having a more detrimental effect on the job prospects of younger, less experienced workers, including recent graduates, relative to those further along in their careers⁸.

The net effect on employment is highly uncertain and may show variation across industries and occupations over time. For the overall economy, one way to think about AI-related job losses—at least until it creates new jobs—is that it can create economic slack. In a world where firms only deployed AI to replace existing workers, even at a lower level of overall employment, the productive capacity of the economy has increased (or stayed the same).

Of course, if people seamlessly get redeployed to more productive tasks, the economy produces more without any additional slack—more on this soon. Whether AI substitutes for labour or complements it is an important question that requires continued study.

On the other side of our dual mandate, price stability, AI could help the economy achieve higher growth through increased productivity while reducing inflationary pressures. Specifically, increased productivity could lower production costs and put downward pressure on prices.

Not only could AI allow a specific worker to be more efficient in their day-to-day tasks, but it also has the potential to allow for better thinking around complex problems—for example, in logistics and transportation. More efficient allocation of resources as well as potential improvements in supply chains could reduce associated costs, leading to lower prices for various goods and services.

Conversely, AI could put upward pressure on certain price categories as many firms push to scale up the technology. I mentioned the rising wages for certain workers with skills that complement AI. AI technology also requires data centres, which compete with other production processes for land, energy, and other inputs. So, I think that AI's effect on inflation is not solely downward pressure.

Implications on monetary policy

So, what do these still-developing labour and price effects mean for monetary policy? The short answer is that it is likely still too soon to tell. As always, policymakers confront the challenge of sorting out changes in the economy that are due to cyclical factors from those resulting from structural change, which AI may well represent. Some of the recent changes in hiring patterns, productivity growth, and inflation are likely to represent AI-driven change, but it is difficult to know the degree.

Productivity gains from AI may affect the relationship between employment and inflation and hence the conduct of monetary policy. For example, a productivity-induced boost to the growth rate of potential output could imply that monetary policy will not need to react strongly to what would have previously been perceived as tightness in the labour market.

The uncertain implications of AI for employment and inflation could take some time to filter broadly through economy. Also, AI's effects will likely vary across different industries and regions of both the US and the world. And monetary policy decisions need to be made with a broad view of what is happening in the economy, not just in one sector or technology.

There is still much to learn. I counsel exercising humility about the challenges in predicting AI's effects on employment and inflation. Policymakers, businesses, and individuals should remain flexible and prepared to adapt as the effects of AI continue to unfold.

Economic outlook

Now having discussed the policy implications of AI, I would like to briefly update you about my current outlook for the US economy. While federal statistical agencies are largely not producing data during the government shutdown, data available from other sources suggest that the overall economic picture in the US has not changed much over the past few months.

The economy has been growing at a moderate pace while labour market conditions appear to be consistent with a gradually cooling. Inflation is running at a rate similar to that of a year ago. The lack of progress on headline inflation appears to be due to tariff effects, with signs that underlying inflation may be continuing to make progress to 2 percent. Market-based long-term inflation expectations continue to be well-anchored. I remain firmly committed to returning inflation to the Fed's 2 percent target.

I supported the decision to reduce our policy rate by a quarter percentage point. That step was appropriate because I see the balance of risks as having shifted in recent months as downside risks to employment have increased.

The current policy stance is still somewhat restrictive, but we have moved it closer to its neutral level that neither restricts nor stimulates the economy. Given this, it makes sense to proceed slowly as we approach the neutral rate.

With respect to the path of the policy rate going forward, I will continue to determine policy based on the incoming data, the evolving outlook, and the balance of risks. I always take a meeting-by-meeting approach. This approach is especially prudent because it is unclear how much official data we will have before our December meeting.

Let me conclude by saying that this is an exciting time. It feels like we are at the dawn of a new age, and AI technology may well be part of that progress. ■

Philip N Jefferson is Vice Chair of the Board of Governors of the Federal Reserve System

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A threat to financial stability

Stablecoins have emerged as a major innovation with broad implications for payments and international finance. Richard Portes explores the risks such stablecoins pose to financial stability and measures that could contain these risks

The multi-issuer model for cryptoasset stablecoins poses significant financial stability risks and regulatory challenges for the EU. In such a model, an Electronic Money Token (EMT) — a stablecoin — is jointly issued by both an EU-regulated institution and one or more third-country entities. This arrangement was not foreseen and not explicitly regulated under the EU legislation governing stablecoins, the Markets in Crypto-Assets Regulation (MiCAR), applicable from mid-2024.

There are thus substantial ambiguities which issuers can exploit. These stablecoins – deemed fungible across jurisdictions – facilitate regulatory arbitrage, fragment reserve management, and potentially expose EU issuers and their banking partners to systemic stress, redemption runs, and contagion. Hence regulatory reforms are needed urgently. The urgency is heightened by the passage of the American stablecoin-enabling GENIUS Act in July 2025.

In this column, we provide a framework for understanding and mitigating the multi-issuer stablecoin (MISC) loophole — a gap which, if left unaddressed, could have far-reaching consequences for EU financial stability and investor protection. We advocate prompt legal and supervisory adaptation to ensure MiCAR meets the realities of a globalised crypto-finance landscape.

We first explain the model and the regulatory background, then provide a technical and legal risk assessment. We highlight the need for a robust EU-level regulatory and supervisory response, bespoke prudential standards, explicit crossborder arrangements, and greater harmonisation at the global level.

The multi-issuer model and its risks

Stablecoins are supposed to maintain a stable value, pegged to an official currency or a basket of assets. They are meant to be backed by reserves in the form of high-quality liquid assets (EU and US requirements are somewhat different). The design is not entirely robust: there are multiple instances in which key stablecoins have ‘broken’ their

pegs under stress; and there is significant everyday volatility for the major stablecoins, USDT and USDC, around the \$1 peg.

A multi-issuer arrangement arises when a stablecoin is issued in multiple jurisdictions by different legal entities with the same controlling interest — for example, a European subsidiary and a US parent or affiliate issuing ‘the same’ token. These tokens are treated by the issuer and the holders as interchangeable (fungible), regardless of the regulatory framework.

The multi-issuer model introduces critical vulnerabilities into the EU financial system, undermines MiCAR’s single-market protections, and exposes EU issuers to liabilities and operational risks beyond their control

For intra-EU issuance, joint liability is clear and fully subject to rules under MiCAR. In a crossborder framework, with issuance in the EU and a third country, the fungibility of tokens muddles accountability, as an EU entity may be responsible for redemptions originally claimed from a non-EU affiliate, over which it has neither legal nor operational control (Figure 1). But there is no explicit provision in MiCAR for third-country crossborder co-issuance, although issuers market multi-issuer stablecoin tokens as fully fungible, regardless of the original jurisdiction.

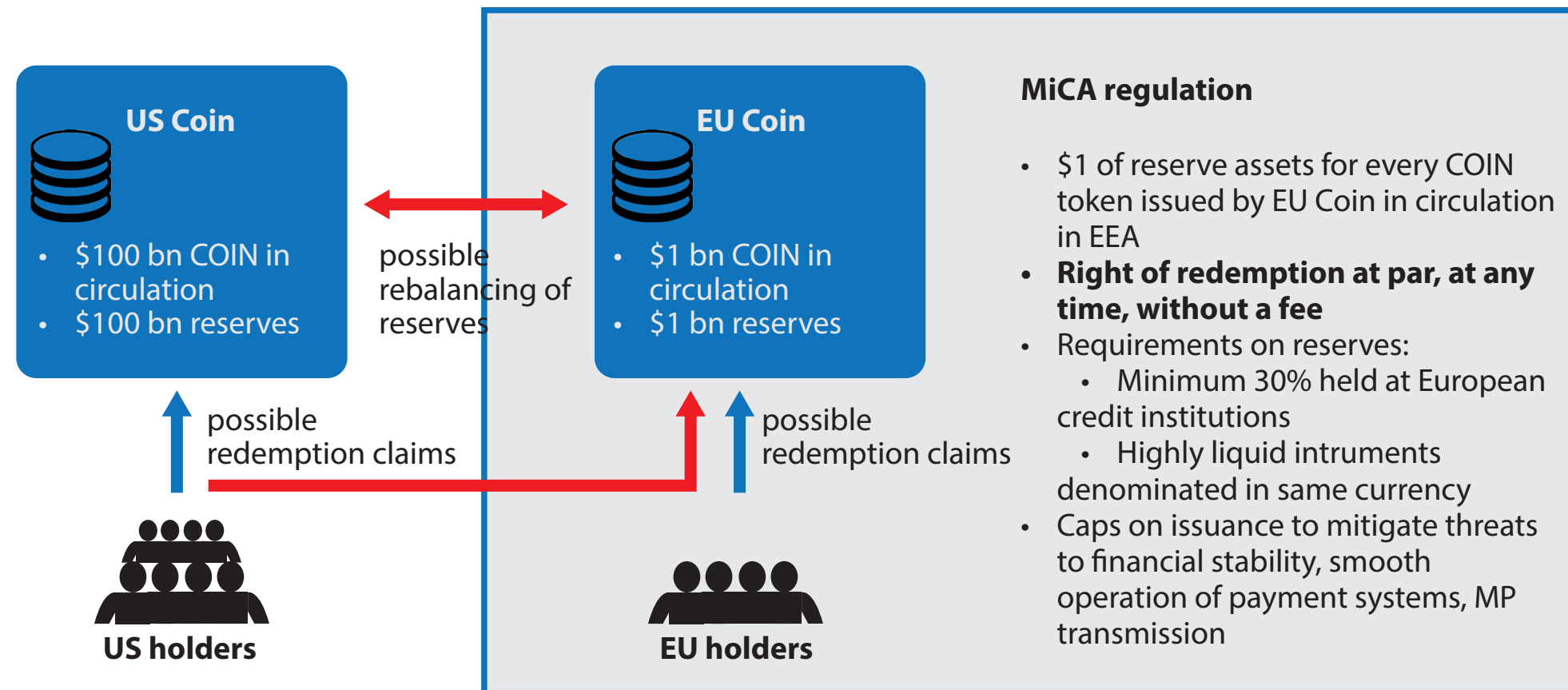
This model poses significant prudential and regulatory issues. First, the reserves backing the stablecoin are fragmented. When the same stablecoin is issued by both EU and non-EU entities, reserve assets are split and managed under different regulatory regimes, with no guarantee the reserves held in the third country will be available for attempted redemptions in the EU in stress episodes.

EU law requires prompt, cost-free redemption at par by EU issuers. But the third-country issuer may apply fees or delays. And in a crisis, the third-country authorities might 'ringfence' (withhold) locally held reserves, jeopardising redemptions in the EU.

This national ringfencing of liquidity was observed within the EU itself during the crises of autumn 2008 and spring 2020, despite the supposedly ironclad legal prohibition of capital flow barriers within the EU.

The multi-issuer stablecoin model therefore raises major macroprudential issues. First, there would be clear incentives to run in a stress episode. Regulatory arbitrage enables stablecoin holders to redeem preferentially in the jurisdiction offering the most favourable terms, likely the EU. This increases the likelihood of a run, especially if holders (correctly) perceive the inadequacy of EU-held reserves to meet redemptions.

Figure 1. Illustrative example of an EU and third-country stablecoin multi-issuer model applied to the EU and US



Notes: The diagram conceptualises the flow of reserves and redemption claims between an EU and a US stablecoin issuer. It highlights how tokens can move and be redeemed in either jurisdiction, while underlying reserves remain subject to two regulatory and supervisory silos, increasing the risk of misalignment in crises.

Source: ESRB, Report on stablecoins, crypto-investment products and multi-function groups, October 2025.

Second, there might be contagion to and across banks. If a run on an EU stablecoin issuer occurs, and the issuer is a credit institution, direct contagion may affect the bank. For e-money institutions (EMIs), large, required reserves (eg. 30% or 60% deposited with EU banks for (non-significant issuers) mean that redemptions could strain the liquidity positions of associated banks, especially those with concentrated exposure to cryptoasset players.

The risk is heightened by the likely development of 'crypto-friendly' banks: with no overall cap on the aggregate stablecoin-related liability any one bank can have, the rise of banks heavily reliant on crypto sector funding is likely, amplifying systemic risk. The fragility of this funding and the consequent systemic risk were observed in the US mini-crisis of March 2023 (Silicon Valley Bank, Signature Bank, Silvergate Bank), which required major intervention by the federal authorities (Admati *et al* 2023).

There is a significant likelihood of circumvention of EU safeguards and regulatory arbitrage. Foreign-issued tokens under a multi-issuer arrangement may exploit favourable EU rules (eg. par redemption, absence of fees, market prominence), while not being subject to EU-level reserves, risk management, or supervisory scrutiny.

The risk is exacerbated by the difficulty of tracking the effective volumes of tokens in circulation within the EU and abroad, especially for those held in off-chain wallets. Thus, requirements designed to mitigate financial stability and policy risks (eg. issuance caps for foreign currency electronic money tokens, enhanced oversight at critical thresholds) become difficult to uphold.

Note that there is an incentive to hold stablecoins in the US: although the GENIUS Act prohibits paying interest on stablecoins, there is a way around this via cryptoasset service providers which can hold the stablecoins and pay interest to the owner.

The multi-issuer stablecoin scheme does not provide the necessary investor protection, one of the main objectives of MiCAR. Investors may be led to believe an 'EU-branded' stablecoin carries full EU protections when part of the token stock is issued outside the EU and not subject to MiCAR.

Moreover, supervisory reach is limited, especially because EU supervisors lack control over third-country assets or operations yet may have to take actions with respect to redemptions from holders who have acquired tokens from third-country issuers. This is a sharp deviation from standards in classical banking regulation.

EU regulators have no control over the marketing practices of third-country issuers, which might misrepresent redemption arrangements and links to the EU-based issuer. That then poses reputational risks for the EU authorities. The model sets a precedent for non-EU issuers to access the EU single market while evading regulatory obligations, making the EU vulnerable to international regulatory arbitrage.

While EU supervisors cannot oversee non-EU risk management, they would de facto be tasked with maintaining the solvency and liquidity of all tokens, a legal and prudential stretch never tolerated in the traditional crossborder banking world.

There are several issues regarding reserve allocation and the operational hurdles to running a multi-issuer stablecoin scheme. First, the rebalancing mechanism. For the system to work, reserve assets must be transferable in both directions between the EU and non-EU issuers to fulfil redemptions as they arise. This is only as effective as the underlying legal and operational frameworks and the ability to move funds promptly — often unreliable, especially under stress.

Where reserves are invested in third-country money market funds, as permitted under the GENIUS Act, redemption can be frozen by local authorities, further weakening the reliability of crossborder pools. The most acute risk, therefore, is having a liquidity shortfall locally due to operational, legal, or market blockages in moving assets crossborder.

Second, we lack reliable data on where tokens are held, due to the prevalence of self-hosted wallets (44% for Circle USDC as of February 2025) and limited reporting from non-EU crypto providers. This leads to large judgment calls in stress testing and risk modelling for EU supervisors.

The actual exposure of the EU issuer is unknown; estimates of 'EU-circulating' supply are only lower bounds, reducing confidence in reserve adequacy and crisis planning. Limited knowledge of self or omnibus wallet holders means redemption behaviour is unpredictable, raising the risk of unanticipated runs.

Arbitrage opportunities would arise if the coin were trading below par in one jurisdiction and could be redeemed at par and for free in the EU, inviting profit-seeking redemptions during even minor price declines — a classic 'run' scenario. The MiCAR ban on redemption fees amplifies this incentive.

Legal and supervisory considerations

Crossborder multi-issuer schemes entirely within the EU are governed by MiCAR, which grants national competent authorities latitude under Article 35 (own funds requirements), Article 45(4) (liquidity enhancements post-stress testing), and Article 94(1)v (broad preventive powers), enabling strengthened buffers for at-risk institutions. Increases to own funds requirements would have legal precedent: for example, a 20% uplift for non-significant issuers and a 20–40% increase for significant ones, based on stress test findings, risk outlook, and redemption guarantees.

The European Banking Authority (EBA) can take into account considerations relating to multi-issuance. If the token is 'significant', it is subject to EU-level oversight, which facilitates crossborder coordination and a level playing field. But classification is hindered by incomplete or contested data about token distribution and reporting inadequacies by Crypto Asset Service Providers (CASPs).

Still, supervisors may revoke authorisations, impose redemption fees, or limit redemptions in an emergency, provided they meet the MiCAR flexibility requirements.

Policy options and recommendations

There is a wide range of policy options available to the EU authorities for dealing with the specific risks posed by multi-issuer stablecoins. The first would simply be to ban them, as the European Systemic Risk Board has recommended. Against this, there has been considerable lobbying pressure in Brussels from well-funded issuers.

But some key members of the European Parliament have resisted and have written to Commissioner Albuquerque setting out their concerns. And President Lagarde of the European Central Bank has forcefully expressed her opposition to multi-issuer stablecoins (Lagarde 2025). At the time of writing, the European Commission had not set out its final position.

If the Commission deems that under existing legislation, multi-issuer stablecoins are permissible, then they could propose amendments to MiCAR to cover multi-issuer schemes explicitly and lay out a framework for cross-jurisdiction equivalence, reciprocity, and asset ringfencing protections.

Meanwhile, macroprudential authorities should intensify scrutiny and systemic risk analysis of multi-issuer schemes. The authorities could require EU stablecoin issuers engaged in multi-issuer arrangements to set high minimum

denomination amounts, or limit issuance if the ECB identifies payment systems or monetary policy risks. They could impose higher own-funds or stricter liquidity requirements based on stress-testing outcomes whenever reserve sufficiency is in doubt.

Enhanced disclosure obligations for issuers would be desirable, with the European Securities Markets Authority (ESMA) providing whitepaper disclosure templates detailing the structure, risks, and reserve-management specifics of any multi-issuer token. These should be strengthened, with harmonised reporting standards for cryptoasset service providers and issuers, both inside and outside the EU, to map accurate token distribution and calibrate policy.

Ideally, the authorities should develop enforceable global regulatory standards in coordination with Financial Stability Board (FSB) guidance and robust cooperation agreements to ensure liquidity flows and consistent application of prudential rules, even during crises. And within the EU, national competent authorities (NCAs) should coordinate, but not in a decentralised way — an EU-level approach is judicially and practically more robust.

Decentralised equivalence assessments (by each NCA) create the risk of fragmentation, a practice the European Commission would not tolerate in other areas of financial regulation. The European Banking Authority or European Securities Markets Authority should lead here.

The multi-issuer model introduces critical vulnerabilities into the EU financial system, undermines MiCAR's single-market protections, and exposes EU issuers to liabilities and operational risks beyond their control.

Systemic risks include investor runs, bank contagion, loss of monetary policy sovereignty, and undermined regulatory credibility. Immediate regulatory action at both EU and global levels is necessary, with legal clarification

of multi-issuance, harmonised prudential tools, robust cooperation arrangements, and enhanced crisis management protocols. ■

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Author’s Note: Co-Chair of European Systemic Risk Board Crypto Asset Task Force. Views expressed here are personal and not those of the Task Force, whose report was published on 20 October 2025. I am grateful for exchanges with Yvan Dubravica, Adam Glogowski, Steffen Kern, and Elisabeth Noble on these issues. This column extends the analysis in Portes (2025). It is an amended version of a chapter to appear in a CEPR eBook edited by Dirk Niepelt. This article was originally published on VoxEU.org.



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A global stablecoin glut

The global stablecoin glut is expected to have significant implications for monetary policy. Stephen Miran warns that stablecoin adoption could put downward pressure on interest rates

I am excited to be discussing stablecoins. This innovation has been unfairly treated as a pariah by some, but stablecoins are now an established and fast-growing part of the financial landscape. Putatively, stablecoins were originally intended to facilitate holding and trading cryptocurrency. But their proliferation has been aided by providing users with a stable store of value, a means of payment, and the ability to move capital quickly, irrespective of territorial borders.

Demand for dollars continues to be strong, so it's no surprise that a more efficient means of accessing dollars has become increasingly popular. With the passage this year of the GENIUS Act (Guiding and Establishing National Innovation for US Stablecoins Act), there is now a clear regulatory pathway in the US for stablecoin issuers to broaden their reach and solidify stablecoins as a core part of the payment system.

I believe economic research has some catching up to do. Economists meticulously study demand for dollar assets and consider how monetary policy may be affected, and the rapid growth of stablecoins affects the supply of loanable funds in the US economy. I am encouraged that the Federal Reserve is taking steps to recognize the importance of stablecoins for the payment system; greater transparency and rising adoption should help us consider their effect on monetary policy as well¹.

Stablecoins and dollars

Essentially all stablecoins are denominated in dollars, and their success is at least partly due to the US dollar's enduring status as the world's preferred currency². Stablecoins are also contributing to the dollar's dominance by allowing an ever-growing share of people around the globe to hold assets and conduct transactions in the most trusted currency.

My thesis is that stablecoins are already increasing demand for US Treasury bills and other dollar-denominated liquid assets by purchasers outside the United States and that this demand will continue growing. All else equal, this new demand lowers borrowing costs for the US government.

However, as a central banker, my focus is on what I believe may be a substantial and long-term force putting downward pressure on a crucial guideline for monetary policymakers known as r^* . The neutral rate, or r^* , is the policy interest rate that neither stimulates nor restricts economic activity when the economy is operating at its potential once the transitory effects of cyclical economic shocks have abated.

The scope for rapid increases in stablecoin issuance makes it now even more imperative to consider what widespread adoption may mean for monetary policy, both in the US and abroad

There are several open questions with respect to the impact of stablecoins on US monetary policy: How many assets will be managed by stablecoin issuers? Will the funds come from domestic or foreign sources, and where might substitution pull funds out of the banking system? What are the systemic risks related to runs on stablecoins?

Since monetary policy must be forward looking, my colleagues and I would be best served exploring these topics now. In these remarks, I'll focus on the consequences for monetary policy if stablecoin growth follows industry expectations. In short, stablecoins may become a multitrillion dollar elephant in the room for central bankers.

GENIUS Act

While I tend to view new regulations sceptically, I'm greatly encouraged by the GENIUS Act. This regulatory apparatus for stablecoins establishes a level of legitimacy and accountability congruent with holding traditional dollar assets.

For the purposes of monetary policy, the most important aspect of the GENIUS Act is that it requires US-domiciled issuers to maintain reserves backed on at least a one-to-one basis in safe and liquid US dollar-denominated assets. These reserves can be held in bank deposits, short-term Treasuries, overnight repurchase agreements (repos) or reverse repos backed by US Treasuries, or government money market funds.

Depending on the source of funds used to invest in stablecoins, it may constitute new loanable funds in the US economy or the overall amount of money available for borrowing and lending.

Even stablecoins outside the ambit of the GENIUS Act are likely to boost demand for Treasuries and other dollar-denominated assets. Stablecoins that do not comply with the GENIUS Act can invest reserves in a much broader

range of assets but, to be viewed as reliable stores of value, will likely end up still investing substantially in US dollar securities with minimal credit risk.

The inter-quartile range of private-sector estimates compiled by Federal Reserve staff roughly projects stablecoin uptake reaching between \$1 trillion and \$3 trillion by the end of the decade. For reference, the Fed grew its holdings of US Treasury securities by just over \$3 trillion during the latest round of quantitative easing in response to the COVID-19 pandemic. In total, under \$7 trillion in Treasury bills are outstanding today. If these forecasts prove accurate, the magnitude of additional demand from stablecoins will be too large to ignore.

Potential for broad adoption

The innovation of public blockchains means that stablecoins can trade freely on rails that anyone in the world can use. This advancement represents potentially transformational change for consumers and businesses outside the US, particularly those in emerging market economies (EMEs) or even advanced foreign economies (AFEs) with burdensome restrictions on their payment systems.

In many jurisdictions, low-friction payment rails are unavailable. Banking services to convert local currency or assets into dollars may be limited. Basic banking services themselves may be limited. And billions of people worldwide are subject to capital controls preventing convertibility and access to dollars. Globally, savers disproportionately favour dollar-denominated assets, and the ubiquity of capital controls is indicative of that revealed preference.

For stablecoins to enter widespread use, there must be a bridge from local fiat currencies into stablecoins. One can imagine many possible bridges, often already in use for existing dollar vehicles: remittances from immigrants working in the US might take the form of stablecoins; exporters may receive portions of their payment in stablecoins, perhaps undeclared if domiciled in jurisdictions that proscribe stablecoin use; people might trade local

currency for cryptocurrency and then use that cryptocurrency to buy a stablecoin; or they might trade physical cash or goods or services or other assets for stablecoins.

Stablecoins merely make it easier to traverse some of these bridges and increase incentives for doing so because once stablecoins are in circulation in an economy, they can circulate more freely and cheaply behind capital controls than traditional forms of dollar payments³.

These bridges will not be frictionless or have infinite capacity. For people who want to use dollars either as a store of value or a means of payment but are unable to do so, stablecoins make it incrementally easier. Stablecoins will not instantly obliterate barriers to dollar use, but they will perforate those barriers.

Reserve assets and currency provided by the US are global public goods, but some jurisdictions prohibit their citizens' enjoyment of them. Stablecoins might establish an easier means for the financially repressed to enjoy these global public goods and evade draconian restrictions on their finances. For individuals and businesses in many nations, especially those in which dollars are used for large purchases like homes, this also leapfrogs the challenges of high and unstable inflation or volatile exchange rates.

To be fair, stablecoin growth may not live up to the forecasts I cited earlier. Potential limits on yield and reward arrangements could limit adoption, particularly in open economies. The presumption that the crypto industry will grow at the prodigious rates of recent years cannot be taken for granted. But even with these considerations, it seems likely to me that the growth in stablecoin usage outside the US will continue at a high rate.

One important distinction is that if domestically purchased stablecoins are financed with bank deposits, or foreign purchases are financed with existing dollar-denominated holdings, then that doesn't affect the amount of loanable funds in the financial system.

Further, there's some risk that a flow of deposits out of the US banking system and into stablecoins could disintermediate banks, affecting the transmission of monetary policy and stunting the velocity of money.

However, because GENIUS Act payment stablecoins do not offer yield and are not backed by federal deposit insurance, I see little prospect of funds broadly fleeing the domestic banking system. The real opportunity in stablecoins is to satiate untapped foreign appetite for dollar assets from savers in jurisdictions where dollar access is limited; by contrast, users in the US and AFEs like the eurozone already freely access Treasuries, dollars, and other instruments that offer yield or deposit insurance.

I therefore expect most demand for stablecoins to come from locales unable to access dollar-denominated saving instruments, boosting demand for dollar assets.

Implications for monetary policy

The supply–demand balance for loanable funds determines the neutral interest rate, or r^* . As I discussed in a recent speech, I believe a range of different factors are putting downward pressure on r^* and should be considered in formulating monetary policy⁴.

Some researchers have tried to estimate how much stablecoin growth might lower interest rates. In 2024, work by Marina Azzimonti and Vincenzo Quadrini estimated that if stablecoins are in widespread use and fully backed by US securities, it could put as much as 40 basis points of downward pressure on interest rates⁵.

In estimating the effect of the projected growth of stablecoin issuance on demand for Treasuries and other highly liquid dollar assets, it is helpful to make a comparison to what most researchers believe was a large factor during an era of declining interest rates that began around the turn of the millennium—what former Fed Chairman Ben Bernanke called the global saving glut⁶.

In measuring the global saving glut, Bernanke reported that the annual US current account deficit widened by 4 percentage points of US gross domestic product (GDP) from 1996 to 2004⁷.

As I mentioned earlier, projections indicate between \$1 trillion to \$3 trillion of growth in stablecoins over the next several years. Adoption depends on regulatory clarity, institutional integration, and factors emanating from outside the US—for instance, growth in EMEs, foreign exchange fluctuations, foreign political stability, and so forth.

An additional \$2 trillion of foreign demand for dollar assets by the end of the decade would, all else equal, increase the current account deficit by roughly 1.2 percentage points of GDP over this period. This increase would represent about 30 percent of the size of the original global saving glut.

More bullish stablecoin-uptake forecasts on the order of \$4 trillion would double the size of this effect, making it about 60 percent the size of the original global saving glut. These magnitudes would matter for monetary policy.

Demand could obviously differ in domestic versus foreign adoption or miss these estimates. My goal is not to pinpoint the most accurate forecast, but to highlight the potential power of this channel. You can fill in your own numbers using this same method—my crystal ball is no clearer than others’.

Moreover, the asset mix purchased by the rest of the world 20 years ago differs from that purchased by stablecoin issuers. The effects of a lower neutral rate might therefore manifest in financial markets differently than they did last time.

Even relatively conservative estimates of stablecoin growth imply an increase in the net supply of loanable funds in the economy that pushes down r^* . If r^* is lower, policy rates should also be lower than they would otherwise be to support a healthy economy. A failure of the central bank to cut rates in response to a reduction in r^* is contractionary.

If a global stablecoin glut looks like a global saving glut, some other consequences may be replicated, too. For instance, a lower r^* increases the odds that the zero lower bound (ZLB) binds in the future, limiting the ability of short-term interest rates to move down to provide accommodation but not restraining their ability to move up to restrict activity.

Markets may expect policy to spend more time at the ZLB because of that inability to provide accommodation and get away from zero. That may make the fed funds rate more volatile to the upside with respect to other financial conditions, even as downside volatility remains muted by the ZLB, simulating elements of former Chairman Alan Greenspan's 'conundrum'⁸.

Moreover, if a global stablecoin glut is driven by flows out of foreign currencies and into the US dollar, it will, all else equal, make the dollar stronger. Depending on the strength of this effect relative to other forces affecting the Fed's price-stability and maximum-employment mandates, that might be something that monetary policy reacts to.

Finally, incremental dollarization may reduce the benefits of floating exchange rates. Exchange rates often function as shock absorbers, adjusting rapidly to changes in relative conditions across countries so that nominal prices don't have to. If nominal prices are sticky and exchange rates are not, the cyclical distortions associated with those rigidities are less detrimental for the economy.

Increased real price rigidity because exchange rates cannot adjust would intensify the volatility of global business cycles. And Fed policy will have a greater effect on foreign economic growth with greater dollarization, increasing business cycle synchronization.

Whether this phenomenon would matter for the US and not just for countries that dollarize a portion of their economies remains speculative⁹.

America's capital markets are the world's deepest, helping to support economic growth, fund new ideas, and allocate capital efficiently. However, our financial infrastructure, not unlike our physical infrastructure, could use a reboot.

Stablecoins may well lead the way on this front, facilitating dollar holdings and payments domestically and abroad. While there has been extensive research on the topic since the advent of stablecoins a decade ago, the scope for rapid increases in issuance makes it now even more imperative to consider what widespread adoption may mean for monetary policy, both in the US and abroad. ■

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Endnotes

1. See Board of Governors of the Federal Reserve System (2025), [proceedings](#) of the Payments Innovation Conference, streamed live on October 21, YouTube (Washington: Board of Governors).
2. For the list of stablecoins circulating, see the DeFiLlama website; at the time of writing, 99.6 percent of stablecoins were denominated in dollars. For more on the enduring global preference for dollars, see Carol Bertaut, Bastian von Beschwitz, and Stephanie Curcuru (2025), [“The International Role of the U.S. Dollar – 2025 Edition,”](#) FEDS Notes, (Washington: Board of Governors of the Federal Reserve System, July 18).
3. Although many countries have existing black markets for dollars, these are likely to be less preferred to stablecoins because of the difficulty of verifying and saving currency. Relative to stablecoins, physical cash is riskier, and both more difficult and costlier to store or move in large volumes. Moreover, many black market dollars trade at a premium because the amount of dollars available is limited.
4. See Stephen I Miran (2025), [“Nonmonetary Forces and Appropriate Monetary Policy,”](#) speech delivered at the Economic Club of New York, New York, September 22.
5. See Marina Azzimonti and Vincenzo Quadrini (2024), [“Digital Assets and the Exorbitant Dollar Privilege \(PDF\)”](#) AEA Papers and Proceedings, vol. 114 (May), pp. 153–56. This paper and related work by the same authors—including the 2025 paper [“Digital Economy, Stablecoins and the Global Financial System,”](#) NBER Working Paper Series 34066 (Cambridge, Mass.: National Bureau of Economic Research, July)—expand on some of these ideas but do so in a model in which stablecoin issuers can choose to hold much less—or even none—of their assets in Treasury securities. The prediction on the interest rate depends on the fraction of reserves held in Treasury securities by stablecoin issuers. With a low enough fraction, the stablecoin steady-state interest rate can actually also be higher. However, such a pattern does not match what we observe from issuers or the guidelines in the GENIUS Act, and I therefore prefer to assume a high value of the fraction of reserves held in Treasury securities. It follows that the stablecoin steady-state interest rate is lower than the steady-state interest rate in which stablecoins are absent.

6. In his 2005 speech that coined the term and launched a thousand papers, then-Fed Governor Ben Bernanke estimated that the global saving glut began around 2001. See Ben S Bernanke (2005), [“The Global Saving Glut and the U.S. Current Account Deficit,”](#) remarks delivered at the Sandridge Lecture, Virginia Association of Economists, Richmond, Virginia, March 10.
7. After peaking in 1995 at 7.91 percent, the 10-year yield fell to 4.92 percent in January 2001.
8. See Alan Greenspan (2005), [testimony](#) before the Committee on Banking, Housing, and Urban Affairs, U.S. Senate, February 16, 109th Cong. (Washington: U.S. Government Printing Office), quoted text in paragraph 23.
9. Caballero, Fahri, and Gourinchas (2017) note that once the ZLB for global interest rates is reached, the world economy becomes increasingly interdependent as countries can no longer use monetary policy to insulate their economies from world capital flows; see Ricardo J Caballero, Emmanuel Farhi, and Pierre-Olivier Gourinchas (2017), [“The Safe Assets Shortage Conundrum \(PDF\),”](#) Journal of Economic Perspectives, vol. 31 (Summer), pp. 29–46.

The views expressed here are my own and are not necessarily those of my colleagues on the Federal Reserve Board or the Federal Open Market Committee. This article is based on a [speech](#) delivered at the BCVC Summit 2025, Harvard Club of New York City, New York, New York, 07 November 2025.

Act now before it's too late

Cybercrime is now a national emergency. Jonathan Sharp says crimes will not stop unless we educate young adults of the dangers of cybercrime, and businesses ensure that its cybersecurity strategy is top of their agenda

This year cybercrime has been like a tsunami taking down several well-known enterprises including Jaguar Land Rover, M&S, Harrods, Co-op, Renault and even a nurse, Kido. Costing companies billions, having to reduce staff and putting some suppliers out of business.

Cybercrime is now a national emergency and the National Cyber Security Centre (NCSC) and the National Crime Agency announced they cannot fight cybercrime alone, putting the onus on businesses and organisations to secure their systems and data, and prioritising cybersecurity as a critical agenda item, embedding it into every decision they make.

The frightening and alarming aspect is that cybercriminal groups like Scattered Spider and Scattered Laspus\$ Hunters consist of teenage hackers, some from the UK. The cybercrime business model is successful and profitable, and the lure of making a lot of money and the kudos received is too tempting for some of the Gen Z to resist.

But the crimes will NOT stop unless we educate young adults of the dangers of cybercrime, companies stop paying the ransoms and businesses ensure that its cybersecurity strategy is top of their agenda.

Dr Richard Horne, CEO of National Cyber Security Centre stated, *"All organisations need to see this as a wake-up call to understand what their exposure is to cyber-attacks, to ensure they've got the right defences in place, and to make sure they've got a plan to be able to continue operations and recover should they be hit by a cyber-attack."*

Don't pay up

The National Cyber Security Centre (NCSC) and the National Crime Agency advise businesses not to pay the ransom because it encourages cybercrime and the criminal's win. In January 2025 the government proposed a ban on

the public sector organisations from making ransomware payments. However, this is a very grey area littered with loopholes especially if it is extended to the private sector.

Businesses that suffer from a cyber-attack demanding for ransomware often contact their insurance provider and/or the NCSC so they can negotiate a cheaper ransom. It's a catch 22 if they don't pay up and can't operate then will the government support them to get back? If not, then they may have no option but to pay up.

It is vital to build a culture where employees feel compelled but comfortable to report any suspicious activity

Social and economic problem

It is critical that the government, education institutions and businesses collaborate on the education and awareness of how to stop cybercrime.

Research from Oxford University compiled the first ever 'World Cybercrime Index' identifying key cybercrime hotspots by ranking the most significant sources of cybercrime at national level. The greatest cybercriminal threats were Russia at the top of the list followed by Ukraine, China, USA, Nigeria and Romania.

However, it has recently transpired that groups of teenagers and twentysomethings from the UK are cyber criminals. So, this is now a home-grown problem that we must tackle.

Education is key

It is no surprise that cyber criminals are teenagers and in their early twenties, these digital natives spend hours gaming and online which can be gateway to the dark web and hacking subcultures. Hacking tools, malware and phishing tutorials are easily available on the dark web along with subscriptions to a cybercriminal network that for a monthly fee provides access to data from leading companies and organisations.

The kudos and lure of making a lot of money attracts the teenagers but the reality of the crime they are committing is not realised because in the digital world it feels unreal and less serious. They are duped that they won't be caught as it's anonymous, but the reality is it is very serious, and they will go to prison for their crimes.

Young people need to be educated of the dangers of cybercrime and taught cybersecurity and ethical hacking. Talking about the dangers of cybercrime and showing them case studies of the perpetrators that got caught and

went to prison. This needs to be actioned now with secondary schools, colleges and universities working together with government organisations such as the National Cyber Security Centre and the National Crime Agency.

Making cybersecurity jobs cool, glamorous and exciting informing the young people they can have well paid careers as spies for nationally recognised organisations. The 007s of the cyber world.

Education institutes can work with the government and industry to create competitions, work experience and apprenticeships. The National Cyber Security Centre have started an initiative called CyberFirst a programme creating opportunities to help young people explore their passion for cyber and emerging tech.

Offering university bursary scheme, competitions and free events and courses, partnering with schools and colleges across the UK with the intent to educate children in cybersecurity which will hopefully lead to a career in cybersecurity, and attracts local industry to offer work experience and apprenticeships.

These measures are critical to close the digital skills gap which is significant regarding cybersecurity. In 2024 the Government issued a report stating that 32% of businesses and 40% of charities lacked confidence in dealing with cyber security breaches or attacks and had not outsourced this function.

Thinking and operating differently

To fight cybersecurity, we all must change the way we think and operate in everything we do online and with technology. We need to be agile, flexible and have an open mind on learning new methods of operating and working, and we can never sit still.

It has been suggested that supply models such as 'Just in Time' may have to change to leaner models because if a company is hacked then the disruption to the supply chain is massive, resulting in the companies not being able to get stock.

Act before and not after

Companies and organisations need to secure their technology, people and processes from cybercrime before it happens by implementing a secure IT network and business continuity strategy. So, if a cyber-attack does occur, they can act either before it happens or immediately when it does and carry on as business as usual without facing massive consequences.

Top tips for how business can secure against cybercrime

Cybersecurity is not an optional spend for businesses it is now a critical matter of survival protecting your business, people and reputation of a cyber breach. It is no longer the sole remit of the IT department, everyone in the company from the CEO down should be accountable for cybersecurity. Security needs to be embedded into the culture of the company and to ensure it is employees need to be educated on cybersecurity.

Education and awareness

Human error accounts for a staggering 95% of cyber related incidents (Mimecast 2025) so it is imperative that employees are trained regularly on how to be cyber secure. Training them through workshops and courses using phishing simulations where companies send employees fake but realistic phishing emails to test their ability to recognise threats and how they respond to it.

Teaching employees about not to click on links, input passwords from phishing emails and messages, creating weak passwords and overall poor security hygiene.

It is vital to build a culture where employees feel compelled but comfortable to report any suspicious activity.

Robust passwords

The easiest way for cybercriminals to hack into your network is through weak or repeated passwords. Enforce a rule where all employees must use complex and unique passwords with a combination of upper and lower case letters, numbers and symbols to keep out the cybercriminals. Provide a password manager on your systems to avoid employees having to remember them and make them more secure.

Multi Factor Authentication (MFA)

For an additional security layer incorporate a multi factor authentication (MFA) for a second verification step, this could be a code that is sent to their mobile phone or an authenticator application. Research from Microsoft shows that an MFA can block more than 99.2% of cyber-attacks.

Secure devices

It is also critical not to leave work devices unattended in a public place, use a public Wi-Fi connection and in the office, employees need to ensure screen locks are activated. Protect all devices with encryption and have the ability to wipe data if they are lost or stolen. If employees use their personal devices for work, then have robust BYOD policies in place.

Secure Wi-Fi networks

The Office for National Statistics reported that over a quarter of the UK workforce were hybrid working at the start of 2025 and with the rise in cybercrime a secure network is vital. Remote and hybrid workers should use a Virtual Private Network (VPN) so employees can connect securely making it harder for hackers. Without a VPN you are exposing yourself to an attack.

Update software and devices

If your software and devices are not kept up to date then the cyber criminals will detect weaknesses in aged unpatched systems and devices. Businesses should run strict patch management policies, turn on automatic updates and implement reputable malware and anti-virus software.

Business continuity plan

Back up your data and follow the 321 rules where you have three copies of your data, stored on two different types of storage, one online and other offsite. Conduct tests regularly to ensure they can be restored and recovered should a disaster occur. A cybersecurity plan is evolutionary that requires constant updating, maintenance and changing.

AI for good

Investing in layered security with perimeters, secure endpoints and AI monitoring that can detect threats and anomalies in real time. Providing protection for employees and customers that can be actioned before an attack happens.

AI can also be used to detect deepfakes which are used by criminals in social engineering so deploying a solution that can identify these irregularities can stop a cyberattack in advance. It is vital that employees are trained on spotting these in links and emails etc.

Building trust

Customers, suppliers and partners want to do business with a company that is secure and resilient, someone who they can trust will look after their data and their affairs. This is also a legal requirement for GDPR requirements and

Directors' fiduciary duty. Solutions such as call and messaging branding build trust because customers see the call or text message are from you therefore know it is not a scam call or text and will answer it.

It is also paramount to have the latest and up to date security standard certifications such as ISO027001 and Cyber Essentials Plus certifications to build trust with all stakeholders.

Stake holder chain

The supply chain and customer environments are often one of the weakest links in cyber resilience. It is critical to perform rigorous audits and ongoing compliance monitoring to ensure they are safe and do not expose your business to a cyber-attack.

Protect yourselves

Beating cybercrime requires a collective collaboration between education institutions, parents, the government and businesses which will take time. But you don't have time, so it is up to you to protect your business from an cyberattack ensuring you have the latest AI real-time cybersecurity network and solutions in place to protect your business, people and technology. Don't be a victim to cybercrime and act now before it's too late for your business and your reputation. Some recover but some don't! ■

Jonathan Sharp is CEO of Britannic Technologies

Balancing profit shifting and investment

The GMT represents the most ambitious international effort to curb profit shifting to tax havens. Katarzyna Bilicka, Michael Devereux and Irem Güçeri argue that profit shifting doesn't just affect tax revenues, it alters investment incentives, creating fundamental trade-offs that cannot be ignored

President Trump's second-term tax agenda has already reshaped the global fiscal landscape – most notably through the passage of the 'One Big Beautiful Bill Act' (OBBBA) and a sharp, if legally contested, escalation in tariff use. But arguably the most consequential change for the structure of the international tax system has been his decision to withdraw the US from the multilateral agreement, negotiated by more than 140 countries under the OECD's Inclusive Framework, to introduce a 15% global minimum tax (GMT) on multinational enterprises (MNEs).

The GMT represents the most ambitious international effort in decades to curb profit shifting to tax havens. At the time of writing, 57 countries have already implemented measures to introduce the tax, and ten more have implementation in progress¹.

But what, exactly, is at stake – for countries which have introduced the GMT, and for those that have not? How much profit shifting actually occurs? How is real activity affected by taxation, and how does that change when multinationals move paper profits across borders? And how costly are the elaborate tax-avoidance structures that make such shifting possible?

Economists have long debated the magnitude of profit shifting. Empirical estimates date back to Hines and Rice's (1994) work that assumed that the more an MNE grows its profit shifting activities, the more and more costly it becomes to shift the next dollar of profit to tax havens.

Meta-analyses of firm-level studies (Beer *et al* 2019, Heckemeyer and Overesch 2017) suggest that reported taxable profits fall by a little over 1% when the tax rate rises by one percentage point – a modest semi-elasticity. Yet macroeconomic analyses using country-level data (Clausing 2016, Tørsløv *et al* 2022) find far larger responses. Why do the two literatures disagree?

Our recent research (Bilicka *et al* 2025) helps resolve this puzzle by identifying what has been missing from firm-level studies, namely, a more realistic treatment of global MNEs' tax avoidance practices and acknowledging the large number of multinationals that shift all their profits out of high-tax countries.

These 'full shifters' behave fundamentally differently from firms that shift only part of their profits and ignoring them systematically understates the true scale of profit shifting by roughly half.

Recognising the importance of extensive margin helps reconcile conflicting evidence, explains why multinationals respond so strongly to tax changes in aggregate, and clarifies the true trade-offs facing policymakers as they reshape international taxation for the 21st century

Treating tax avoidance as an investment

To explore this behaviour, we build a structural model in which each multinational decides not only how much capital to invest in each country, but also how much to invest in a tax-avoidance asset: the firm's internal capability to move profits to low-tax locations. This 'tax avoidance asset' acts as a public good within the multinational: once established, it reduces the variable cost of shifting profit for all subsidiaries worldwide.

The idea reflects companies' real-life policy choices. A company that owns valuable intellectual property might establish a cost-sharing agreement that allocates patent ownership to its Caribbean affiliate. Setting up such an arrangement might be expensive, but once in place, the marginal cost of routing income through that structure is small.

Firms without such capacity face much higher marginal costs and may remain taxable in high-rate countries. Recognising the initial investment into avoidance and its impact on the variable profit-shifting cost changes the predicted responses to tax reforms.

Quantifying fixed and variable costs of profit shifting

Our study distinguishes between fixed and variable costs of profit shifting. Using corporate tax return data from the UK, we estimate that the fixed costs (of setting up the structure) are 1.5% of the true tax base. The variable costs (maintaining it and shifting each additional pound) add another 3%.

These costs vary across firms depending on their business models and opportunities for shifting. For firms with low costs, full shifting is optimal. For others, partial shifting makes sense. And for some, the costs outweigh the benefits entirely. These estimates highlight the significant resources MNEs allocate to tax avoidance – lawyers, transfer-pricing specialists, and complex intra-group arrangements.

Why focusing only on the 'intensive margin' misses half the story

The standard economic model of profit shifting treats avoidance as a smooth, continuous response: a firm shifts a little more profit when tax differentials widen. Empirical studies using microdata typically estimate this relationship by regressing reported profits on tax rates, implicitly assuming that every firm adjusts at the margin.

In practice, however, many firms report zero taxable profits year after year. There are, of course, business-as-usual reasons for such patterns alongside profit shifting, including true company losses that can be carried over to multiple tax periods.

But even when we account for these 'true' losses, there remains a substantial share of MNEs reporting zero taxable profits persistently. This is because, once a multinational has established the structure that allows them to move profits to low-tax jurisdictions, the marginal cost of shifting an additional dollar may be small.

This pattern – some firms shifting intensively, others completely – creates a wedge between micro-level and macro-level estimates of the semi-elasticity of profit shifting. The latter capture both the intensive response among partial shifters and the extensive decision to exit the tax base entirely. Our goal was to model both margins jointly and quantify the underlying costs that generate such heterogeneity.

Reconciling divergent elasticities: micro versus macro perspectives

The model reconciles the conflicting evidence from previous studies. Using UK tax data, we estimate that a one percentage point increase in the tax rate reduces reported profits by 2.4%. This matches the range of 'macro' estimates, which typically find elasticities of between 2.5 and 5.2 (Clausing 2016, Hines and Rice 1994).

But if we replicate the approach of typical firm-level studies – focusing only on firms with positive taxable income – we get an elasticity of just 1.3, closely matching the consensus from micro studies of around 1.1 to 1.4 (Beer *et al* 2019, Heckemeyer and Overesch 2017). The gap therefore stems from ignoring firms that have exited the tax base altogether.

The investment trade-off

Profit shifting doesn't just affect tax revenues – it fundamentally alters investment incentives. Our model recognises that profit shifting reduces the effective tax rate on capital, and so in turn reduces the cost of capital for investment in real productive assets.

As a result, multinationals that engage in aggressive profit shifting respond much less to statutory tax rate changes when making investment decisions. A one percentage point tax increase reduces their capital investment by just 0.8%. Firms that don't shift profits respond more than twice as strongly, cutting investment by 1.8%. This happens because profit shifting dampens the tax impact, keeping the effective tax rate low even when statutory rates rise.

Policies that successfully curb profit shifting will raise the effective tax rate multinationals face, potentially reducing investment. We gain revenue and reduce wasteful avoidance costs, but at the price of higher costs of capital and potentially lower investment.

Lessons from the Italian CFC reform

We test our model through a quasi-natural experiment: the 2002 Italian Controlled Foreign Company (CFC) reform, which tightened rules on profit shifting to tax havens. CFC rules operate, for the purpose of our model, in a very similar way to the way in which current minimum tax rules work.

Using a difference-in-differences approach, we find that the reform significantly reduced profit shifting by Italian MNEs operating in the UK. This led to higher reported UK taxable income but had limited short-term effects on investment. These results align with our model's prediction that curbing profit shifting increases the cost of capital for productive assets, potentially dampening investment in the long run.

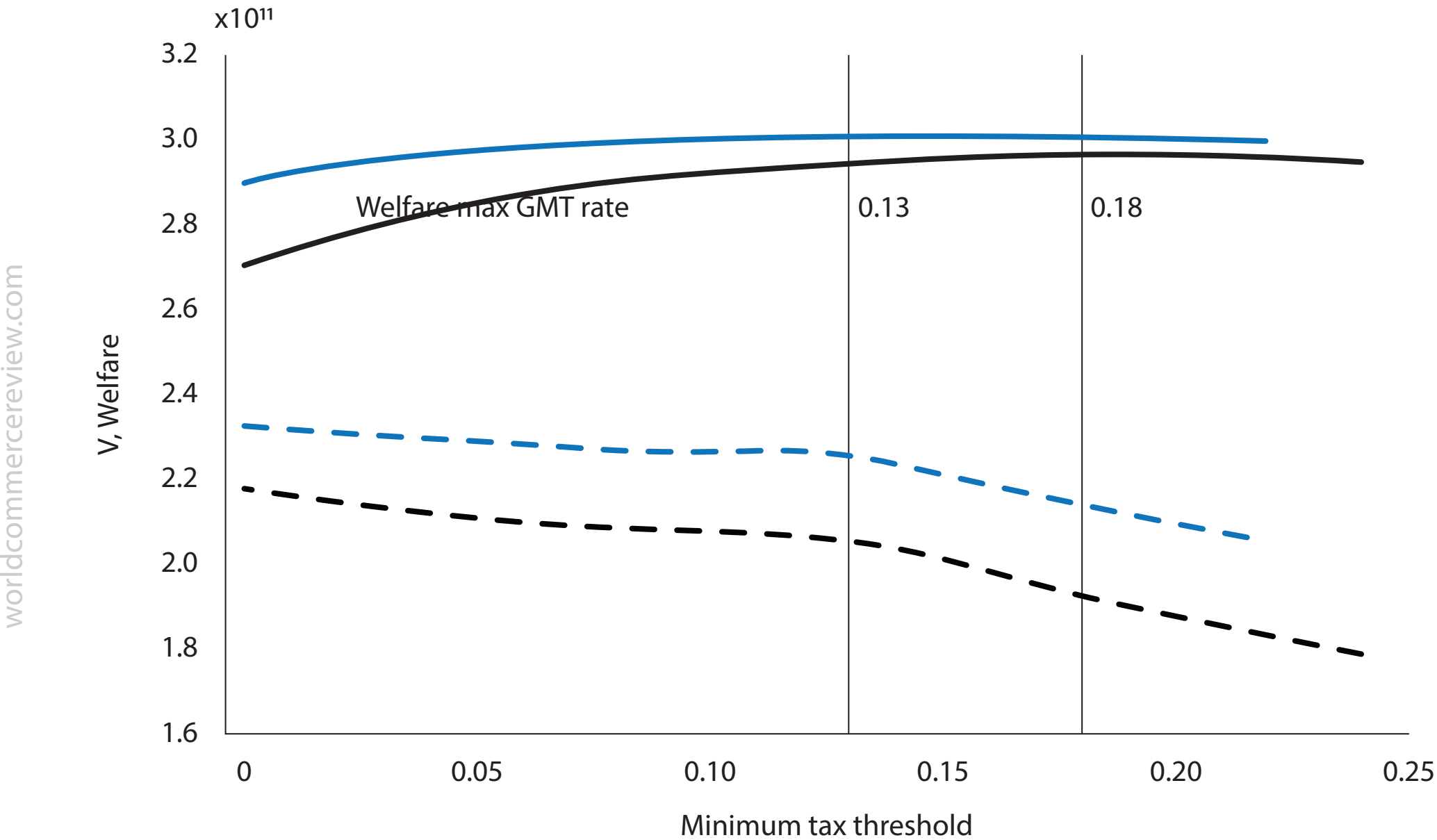
Policy experiments highlight trade-offs in tax reform

Our framework also allows us to conduct counterfactual analyses of tax policy scenarios, offering insights into the trade-offs faced by governments:

- **Reducing high-tax country rates.** Lowering corporate tax rates in high-tax jurisdictions reduces the incentive for firms to shift profits abroad, leading to increased domestic investment. This comes at the expense of tax revenue collected domestically.
- **Increasing tax haven rates or introducing a global minimum tax.** Raising tax rates in havens curbs profit shifting but may also deter investment in high-tax countries due to higher capital costs. For example, a 15% GMT significantly reduces profit shifting and the wasteful investments associated with tax avoidance networks. This raises global welfare for relatively low rates of GMT such as the currently agreed 15%. But global welfare declines with higher GMT rates due to distortive effects of the tax on investment.

Our findings highlight that the optimal tax policy depends on balancing these trade-offs. For instance, while a GMT creates revenue gains by discouraging profit shifting, its broader impact on productive investment varies across countries.

Figure 1. Impact of global minimum tax at varying threshold rates on welfare



In Figure 1, we demonstrate that there are efficiency gains from introducing a GMT at moderate levels, and that the optimal rate varies depending on the implementing high-tax country's own tax rate. The initial gains for low levels of GMT thresholds arise from the elimination of costly tax avoidance investments. The dashed lines in the figure show the net present value of MNE cash flows (denoted V) and the smooth lines indicate global welfare.

Based on our simple measure of welfare as a tax revenue-investment trade-off, for a country with a 30% home corporate tax rate (the black lines), the optimal GMT rate is 18%, while this rate is 13% for a country with a 20% home corporate tax rate (the blue lines).

What this means for policy

As countries implement the global minimum tax and debate further reforms, two lessons emerge. First, the scale of profit shifting may be larger than many firm-level studies suggest – perhaps twice as large – and revenue projections based solely on intensive-margin responses will be too conservative.

Second, the connection between profit shifting and investment creates fundamental trade-offs that cannot be ignored. In implementing policies aimed at eliminating profit shifting, policymakers need to balance revenue needs, efficiency gains from reduced avoidance costs, and the effects on real economic activity. Recognising the importance of extensive margin helps reconcile conflicting evidence, explains why multinationals respond so strongly to tax changes in aggregate, and clarifies the true trade-offs facing policymakers as they reshape international taxation for the 21st century. ■

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Endnote

1. See the [PwC Pillar 2 Tracker](#).

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Challenges to financial stability

Andrew Bailey reflects on the reforms made to the financial system since the 2008 financial crisis. He addresses the challenges these reforms face in an ever-changing world and says the regulatory system of the future must be constantly assessed and adapted as needed

I am going to focus on a number of key questions. What has been achieved in the time since the crisis? What appears to be the challenge today to these achievements? And where do we go from here? There have been times in recent years when we might have treated these questions as matters of more academic speculation, that's not so today. They are real questions up for debate and challenge.

What has been achieved in the field of financial stability since the financial crisis? Answer – a lot. Yes, today's world is a highly uncertain and unpredictable place sadly. We have experienced very large shocks – a pandemic, the longest war in Europe since 1945, I could go on.

But we have come through, so far at least, without a crisis of financial stability of the sort that has been seen in the past. Likewise, we have not had a major and lasting recession during these recent shocks.

But, this all reminds us that bad things happen in the world, and they can affect financial stability, this is always possible. That said, we start with a financial system that is much more resilient, which is a much better place to be. We have a banking system that after a long-haul post-crisis appears to be sustainably earning its cost of capital in terms of returns. This is reflected in market pricing, with market price-to-book value more consistently above unity.

Another lens through which to look at this point is to examine arrears and loan losses across the recent period of economic shocks. The evidence points to resilience here – such losses have been low by historical standards. Of course, this benefits banks and their shareholders, but it also helps consumers as customers and economies generally. Customers get better outcomes and particularly when they avoid having their business closed, losing their job, or having their home repossessed.

The benefits of financial stability are real and tangible. Yes, but they may not be perceived as such. One of the challenges of financial stability is that it is a state of being in which success comes when things don't happen, and don't go wrong. It is therefore susceptible to the problem of 'out of sight, out of mind', in other words under-appreciated.

We must enable safe innovation and development of the financial system, otherwise competitiveness is an issue and it will undermine achieving the goal of financial stability. This enablement needs however to happen within a system that is grounded in the core ideas and principles

But, I am conscious that this story alone leaves open the charge that we have achieved the so-called stability of the graveyard. Nothing moves, there are no big dramas, because the system is moribund. Not true, is my response. The financial system has evolved and continues to do so.

The record of the last 15 years indicates that the financial system has played its part in supporting economies through a series of severe shocks, and has acted to absorb rather than amplify these shocks. I would emphasise here that financial stability is not an end in itself. Rather, the goal is to support economic activity, a point I will come back to later.

When we look at the developments of the last 15 years or so we should also recognise how the financial system has changed, and it certainly has. I am not going to give an extensive review of the changes, but rather pick out a small number of key points and seek to explain their broader significance.

The first major change that we have seen is a rebalancing of the overall scale of global financial intermediation with an increase in the non-bank sector relative to banks. The non-bank sector is not, of course, homogenous, a point I will come back to. I think it is worth drawing out a number of closely related points that underline this shift in balance between banks and non-banks.

The first is one that, I think, was clear during the financial crisis, and provides a backdrop to the changes that were to come. It is that the financial crisis was severely exacerbated by the concentration of assets and exposures on the balance sheets of banks which were too volatile and hard to value in a stress, and thus created too much uncertainty around the stability and ultimately solvency of banks.

One of the eternal questions that gets posed during such a stress is whether for banks it is a solvency or liquidity event? The presumption is that the latter is ok in the sense of manageable while preserving going concern, while the former is not. But the problem is that we only know the answer to this question ex-post. Illiquidity is a symptom which tends to point towards doubt around future solvency, but does not answer the question conclusively, either ex-ante or contemporaneously.

The question is better put as whether there is sufficient uncertainty around future solvency to cause stress through illiquidity. The answer to this question in many, if not all, problem cases during the crisis was yes. From that answer, it is a logical step to conclude – as we did – that the tools of liquidity assistance available to central banks – let's call them the traditional Bagehot tools – should be reinforced and supplemented by tools of resolution, and this rightly became an important part of the post-crisis agenda for national authorities and the FSB, an agenda that Klaas has played a major part in leading.

We have made huge progress on the resolution agenda. Alongside that, we have also made huge progress on the Basel agenda for reforming the prudential regulation of banks. At this point, I must make the - obvious I hope but it has to be made anyway – comment that we must finish off implementation.

Linking this back to the re-balancing of the bank and non-bank financial sectors, these developments help to explain why the re-balance has been a sensible and logical development. It has been a foundation reducing the probability of crisis in the banking system.

But, some of the argument for this was apparent at the time of the crisis, and some was less apparent. I think what has become more obvious over the last 15 years is why this change matters for financial stability, and what it tells us about the future.

For me at least, this is where the concept of the singleness of money, and trust in money, comes in, and how it underpins the regulation of banks. Put simply, why were some assets problematic for banks in the crisis, and why did it matter?

The distinctive feature of banks is that their liabilities are typically substantially in the form of money deposits. In the regulatory world, it is deposit taking that is unique to banks. Most of the stock of money in our systems is commercial bank deposits.

These deposits underpin the functions of money – its role as store of value, unit of account and means of exchange or payment. The critical property of money is trust in its nominal value.

Put simply, a Pound or euro in my account has the same value as a Pound or euro in another account, and thus when we make payments we do not have to worry about variable nominal value. This is a key foundation of financial stability, and thus of public trust. In the crisis it was the uncertainty about the future solvency of banks that undermined this trust and thus ended financial stability itself.

The underlying issue here was increasing doubts on whether the liabilities of banks did satisfy the properties of the singleness of money. So, a key objective of the post crisis reforms has been to rebuild confidence in the singleness of, and trust in, money.

However, if I stopped the account here, it would fall into the trap of adapting an old-fashioned view of banks that they are only deposit-takers and not involved in activities which get loosely called investment banking. In what I regard as one of the best books on financial crises, Gary Gorton described the 2008 crisis in the US as a run on repo, prime broker balances, and asset-backed commercial paper¹.

At first sight, this appears critically to muddy the distinction between banks and non-banks. Can we be confident we know where the boundary lies? The lessons here are that the critical feature of banks is the singleness of money and the public's trust in the assured nominal value of their money.

Moreover, since banks are ultimately single entities, their reputation and that trust depends on confidence in their balance sheets as a whole (which is not, of course, to ignore that their capital structures must involve loss-bearing in both going and gone concern states). In other words, we must be very focused on the money system in our economies and its stability.

That said, our economies rely on financial risk taking, and that is essential to support investment and growth. To achieve this, it's crucial in large parts of the non-bank system that there is not assured nominal value for the liabilities so that risky investment proceeds. It is critical that we maintain this distinction between banks and non-banks, and it is well understood by the public.

I will, however, add two important qualifications. First, banks must of course take risks – that should not need to be said, but just in case. The point is that the risks must be managed to preserve the assured value of money. Most non-banks do not need to do this. But, second, some non-banks do write liability contracts which contain promises of future value of one sort or another. Insurance is a very good example of this.

My key point here is that over the last fifteen years post crisis, the distinction between banks and non-banks and the importance of the money system has become better understood and defined. It is not new at all, but it has been important to define it under today's conditions. Failure to do so was a major flaw that led to the financial crisis.

There has to be a 'however' though, and this brings in the second of the three big changes in financial intermediation that we have seen since the financial crisis. The 'however' is that it would be a mistake to think that the greater scale of non-bank finance, and the distinction between money and non-money liabilities has led to a comprehensive separation of these two parts of finance. The two are as inter-connected as ever, but in ways that have changed. And this is absolutely key to understanding financial stability today and the risks to it.

Let me use a prominent example. There has been a major change in the nature of trading in most major government debt markets, resulting in a much expanded non-bank presence and often much more leverage attached to newer trading strategies. But the banking system remains the ultimate source of liquidity for these activities. Banks' activities in prime brokerage have expanded substantially and rapidly. The financing is typically secured and margined to protect against risk. Often, this relies on another of the major post-crisis developments, namely the expansion of central clearing.

These developments are consistent with the post-crisis direction of policymaking, to strengthen infrastructures like clearing houses, put them at the heart of the system, and thereby manage and reduce the risk of serious systemic stress which threatens financial stability. There is a good case that these developments have to date worked.

However, rather like the overall growth of non-bank finance, we should not be surprised that a stronger infrastructure has led to the growth, for instance, of more leveraged trading activities. Our job as authorities is to understand these developments and assess and if necessary tackle any vulnerabilities that they may give rise to.

I would describe developments such as the growth of leveraged trading as putting the post-crisis financial system to work. We may or may not like all of them, and they give rise to new risks, but we shouldn't be surprised that the system responds and evolves.

Another example of post-crisis developments in non-bank finance is private assets – private equity and private credit. These may fall into a somewhat different behavioural category, namely there may be aspects of public markets which encourage going private. Our job is to assess the consequences for financial stability purposes.

It is not to presume that such developments are per se bad, but rather to ask questions and assess them with rigour and be transparent with our conclusions. In the lead up to the crisis, there was a different culture, more of an absence and at times disapproval of such scrutiny, and the consequences were regrettable.

A third big change in financial intermediation post-crisis that I would highlight is the growth of cryptoassets. I'm not convinced that the cause of this was a response to post-crisis regulation. It seems to me to be more an outcome of technological advances. But it falls into the category of new areas that require thorough assessment of possible vulnerabilities and their financial stability implications.

I don't regard crypto as a homogenous world, and the distinction between investments and money helps with understanding the distinction. Crypto of the Bitcoin variety falls into the risky investment category, whereas stablecoins used for retail and wholesale payments, rather than just to support crypto trading, fall into the money category, or should do. Understanding the implications of this distinction is important for designing the approach to regulation.

But I will go further than that and say it should enable better stablecoins to emerge than would do in a world in which the distinction was not understood and followed up.

This point takes me to the last important theme I want to cover. Today, we face a growing challenge to the post-crisis system of financial regulation. It comes with a number of descriptions and reasons. One is an old point made

by Hyman Minsky, that as time passes memories of a financial crisis fade and this leads to a questioning of the continuing need for the responses.

This creates the risk of history showing signs of repeating itself, remembering back for instance to the strength of the deregulation argument before the financial crisis. Those of us who are veterans of dealing with the financial crisis, don't tend to forget, but I can see evidence in today's world of the truth of Minsky's observation.

But I don't think the Minsky theory is the end of the story. Another argument made is what gets described as the need for regulatory simplification. I think a reasonable interpretation of this argument is that it is perhaps natural that the response to an event as big as the financial crisis becomes over-complicated, and the passage of time exposes the need to stand back and take a hard look at whether some parts of the response are too complicated, or excessive.

There is truth in this, and we should take up the challenge and respond – and we are doing so. But again I don't think this is the full story on the reasons for the growing challenge to financial regulation.

A third argument I detect concerns the distributional effects of the regulatory changes and comes in a few forms. The first is that the response to the financial crisis has changed the financial system and has thereby gone too far to create winners and losers. A second form of this argument is that the post-crisis regulatory system is inflexible and does not allow innovation.

These are important arguments about competitiveness that we need to assess carefully. Brushing them off will not do. Again, where there is truth in the argument, we should respond.

The fourth argument I can see in many ways is the most fundamental namely that the regulatory system is impeding growth in economies. This is a very important challenge, for the simple reason that the potential growth rate of many developed economies has slowed markedly since the financial crisis, and particularly the growth of productivity. And since productivity is a main determinant of the growth of living standards, the evidence of a very flat growth in GDP per capita underlines the importance of this point.

So, we have four challenges to the state of financial regulation, all of which amount in different ways to saying that we have overdone it post-crisis. In my remaining time, I probably can't do each or any of them proper justice, but this debate is now so central to what we are doing that it has to be taken on and given due consideration.

I will start with the Minsky passage of time point. First of all, I think Minsky was right, and current events are illustrating his point. As I mentioned earlier, success in financial stability is when nothing happens, and not much has happened relative to the scale and nature of the shocks we have had – COVID, Ukraine etc.

It is convenient to think, nothing has happened, job done with regulation, I rest my case for the benefits. But meanwhile, the argument is growing that since nothing much has happened, we must be overdoing it on regulation.

The answer to all of this is that it rightly pushes us to ground the case for regulation and keep doing so, because 'out of sight, out of mind' does not lead to good long-run outcomes. Moreover, since the world constantly changes, it is a mistake to freeze the regulatory system because it appears to have worked in the recent period of time.

Here I think it is important to set out the specific outcomes we seek in the financial system when we say we are aiming for financial stability. What I have in mind here are outcomes as follows:

- First, we want a system where confidence in banking is maintained in the face of economic shocks and where resolution regimes enable the continuity of financial services if a bank fails.
- Second, we want to maintain the singleness of money, including where new types of non-bank that have grown up in the crypto world seek to issue money for real-world payments purposed.
- Third, we want robust market and payments infrastructure that operates without interruption and recovers quickly from rare disruptions.
- Fourth, we want financing from banks and non-banks to the real economy that is sustainable through the economic cycle and avoids excess supply of debt followed by debt overhang.

These are big building block outcomes that we have to articulate, otherwise the debate on regulation is dangerously ungrounded.

Let me turn to the second challenge, the point on simplification. Regulation probably does go in cycles, and we should recognise this and respond. Post-crisis it was straightforward to advance a cost-benefit case for increasing regulation, and this happened. By the way, in my experience governments were very much part of this process, it wasn't just central banks and regulators.

But pro-cyclical regulation is not a good or stable state of the world, and we should recognise this. There is little doubt that in some areas we collect too much data. There is also a growing risk that because of this, as the pro-cyclical tide turns, we are inhibited from collecting necessary data in new areas of risk.

So, we must, and I think are, responding positively to the simplification challenge. Another case of simplification is the adoption of a simpler capital regime for small deposit takers, in the UK the so-called 'Strong and Simple' regime.

The third challenge is the competitiveness one. As I mentioned, this comes in several forms – you have skewed competitiveness by regulating, and you have prevented innovation by doing so. These are basically the same argument taking on different forms. Here, too, we must respond, and we have to ground the response in the core building block arguments.

The danger here, to be frank, is that arguments that are interest based – and I don't say this in a critical way, it's a matter of fact – swamp the fundamental ideas based grounding of financial regulation. We have seen this before – its another form of the Minsky argument.

It is the case that post-crisis regulation did intentionally change the competitive balance of banks and non-banks, for the reasons that we had ended up pre-crisis with an unstable and dangerous banking system which had lost the anchor of the singleness of money. That anchor could only be put back in place with massive state intervention at an unacceptable cost to taxpayers.

Today, I would argue that the financial system is not only more stable, but also generally earning returns which meet basic commercial objectives. It is up to firms then to increase their returns further, nothing is wrong with that. But there is a point in the third challenge.

We must enable safe innovation and development of the financial system, otherwise competitiveness is an issue and it will undermine achieving the goal of financial stability. This enablement needs however to happen within a system that is grounded in the core ideas and principles. Yes, I'm back to points like the singleness of money again.

The fourth challenge, the growth issue, is crucial. We face a huge challenge on this front. However, I push back at the line of argument that post-crisis financial regulation caused the fall in productivity growth, by restricting business investment in the economy. I think it is a rather different line of argument.

Big shifts in productivity growth over history have been shaped by advances in so-called general purpose technology – things like the steam engine, electricity etc. We had such an advance before the financial crisis, through ICT and the internet. Over time, the contribution of these advances to economic growth does run out – that's as distinct from their contribution to the level of economic activity. I think this is more what we have seen post-crisis, but the timing is coincidentally awkward for separating out causes.

All of that said, we need a financial system that is ready and able to finance the next general purpose technology advance, which I would guess is AI. This is the important question today. In my view this must be a stable financial system, grounded in the core areas and principles of financial stability, but one that must be set up to support growth.

To finish, all of these four challenges have a point to them. We cannot behave as if the case for financial stability can ignore them. That said, if the baby is thrown out with the bath water so to speak, and financial stability is relegated in terms of its importance, we won't achieve our objectives. There is no trade-off between financial stability and objectives like growth and competitiveness.

But nor is our system perfect in every respect and fit for an ever-changing world. Our system must be constantly assessed and adapted as needed. But that process must be grounded in the core principles and ideas of financial stability. ■

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Endnote

1. Gary Gorton, *'Misunderstanding Financial Crises: Why We Don't See Them Coming'*. Oxford University Press, 2012.

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Trade wars and central banks: lessons from 2025

Christine Lagarde states we can take comfort in having overcome a large inflation shock after the pandemic, and in how the economy has coped so far with an upheaval in trade relations, but warns we must remain alert to possible new shocks that may still lie ahead

The idea that economics cannot be separated from geopolitics is hardly new. During the early 1990s, as the Soviet Union collapsed, Finland lost more than 10% of its GDP when trade with its eastern neighbour suddenly evaporated¹. Few countries know better the costs of ignoring geopolitical realities.

Today, the rest of Europe is facing a similar reckoning. We find ourselves in a new world – one where policymakers can no longer confine themselves to traditional economic and financial variables. Now, we must factor ‘geoeconomics’ into our analyses. The term was coined in 1990 by Edward Luttwak, who described geoeconomics as *“the admixture of the logic of conflict with the methods of commerce.”* It is not protectionism in the old sense of sheltering vulnerable industries. Instead, it is trade deployed as a tool of power, a strategy of influence and dominance.

This approach has been around for some time, most visibly during the US-China trade disputes that unfolded during the first Trump Administration. The unjustified war in Ukraine and the sanctions that followed have also reshaped the European landscape. But 2025 marks the first year in which Europe itself has been on the receiving end.

We currently face the highest tariffs since the days of Smoot-Hawley in the 1930s, imposed by our largest trading partner. Global trade is being reshaped as other countries respond to tariffs directed at them. And in the span of just a few months, we have seen a surge in trade uncertainty and sharp swings in exchange rates. So now is a good time to take stock of what we have learned so far, and what this implies for monetary policy.

Trade wars: expectations versus reality

A year ago, most would have assumed that US tariffs rising from 1.5% to 13% would trigger a major adverse shock to the euro area economy. Indeed, most trade models judged the imposition of tariffs to be, on net, negative for euro area growth and likely positive for inflation, at least in the short run.

This was broadly our internal assessment in December of last year, albeit surrounded by considerable uncertainty. Three channels were usually seen as decisive in producing such an outcome. First, retaliation. Reciprocal tariffs were expected to raise import costs and reverberate through supply chains. In most models, this retaliation channel was by far the largest driver of higher short-term inflation².

This is an unusual time to be a monetary policymaker. We can take comfort in having overcome a large inflation shock after the pandemic, and in how the economy has coped so far with an upheaval in trade relations. And yet, we must remain alert to the possibility that not all the consequences are visible today – and that new shocks may still lie ahead

Second, the exchange rate. Tariffs were expected to trigger a depreciation of the euro against the dollar – driven by expectations of higher US rates and a smaller US trade deficit – thereby amplifying imported inflation³.

Third, uncertainty. Elevated trade policy uncertainty was expected to weigh heavily on business investment and growth, often more than the direct effect of tariffs on exports themselves. This was expected to be the largest negative force on growth. Yet some of these assumptions have not been borne out. This is because the tariffs were not an isolated economic event, but a symptom of a broader geopolitical shift – one that triggered political economy dynamics beyond the reach of standard models.

Start with retaliation. In Europe and globally, it has so far been limited. In response to the US tariffs on steel and aluminium, the EU announced counter-tariffs on around €26 billion worth of American goods, but suspended them once a deal was struck in July. Pressure from major industrial groups to avoid a prolonged cycle of tit-for-tat measures, as well as concerns about jeopardising US support for the war in Ukraine, ultimately outweighed pure economic calculus.

As a result, we have not yet seen significant supply chain disruption. Global supply chain pressures remain contained, and in the euro area, bottleneck indicators are close to historical averages. If anything, rather than blocked supply chains, the euro area is facing rising imports. The euro area's trade deficit with China has risen by around 10% this year, although this was driven more by weaker Chinese demand than by diverted trade flows.

The exchange rate has also not behaved as expected. Rather than depreciating, the euro has appreciated substantially. Since the start of this year, it has risen by 13% against the US dollar, while the nominal effective exchange rate has increased by 6.5% and the real effective exchange rate⁴ by 5%.

This reflects the fact that the imposition of US tariffs coincided with a broader re-evaluation of the country's position in the global financial system. Investors began to question whether the US dollar would continue to warrant its status as the ultimate safe-haven currency – another political-economy factor that narrow, tariff-focused models excluded by assumption.

The international role of the euro has helped insulate us from the resulting exchange rate volatility, with 52% of our imports invoiced in our own currency. But many key imports, especially commodities, are still priced in dollars. The euro's appreciation has therefore contained imported inflation from supply chains, while at the same time placing an additional drag on growth.

The effects of uncertainty have been more in line with expectations. The expected cumulative impact of tariffs and uncertainty on growth is around 0.7 percentage points between 2025 and 2027, compared with our projections last December. Still, these effects have not been as strong as we anticipated. For example, only about a quarter of the downward revision for next year, compared with December last year, is due to uncertainty.

This is partly because trade policy uncertainty fell faster than we expected once the deal with the United States was concluded. It is also because the euro area has taken internal measures to boost growth that have helped counter external weakness.

In particular, governments in Europe have committed to the largest increase in rearmament in decades, with some reversing years of underinvestment. Government investment is now expected to add 0.25 percentage points to growth⁵ between 2025 and 2027, offsetting around one-third of the trade shock⁶.

The EU has also pushed ahead with new trade agreements, which will support growth. The Mercosur and Mexico deals now being adopted cover more than 3% of extra-euro area goods exports, while agreements currently under negotiation account for a further 6%⁷. This is another example of a response that models could not capture beforehand: trade pressures have led European governments to re-evaluate their broader trade and security relationships, prompting an endogenous investment response.

All in all, with no retaliation and an appreciating exchange rate, tariffs have had little inflationary impact so far, with their adverse effects mainly limited to growth. Those effects, however, have been relatively moderate thanks to the domestic response.

Evaluating the balance of risks

In an environment of high uncertainty, understanding the nature of shocks is a precondition for getting the baseline projection right. But capturing the balance of risks is just as crucial, so that we are prepared for a situation in which the baseline may prove obsolete and can act pre-emptively, if necessary.

This was a key conclusion of our recent strategy review: to emphasise more risks and uncertainty in our decisions, not just central projections. Initially, we viewed the risks to growth from US tariffs as tilted to the downside. This assessment was informed by extensive scenario analysis, including escalation scenarios and possible offsetting forces – notably the growth impact of a sustained increase in defence and infrastructure spending.

Overall, these scenarios have consistently shown that the most salient risks – those that could push growth furthest from its current path – lie on the downside rather than the upside.

For example, ECB staff find that severe escalation in trade tensions could lower growth cumulatively by about 1 percentage point over the projection horizon⁸. The potential boost from higher defence spending would not be sufficient to offset this, even if all countries were to deliver fully on their NATO commitments.

This tilt in the risk balance remains in place today. But at our last meeting, we judged risks to growth to be more balanced, because the likelihood of major tariff-related downside risks materialising had fallen owing to the new trade deal.

Meanwhile, we judged inflation risks to be two-sided, with plausible scenarios that could push inflation off track in either direction. But as new information has come in, the range of risks on both sides has also narrowed. In particular, the absence of significant EU retaliation has reduced the risk that higher import tariffs might drive inflation above the baseline. Our scenario analysis also points to inflation risks that remain well contained.

If trade tensions were to reignite, staff project only moderately lower inflation in 2027, reflecting weaker growth. Higher spending on defence equipment, by contrast, would only modestly raise inflation, given its relatively small weight in the consumption basket.

Staff have also examined scenarios that would affect prices more directly: on the downside, Chinese export prices being lowered further as a strategic response to tariffs; and on the upside, more pronounced bottlenecks in global supply chains.

In both cases, however, the impact would be limited under reasonable assumptions, with inflation in 2027 differing by only 0.1-0.2 percentage points⁹.

Policy implications

So what does this imply for our monetary policy? I have said that we are in a good place. This was largely a reference to the fading of the large inflation shock we faced in recent years, which is now essentially over in the euro area.

But there are also three additional reasons why it applies to the current situation. First, because trade shocks are not creating new inflationary pressures, we are not confronted with the classic policy trade-off where the central bank faces stalling growth and rising inflation. This has already allowed us to cut policy rates by 100 basis points since December – cushioning the impact while keeping medium-term inflation on track.

Second, insofar as we can model the future, the risks to inflation appear quite contained in both directions.

Third, with policy rates now at 2%, we are well placed to respond if the risks to inflation shift, or if new shocks emerge that threaten our target.

At the same time, we are navigating a far more difficult environment than before – beset by war, tariffs and uncertainty – which we must also factor into our policy. If we consider the ‘known knowns’, the risks appear well bounded.

But there are also ‘known unknowns’ – above all, how euro area companies will adapt to this new setting. Firms are still running down inventories and absorbing the shock in margins, so the full effects of US tariffs have yet to become clear¹⁰.

Finally, there are the ‘unknown unknowns’: in a world of geoeconomics, new trade and geopolitical shocks will remain a constant feature of our environment.

How these forces play out will have unavoidable effects on monetary policy – not only through their impact on growth, but also on potential growth. If firms interpret the new environment as a lasting confidence shock, we could see investment shift out of the euro area¹¹. Preliminary staff analysis suggests that, all else being equal, tariffs are likely to weigh negatively on potential growth.

Lower potential growth would, in turn, put downward pressure on real rates and reduce the policy space available. But other paths are possible if governments act decisively and give firms new reasons to be confident.

One factor often overlooked in the tariff debate is that our internal market is far more important for trade than the global market. Staff analysis shows that an increase of just 2% in intra-euro area trade would be enough to offset the loss of exports to the United States caused by higher tariffs¹².

This is a compelling reason to implement the reforms identified in recent reports from Mario Draghi and Enrico Letta, in particular simplifying burdensome regulation, completing the Single Market and building a genuine European capital market. The same reforms would also help European companies adopt artificial intelligence more rapidly¹³. This would result in a positive shock for potential growth, helping to balance the negative forces coming from abroad.

In short, nothing about our future is fate – and there is no room for complacency by any party. For our part, we cannot pre-commit to any future rate path, whether one of action or inaction. We must remain agile, and ready to respond to the data as they come in.

Conclusion

This is an unusual time to be a monetary policymaker. We can take comfort in having overcome a large inflation shock after the pandemic, and in how the economy has coped so far with an upheaval in trade relations. And yet,

we must remain alert to the possibility that not all the consequences are visible today – and that new shocks may still lie ahead.

As we look to the future, we do so mindful of Finland's long tradition of *sisu* – courage and inner strength in the face of uncertainty. *Sisu* is not a show of fleeting bravery, but rather a fierce determination and perseverance to continue fighting even when times get tough. We are in a good place today, but that place is not fixed. Our task is to sustain it with agility, humility and a firm grounding in the data. ■

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Endnotes

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3. Jouvanceau, V, Darracq Pariès, M, Dieppe, A and Kockerols, T (2025), [“Trade wars and global spillovers. A quantitative assessment with ECB-global”](#), Working Paper Series, No 3117, ECB, Frankfurt am Main, September.
4. Deflated by consumer price inflation.
5. This estimate also includes wages, government consumption and transfers.
6. Government investment as a ratio to GDP is expected to be cumulatively almost 0.6 percentage points higher over the period from 2025 to 2027 than projected in December last year.
7. With South Korea, India, Australia, Malaysia, Thailand, Indonesia and the Philippines.
8. European Central Bank (2025), [“Eurosystem staff macroeconomic projections for the euro area, June 2025”](#), Frankfurt am Main, June.
9. European Central Bank (2025), [“Eurosystem staff macroeconomic projections for the euro area, September 2025”](#), Frankfurt am Main, September.
10. Organisation for Economic Cooperation and Development (2025), [OECD Economic Outlook Interim Report September 2025: Finding the Right Balance in Uncertain Times](#), OECD Publishing, Paris, September.
11. European Central Bank (2025), [“The outlook for euro area business investment – findings from an ECB survey of large firms”](#), Economic Bulletin, Issue 4.
12. The United States accounts for 10% of total euro area exports, and the new tariffs are expected to reduce euro area exports to the United States by approximately 9%, translating to a 0.9% decline in overall euro area exports – roughly €66 billion. Making up for this shortfall in direct trade would require a 2% increase in intra-euro area trade.

13. European Investment Bank (2025), [Investment Report 2024/2025: Innovation, integration and simplification in Europe](#), March.

This article is based on a keynote [speech](#) delivered at the Bank of Finland's 4th International Monetary Policy Conference, Helsinki, 30 September 2025.

Preserving the dynamism & credibility of stress testing

Stress testing is vital for supervising the safety and soundness of the largest banks and preserving the stability of the financial system. Michael Barr has concerns over changes to the stress test system being considered by the Fed

■ would like to discuss a vital tool for supervising the safety and soundness of the largest banks and preserving the stability of our financial system. I was there, at the Treasury Department in 2009, when stress testing was first used in the United States in the heat of battle, an ad hoc measure to reverse a loss of confidence in US banks that was a major force then driving the Great Recession.

By examining how the balance sheets of banks would be affected by a worsening of financial and economic conditions, this process was intended to reveal weaknesses that could threaten the solvency of banks and prevent them from playing their central role in the economy¹.

Stress testing ultimately succeeded in helping to restore confidence during the crisis, and in the aftermath this battle-tested tool became a formal and integral part of the effort to repair the ensuing damage and strengthen the banking system. Stress testing has continued to evolve in the years since then to maintain that strength and help limit the chances of another devastating financial crisis.

Stress testing changed as its purpose changed from wartime to peacetime—from mitigating the crisis to preserving safety, soundness, and stability. It has changed as banks and regulators learned more about how stress testing works in practice and as part of an otherwise evolving supervisory and regulatory framework for banks that must necessarily adjust as finance itself evolves.

Adjusting regulation in this dynamic environment is challenging, and one of those challenges is dealing with unintended consequences. The Federal Reserve made changes to stress testing in 2020 intended to make it more predictable and to better integrate it with overall capital regulation, but those changes are now at the centre of litigation brought by large banks. The Fed responded in April by proposing more changes intended to address these criticisms.

But as I explained in voting against those measures, I believe these steps will substantially impair stress testing, concealing rather than revealing crucial weaknesses in the risk management of individual banks and in the stability of the financial system². As the Federal Reserve Board considers these changes, I believe we should focus on how best to address the original purpose—and preserve the effectiveness—of stress testing.

It is critical to maintain the dynamism and rigour of stress testing so that supervisors, banks, and the public understand the underlying vulnerabilities in the banking system and at the largest banks and understand that these firms are holding sufficient capital to address these vulnerabilities

As I will explain, I believe that the best way to further these goals is to separate stress testing from capital requirements in order to maximise the informative value of the tests and their results and untangle them from the larger and complex task of setting capital requirements.

I will lay out that alternative approach toward the end of these remarks, but first I believe it is helpful to take a step back and recall how stress testing has evolved to this point, then turn to where it should go from here.

It all began during the Global Financial Crisis. Capital markets froze, resulting in business failures and prompting the need for unprecedented public-sector intervention. Credit to households and businesses slowed to a trickle, and millions of people were losing homes and jobs. By the fall of 2008, there was a broad-based lack of confidence in the banking system, as large banks faced questions about their exposures to losses related to real estate and other assets.

These were questions that large banks in many cases couldn't credibly answer because of the complexity and opacity of their direct and indirect exposures to mortgages at the centre of the crisis. Without this information, investors assumed the worst, driving down equity prices of banks, which complicated efforts by banks to bolster their balance sheets.

Restoring confidence in the banking system required credible information from a reliable source. Treasury worked with the Federal Reserve to design the Supervisory Capital Assessment Program (SCAP) to test the capital adequacy of what were determined to be the 19 most systemically important banking and financial institutions.

In addition, Congress had provided a backstop in the form of the Troubled Asset Relief Program (TARP), the Federal Deposit Insurance Corporation (FDIC) had backstopped bank funding through guarantees, and the Federal Reserve

had stepped up in significant ways to bolster the financial system and the economy. The existence of a government backstop played a big role in the success of the first stress test. With the use of public funding on the line, the rigour and transparency of the stress test was doubly important³.

Rebuilding confidence in the largest banks

There were five aspects of the SCAP that are elemental to stress testing and have been present in the different tests since then.

First, there was the use of a severe but plausible scenario for macroeconomic conditions. The scenario assumed a deeper and more prolonged recession than forecasters expected. Because of the focus on housing-related losses, the scenario's assumption of a further severe decline in housing prices was essential to rebuilding confidence.

Second, there was the use of economic models to translate a given scenario into quantified losses for each bank. The banking regulators worked together to develop models to map the stress scenario into a range of associated loss rates for different loan categories and iterated with the banks to assess their specific exposures.

Third, based on the extent of those projected losses, the test arrived at a firm-specific amount of capital that each bank would need in order to withstand this stress and keep lending to customers.

A fourth aspect of the SCAP and subsequent stress tests was the public disclosure of the scenario, the basic testing methodology, and, most importantly, firm-specific results.

And lastly, in addition to the balance sheet data and other numbers related to the stress test, the Federal Reserve produced a qualitative supervisory assessment of the banks' capital planning decisions and processes.

One essential element of that first test is that the supervisors reviewed and assessed the data and modelling assumptions used by the banks, which helped to provide credibility for the loss estimates. The result of the SCAP was that 10 of the 19 tested institutions were required to raise capital sufficient to keep them above regulatory minimums if the scenario were to materialise—a total of \$75 billion. The 10 were given six months to develop capital plans to meet their stress test minimums.

The SCAP was remarkably successful. There was scepticism that the test would be sufficiently severe or transparent to be credible, and bank stock prices were volatile due to speculation about what the stress test results would reveal. But bank stocks recovered after the results were announced in May. Most banks that had been struggling to raise capital were able to do so, with 9 of the 10 able to find private sector sources of funding by the six-month deadline⁴.

Credit default swaps for large banks returned to levels seen before the acute stage of the crisis⁵. Bank lending was slower to recover, but stabilising the banks helped stop the crisis and the US economy started the long process of recovery that July.

Supporting the resilience of the largest banks

I have compared the SCAP to a battlefield campaign, and while the financial crisis certainly felt like combat at the time, my point is to emphasise the unique challenge of making financial regulatory policy in an emergency. The goal was to restore public trust in banks that were under fire, and as the job shifted to preserving that trust, it was apparent that there should be an ongoing role for stress testing in peacetime as well.

Starting with the yearly stress test established in 2010 with the Dodd-Frank Act and continuing with the integration of stress testing into the Federal Reserve's annual Comprehensive Capital Analysis and Review (CCAR), the

peacetime approach focused on institutionalising bank resilience and risk-management practices. The Federal Reserve Board conducted the first CCAR exercise in 2011. CCAR was an overall assessment of the capital planning processes of banks, which included quantitative and qualitative components.

Either of those components could form the basis for an objection by the Fed to firm plans to distribute capital to shareholders, distribution which would reduce the capital available that the firm could use to buffer its losses.

The quantitative evaluation of a firm's capital adequacy was driven by the results of the Dodd-Frank Act Stress Test, or DFAST⁶. It departed from the SCAP in at least two important ways. First, rather than making the severe scenario just a more negative version of the current consensus forecast, the Fed built a process to develop thematic forward-looking scenarios using macroeconomic models calibrated to historical data⁷.

Some parts of the scenario design framework are purposely countercyclical under normal conditions—for instance, the minimum peak unemployment rate is set at 10 percent. The countercyclicality of stress test scenarios is an attempt to lean against pro-cyclical effects that can make borrowers appear overly resilient in good times, something which could cause the model to significantly understate the magnitude of borrower defaults when the economy turns⁸.

The second way that the Dodd-Frank stress test departed from CCAR is that most losses under DFAST are projected by applying models developed and operated by the Federal Reserve based on data provided by the banks. Using Fed-developed and validated models provides for independent risk assessments. The granular data provided by banks has been valuable in ensuring that the stress tests are truly risk sensitive and in understanding broader trends and interconnections in the financial system.

In addition to this quantitative test, CCAR assesses the ability of banks to determine their capital needs in the future. Supplementing the DFAST model administered by the Fed, each bank projects its income over the stress scenario using its internal models, providing supervisors with a view of governance and risk management of the bank's capital planning process. If a bank did not pass either the quantitative or qualitative evaluation, the Board of Governors was able to object to the capital plan and restrict the firm's shareholder distributions.

Over time, several criticisms of CCAR's approach emerged. The first was that CCAR was wholly separate from the process used to set a bank's basic, risk-based capital requirements. Large banks also criticised CCAR for a lack of transparency and predictability that resulted in them pre-committing to lower capital distributions and higher levels of capital.

In 2020, the Federal Reserve Board addressed these bank criticisms by creating the stress capital buffer (SCB). To address the criticism that CCAR was additive and wasn't integrated into capital planning, the SCB combined the basic capital requirement for banks with one equal to a bank's projected capital ratio decline during the stress test plus a year's worth of planned dividends, linking components of the capital framework.

To address the claim that CCAR lacked transparency and predictability, the SCB requirement was set for each participating bank at a level that reflected its losses in the stress test and provided banks with flexibility to change their dividends in real time⁹.

Another bank criticism was that CCAR's use of a qualitative assessment was subjective. The SCB dropped the qualitative objection and recast the assessment of capital planning practices as a traditional supervisory exam.

By more directly integrating stress testing into capital regulation, the SCB increasingly moved stress testing away from supervision and toward the regulatory arena, a consequential decision. While this change was intended to promote consistency and predictability, in retrospect, it may have reduced some of the value of the exercise, in that it reduced the range of facts and circumstances the Board would take into account when evaluating an individual firm's capital adequacy.

As a result, the Board's flexibility to adjust capital adequacy determinations based on the unique features of different firms, including different business models and risk profiles, was constrained.

When I became Vice Chair for Supervision in 2022, we continued the process of evolving the stress test as necessary. In particular, the Fed conducted multiple scenarios not directly connected to setting banks' capital requirements¹⁰.

Using additional scenarios has helped us to understand how a broader range of risks might affect the banking system. For example, we've explored a stagflation scenario and looked at the failures of large non-bank counterparties. Using multiple scenarios has helped to keep our risk-assessments dynamic.

Benefits and effects of the current stress testing framework

Before turning to the legal challenges of the current stress test framework, I would be remiss not to emphasise the value of that framework. The stress test has been a critical element that led to strengthening both the quantity of capital in the banking system and the risk-management capabilities of large banks.

Since the Global Financial Crisis, large banks have more than doubled their risk-based common equity capital ratios—from roughly 5 percent to 12 percent or more. At the same time, they have made meaningful improvements in their ability to measure, monitor, and manage their own risks. The stress test has directly contributed to both.

Despite this success, some have argued for what they term ‘full transparency’ of the test. But the criticism can be misleading because two important points are often omitted. First, the Federal Reserve already provides substantial information about the design of the test and has expanded those disclosures over time. Banks are far from uninformed. They receive substantial information about the models in annual model methodology disclosures¹¹. Any material model changes are phased in over two years, with full explanation.

Second, what critics call ‘transparency’ is not disclosure of basic information about the rigour and methodology of the test essential for its credibility; instead, it is the equivalent of handing out the questions to the test in advance. That would fundamentally undermine the rigour of the test, which is intended to assess resilience under conditions not fully known in advance, just as in a financial crisis.

In short, the framework strikes a deliberate balance: providing banks with enough information about scenarios and models to ensure fairness and accountability, while preserving the rigour that makes the stress test an effective safeguard.

Challenges to the current stress testing framework

In December 2024, bank trade associations brought suit against the Board of Governors, challenging the role of stress testing in setting SCB requirements for large firms. The trade associations have challenged what they contend is the opacity of certain elements of the stress testing process and have argued that the models and scenarios should be released in proposed form to promote transparency and facilitate public comment.

In anticipation of, and in response to, this litigation, the Board announced that it would disclose and seek public comment on all of the models that determine the hypothetical losses and revenue of banks under stress, as well as

the annual stress scenarios. The Board also proposed to change its rules to average stress testing results over two years to reduce the year-over-year volatility in the capital requirements that result from annual stress testing.

These proposed changes represent a policy choice to respond to the litigation by enhancing transparency and promoting public participation, and they are not intended to materially affect overall capital requirements. But in my judgment, they are a mistake that will make stress testing less rigorous and nimble.

Subjecting the stress testing models to the notice and comment process could lead them to ossify, and their dynamism and effectiveness may fade. Stress testing models are inherently complex and require adjustments to maintain accuracy and relevance to appropriately account for quickly developing risks. Changes in the models would require new notice and solicitation of comment, and the time lag and burden in making changes would be significantly extended.

We saw this type of ossification play out before the Global Financial Crisis, when supervisory stress testing of Fannie Mae and Freddie Mac became formulaic and failed to capture escalating risks, with dire consequences¹².

An additional problem is that the comment process may have an uneven effect, since banks have an incentive to object to aspects of the models that result in higher capital requirements and not to highlight the areas in which the models underestimate downside risk. Responding to these comments could create a one-way ratchet that successively weakens capital requirements.

Knowing the details of the stress test in advance will also increase the likelihood that banks are able to game the results to lower their capital requirements. We have seen examples of how firms have been able to game stress tests.

For instance, some firms started to use so-called 'macro hedges' in the late 2010s. Many of these macro hedges were hedges against a deep recession, similar to a stress test scenario, and these short-term hedges were cheap because investors assessed these scenarios as extremely unlikely (they were far 'out of the money' in option terms). The hedges reduced projected capital losses in the stress tests by billions of dollars for some banks.

But they weren't credible protection from the effects of a recession because maintaining these hedges would become prohibitively expensive as the economy moved into an actual downturn. This is just one example of attempts to game the stress tests, that were eventually addressed through the supervisory process.

But this example underscores how full disclosure of the Fed's stress models and scenarios would enable banks to optimise stress test results by, among other things, adjusting their balance sheets based on their knowledge of where the models underprice risk, in order to reduce their capital requirements without materially reducing risks.

Banks are likely to change their behaviour in other ways that increase risk. Banks may invest less in their own risk management if the test becomes too predictable. Full disclosure of the Board's models may encourage concentration across the banking system in assets that receive comparably lighter treatment in the test, which could create risks to financial stability. And banks are likely to reduce their management buffers, making it more likely that they would breach their required buffers and minimums in the event of stress.

The upshot is that a full-transparency stress testing regime can increase systemic risks because risk is underestimated and capital is too low. The stress tests could lose their credibility. A loss in credibility is bad for the banks, the banking system, financial stability and, ultimately, American families and businesses.

An alternative path forward

As an alternative to these proposed changes, I would favour prioritising the rigour of the stress testing framework by separating stress testing from binding regulatory capital requirements, which would instead be increased commensurately¹³. The Dodd-Frank Act requires that the Board conduct stress tests on large banks *“to evaluate whether such companies have the capital, on a total consolidated basis, necessary to absorb losses as a result of adverse economic conditions.”*¹⁴

While these results can and should still play a role in informing supervisory and management assessments of the appropriate capital level for particular banking organisations, decoupling the stress test results from the preliminary SCB would enable the Board to preserve essential aspects of stress testing, including the generation of credible and detailed information on the risk exposures of banks and how their capital levels would be affected by a stress event. Such information would be valuable in the supervision of banks in normal times and especially important if banks and the financial system are again threatened by crisis.

If the stress tests are no longer used to inform the calculation of a firm’s preliminary SCB requirement, the legal justification for publishing the models and scenarios for comment would be eliminated, and I’ve already discussed the policy grounds for not publishing them. So, the Board could abandon the notice and comment proposal.

The Board could approach these statutorily required tests primarily as a supervisory exercise and could thereby retain flexibility to design and adjust the models and scenarios as appropriate to ensure their rigour and robustness.

Moreover, as authorised by the Dodd-Frank Act, the Board could run multiple scenarios to provide greater dimension to the assessment of risks¹⁵. As history teaches us, shocks and crises can manifest through a range

of channels, and testing a large bank's unique profile under a range of risks is more likely to yield high-value information about a bank's likely resilience to potential stress events.

The net result of these changes would be to increase the nimbleness, dynamism, and effectiveness of our current stress testing framework. The Board's continued publication of firm-specific results would promote transparency and market discipline.

So that this change does not reduce overall capital in the system, SCBs could instead be set entirely by regulation. For most non-G-SIBs subject to the SCB requirement, the current 2.5 percent buffer floor likely remains an appropriate level. For G-SIBs with a lot of trading, past stress tests have routinely indicated that SCBs should likely be set higher than the 2.5 percent floor, and any regulatory capital measure designed to replace the current SCB framework would need to account for this gap.

While further analytical work is required, the shortfall generated by decoupling the stress tests from the SCB may be largely addressed by a regulatory capital requirement linked to the risks in the trading book, with perhaps some other adjustments as required to maintain appropriate capital levels.

If, over time, stress testing results indicate that this replacement regulatory capital measure routinely exceeds or falls short of the capital levels required to provide adequate resilience to stress conditions, the Board could revise the regulatory measure through a notice-and-comment process, informed by data gathered in the stress testing process.

This proposed approach of decoupling the stress tests from regulatory capital and increasing regulatory capital to make up the shortfall in the SCB appears to me to be the best way to retain the value of stress testing as a supervisory exercise while maintaining appropriate levels of capital in the system.

However, replacing the current framework of individualised SCBs—informed by firm-specific stress test results—with broadly applicable, formulaic regulatory capital requirements would result in a diminution of the risk sensitivity reflected in SCB requirements. That is, capital levels for firms that are subject to the stress tests would be relatively less tailored than they currently are and less reflective of the unique business models, exposures, and risk profiles of a particular firm.

To address this loss in risk sensitivity, I would propose that, in exceptional circumstances, the Board could use its capital directive authority to impose individualised capital requirements on specific firms to account for a firm's particular circumstances, including its capital structure, riskiness, complexity, financial activities, and other appropriate risk-related factors¹⁶.

This would be similar to the United Kingdom's Pillar II-B requirements and those of other jurisdictions¹⁷. While these requirements could be informed by the stress test results in part, they would also take into account qualitative factors and supervisory judgment. Because these individualised requirements would consider the specific risks of a firm, they would be adjusted to reflect a specific firm's risk profile.

While I don't believe it would be advisable for this type of exercise to become the default manner for setting capital requirements, in exceptional cases, it would preserve some of the tailoring benefits of the current SCB regime in a manner that comports with the changes I have discussed.

Furthermore, it would preserve the ability for the Board to address stress results that demonstrate significant deficiencies in capital adequacy under a stressed scenario, when the firms are otherwise in compliance with regulatory capital requirements.

With these changes, stress testing could maintain its flexibility and adaptability and therefore could retain its value as an effective tool for identifying idiosyncratic risk in a major bank and ensuring that capital is sufficient to address the risk.

Among the benefits would be the space this approach would allow for continued innovation in stress testing. Such innovation is vital as finance evolves and banks continue to seek ways to reduce supervisory and regulatory requirements. This approach could allow for scenario design and modelling advancements unencumbered by the limitations I've spoken of imposed by the notice-and-comment process.

In conclusion, I believe it is critical to maintain the dynamism and rigour of stress testing so that supervisors, banks, and the public understand the underlying vulnerabilities in the banking system and at the largest banks and understand that these firms are holding sufficient capital to address these vulnerabilities.

I have deep concerns that the set of changes the Board is now considering risks reliance on a stress test that can no longer effectively assess the resilience of the largest banks and lacks credibility, thus putting our financial system and economy at risk. ■

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Endnotes

1. The stress tests during the Global Financial Crisis also included measures to address bank balances sheet weaknesses in a timely manner under stressed conditions, further supporting confidence, as discussed below.
2. Board of Governors of the Federal Reserve System, [“Statement on Stress Test Proposal by Governor Michael S Barr,”](#) press release, April 17, 2025.
3. At the point of the stress tests results, taxpayers had already acquired an actual stake in all but one of the 19 SCAP institutions, which had accepted a total of just under \$190 billion in funding from the emergency Troubled Asset Relief Program (TARP). Banks could go to TARP to get more capital if needed after the stress test, but most were able to tap market sources and repay TARP.
4. Troubled Asset Relief Program: Bank Stress Test Offers Lessons as Regulators Take Further Actions to Strengthen Supervisory Oversight (PDF) (GAO, September 2010).
5. Seung Jung Lee and Jonathan D Rose, [“Profits and Balance Sheet Developments at U.S. Commercial Banks in 2009,”](#) Federal Reserve Bulletin, September 2, 2010.
6. The number of financial institutions that participated in the annual DFAST exercise has varied from 18 to 33 between 2013 and 2025.
7. See 12 CFR pt. 252, appendix A (The Federal Reserve’s Policy Statement on the Scenario Design Framework for Stress Testing). Although stressed losses in DFAST are projected for a two-year time horizon, the macroeconomic scenario itself is on a three-year time horizon. This reflects the fact that the CCAR capital planning exercise performed by the banks goes out three years. Moreover, a three-year scenario provides the public with greater transparency regarding the entirety of the conditions assumed as part of the macroeconomic cycle contemplated in the test. The number of scenario variables has increased notably from SCAP and the early days of CCAR.
8. Ben Bernanke, Mark Gertler, and Simon Gilchrist, [“The Financial Accelerator in a Quantitative Business Cycle Framework,”](#) in Handbook of Macroeconomics, Vol. 1, 1999, (ScienceDirect, 1999).
9. As part of its efforts to address concerns about transparency, in early 2019 the Fed finalised a proposal to augment its disclosures regarding its stress testing models. 84 Fed. Reg. 6784 (2019).

10. See Michael S Barr, [“Multiple Scenarios in Stress Testing,”](#) speech at the Stress Test Research Conference at the Federal Reserve Bank of Boston, Boston, MA, October 19, 2023.
11. See, eg. Board of Governors of the Federal Reserve System, [2025 Supervisory Stress Test Methodology](#) (PDF) (Board of Governors, June 2025); Board of Governors of the Federal Reserve System, [2024 Supervisory Stress Test Methodology](#) (PDF) (Board of Governors, March 2024).
12. Scott Frame, Krisopher Gerardi, and Paul Willen, [“The Failure of Supervisory Stress Testing: Fannie Mae, Freddie Mac, and OFHEO,”](#) Federal Reserve Bank of Boston Working Paper No. 15-4 (Federal Reserve Bank of Boston, October 2015).
13. See Daniel Tarullo, [“Reconsidering the Regulatory Uses of Stress Testing,”](#) (PDF) Hutchins Center Working Paper #92 (Brookings, May 2024).
14. 12 U.S.C. § 5365(i)(1).
15. 12 U.S.C. § 5365(i)(1)(B) (“The Board of Governors—(i) shall provide for at least 2 different sets of condition under which the evaluation required by this subsection shall be conducted, **including** baseline and severely adverse.”) (emphasis added).
16. 12 U.S.C. § 3907(a)(2). Other statutes provide the Board with authority to impose individualised capital requirements through the issuance of orders. See, eg. 12 U.S.C. §§ 1844(b), 1467a(g)(1).
17. See Bank of England, [“CP16/22 – Implementation of the Basel 3.1 Standards: Interactions with the PRA’s Pillar 2 Framework,”](#) chapter 10 (BOE, November 30, 2022).

The views expressed here are my own and are not necessarily those of my colleagues on the Federal Reserve Board or the Federal Open Market Committee. This article is based on a [speech](#) delivered at the Peterson Institute for International Economics, Washington, DC, September 25, 2025.

The next frontier of payments innovation

We are witnessing a new frontier of innovation in payments and the broader financial system. Christopher Waller says regulators ought to welcome the ways new technologies can benefit financial firms and consumers

The theme for Sibos this year, *the next frontiers of global finance* is a fitting one. We are indeed witnessing a new frontier of innovation in payments and the broader financial system. New technologies like distributed ledgers, tokenised assets, smart contracts, and artificial intelligence (AI) have the potential to make payments smarter, faster, and more efficient. I know many of you represent firms that are using the latest cutting-edge advances to bring new global solutions to the market.

The conference theme also accurately captures that we are at the next frontier. I often note that the modern history of payments is a story of technological innovation¹. The history spans from the last century, when payments and securities transfers were converted from paper to electronic solutions, to the present day when we increasingly have payment systems that process transactions in real time, 24/7.

Lastly, the conference theme recognises the global nature of payments and financial infrastructures that underpin international commerce. Of particular focus in this domain are crossborder payments, which involve transactions across a layered and complex set of networks and experience frictions that contribute to higher costs, slower speeds, limited transparency, and barriers to access. Multiple opportunities for improvement exist in international payments, including improvements to smaller-value remittances, business-to-business payments, and collateral management in capital markets.

As we enter the next frontier, let us remember that this is not a new story and that we should not fear new technologies, nor new types of providers. Instead, we should ask how new technologies could benefit all types of actors, including the most sophisticated financial firms as well as consumers, while not losing sight of the need for guardrails that promote safety for consumers and the broader financial system.

In addition, we should ask how new technologies could be used to upgrade the infrastructures that serve as critical components to the global financial system, in a way that maintains and extends safety and resilience. These are the topics I will consider.

Choice and competition

I approach these issues fundamentally as an economist and as a firm believer in the free market. In particular, I would highlight the importance of choice in how markets function and how competition develops.

The role of the public sector is to support the private sector in specific circumstances where that is useful. Complementary private and public roles can contribute to a safe and efficient payment system

In general, choices encourage competition, leading to better quality products and services. Businesses innovate to differentiate products, including by incorporating new technical capabilities. This improves market responsiveness to consumer demand. Businesses also incorporate new technologies to compete on cost and efficiency.

I see stablecoins, for example, as simply another choice available to consumers and businesses, where they have signalled a need in the market to further improve payments². I believe that we must take this articulated need seriously and respect the ability of the private sector to develop solutions.

This dynamic is nothing new. Market participants have long had choices in the types of payment instruments they use. Public and private forms of money coexisting, in multiple forms, is in fact a common feature in all developed economies.

In the United States, consumers have had central bank money in the form of cash, commercial bank money in the form of deposits in a bank account, and nonbank money (or 'e-money') in the form of a funds balance on a nonbank payment app.

Stablecoins are simply a new form of private money and will exist alongside these other payment instruments, provided consumers accept them as safe, low-risk assets with regulatory protections³.

Consumers and businesses have for decades also had a choice of providers of payment services and financial products including banks, card networks, nonbank payment service providers, and, more recently, other fintechs.

Having a choice of providers is important because needs and preferences vary among consumers and businesses. I may choose one provider if I want to park my emergency fund in a high-yield savings account, and I may choose

different providers if I want to process a crossborder payment, pay someone with a QR code, or buy a cryptoasset. A choice of providers also encourages competition on cost, speed, efficiency, and user experience.

Additionally, firms have options for payments and financial infrastructure, which is important because firms might choose to route money or securities on different rails depending on business needs. Some may value speed; some may prefer the ability to batch payments and settle on net to capture liquidity savings.

Some will prefer the features of a centralised financial market infrastructure and its built-in regulatory guardrails; some may prefer to transact on public blockchains, with different models for achieving security and integrity. Having multiple options is also good for public policy objectives like promoting resilience across the broader payment system.

Assessing benefits of the next frontier of innovations

Given this backdrop of new technologies and new entrants within a competitive market, let's explore how this could lead to positive economic outcomes.

First, will the next frontier of innovations translate to lower costs? An influx of new market entrants certainly has the potential to drive down costs as they compete for customers, particularly if blockchain-based transactions prove to be cheaper. If stablecoins present a lower cost alternative to consumers and businesses, I am all for it.

We are already seeing this dynamic develop outside of the United States, where US dollar stablecoins are an attractive option in countries in which access to dollar banking services is expensive or limited. We also know that crossborder payments, in particular remittances, are relatively expensive.

This is attributable in part to the complexity of transactions involving multiple infrastructures, currencies, and intermediaries. One way in which innovative technologies could translate to lower costs is through efficiency gains.

This brings me to my second question: how might new technologies improve the efficiency of the payment system? Distributed ledger technology, or DLT, is rapidly becoming an efficient infrastructure for 24/7 transactions, recordkeeping, and data management by enabling multiple platforms, parties, assets, and functions to be combined in new ways.

As an example, DLT-based platforms can support 24/7 real-time payments and securities transfers by using programmable functionalities like smart contracts to enhance operational efficiency and automate more complex financial transactions. With the ability to specify the precise time at which a transaction settles and under what conditions, DLT-based platforms have the potential to increase the flexibility and efficiency of settlement for money and assets.

Many crossborder payments today rely on the correspondent banking model—a network of bilateral banking relationships that enables financial institutions to access foreign financial systems and to conduct business across jurisdictions without establishing physical and legal presence in every market they serve. While correspondent banking has been the backbone of global payments for decades, this model faces several challenges, including high transaction costs, slower processing times, and a global decline in correspondent banking relationships.

While these frictions are attributed in part to the process of sending payments through a complex chain of correspondent banks, I should note that not all frictions are barriers to overcome. Certain frictions are purposely built into the global payment system for compliance and risk-management reasons, such as preventing money laundering and countering the financing of terrorism⁴.

DLT-based platforms have the potential to improve upon the existing correspondent banking model, and private-sector firms are pursuing multiple approaches to do so. One way is through the 'stablecoin sandwich' model, in which fiat currency in one country is converted first into a stablecoin, then that stablecoin is transferred to another individual, and then converted back into the local fiat currency at its destination.

Another way is through the use of tokenised deposits, where banks represent deposit liabilities on a blockchain for wholesale and crossborder transactions. Either model has the potential to improve transparency, cost, and timeliness, while balancing the need for safety and integrity of the transfer.

DLT-based platforms generally (and stablecoins, specifically) may also present opportunities for efficiency gains in remittance payments, where today, money transfer operators rely on large global networks of agents and pre-position capital in various currencies to pay out customers in different jurisdictions.

These examples also demonstrate that innovation is not an issue of 'TradFi' versus 'DeFi' but rather poses an opportunity to harness the complementary strengths each has to offer, especially at a time where we are seeing increased convergence between the two.

Importantly, efficiency will depend on the extent to which DLT networks can interoperate with one another and with traditional payment rails. This is particularly true because payments exhibit significant network effects. Fortunately, numerous private-sector advances in interoperability are emerging given this market need, and as an operator of core payment and settlement infrastructure, we at the Federal Reserve continue to assess how we can improve our existing rails that serve private-sector firms.

Let's turn from DLT to AI. AI can further improve the efficiency of payments in a number of ways, including through automating manual tasks, detecting fraud or compliance risks, and now with agentic AI, executing tasks on behalf of a person or company quickly and cheaply through the use of AI agents⁵.

Let's again take the example of crossborder payments, which involve multiple jurisdictions, each with its own compliance requirements. Firms are increasingly exploring AI and machine learning (as well as smart contracts) to automate compliance activities.

Third, can new technologies and products maintain and build trust in the digital ecosystem? I believe they can. One common criticism of stablecoins is that they will somehow undermine the trust in money. Under regulatory frameworks like the GENIUS Act in the United States, payment stablecoins will be backed at least 1 to 1 with safe, liquid assets and users will be able to redeem their stablecoins at par.

I have long advocated that a right-sized regulatory framework can address concerns related to safety and financial stability, while allowing stablecoins to scale on their own merits⁶.

As with any technology, ecosystem operators will need to assess and manage risks, including cybersecurity. As payments shift to new rails and include stablecoins, tokenised assets, and smart contracts, new opportunities for cyberattacks will emerge.

Achieving security and resilience means ensuring these digital platforms are hardened against misuse, with redundancy and safeguards in place that match the scale of domestic and global payments. Building resilience requires both the private and public sectors to work together on standards, cybersecurity, and risk management, so that innovation goes hand-in-hand with safety.

Roles of the private and public sectors

This brings me to the roles that the private and public sectors can play at the next frontier of payments innovation. I often argue that the private sector can most reliably and efficiently allocate resources and take risks to explore the value of new technologies⁷.

The private sector is also best positioned to serve consumers and provide products and services that meet their needs. You don't want the government to decide what technologies are in or out, or decide what consumers want. Further, the private sector brings a depth and level of technical expertise required to translate new technologies into practical improvements for payments.

The role of the public sector is to support the private sector in specific circumstances where that is useful. At the Federal Reserve, that means serving as a convener to solve coordination problems, providing regulatory clarity when within our specific remit, and operating core payment and settlement infrastructure that the private sector uses. Complementary private and public roles can contribute to a safe and efficient payment system.

Looking ahead, I believe it is important to understand how the Federal Reserve can continue to support private-sector innovation. One way is to conduct research and experimentation on emerging technologies. At the Federal Reserve, we are conducting hands-on research on the latest wave of innovations, including tokenisation, smart contracts, and AI in payments. We do this to understand how private-sector innovators will use these to improve payments, as well as identify any opportunities to upgrade our own payment infrastructures.

Another way is to engage actively with industry on innovations. That is why, in three weeks, I am convening industry leaders and US policymakers to discuss how to further improve the payment system. That is also why I

appreciate coming to events like Sibos, where industry experts within the private sector engage with public-sector officials to discuss how we can best navigate the next frontier of innovations. ■

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

Endnotes

1. See Christopher J Waller, [“Technological Advancements in Payments \(PDF\)”](#), speech delivered at the Wyoming Blockchain Symposium, Teton Village, WY, August 20, 2025.
2. See Christopher J Waller, [“Reflections on Stablecoins and Payments Innovations,”](#) speech at “Planning for Surprises, Learning from Crises” 2021 Financial Stability Conference, Cleveland, OH, November 17, 2021.
3. See Christopher J Waller, [“Reflections on Stablecoins and Payments.”](#)
4. See Christopher J Waller, [“Interlinking Fast Payment Systems,”](#) speech delivered at the Global Fintech Fest 2024, Mumbai, India, August 28, 2024.
5. For additional discussion on AI in payments, see Christopher J Waller, [“Technological Advancements in Payments.”](#)
6. See Christopher J Waller, [“Reflections on a Maturing Stablecoin Market \(PDF\),”](#) speech delivered at A Very Stable Conference, San Francisco, CA, February 12, 2025.
7. See Christopher J Waller, [“What Roles Should the Private Sector and the Federal Reserve Play in Payments? \(PDF\)”](#) speech delivered at The Clearing House Annual Conference 2024, New York, NY, November 12, 2024.

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The case for strong, effective banking supervision

The banking system sits at the centre of the economy. Michael Barr stresses that banks' risk-taking must always be guided by clear guardrails, underpinned by effective banking supervision

Much of what the Fed does to conduct monetary policy, promote a stable financial system, provide a safe and efficient payments system, and support consumers and community development depends on a healthy banking system. Lending fuels entrepreneurship, helps families buy homes, and enables communities to thrive—all critical aspects of a healthy economy.

Ensuring banks operate in a safe and sound manner is essential because the banking system sits at the centre of the economy. That is why banks' risk-taking must always be guided by clear guardrails, underpinned by effective banking supervision.

We need these guardrails because experience shows that market discipline alone does not prevent excessive risk-taking by banks¹. As I've noted before, time and again, periods of relative financial calm have led to efforts to weaken regulation and supervision². This has often had dire consequences, as we saw prominently during the Global Financial Crisis.

In the midst of that crisis, I saw first-hand in my own community in Michigan what weak regulation and supervision could mean: foreclosed homes, shuttered businesses, and lost jobs. According to the Federal Reserve Bank of Chicago, Michigan's unemployment rate was 14.9 percent in 2009, meaning one in seven workers were out of jobs³. Nationwide, the consequences were immense: nearly 9 million jobs lost, 8 million homes foreclosed upon, and a \$17 trillion loss in household wealth⁴.

We are now, I believe, at a moment of inflection in the regulatory and supervisory approaches that help keep banks healthy. There are growing pressures to weaken supervision—to scale back examiner coverage, to dilute ratings systems, and to redefine 'unsafe and unsound'—in ways that will make it harder for examiners to act before it is too late to prevent a build-up of excessive risk. These pressures present real dangers to the American people.

The mission of banking supervision

Let me begin with the mission of bank supervision, which is to promote a safe, sound, and efficient banking system that supports a strong economy⁵. Our banking system relies on trust. That trust is earned when banks behave responsibly and when supervisors effectively perform their statutory duties. These duties include verifying that banks are operating soundly and identifying and addressing weaknesses before they threaten the solvency of particular banks and possibly spread through the financial system.

The vulnerabilities that weaker supervision and regulation create may not be visible in the short term. They rarely are. But experience tells us that the bill always comes due. The only question is when, and how high the cost will be

Supervision also ensures compliance with laws and regulations that safeguard the integrity of the banking system. This reduces the risk of misconduct or malfeasance, including real-world consequences of fraud, consumer abuse, cyberattacks, money laundering, and terrorist financing. Trust in the banking system relies on strong supervision.

Benefits of supervision

Supervision delivers clear benefits not only for individual banks but also for the stability of the financial system as a whole. Enforcement actions are associated with lower systemic risk, and research shows that banks subject to more oversight are safer and just as profitable as their peers⁶.

While supervision does impose costs, it is most effective when calibrated to the risks each institution poses. More closely supervised banks tend to experience steadier income and fewer loan losses, making them more resilient during times of stress, when contagion risks are greatest⁷.

Supervision is critical to the Federal Reserve's mission to promote the stability of the financial system and contain systemic risk. A macroprudential perspective—where we look across the entire banking system for correlated risks—complements traditional microprudential oversight where we examine individual banks. This is done by focusing on risks that threaten financial stability and the banking system's core functions: credit, payments, and intermediation. Our economy depends on a strong and stable financial system, which makes banking supervision essential for every household and business.

The foundations of effective supervision

Effective supervision begins with appropriate regulation as a foundation. Regulation provides the rules of the road that establish minimum capital levels, liquidity requirements, and define permissible activities. But regulation alone is not enough. Supervision is necessary to ensure banks stay on the road and comply with the rules, especially as conditions shift and new risks emerge.

Effective supervision depends on its human capital. The knowledge necessary to be an effective examiner comes from both formal training and through an accumulation of on-the-ground practical exposure. Supervisory staff carry responsibility for risk identification and analysis and execution of examinations to assess whether a firm truly understands its risks, whether its governance and controls are effective, and whether its capital and liquidity are sufficient for its business model. Institutional knowledge and experience-based judgment are critical for supervisors' ability to manage these responsibilities. They take time to develop and cannot be easily replicated.

Effective supervision also requires moving with speed, force, and agility appropriate to the risks posed. This requires institutional commitment to act swiftly as risks emerge, using supervisory tools decisively, and adapting to shifts in markets or the economy⁸.

Effective supervision under pressure

Beyond these foundations, effective supervision is based on numerous other factors. Today I will outline key components of strong, effective supervision that are at risk of being seriously weakened in the current environment.

A credible ratings framework. First, effective supervision requires a credible rating system⁹. A credible rating system incentivizes firms to promptly remediate weaknesses by translating supervisory assessments into objective outcomes that matter for management and boards of directors. It ensures consistency across institutions, supports transparency in how risks are evaluated, and anchors supervisory discipline.

Crucially, a credible rating system looks beyond immediate financial metrics to the quality of a firm's governance, internal controls, and risk management practices¹⁰. Weak management rarely shows up first as a capital or liquidity problem. Rather, it becomes evident through inconsistent processes, inadequate escalation of supervisory concerns, unclear lines of accountability, and organisational blind spots that, over time, allow risks to accumulate.

These weaknesses can prevent management from seeing and effectively acting on emerging risks. A ratings system that captures only past actions that have resulted in observable financial harm is inherently backward-looking. It will miss the risks of what may come.

Unfortunately, the framework for supervisory ratings is currently being modified in ways that diminish its strength and credibility. For example, earlier this month, the Federal Reserve Board issued its final rule making changes to the Large Financial Institution (LFI) rating system¹¹.

Poor performance is being deemphasized, which is tantamount to grade inflation, a problem this academic audience understands. As I noted in my dissent, I believe these changes reduce incentives for large banks to fix serious management problems¹². They will also allow firms with significant governance weaknesses to expand or acquire other enterprises, raising the chance and cost of future failure. Changes to the LFI rating system also reduce supervisory attention on compliance matters for the largest banks.

As such, bank holding companies could have, for example, seriously deficient consumer compliance programs but still be considered well managed. Further, the revisions remove the presumption that large firms with significant deficiencies must face an enforcement action—a move that could significantly weaken accountability for poor practices. And in taking this action, the Board ignored a more moderate reform option that would have established a composite rating for large bank holding companies.

In addition, I understand that efforts are currently underway to modify the CAMELS rating system, the interagency framework used by supervisors to assess banks' overall condition¹³. Some have proposed changes that would effectively diminish the weight assigned to the management component. I believe that such a move would be misguided and shortsighted.

The 'management' rating is not simply one item among six; it is the element that ties the others together. It measures the quality of governance, risk identification, internal controls, and the institution's ability to respond to emerging threats¹⁴. Strong management can compensate for unexpected stress, whereas weak management can magnify even modest vulnerabilities. Deemphasising the rating system's focus on management could lead to significant increases in risk, even in institutions that look good on paper.

Furthermore, in October, the Federal Deposit Insurance Corporation (FDIC) and the Office of the Comptroller of the Currency (OCC) proposed a rule that would limit the issuance of enforcement actions for 'unsafe or unsound practices.'¹⁵ This would have the effect of making it harder for supervisors to issue an enforcement action and compel a bank to fix its flaws. This effectively ties examiners hands.

The proposed rule would also limit the issuance of matters requiring attention, or MRAs, which are supervisory findings used to prompt a bank to act quickly to fix problems before they become enforcement actions. The new standards for issuing enforcement actions and MRAs would centre on a narrow definition of 'material financial risk' and exclude material nonfinancial risks except in limited circumstances, such as violations of law.

To put this into context, under the standard established by this proposed rule, a bank with woefully deficient controls to prevent money laundering or discrimination would not necessarily receive an MRA requiring the bank to correct the situation unless the bank had actually violated the law or supervisors were able to identify a material financial harm that had already occurred due to the lapse in controls or that could be shown to likely cause such harm.

Waiting to act until the bank, its customers, or potentially the financial system have been harmed is not a responsible approach to risk management or supervision. Bottom line—under this proposal, examiners will issue

fewer MRAs, even where financial and operational risks have been identified. This will also lead the agencies to issue fewer enforcement actions. I fear that the Fed may head down a similar, or even worse, path, further tying supervisors' hands.

Furthermore, I am concerned about an initiative that will allow the banks themselves to decide whether a supervisory finding or requirement imposed by an enforcement action should be lifted. Under this approach, if a bank had a satisfactorily-rated internal audit function, that internal audit function would have the ability to decide if the bank had appropriately remediated a deficiency identified in the supervisory finding or enforcement action.

A bank's internal audit function would essentially displace validation by Federal Reserve examiners. Examiners would not independently determine whether the terms of the supervisory findings or enforcement action provisions had been met, or whether the bank's changes were sustainable. A parallel approach was tried at the Federal Housing Finance Agency (FHFA), where the internal audit function of Fannie Mae and Freddie Mac was permitted to 'validate' remediation of MRAs, and FHFA's supervisory division sometimes accepted that validation in closure determinations without independent validation.

In 2018, the FHFA's inspector general found this problematic, and warned that allowing such discretion "*without a predicate supervisory conclusion ... creates the risk that ... assessments ... will be impaired.*"¹⁶ This is a bad idea for bank prudential supervision, and to be clear, will not be implemented in the consumer compliance function.

Forward-looking supervision. A second component of effective supervision is that it must be forward-looking¹⁷. The purpose of supervision is to prevent risks from becoming problems that harm banks and the public. By anticipating vulnerabilities and prompting early action, supervisors use tools such as stress testing and scenario analysis to prevent problems from escalating.

In contrast, backward-looking supervision often detects weaknesses only after they become serious problems. Forward-looking approaches, grounded in judgment and horizontal comparisons, are more effective in promoting the safety and soundness of individual banks and safeguarding financial stability. In short, supervision needs to see and point out how weak risk management can lead a bank to be vulnerable to unanticipated shocks.

Stress tests illustrate this principle clearly: they are supposed to provide a rigorous way to assess resilience under severe but plausible conditions that may occur in the future. Supervisory stress tests are structured exercises conducted by supervisors to evaluate how a bank's capital and earnings would perform under adverse macroeconomic scenarios—such as a sharp rise in unemployment, a collapse in asset prices, or a severe market disruption.

They are designed to test the soundness of a bank's balance sheet and to ensure that it could continue to operate and support the economy even in times of stress. These tests help to uncover vulnerabilities at individual banks and across the financial system.

In October, the Federal Reserve proposed several changes to our heretofore-successful stress testing program¹⁸. I noted then that the proposed changes risk turning the stress test into a rigid exercise that offers false confidence by producing overly optimistic results driven by less conservative modelling and opportunities for banks to game the process¹⁹. The proposed changes would weaken capital requirements and erode incentives for strong independent risk management. Weaker stress tests mean worse supervision.

Another valuable forward-looking tool that has been criticized lately is the use of horizontal reviews, supervisory examinations focused on a specific topic across multiple banks simultaneously. This technique allows supervisors to spot emerging risks, helping supervisory frameworks remain proactive rather than reactive. Because financial

risks develop and change at a faster pace than regulation, horizontal reviews are valuable to compare practices and outcomes across banks, identifying patterns of systemic or inter-firm amplification that might otherwise go undetected²⁰.

Just as importantly, horizontal reviews promote consistency and fairness in supervisory judgments. They are not meant to impose rigid benchmarks or uniform expectations, but rather to shed light on emerging vulnerabilities, highlight sound practices, and ensure that judgments are grounded in comparable evidence. Severely limiting their use would constrain supervisory insight and weaken the ability of supervisors to address emerging problems.

A strong supervisory staff. Finally, effective supervision requires skilled supervisory staff. The strength of a supervisory system depends not only on its policies and tools, but also on the expertise, capacity, and judgment of the people who implement them. Adequate staffing—measured both by headcount and experience—ensures that supervisors can conduct thorough examinations, identify emerging risks early, and respond swiftly to signs of instability. It also supports the institutional memory and continuity needed to assess complex financial institutions over time. Having sufficient and experienced staff is crucial.

Staff at both the Federal Reserve Board and the Reserve Banks play distinct but complementary roles in safeguarding the banking system. Board staff in Washington, DC focus on risk identification, oversight, consistent policy, horizontal reviews, and coordination across the entire banking system. Most Board supervisory staff who focus on day-to-day supervision of banks work on banks with assets exceeding \$10 billion rather than community banks. Reserve Bank examiners conduct most day-to-day supervision of individual banks and holding companies. Together, these efforts form an integrated supervisory framework²¹.

Recently announced plans to reduce staffing in the Board's Supervision and Regulation division by 30 percent by the end of 2026 will impair supervisors' ability to act with the speed, force, and agility appropriate to the risks facing individual banks and the financial system. Such a drastically reduced staff will slow response time for the public and the banks themselves, limit supervisory findings and enforcement actions, and erode supervisors' ability to be forward-looking.

Losing experienced supervisory staff with institutional knowledge also means the system will have diminished capacity to manage crises when they arise. Among other things, the financial crisis showed that the Fed's bank supervision had failed to keep up with the growth in the size and complexity of the banking system, and it took nearly a decade afterward to build up this capacity. Now it is being gutted, practically overnight.

The impact of these staffing cuts is compounded by reductions at other supervisory agencies. Deep reductions in force are also underway at the FDIC, the OCC, and the Consumer Financial Protection Bureau (CFPB), with the CFPB recently announcing that it would not seek any funding for the foreseeable future²².

It is difficult to argue, as some have, that the Federal Reserve can rely solely on the work of other agencies in its holding company evaluations when those agencies are also experiencing significant contraction.

Cumulative effect of weakened supervision

Let me close by emphasising that I support the healthy evolution of banking supervision. It is both natural and appropriate to regularly assess supervisory approaches and tools over time. After periods of crisis, regulators logically strengthen oversight to prevent a recurrence. After periods of relative stability, there is often pressure to lower the guardrails put in place. Adjustments can be constructive, but they must be made with foresight and care to preserve the hard-won resilience of the financial system.

Today I have outlined several essential components of robust banking supervision that, I believe, are being altered without sufficient appreciation for the consequences of these actions. Weakening any one of these elements diminishes supervisory effectiveness; taken together, the cumulative impact could be profoundly damaging to banks and destabilizing for the financial system.

History reminds us that we have seen this pattern before, including in the financial crisis²³. Periods of weakened supervision have often preceded episodes of financial excess and instability. The erosion of supervisory resources, the diminished focus on governance and controls, the weakening of forward-looking tools, and the constraints placed on supervisory action all undermine supervisors' ability to adequately protect against excessive risk taking. When coupled with broader deregulatory momentum, these trends create a dangerous environment for both institutions and the economy at large.

The vulnerabilities that weaker supervision and regulation create may not be visible in the short term. They rarely are. But experience tells us that the bill always comes due. The only question is when, and how high the cost will be. ■

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Endnotes

1. For example, in 2008 Alan Greenspan testified before Congress that he had “found a flaw” in his ideology of trusting markets to self-correct. Alan Greenspan, *“The Financial Crisis and the Role of Federal Regulations: Hearing before the Committee on Oversight and Government Reform,”* testimony delivered to the 110th Congress 55-764, Washington, DC, October 23, 2008.
2. Michael S Barr, *“Booms and Busts and the Regulatory Cycle”* speech delivered at The Brookings Institution, Washington, DC, July 16, 2025.
3. Martin Lavelle, *“How Tight Is Michigan’s Labor Market?”* Federal Reserve Bank of Chicago (Michigan Economy Blog), October 11, 2016.
4. Christopher J Goodman and Steven M Mance, “Employment Loss and the 2007–09 Recession: An Overview,” (PDF) *Monthly Labor Review* (2011). See also <https://www.stlouisfed.org/publications/regional-economist/july-2012/household-financial-stability--who-suffered-the-most-from-the-crisis> and <https://www.newyorkfed.org/newsevents/speeches/2017/dud171106>.
5. See “About the Fed.”
6. Beverly Hirtle, Anna Kovner, and Matt Plosser, *“The Impact of Supervision on Bank Performance,”* *Journal of Finance* 75, no. 5 (2020): 2,765–2,808.
7. Hirtle, Kovner, and Plosser, “The Impact of Supervision on Bank Performance,” 2798-99.
8. Michael S Barr, *“Supervision with Speed, Force, and Agility,”* speech delivered at the Annual Columbia Law School Banking Conference, New York, NY, February 16, 2024.
9. Banks receive ratings that quantify their safety and soundness based on supervisory exams. Ratings evaluate banks’ performance on key risks, including their capital and liquidity positions and management quality.
10. See, for example, key findings that the Management component of CAMELS ratings has significant predictive power for future bank risk/performance. Lewis Gaul and Jonathan Jones, *“CAMELS Ratings and Their Information Content,”* OCC Working Paper WP-2021-01 (Office of the Comptroller of the Currency, January 2021).

11. Board of Governors of the Federal Reserve System, *"Federal Reserve Board Finalizes Changes to Its Supervisory Rating Framework for Large Bank Holding Companies,"* press release, November 5, 2025.
12. *"Statement on Large Financial Institution Rating Framework by Governor Michael S. Barr,"* press release, November 5, 2025.
13. CAMELS evaluates six components: Capital Adequacy, Asset Quality, Management, Earnings, Liquidity, and Sensitivity to Market Risk. Each component is rated on a scale from 1 to 5, and together they form the institution's composite rating, which supervisors rely on to evaluate safety and soundness. See Board of Governors of the Federal Reserve System, *"Uniform Financial Institutions Rating System,"* SR letter 96-38 (December 27, 1996).
14. See Gaul and Jones, *"CAMELS Ratings and Their Information Content"* (finding that Management rating is most strongly correlated with composite rating of all CAMELS components and has significant predictive power for future bank performance and risk measures).
15. Unsafe and unsound practices would be defined under Section 8 of the FDIA as any act, practice, or failure to act that deviates from generally accepted standards of prudent banking and either causes material harm to an institution's financial condition or, if continued, would be likely to do so or pose a material risk to the Deposit Insurance Fund. See <https://www.federalregister.gov/documents/2025/10/30/2025-19711/unsafe-or-unsound-practices-matters-requiring-attention>.
16. Federal Housing Finance Agency: Office of Inspector General, *FHFA Requires the Enterprises' Internal Audit Functions to Validate Remediation of Serious Deficiencies but Provides No Guidance and Imposes No Preconditions on Examiners' Use of That Validation Work* (PDF) (FHFA: OIG, March 2018).
17. Tobias Adrian, Marina Moretti, Ana Carvalho, Hee Kyong Chon, Fabiana Melo, Katharine Seal, & and Jay Surti, *"Good Supervision: Lessons from the Field,"* IMF Working Paper WP/No. 23/181 (International Monetary Fund, September 2023): 18–20.
18. See <https://www.federalreserve.gov/aboutthefed/boardmeetings/enhanced-transparency-and-public-accountability-proposal-frn.pdf>.

19. *"Statement on Proposals to Enhance the Transparency and Public Accountability Of the Board's Stress Testing Framework By Governor Michael S. Barr,"* press release, October 24, 2025.
20. *"Horizontal reviews and benchmarking provide a cross-sectoral perspective of risks, enable a deeper review of certain topics and promote consistency in the exercise of expert judgment...Horizontal reviews that focus on a specific issue across banks are increasingly used for a proactive, forward-looking supervisory approach."* See <https://www.bis.org/bcbs/publ/wp45.pdf> at 2.
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The views expressed here are my own and are not necessarily those of my colleagues on the Federal Reserve Board or the Federal Open Market Committee. This article is based on a [speech](#) delivered at the Alan Meltzer Speaker Series, Kogod School of Business, American University, Washington, DC, November 18, 2025.



Securing financial sovereignty

Governments globally have been ramping up initiatives to modernize their digital payment and financial systems. S Yash Kalash writes that nations must guard, strengthen digital rails to secure financial sovereignty

Governments across the world have been accelerating their efforts to modernize their digital financial infrastructure. Whether through the development of central bank digital currencies (CBDCs), stablecoin regulations, tokenized securities, crossborder payment platforms, or digital identity frameworks, the future of economic governance is increasingly programmable. But as this transformation unfolds, a deeper and more uncomfortable question is emerging: who will actually control the digital rails of the global economy?

For many countries, the answer is already troubling. The infrastructure underlying digital assets, including cloud services, blockchain nodes, stablecoin issuance, wallet software, cybersecurity, and analytics is dominated by a small group of multinational technology and financial firms.

Even private cryptocurrencies that appear decentralized on paper often rely on a narrow set of validators, custodians, or foreign bank partners in practice. Stablecoins such as Tether USD (USDT) or USD Coin (USDC), widely used across Asia, Africa, and Latin America ultimately depend on US institutions, US law, and US-based reserves.

This concentration of power places governments in a bind. While digital assets promise efficiency, inclusion, and innovation, they also risk ceding control of critical systems that underpin monetary policy, national security, consumer protection, and long-term economic resilience.

The challenge, therefore, is not whether to adopt digital currencies or digital asset infrastructure but whether governments can harness these innovations without becoming dependent on a new generation of foreign tech monopolies.

A foundational step toward digital financial sovereignty is adopting a public digital infrastructure model, where governments build open, interoperable rails and retain control of core architecture while allowing private innovation on top.

India's UPI (Unified Payment Interface), Aadhaar, and ONDC (Open Network for Digital Commerce) illustrate how [public rails](#) can create competitive, secure markets without vendor lock-in. Applied to digital assets, this means

Digital currencies and assets are not merely financial instruments; they are becoming the rails on which the global economy will move. Countries that build strategically today will shape the architecture of tomorrow's digital economy

national registries, verification layers, and settlement frameworks that all CBDCs, stablecoins, and tokenized asset platforms must conform to.

This approach also mitigates reliance on private cryptocurrencies whose governance, cloud hosting, and custody often sit abroad, ensuring public functions are not [dependent](#) on opaque or foreign-controlled systems.

Interoperability, therefore, must be the guiding principle. Systems should use [open](#) application programming interfaces (API), global standards such as [ISO 20022](#), and modular components that allow governments to swap out vendors without dismantling the entire architecture.

This is equally true for private stablecoins: regulators should require transparent reserve disclosure, standardized reporting, portable identity frameworks, and interoperability with public verification layers. No stablecoin issuer should become a single point of failure for a country's payment ecosystem.

A more sustainable model is co-development, where governments collaborate with a consortium of domestic fintechs, regulated financial institutions, and select global partners to build infrastructure collectively. This is how the Nordics built [digital identity systems](#); how India's [Digital India Stack](#) was designed. Co-development ensures architectural transparency, builds local expertise, and embeds public policy goals of privacy, inclusion, and competition directly into the design.

It is crucial that countries must treat cloud sovereignty as a financial stability issue, mandating multi-cloud deployments, local data residency for sensitive financial information, and, where necessary, sovereign cloud layers. Since hosting layers are usually concentrated in the hands of three or [four global cloud providers](#), cloud

access could be threatened in the event of a geopolitical conflict, sanctions dispute, or cyber incident, potentially compromising an entire national payments or settlement system.

Open-source reference architectures should also become a cornerstone of national strategy. They allow governments to inspect code, validate security claims, and cultivate [local developer ecosystems](#). In the digital asset space, open-source frameworks enable central banks, finance ministries, and regulators to understand exactly how settlement logic, identity verification, and tokenization layers operate.

A final and often overlooked dimension is geopolitics. Digital financial infrastructure, whether public or private, can be [weaponized](#). Stablecoin issuers can freeze wallets. Cloud providers can shut down access. Blockchain governance bodies can change rules. [Foreign regulators can influence reserve requirements](#). Even decentralized networks can be captured by mining pools or validator cartels aligned with foreign jurisdictions.

Governments must design resilient and modular architectures that do not solely rely on foreign partners, in a world where technology is increasingly entangled with geopolitical pressure.

Ultimately, the most important safeguard against monopolistic dependence is building domestic capability while maintaining global collaboration and crossborder engagement. Digital asset deployments should be treated as national skill-building programs, not outsourcing exercises.

Governments should embed engineers into vendor teams, create joint labs with universities, train regulators in distributed systems, and nurture the domestic industry of digital asset service providers, including wallets, custodians, analytics firms, and cybersecurity specialists.

Today, digital currencies and assets are not merely financial instruments; they are becoming the rails on which the global economy will move. Countries that build strategically today will shape the architecture of tomorrow's digital economy.

Those that rush ahead without safeguarding autonomy may wake up to discover that their monetary futures are governed not by elected institutions, but by the technological preferences and geopolitical constraints of others. ■

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An EU reparations loan is the right way to help Ukraine

There will be a post-war reconstruction of Ukraine. Charles Lichfield and Nicolas Véron examine how European Union countries should agree to back a clever financing workaround that would leave Russia's assets untouched but leverage them to support Ukraine

Can the full amount of immobilised Russian sovereign assets be offered to Ukraine, [without confiscating the money outright](#)? EU finance ministers discussed the issue on 10 October, with Stephanie Lose, economic affairs minister of Denmark, which currently chairs EU ministerial meetings, saying *“not finding new financing for Ukraine is definitely not an option,”* and that EU countries would continue work on a European Commission plan for a loan to Ukraine based on the Russian assets.

That plan has not been made public but was [previewed](#) by European Commission President Ursula von der Leyen a month ago: *“With the cash balances associated to these Russian assets, we can provide Ukraine with a reparations loan. The assets themselves will not be touched. And the risk will have to be carried collectively. Ukraine will only pay back the loan once Russia pays for the reparations.”*

Our interpretation of how the plan might work is based on media [reporting](#) and conversations with participants. When Russia invaded Ukraine in February 2022, its central bank held securities at Euroclear Bank, the leading international central securities depository, based in Brussels. These were quickly immobilised by sanctions and have mostly come to maturity since then.

Consequently, the Bank of Russia has accumulated deposits at Euroclear Bank, denominated in over ten currencies and estimated at around €180 billion. It cannot move this cash and is not entitled to interest on it, given Euroclear Bank’s contractual terms.

For two years after the invasion, Euroclear earned interest income on the trapped Russian cash, with one quarter going to the Belgian state as corporate income tax. Since early 2024, the EU has confiscated nearly all Euroclear’s associated after-tax income.

In December 2024, this stream became the basis of the [Extraordinary Revenue Acceleration \(ERA\) loans](#) to Ukraine, totalling \$50 billion, raised by the EU with the United States, United Kingdom, Japan and Canada. If the Commission's reparations loan mechanism is implemented, the EU is expected to repay all ERA lenders, including itself.

When Russia invaded Ukraine in February 2022, its central bank held securities at Euroclear Bank, the leading international central securities depository, based in Brussels. These were quickly immobilised by sanctions and have mostly come to maturity since then

The reparations loan – also [supported](#) by German Chancellor Friedrich Merz – would involve Euroclear lending an equivalent amount to the immobilised assets, say €180 billion (in the same currencies), to a European entity. This may be the EU itself or an ad-hoc special-purpose vehicle – we refer to it as ‘Europe’.

The zero-interest loan would not cost to Euroclear since it no longer gains interest income on the cash. Europe would reimburse the ERA loans and lend the rest – about €135 billion – to Ukraine.

If Russia eventually pays reparations, Europe will use these to reimburse Euroclear. Because this is uncertain, Euroclear’s loan would be backed by guarantees from participating member states, ideally all EU countries.

That would represent a significant, albeit contingent, new commitment but is worth the effort. If Ukraine loses the war, the subsequent financial costs – and other tragic consequences – are likely to be far greater for Europe.

State guarantees for the loan would probably require approval from national parliaments. Euroclear would also need assurance that the block on Russia’s cash will remain for the duration of its loan to Europe, because otherwise it would be at risk of having to borrow the difference at a loss.

EU leaders have already said [Russian assets should stay immobilised](#) until reparations are paid, but putting this reassurance into law would allow the EU to escape the need to renew the immobilisation every six months – a process that requires unanimity.

How the EU will get there is not yet entirely clear, but we assume the willing capitals will find a solution. EU leaders will further discuss the reparations loan at a summit on 23-24 October.

In our understanding, Euroclear will be reimbursed even if future diplomacy results in a settlement in which Russia does not pay reparations. But the loan mechanism would be a powerful incentive to European countries to insist that Russia must pay reparations, and to use their leverage accordingly. This may be why the reparations loan idea has been met with furious [pushback](#) from Russian propagandists.

Meanwhile, by guaranteeing the integrity of international reserves held in Europe and of Euroclear as a securities depository, the scheme would avoid undermining the international monetary order. It achieves the best possible balance between the many parameters that have shaped the debate on Russia's immobilised reserves.

If this ingenious scheme fails, there will be alternatives for EU provision of support to Ukraine, but they will be less good. All Europeans should thus support a well-designed reparations loan. ■

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This article is based on a [Bruegel First Glance](#).

Excellence & innovation in aviation regulation



The Cayman Islands Aircraft Registry provides Total Aircraft Registration Solutions! The Civil Aviation Authority of the Cayman Islands highlight why the Cayman Islands is the jurisdiction of choice for aircraft registrations

When it comes to aircraft registration, jurisdiction matters. For owners, financiers, and operators navigating the complex world of international aviation, the Cayman Islands has emerged as a jurisdiction of choice, offering a compelling combination of stability, efficiency, and sophistication that few other registries can match. We have highlighted below the key reasons owners, financiers and operators regard the Cayman Islands as the jurisdiction of choice for aircraft registrations.

A foundation built on stability

The story of the Cayman Islands' success in aviation registration begins with its remarkable political and economic stability. As an overseas territory of the United Kingdom, this Caribbean jurisdiction enjoys the best of both worlds: the backing and credibility of British governance, combined with substantial autonomy in managing its own affairs.

The Cayman Islands has operated with a stable parliamentary democracy, electing a Parliament every four years handling local governance, while a UK-appointed Governor oversees matters including internal security and serves as the vital link between the Cayman Islands and Westminster. This dual structure has created an environment of predictability and reliability that aviation stakeholders find essential when making long-term investment decisions.

With a GDP per capita estimated at \$72,616 for 2024, higher than the \$72,120 recorded for 2023, and a Moody's credit rating of Aa3, the Cayman Islands ranks among the world's top 20 financial centers. But perhaps more importantly for the aviation industry, it has achieved this status while maintaining a tax-neutral environment, which creates an exceptionally favorable framework for crossborder transactions.

Some might question whether a tax-neutral jurisdiction can maintain international credibility, but the Cayman Islands has systematically addressed this concern. As an early adopter of FATCA and the OECD's Common Reporting

Standard, the jurisdiction has demonstrated its commitment to transparency and compliance. It has implemented comprehensive frameworks including the International Tax Co-operation (Economic Substance) Law and maintains 36 bilateral agreements on tax information exchange. The jurisdiction has successfully balanced international compliance standards with appropriate privacy protections.

The political stability, highly developed legal system and infrastructure and its position as an international financial centre make the Cayman Islands the jurisdiction of choice for registration of aircraft

The political stability, highly developed legal system and infrastructure and its position as an international financial centre make the Cayman Islands the jurisdiction of choice for registration of aircraft.

A legal system based on English common law

For financiers and aircraft owners alike, legal certainty is paramount. The Cayman Islands delivers this through a sophisticated legal system rooted in English common law, with the UK Privy Council serving as its final court of appeal. This connection provides an assurance that few other jurisdictions can offer: that legal principles will be interpreted and applied consistently with centuries of established precedent.

The primary aviation legislation, the Air Navigation (Overseas Territories) Order as amended from time to time, is a UK statutory instrument that extends proven regulatory standards to the territory. Supplemented by the Overseas Territories Aviation Requirements (OTARs) and various local statutes, this framework creates a comprehensive regulatory environment that international stakeholders understand and trust.

The British-based system of registration for both aircraft and aircraft mortgages within a stable legal system based on English common law is another compelling reason to choose to register an aircraft and any associated aircraft mortgage in the Cayman Islands. This system of registration thus appeals to aircraft owners and financiers alike.

The CAACI: where efficiency meets expertise

At the operational heart of the Cayman Islands' aviation success story is the Civil Aviation Authority of the Cayman Islands (CAACI). Established in 1987, this statutory body has built a reputation that extends far beyond what one might expect from a small jurisdiction.

The CAACI's responsiveness continues to distinguish it in an industry where timing is critical. Its due diligence process is typically approved within 2–3 business days, and aircraft registrations generally progress within an average timeframe of 3 to 6 weeks. The registry also facilitates same-day mortgage registrations and Cape Town filings, all while upholding the rigorous standards expected of a leading regulatory authority.

Consider the practical advantages: the authority deploys highly qualified, full-time airworthiness surveyors to inspect aircraft at their home bases or other designated facilities eliminating the need for costly and time-consuming aircraft repositioning. The use of full-time surveyors assists in the CAACI building long term relationships with clients. Letters of Authorisation for operational and airworthiness approvals are issued within days rather than the weeks or months common elsewhere.

Bespoke electronic document management system: VP-C Online

Recognizing that aviation operates around the clock, the CAACI provides 24/7 access through its VP-C Online system for applications, securely depositing documents and provides a mechanism for checking the status of works in progress.

The VP-C Online platform itself represents a significant technological advancement—a customised electronic document management system that allows authorised users to access their aircraft's documentation at any time, from anywhere. This isn't simply digitization for its own sake; it's a carefully designed system that streamlines processes and provides genuine operational advantages.

Ease of operation into US airspace

For many aircraft operators, access to United States airspace is essential. Here the Cayman Islands offers a distinctive advantage: operators of Cayman Islands-registered aircraft are exempt from certain TSA Waiver Authorization requirements that apply to many other foreign registrations.

This exemption provides significant operational flexibility. Normally, operators seeking to fly within or over US airspace must submit TSA Waiver Authorization applications five to seven business days in advance, as requests must be processed through multiple agencies. Without proper authorization, flights face diversion, grounding, or cancellation. The ability to operate on shorter notice can be operationally critical and economically valuable, particularly for business aviation where schedule flexibility often provides competitive advantage.

Protecting financial interests

For financiers, the security of their interests is non-negotiable. The Cayman Islands provides multiple layers of protection that have made it particularly attractive to the lending community.

The jurisdiction's participation in the Cape Town Convention, which entered into force for the Cayman Islands in November 2015, provides internationally recognized protections for security interests in aircraft equipment. But recognizing that the Convention doesn't apply in all circumstances, the Cayman Islands has maintained its local mortgage registration regime, and many sophisticated financiers utilize both systems for maximum protection.

The Mortgaging of Aircraft Regulations, 2015 (MAR) offers several compelling features. Registration is straightforward, with no requirement that the mortgage be governed by Cayman Islands law. Once registered, mortgages remain valid for their entire duration without renewal requirements.

The priority system provides clear certainty: registered mortgages receive statutory priority over subsequently registered and unregistered mortgages, with this priority remaining unaffected by mortgagor bankruptcy. Even before aircraft registration is complete, mortgagees can protect their position by filing priority notices that prevent other security interests from jumping ahead in line.

The mortgage register itself is publicly searchable for a nominal fee, providing transparency while the registration process remains efficient. Deregistration is equally straightforward, requiring a mortgage discharge form and accompanying legal documents including a Deed of Release.

For leased aircraft, the CAACI goes further, providing 'comfort letters' to lessors and owners that acknowledge ownership and leasing structures and confirm that aircraft removal requires written authorization from the lessor or owner. These letters, noted on the Aircraft Register, provide an additional protection layer that lessors appreciate.

A hub for aviation business

The Cayman Islands hasn't simply focused on registration; it has created infrastructure to support aviation businesses more broadly through the Cayman Maritime & Aviation City, a special economic zone designed to facilitate aviation businesses.

The advantages are substantial: tax neutrality; 100% foreign ownership permitted; three-to-four week fast-track licensing; and a 'one-stop-shop' administration that consolidates rent, licensing fees, and work permit fees into a single annual payment. The authority can obtain renewable five-year work and residency visas within five working days regardless of employees' country of origin, with no maximum limit on work permits.

For companies seeking to obtain a Cayman Islands Air Operator's Certificate (AOC)—which requires demonstrating a principal place of business in the Cayman Islands—the Maritime & Aviation City provides an efficient, practical solution. This creates opportunities for commercial operations that might otherwise face significant barriers to entry.

Innovation in transition registration

One of the CAACI's most innovative offerings addresses a specific pain point in the aviation finance industry: what happens when aircraft are transitioning between leases or have been repossessed? The CAACI's transition register provides a solution.

This isn't a parking lot for end-of-life aircraft; rather, it's a temporary registration facility for assets in transition. Lessors and financiers can register aircraft on a respected registry while they work through remarketing, sale, or storage arrangements. The CAACI actively works with lessors and financiers to maintain aircraft and keep certificates current, preserving asset value during what can be a challenging period.

The registration service is quick and cost-competitive, while deregistration is streamlined and can be completed same-day when needed. During the transition period, the CAACI issues special flight authorizations to accommodate ferry flights, and aircraft remain subject to any registered mortgages, maintaining financier protections.

This offering demonstrates the CAACI's understanding of practical industry needs and its willingness to develop creative solutions that add genuine value.

Making registration work in practice

The practical mechanics of Cayman Islands registration are designed for efficiency. The Aircraft Register is primarily a 'private register', focused on aircraft not operated for hire or reward, though commercial operations are permitted under specific circumstances including Article 83 bis agreements and memoranda of understanding with other aviation authorities, and those established in the Special Economic Zone (SEZ).

Eligibility requirements are broad, encompassing UK nationals, Commonwealth citizens, nationals of European Economic Area States or the Swiss Confederation, and appropriately structured companies incorporated in those jurisdictions.

The CAACI's policy is to only accept aircraft with a Maximum Take-Off Weight (MTOW) exceeding 12,500 lbs./5,700kg. Exceptions are considered based on generality of interests to aviation on the CIAR in respect of modern light turbojet, turboprop aircraft and helicopters based on Cayman Islands registered yachts, demonstrating flexibility where appropriate.

The compelling case

The Cayman Islands' success in aircraft registration isn't the result of any single factor but rather the combination of multiple advantages that together create an exceptionally attractive package. Political and economic stability provides the foundation. A sophisticated legal system based on English common law offers certainty.

The CAACI delivers efficiency, professionalism, and genuine expertise. Exemption from certain TSA requirements facilitates US operations. Registration and mortgage procedures provide strong security while remaining straightforward. The Maritime & Aviation City offers infrastructure for aviation businesses. And innovative solutions like the transition register address real industry needs.

For owners, financiers, and operators evaluating where to register aircraft, the Cayman Islands presents a compelling value proposition. It offers the stability and legal sophistication of an established aviation jurisdictions while maintaining the efficiency and responsiveness. In an industry where certainty, security, and operational efficiency are paramount, the Cayman Islands has positioned itself not just as a viable alternative, but increasingly as the jurisdiction of choice.

As international aviation continues to evolve, with increasing complexity in ownership structures, financing arrangements, and operational requirements, the Cayman Islands appears well-positioned to remain at the forefront of aircraft registration. Its combination of established strengths and continued innovation suggests that more aircraft will be carrying the VP-C registration prefix in the years ahead. ■

Civil Aviation Authority of the Cayman Islands (CAACI)