WORLD COMMERCE REVIEW

VOLUME 19 ISSUE 1 ■ SPRING 2025

Europe's challenges and opportunity is examined by Olivier Blanchard and Jean Pisani-Ferry

Ana Birliga Sutherland and Megan Murdie provide a guide for businesses to transform sustainably

Patrick Minford discusses the deep hole that UK governments have dug for the British economy

THE GLOBAL TRADE AND FINANCE PLATFORM

STAY AHEAD OF THE GAME

Letter of Credit | Standby Letters of Credit | Bank Guarantees | Proof of Funds

info@euroeximbank.com
+44 208 207 2868 (UK)
+1 758 450 8349 (WI)

www.euroeximbank.com

EURO EXIM BANK
Facilitating Global Trade

Facilitating Global Trade

Representative Office : Euro Exim Bank Ltd, Suite 1C, 1 Oaks Court,
1 Warwick Rd, Borehamwood, Hertfordshire, WD6 1GS, United Kingdom.

Registered Office (WI), Euro Exim Bank Ltd, Office 2, 1st Floor, La Place
Creole Bldg, Rodney Village, Rodney Bay, Gros-Islet, St. Lucia, West Indies.

It pays to look back to go forward

The world stands at a perilous juncture, its horizon darkened by rising geopolitical tensions and conflicts. For decades, the postwar era unfurled a tapestry of ever-tightening international cooperation and economic integration. Yet now, the pendulum swings ominously backward, as if the lessons of the past have been unlearned. To arrest this retreat, economic integration and multilateralism must be resuscitated. And for that, we must turn our gaze to the crucible of postwar Europe, where noble ideals were forged—and later contorted—into mechanisms that both united and, paradoxically, undermined the very cooperation they sought to enshrine.

Consider the Treaty of Rome, signed in 1957—a monument to human ambition rising from the rubble of a shattered continent. Crafted by six nations reeling from World War II's carnage, it was a defiant riposte to the nationalism that had twice plunged Europe into the abyss. Its architects envisioned a 'common market'—a seamless web of trade, mobility, and shared prosperity—to bind Western Europe so tightly that war would become unthinkable. The treaty's preamble, with its soaring call for *"an ever closer union among the peoples of Europe,"* was no idle rhetoric; it ignited a chain of successive accords that wove an ever-denser fabric of economic, political, and social integration. From this seed sprouted the European Union, a colossus that would one day rival the United States and, later, China.

Yet the legacy of Rome is a study in duality. Economically, it birthed a bloc of formidable might, a counterweight to global titans. Politically, it planted the germ of supranational governance—an experiment as bold as it is divisive, still fuelling Eurosceptic fires from Budapest to Brexit Britain. Signed a mere thirteen years after Bretton Woods remade the world's financial order and a decade after the Marshall Plan stitched Europe's economies back together, the Treaty of Rome completed a postwar trinity that redefined the West. It was a triumph of enlightened pragmatism over the tribal instincts of yore.

Today, Europe's policy mandarins proclaim grand visions of a revitalised EU: a goliath of competitiveness, innovation, and industrial might, wielding its Capital Markets Union and deepened integration to bend the world toward its regulatory will. They dream of a union that not only matches the US and China but dictates the terms of global discourse. Yet, today in 2025, these aspirations ring hollow against the din of industrial decline, political fracture, and a unity fraying at its seams. The *Draghi Report's* grim litany—skyrocketing energy costs, regulatory sclerosis, and retreating businesses—casts a long shadow over such hubris.

Enter the latest nostrum: a proactive state to unify society around ambitious missions, promising direction amid chaos. It is a seductive hymn, sung with the fervour of technocratic messiahs. But beneath its visionary veneer lies a fatal flaw: its logic clashes irreconcilably with the pluralism and diversity that define liberal democracy. Mission-directed governance, for all its allure, demands a uniformity of purpose—a systemic directionality—that liberal societies, with their cacophony of values and interests, cannot sustain without bending toward authoritarianism. Proponents face a stark choice: abandon their dirigiste fantasies or embrace the iron hand required to enforce them. History whispers a warning: the 20th century's grand experiments in centralised mission-making—from Moscow to Berlin—ended in tyranny, not triumph.

The democratic genius lies not in singular crusades but in its decentralised adaptability—a messy, organic resilience that outlasts the brittle constructs of top-down design. Policymakers would do well to heed this. Rather than chasing the chimera of a monolithic European mission, they should harness the EU's pluralistic strength to forge a sustainable path forward.

And here lies the greater irony: Europe's elites fixate on first-world obsessions—green transitions, regulatory harmonisation, competitiveness with Washington and Beijing—while the world beyond their gilded bubble burns. To truly revive economic integration and multilateralism, to craft a high-growth, low-poverty global order, Europe must pivot from the preoccupations of the Davos set to the plight of the Global South. It is there, in the teeming cities and neglected hinterlands of Africa, Asia, and Latin America, that the future of cooperation—and indeed, of humanity—will be decided. The Treaty of Rome once proved that from the ashes of conflict, a new order could rise. If Europe is to lead again, it must look not to its past glories, but to the world it has too long ignored. History, as ever, is a stern but indispensable teacher. ■

PHOENIX MULTIMEDIA
NR35 1PU
United Kingdom

worldcommercereview.com

Email: info@worldcommercereview.com

PUBLISHER
Tom Forster

EDITOR
Cassandra Evans

EDITORIAL
Karen Ferns

PRODUCTION
Michael Day

CIRCULATION
Andrew Kilby

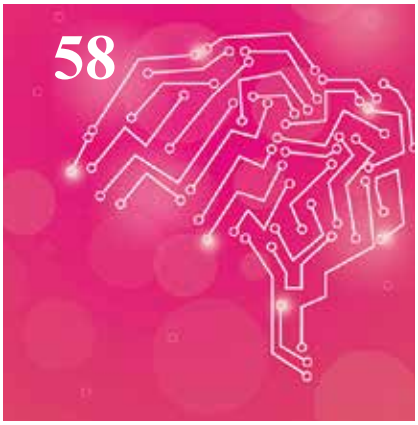
SALES DIRECTOR
David Willocks

SALES TEAM
David Thompson
John Mayes

DESIGN AND PRODUCTION
West Riding Media Solutions

Contents

Contents



Europe's challenge and opportunity

Donald Trump has launched an all-out attack on the rules-based international order. Olivier Blanchard and Jean Pisani-Ferry argue that the EU should take the lead in convening alliances of countries to counteract threats to the global order

President Donald Trump has launched an all-out attack on the rules-based international order, which most governments regard as the bedrock of peace and prosperity[1]. Many governments are appalled by his initiatives[2]. They still believe in respecting trade rules, in limiting tax competition and in fighting global warming.

The European Union, which is governed by such rules, has the potential to organise an effective collective response. To do so, however, it must overcome two obstacles – its size and its internal divisions.

First, the EU is often a secondary player on the world stage, accounting for just 6 percent of global greenhouse gases emissions and just 11 percent of global equity market capitalisation. On such issues, Europe cannot lead unless it builds a coalition of like-minded partners.

Second, the diversity of policy views within the EU, especially in a context of strong foreign influence on countries such as Hungary and Slovakia, hampers agreement on common positions and can result in stalemates.

To overcome these shortcomings, EU countries ready to go ahead should work with non-EU countries to form international partnerships, or 'coalitions of the willing'. In fields such as trade policy that belong to the EU's core competence, this implies that EU countries must abide by majority decisions.

In other fields, flexibility can be found, giving rise to two-speed integration, as is the case for the Schengen area, the free-travel area that does not include all EU members, but does include several non-EU countries.

In what follows, we explore how this could work for three issues: climate action, trade and taxation of multinational corporations. (To be clear: building coalitions is only one of the issues facing Europe. It must also address structural weaknesses, which long precede the Trump presidency, as well as determine its collective response to potential US tariffs. We leave those issues aside here[3]).

A climate coalition

Start with efforts to combat climate change, for which the EU sets policy targets through a complex process involving the country leaders, ministerial councils and the European Parliament. Major decisions are taken based on European Commission proposals which, after they have been broadly endorsed by the leaders, are approved both by a qualified majority of member countries and a majority of votes in the European Parliament.

This process, known as 'co-decision', results in EU decisions that are binding on the member countries. Accordingly, the EU participates in the international negotiations on their behalf.

Because this governance structure formally ensures European unity, the EU can form alliances with third countries and exert significantly more global influence than it would otherwise enjoy. Especially, the fact that member countries are legally

"The question for Europe is whether it has the clout to take the initiative and bring together a group of countries willing to salvage what is left of trade multilateralism and define an agenda for its future"

committed to meeting agreed targets and can be fined for missing them gives leverage to the EU level.

Building on this architecture and on its 2040 emissions reduction targets, the EU could thus negotiate climate partnership agreements with third countries and build a coalition of the willing that would help keep the momentum toward net zero despite the US withdrawal from the Paris Agreement.

Potential partners in this coalition include major advanced economies such as Japan, emerging countries such as Brazil and possibly India, but it should involve first and foremost China. Despite being the world's top emitter of greenhouse gases, China has a major stake in the building of a green economy. It is not yet clear when its own emissions will peak, but at any rate it should happen before 2030.

Moreover, China's resounding success in manufacturing green equipment implies the country has a vested interest in the pursuit of the transition to net zero.

In doing so, the EU should find ways to overcome the curse of such coalitions: as pointed out by William Nordhaus (2015), the larger coalitions are, the stronger is the incentive to leave them and free-ride on the discipline they provide. A straightforward way to avoid this is the use of carbon border taxes on imports from non-members, but this is only partially effective.

The solution advocated by Nordhaus is to form climate clubs whose members would levy a tariff on imports from non-participating countries. The problem with this otherwise effective solution is that a tariff based on climate policy – in effect, a penalty – is not legally feasible under currently prevailing World Trade Organization rules. Given President Trump's misbehaviour, however, bending these rules should not be excluded.

Maintaining trade rules

The next case is international trade. As the US shifts toward protectionism, the EU has a major card to play. Building on existing trade agreements, it can create yet another coalition of the willing to help reform the global trade architecture.

EU trade policy is governed by exclusive EU competence, which means that the European Commission negotiates trade agreements on behalf of all EU members, based on negotiating directives issued by trade ministers meeting in the Council of the EU. Once an agreement has been reached, it must be approved by the Council (by qualified majority) and the European Parliament (by simple majority).

This decision-making process ensures that, as illustrated by France's inability to block the EU-Mercosur trade deal[4], a minority of holdout countries cannot prevent the conclusion of a trade agreement approved by the majority. This governing arrangement provides overall EU effectiveness while preserving the rights of member countries.

It has proved instrumental in making Europe a global trade player. In the heyday of multilateralism the EU was, together with the US, Japan and India, part of the informal steering group for global trade negotiations.

The question for Europe is whether it has the clout to take the initiative and bring together a group of countries willing to salvage what is left of trade multilateralism and define an agenda for its future.

This will be demanding, as the existing apparatus of rules amalgamates fundamental principles that must be upheld and provisions that have become ill-suited to a much more heterogeneous global economy. The agenda should thus help sort out the indispensable from the secondary.

A coalition of the willing could comprise the United Kingdom, Japan, Korea, Australia, India, Canada, Mexico and members of the Mercosur and ASEAN blocs. It would thus build on existing regional trade agreements. We suggest that the EU could convene a dedicated summit to discuss issues and define an agenda.

Again, a major negotiation with China, recognising the relevance of security considerations, the desire to keep alive certain industries – such as the European automobile industry – and the rules determining when the use of tariffs is justified or not, would be a signal that the EU is not following the US blindly and that much of the world wants to continue to play by reasonable rules.

Tax deal teetering

Finally, take the taxation of multinational companies. After a long discussion process, more than 140 countries and jurisdictions, in effect an already existing coalition of the willing, agreed in October 2021 on a minimum effective tax rate of 15 percent on the profits of multinational firms.

More importantly, they agreed on the taxation of extraterritorial profits in the following way. To the extent that the firm did not pay 15 percent in one country, implementing countries could collectively tax the difference between 15 percent of the profit and the tax actually paid in that country, and then pro rate the distribution of the proceeds according to the share of production in each country (more specifically, a mix of the share of capital and the share of employment in each country).

The great advantage of this system is that, in contrast to the race to the bottom in which countries cut the tax rate to attract

firms, it is self-enforcing. If a jurisdiction does not collect the 15 percent tax, it will be collected by other countries. Better then for jurisdictions to collect it themselves. The race to the bottom becomes a race to the standard.

To come into being, the agreement must be voted on and approved by national parliaments. So far, more than 40 countries have done so, and many are scheduled to soon do the same. The US departure, announced in January[5], is largely symbolic, as Congress has not voted yet to approve the agreement. The absence of the US does not make the agreement irrelevant.

Other countries could build this other 'coalition of the willing', although they must expect strong US pushback on the issue of taxation of extraterritorial profits. One possibility, to avoid an open conflict with the United States, is to exclude US profits from global profits for purposes of the computation of extra-territorial profits. This would weaken but not destroy the existing agreement.

The world of the future, at least of the near future, is a world in which the major multilateral institutions may be largely paralysed. This has long been the case for the UN, with the veto power of the five permanent members of the Security Council. It has been the case for some time at the WTO, with the unanimity rules and the blocking of the Appellate Body (Grieger, 2024).

It may well be the case for the World Health Organisation, perhaps even for the World Bank and the International Monetary Fund. In that world, progress and cooperation will have to take the form of coalitions of the willing. We have explored three cases and discussed how Europe, hopefully joined by many other countries, could lead by example and thereby help keep multilateralism alive.

Should Europe follow this route and be joined by others, there will be many problems to solve, from the response to heterogeneity within large coalitions, to enforcement mechanisms and cross-issues linkages. We have just emphasised the positive role the EU can play and outlined a path forward.

We are convinced that the rest of the world should not respond only bilaterally to the Trump administration's initiatives. US leadership was instrumental in building a rules-based system and addressing global problems.

As the current administration openly repudiates the global responsibilities taken on by the United States, the world, and especially Europe, cannot afford to stand by. ■

ABOUT THE AUTHORS

Olivier Blanchard is the Robert M Solow Professor of Economics emeritus at Massachusetts Institute of Technology (MIT), Professor of Economics at Paris School of Economics (PSE), and Senior Fellow at Peterson Institute for International Economics (PIIE), and Jean Pisani-Ferry is a Senior Fellow at Bruegel and a Non-Resident Senior Fellow at PIIE.

Endnotes

1. See the opening remarks by State Secretary-designate Marco Rubio on the occasion of his Senate confirmation hearing, 15 January 2025.
2. The Economist, 'Donald Trump poses a grave threat to others' sovereignty and freedom, says Chrystia Freeland', 4 February 2025.
3. But see Grabbe and Zettelmeyer (2025) and García Bercero et al (2024).
4. Sophia Khatsenkova, 'Explainer: Can France block the Mercosur trade agreement?' Euronews, 2 December 2024.
5. The White House, 'The Organization for Economic Co-operation and Development (OECD) Global Tax Deal (Global Tax Deal)', 20 January 2025.

References

García Bercero, I, PC Mavroidis and A Sapir (2024) 'How the European Union should respond to Trump's tariffs', Policy Brief 33/2024, Bruegel.
Grabbe, H and J Zettelmeyer (2024) 'Not yet Trump-proof: an evaluation of the European Commission's emerging policy platform', Policy Brief 03/2025, Bruegel.
Grieger, G (2024) 'International trade dispute settlement: World Trade Organisation Appellate Body crisis and the multi-party interim appeal arbitration arrangement', Briefing, European Parliamentary Research Service, June.
Nordhaus, W (2015) 'Climate Clubs: Overcoming Free-Riding in International Climate Policy', American Economic Review 105(4): 1339-70.

Note: We are grateful to PIIE and Bruegel colleagues for their many insightful comments on an earlier draft. This column first appeared on Bruegel and PIIE.

Peace and prosperity in a fragmented world

Fabio Panetta is Governor of the Banca d'Italia

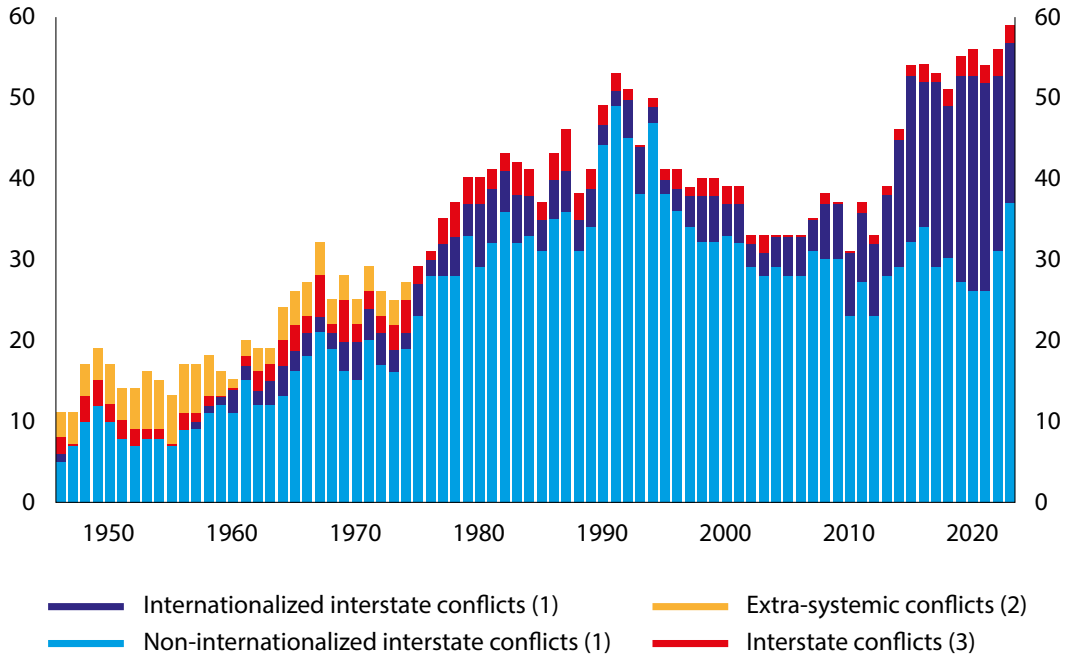
Today, our world is facing an alarming rise in geopolitical tensions and conflicts. The number of wars, which had decreased after the fall of the Berlin Wall, has turned upward again in the last fifteen years; in 2023 it reached its highest level since World War II (Figure 1). In many regions, war – often fratricidal – is a daily reality[1]. Day after day, the news brings us dramatic images, reawakening fears linked to the traumatic experiences of the two world wars.

In Western Europe, the debate about significantly increasing defence spending has resurfaced after a long time. But conflicts are not the only cause for concern. The denial of basic needs, which still affects large parts of the world's population, is also a form of violence.

After decades of ever stronger international cooperation and economic integration, history now seems to be taking a step backwards. It is a very different world from the days when I started working as a central banker. In many ways, it is a world of greater uncertainty and less hope for the future, although even back then there was no shortage of stark clashes and dramatic tensions[2].

It was therefore with great pleasure that I accepted the invitation from the Centro San Domenico and the Centesimus

Figure 1. Number of conflicts in the world involving at least one state (number of ongoing conflicts)



(1) Intrastate conflict: a conflict between a government and a non-governmental armed group within the territory of a given state, resulting in at least 25 battle-related deaths in one calendar year. If a foreign state is involved, the conflict is defined as 'internationalized.' If this is not the case, it is defined as 'non-internationalized.' – (2) Extra-systemic conflict: a conflict between a state and a non-state group outside the state's own territory, resulting in at least 25 battle-related deaths in one calendar year. – (3) Interstate conflict: a conflict between states, resulting in at least 25 battle-related deaths in one calendar year.
Sources: Uppsala Conflict Data Program (UCDP) and Peace Research Institute Oslo (PRIO), 2024.

Annus Foundation to reflect, as an economist and with due humility, on such a fundamental issue as the link between peace and prosperity. I welcome this important opportunity to acknowledge the Centro San Domenico's patronage of Catholic cultural activities for over fifty years.

These efforts, like those of the Fondazione Centesimus Annus and above all of the Italian Episcopal Conference, are part of the Catholic Church's long-standing commitment to addressing social and economic issues, with a particular focus on inequalities and conflicts[3].

"Current trade and geopolitical tensions are symptoms of a system that has not fully met the expectations and needs of the world's population"

1. War cannot generate prosperity

Humanity cannot thrive without peace, and neither can the economy. In the countries involved in a conflict, war seriously damages the drivers of growth[4]. Hostilities destroy productive capital: infrastructure, machinery and raw materials.

They claim victims, especially among the young generations, bending learning opportunities and the formation of a skilled workforce to the requirements of war. This reduces the availability and quality of 'human capital'. Furthermore, wars often erode social capital[5], thereby weakening social cohesion and trust in institutions.

The war effort supports aggregate demand and can stimulate innovation, but seriously distorts its purposes. The economic benefits are short-lived and do not remove the need to reconvert the economy once a conflict is over, even in countries that were involved in the conflict but suffered no direct damage to their territory. The high inflation and the steep fall of economic activity that often mark wartime periods are signs of the damage that wars inflict on the economic fabric (Figure 2).

The manufacturing of war equipment does not help increase a country's growth potential[6]. Development comes from productive investment, not from arms. That is why, in the 1930s, John Maynard Keynes proposed a massive rise in public investment spending as a solution to economic depression in the United States, suggesting that President Roosevelt's focus should be on 'the rehabilitation of the physical condition of the railroads'[7].

Moreover, it is misleading to attribute technological progress to military expenditure. It is scientific research that sparks innovation. Military investment can generate innovation if it is allocated to research[8]. However, we do not need to resort to war for this: technologies developed for military purposes only translate into progress when they later find civilian applications.

War is therefore a form of 'development in reverse'[9] and cannot bring prosperity.

2. Growth and integration as instruments of peace

Economic growth, prosperity and peace are instead closely linked[10]. To understand this connection, we must recognize that development in modern economies is based on integration and international trade[11]. The free movement of goods, capital, people and ideas facilitates the transfer of knowledge and technology, thereby helping to bring peoples together.

The idea that open trade and deep integration of production can secure lasting peace inspired the global economic framework that emerged after World War II. The relationship between economic integration and peace is explicitly cited in the Havana Charter, which in 1948 sought to create an international organization for world trade to promote stability and prosperity. The Charter never did enter into force, but the talks led to the General Agreement on Tariffs and Trade (GATT), which was succeeded by the World Trade Organization (WTO) in 1995.

In 1944, the Bretton Woods Conference established a multilateral system to promote cooperation and trade on a global scale. Other institutions followed over time, such as the World Bank (1944), the International Monetary Fund (1945), the OECD (1961), the G20 (1999) and the Financial Stability Board (2009).

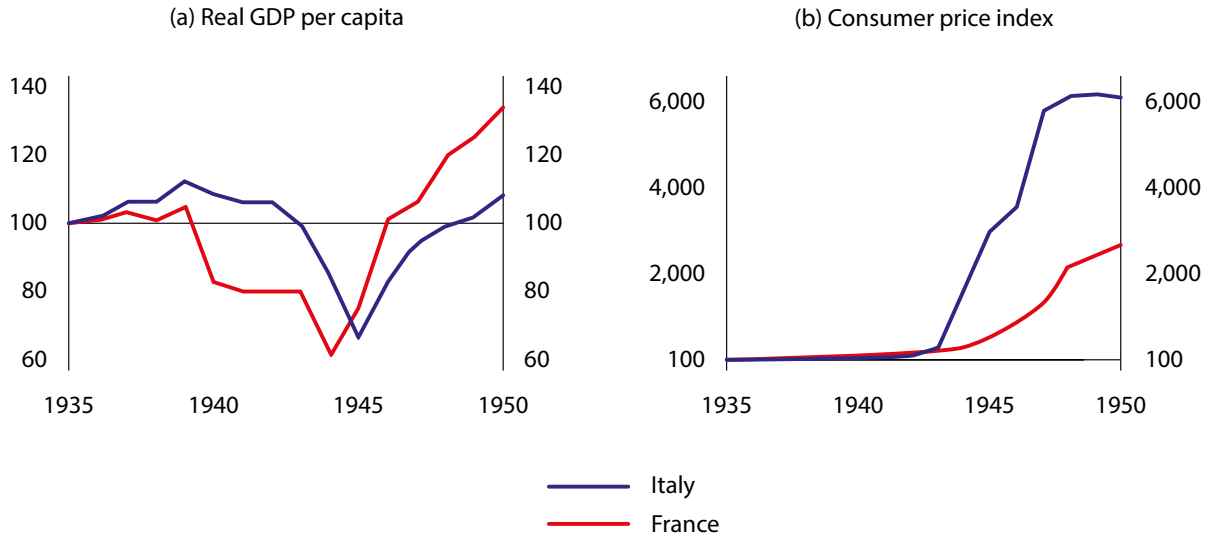
The European project itself was conceived as a way of preventing new conflicts between neighbouring countries, following the devastations of World Wars I and II. In the words of Robert Schuman, the economic unification of Europe aimed to make war 'not merely unthinkable, but materially impossible'[12].

These initiatives fuelled the globalization that has taken off since the middle of the last century. The ratio of international trade to GDP rose from 20 per cent in 1950 to 34 per cent in 1975 (Figure 3) and then increased further in the following decades, mainly because of the end of the Cold War and the integration of new countries into the global economy, notably China. In 2019, this ratio reached 60 per cent.

Meanwhile, the global production structure has become increasingly complex and interconnected due to the creation of global supply chains and an increase in trade agreements, from 50 in 1990 to 300 in 2021[13]. This open, multilateral trade system has fostered development.

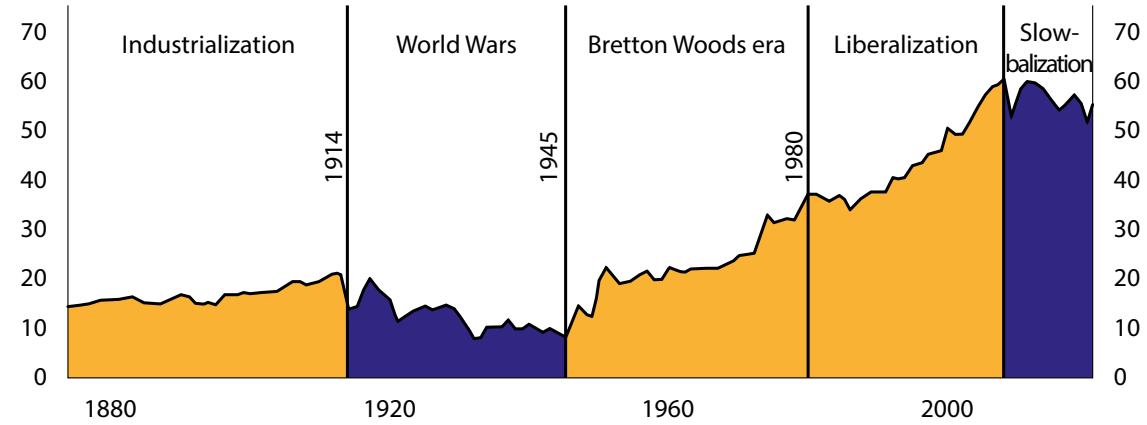
The freedom to trade goods and services, to invest across borders, and to share knowledge and ideas has improved economic wellbeing for much of the world's population, creating new job opportunities – especially for women – and reducing inequalities between advanced and developing countries (Figure 4).

Figure 2. Real income and inflation before and after World War II (indices: 1935=100)



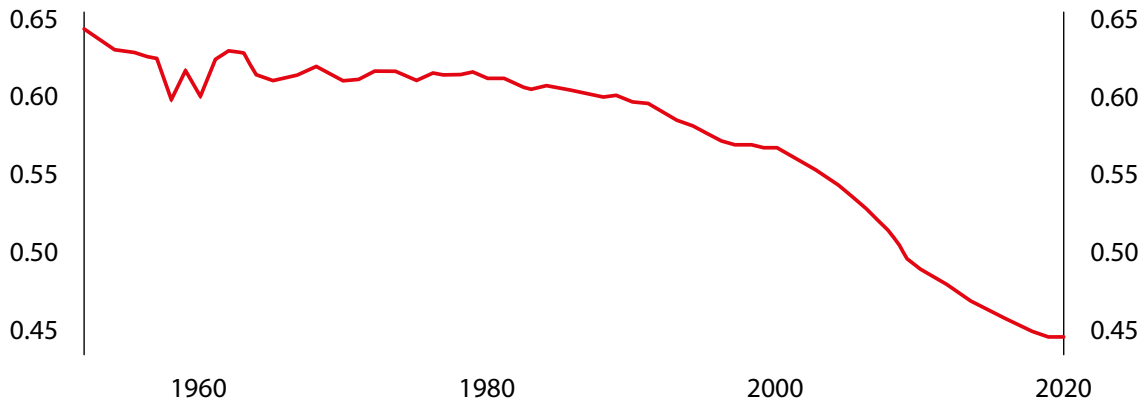
Source: Ò Jordà, M Schularick and AM Taylor, 'Macrofinancial history and the new business cycle facts,' in M Eichenbaum and JA Parker (eds.), NBER Macroeconomics Annual 2016, Volume 31, 2017, pp. 213-263.

Figure 3. International trade developments between 1874 and 2021 (exports plus imports as a percentage of GDP)



Source: Based on M Klasing and P Milionis, 'Quantifying the evolution of world trade,' 1870-1949, Journal of International Economics, 92, 1, 2014, pp. 185-197.

Figure 4. Inequality between countries: 1950-2020 (1) (index)



(1) Inequality between countries is calculated by assuming that all citizens of a given country have the same income.
Source: B Milanovic, 'Global income inequality by the numbers: in history and now. An Overview', World Bank, Policy Research Working Paper, 6259, 2012.

Access to international markets has allowed many emerging economies to grow[14], lifting hundreds of millions of people out of extreme poverty. It is estimated that without the progress made over the last 35 years, 2.4 billion more people would be living in destitution today[15].

As the role of international cooperation grew stronger, conflict between states subsided. All this progress led Steven Pinker to consider globalization as one of the reasons for the 'long peace' following the end of World War II[16].

3. Globalization, its discontents, and geopolitical shifts

Globalization has brought indisputable benefits, but there have been unwanted effects too, which have not always been fully understood or properly addressed by governments and international institutions.

Although openness to foreign trade has improved living conditions in emerging economies and reduced income inequalities between countries, it has also often exacerbated inequalities within States.

In advanced economies – in the absence of reforms in areas such as education, health and social protection – globalization and the relocation of production have contributed to a slowdown in the income dynamics of workers in low-skill and low-paid jobs, but also of many in the middle class.

Many low-income countries – in Sub-Saharan Africa especially – have remained trapped in extreme poverty and high debt, in spite of the economic progress afforded by their involvement in the global economy and in spite of aid from multilateral development banks[17] and advanced countries.

Over 700 million people are suffering from food and water shortages globally, and even more lack access to adequate healthcare[18]. Almost 700 million people have no electricity, while 2.3 billion have to rely on using polluting fuels for cooking, posing serious health risks[19]. Around 250 million children aged between 6 and 18 are excluded from education[20], with marked gender inequalities[21].

Moreover, the increasing economic clout of emerging economies has not been accompanied by corresponding advances in political freedoms. This is partly why leading countries have been reluctant to review the governance of international institutions in order to grant these new economic powers more representation, which has led to dissatisfaction on their part.

These factors have caused many to view globalization as an elitist project, whether rightly or wrongly[22], fuelling resentment among large sections of the population. The 2007-08 financial crisis further undermined trust in the ruling classes, eroding confidence in the global governance model based on free trade, economic integration, the role of international financial institutions and that of supranational bodies in the resolution of disputes.

The world is now evolving in the direction of a multipolar and fragmented system, with rising nationalist and protectionist sentiments and growing competition among opposing blocs of countries. Geopolitical tensions are escalating as a result.

On the economic front, these strains have led to trade disputes between the United States and China, to Brexit and to a growing number of vetoes by governments on foreign investments in domestic companies. Global trade is fragmenting and is increasingly being used for strategic purposes, especially in the race for technological dominance. In the next few years, a rise in protectionism can be expected, driven by US policies.

Meanwhile, military conflicts are spreading dramatically, and have now come to Europe too. In this context, a growing tendency to reject shared international principles has emerged, even to the point of questioning the efficiency of democratic rules in global competition[23]. This raises very serious concerns for the future of international relations.

4. What economic policies are needed for peace?

The priority must be to preserve a global economy that remains open to international trade. Severing economic and trade links would lead to a significant loss of wellbeing for the world's population, further weakening the multilateral framework that has underpinned global economic development since the end of World War II, with repercussions that would extend beyond the boundaries of economics and finance. I will not dwell on these aspects, as I have discussed them elsewhere[24].

That said, it is necessary to correct the imbalances that have emerged over time in order to prevent deprivation and frustration from fuelling tensions and conflicts. To achieve these goals, it is essential to act on several fronts, both domestically and internationally. I will only mention a few key points here, without claiming to be exhaustive.

The first step is to combat inequalities, in both poor and advanced countries[25]. Reducing gaps in income and opportunities is not only key to building a fairer and more equal society, but is also essential to guarantee social stability. Moreover, it is a prerequisite for development: if a significant part of the population is excluded from economic opportunities, the entire economy suffers.

Another step is improving education and training systems. Fair access to education is necessary to break the poverty cycle and build a skilled and productive workforce capable of adapting to market changes and starting new economic activities. Investing in the education of young people, regardless of their initial conditions, means leaving no one behind and making full use of the human capital available.

It is also vital to step up social protection and ensure access to efficient health services. This would enable workers to weather difficult times without falling into poverty, encouraging their active participation in the labour market while promoting social cohesion and economic stability.

Another priority at international level is managing the external debt of the poorest countries[26], which has reached $1.1 trillion[27]. Today, as was the case forty years ago, we

must think about how to relieve the burden of this debt, which is hindering productive investment and holding back development in many countries[28].

However, the success of current initiatives is challenged by the involvement of new major creditors, such as China, and by current geopolitical tensions[29]. Accelerating these efforts would be one concrete step towards finding solutions to improve the living conditions of the populations affected.

But that is not all. It is essential to adopt policies that support development, countering the pressure that extreme poverty exerts on migratory flows, making them difficult to control. Investing in the management of these flows is critical to supporting the economies of the migrants' countries of origin and to responding to the consequences of demographic decline in the destination countries.

Additionally, pursuing sustainable development models is necessary to ease tensions over access to scarce resources, like water and energy, which often fuel conflicts.

Conclusions

Globalization has undoubtedly increased integration between countries and created opportunities for economic and social progress in many regions of the world. However, it has also exposed very clear limitations. Current trade and geopolitical tensions are symptoms of a system that has not fully met the expectations and needs of the world's population.

Every day, thousands of people continue to suffer from deprivation and violence, often from seemingly endless fratricidal conflicts. The economy appears to have become globalized without fostering a 'global consciousness'.

Economic integration and international cooperation need to be revived, and their flaws corrected with policies that promote sustainable and inclusive development – policies that combine growth with social justice, environmental protection and the eradication of poverty.

Peace and prosperity are closely intertwined. Peace is not merely the absence of conflict; it is also about creating the conditions for every individual to live in dignity, free from fear and poverty. At the same time, any prosperity that does not contribute to widespread wellbeing will prove fleeting, and risks generating conflicts and instability.

As Pope Paul VI stated in his encyclical Populorum progressio, 'development means peace'[30]. Today, these words remind us of the urgent need to work for a future of fairer and more peaceful prosperity. ■

Endnotes

1. Most of the ongoing armed conflicts are civil wars. Those in Myanmar, Sudan and Ethiopia are among the bloodiest (Source: ACLED). The war in Sudan is causing a devastating humanitarian crisis: some 25 million Sudanese are suffering from food shortages; 10 million have fled their homes and 2 million have sought refuge abroad.

2. In the 1980s, despite signs of progress and hope – such as the possible rapprochement between the superpowers – there were still geopolitical, social and economic tensions. The Cold War shaped world politics, fuelling fears of an imminent nuclear conflict. In the Middle East, the Iran-Iraq war and the conflict in Afghanistan, with the Soviet invasion, strained international relations. Apartheid in South Africa was a further sign of the persistence of racial segregation dividing societies around the world. In Poland, the Solidarity movement and political tensions under the Communist regime exposed the internal struggles within Eastern Europe.

3. The first encyclical on economic and social matters – the Rerum novarum, promulgated at the end of the 19th century – was not the origin but the outcome of Catholic engagement on these issues. As far back as the middle of the century, at the height of the industrial revolution, many prominent Catholics were actively analysing the risks of industrial capitalism and of colonialism. At that time, when class conflicts broke out and the Communist Party Manifesto by Engels and Marx was published, important Catholics such as Cardinals De Bonald in Lyon, Manning in Manchester and Gibbons in Baltimore spoke out on the distortions of the capitalist industrial system, while people such as Von Ketteler, a German bishop, engaged with the most important representatives of socialism. Catholic economists and sociologists – from the Italian scholar Giuseppe Toniolo to the Germanic intellectual Carl von Vogelsang – analysed the problems of capitalism and proposed new models of work organization (see O Köhler, La formazione dei cattolicesimi nella società moderna, in Storia della Chiesa, Vol. IX: La chiesa negli Stati moderni e i movimenti sociali 1878-1914, Milan, Jaca Book, 1982, pp. 234-239, and O de Dinechin, SJ, Rerum novarum, in 'Aggiornamenti sociali', 3, 2019, pp. 258-262).

4. M Schularick, speech at the ECB Forum on Central Banking, Sintra, 2 July 2024.

5. Research on the importance of social capital for economic development has been influenced by Robert Putnam's work on Italy (see RD Putnam, Making democracy work: civic traditions in modern Italy, Princeton, Princeton University Press, 1993).

6. The fact that military spending is not, in and of itself, an instrument of economic development does not mean that it does not play a necessary role in national defence.

7. JM Keynes, 'From Keynes to Roosevelt: our recovery plan assayed', The New York Times, 31 December 1933. See also GB Eggertsson, 'Great expectations and the end of the depression', American Economic Review, 98, 4, 2008, pp. 1476-1516.

8. For example, the Manhattan Project, developed in the US during World War II, led to the exploitation of nuclear energy. Similarly, the Defense Advanced Research Projects Agency (DARPA) programme, set up in the 1950s, produced the internet. NASA's moon landing in the 1960s resulted in aviation and satellite technology advancements, such as GPS. But only military spending dedicated to research can generate long-term economic benefits (see J Antolin-Diaz and P Surico, 'The long-run effects of government spending', American Economic Review, forthcoming).

9. P Collier et al, Breaking the conflict trap. Civil war and development policy. A World Bank policy research report, Washington DC, World Bank and Oxford University Press, 2003.

10. For Kant and Montesquieu, economics was the foundation of peace. In Perpetual peace, Kant argued that 'the commercial spirit cannot co-exist with war' and that international economic relations must be underpinned by international law 'based upon a federation of free states' (I Kant, Perpetual peace, London, 1795, pp. 157 and 68). Montesquieu, in turn, wrote: 'L'effet naturel du commerce est de porter à la paix' (Montesquieu, De l'esprit des lois, 1748, book XX, chapter II, p. 349).

11. The correlation between open trade and growth after World War II has been studied by J Feyrer, 'Trade and Income-Exploiting Time Series in Geography', American Economic Journal: Applied Economics, 11, 4, 2019, pp. 1-35; see also JA Frankel and DH Romer, 'Does Trade Cause Growth?',

American Economic Review, 89, 3, 1999, pp. 379-399; D Rodrik, One Economics, Many Recipes: Globalization, Institutions, and Economic Growth, Princeton and Oxford, Princeton University Press, 2007; MJ Melitz and SJ Redding, 'Trade and Innovation,' NBER Working Paper Series, 28945, 2021.

12. For more information, see the EU website: Schuman declaration May 1950 and F Panetta, 'Europe's shared destiny, economics and the law', Lectio Magistralis on the occasion of the conferral of an honorary degree in Law by the University of Cassino and Southern Lazio, 6 April 2022.

13. For further information, see the WTO's website: Regional trade agreements.

14. Openness to trade has benefited developing countries both directly and indirectly. Direct benefits include access to new production technologies and new markets. Indirect effects include greater competition between businesses and, consequently, higher domestic production efficiency. This openness has also prompted governments to improve the quality of their fiscal and monetary policies (see A Chari and PB Henry, 'Learning from the doers: developing country lessons for advanced economy growth', American Economic Review, 104, 5, 2014, pp. 260-265).

15. In 1990, the world population was 5.3 billion, 38 per cent of which lived in extreme poverty (defined by the World Bank as living on less than $2.15 per day, at current prices). Had the share of people in poverty not decreased, today – with a world population of 8.2 billion – there would be 3.1 billion people living in absolute poverty; instead, there are 700 million (see United Nations, World Population Prospects: Summary of Results, New York, July 2024).

16. S Pinker, The better angels of our nature: why violence has declined, New York, Viking, 2011.

17. Multilateral development banks include the World Bank and regional development banks, foremost among which are the Inter-American Development Bank, the Asian Development Bank and the African Development Bank. In Europe, the European Investment Bank and the European Bank for Reconstruction and Development financed investments in Central and Eastern European countries after the fall of the Berlin Wall.

18. FAO, IFAD, UNICEF, WFP and WHO, The state of food security and Nutrition in the world. Financing to end hunger, food insecurity and malnutrition in all its forms, Rome, 2024. Estimating the number of people without adequate healthcare is a complex issue: according to the World Bank and the World Health Organisation, over half of the world's population (4.5 billion people) have no access to essential medical services; for more details, see the page on the World Bank's website: Universal Health Coverage.

19. For more details, see the page on the World Bank's website: Energy.

20. UNESCO, 251M children and youth still out of school, despite decades of progress (UNESCO report), press release, 31 October 2024.

21. Girls are often unable to attend school because of conflicts and social fragility, and girls are twice as likely as boys to be excluded from school in war-torn countries. See UNICEF, 27 million children out of school in conflict zones, press release, 18 September 2017.

22. Much of the negative effects on the labour market in advanced economies have in fact been driven by technological development and falling transport costs, which have facilitated the offshoring of production to emerging countries. However, in the public debate and according to general perception, these effects are often attributed to globalization. See F Panetta, 'The future of Europe's economy amid geopolitical risks and global fragmentation', Lectio Magistralis delivered on the occasion of the conferral of an honorary degree in Juridical Sciences in Banking and Finance by the University of Roma Tre, Rome, 23 April 2024. Moreover, not all countries have complied with WTO rules: for example, industrial development in China has benefited from public subsidies that have outpriced companies and workers in other countries (see European Commission, EU imposes duties on unfairly subsidised electric vehicles from China while discussions on price undertakings continue, press release, 29 October 2024).

23. In the words of the President of the Italian Republic Sergio Mattarella: 'Our public opinions are instilled with the doubt that democratic power is weak, inefficient, slow, and unfit to govern quick-paced evolutions. Or even that it is a penalizing factor in competing with non-democratic systems.' (speech by the President of the Italian Republic Sergio Mattarella at the Ceremony for the exchange of end-of-year greetings with representatives of institutions, political forces and civil society, Rome, 17 December 2024).

24. F Panetta, 'The future of Europe's economy amid geopolitical risks and global fragmentation', 2024, op. cit. and F Panetta 'Economic developments and monetary policy in the euro area', speech at the 30th ASSIOM FOREX Congress, Genoa, 10 February 2024.

25. The Magisterium of the Roman Catholic Church constantly addresses economic inequalities. See, among others, Benedict XVI, Encyclical letter Caritas in veritate, 29 June 2009, no. 42; Francis, Encyclical letter Fratelli tutti, 3 October 2020, no. 116.

26. The issue of debt of poor countries was raised by Pope John Paul II as early as 1986 in his speech to the United Nations (see CEI, 'Etica e finanza', supplement to no. 19, Quaderni della Segreteria CEI, August 2000, pp. 40-42). It was recently revisited by Pope Francis for the 2025 Jubilee (see Francis, Bull of Indiction for the Ordinary Jubilee, Spes non confundit, no. 16, 9 May 2024).

27. The figure refers to the debt held at the end of 2023 by the poorest countries, ie. those that have access to concessional loans from the World Bank. The long-term external public debt of these countries has reached $780 billion. According to debt sustainability analyses conducted by the IMF and the World Bank, more than half of poor countries are considered as being in 'debt distress' or 'at high risk of debt distress'; the share was less than one quarter ten years ago.

28. We must not repeat the experience of the 1980s, the 'lost decade' in the development of many countries, caused by the delay in recognizing the need to reduce their external debt and by the ensuing insolvency crises.

29. The Common Framework for Debt Treatment, signed by the G20 countries in 2020, is the most significant attempt to regulate the debt restructuring processes of low-income countries, expanding the participation in the governance of these processes to non-Paris Club countries, such as China. The Global Sovereign Debt Roundtable, created in 2023 and comprising official bilateral creditors, private creditors and debtor countries, is a useful complement to the Common Framework, focusing on fostering debate on the most important challenges facing restructuring.

30. Paul VI, Encyclical letter Populorum progressio, 26 March 1967, no. 87.

I would like to thank Andrea Brandolini, Patrizio Pagano, Roberto Piazza, Pietro Rizza and Girolamo Rossi for their help in writing this speech, and Valentina Memoli and Roberto Pisano for their editorial support. This article is based on a speech delivered at the meeting Economy and Peace: a possible alliance organised by the Centesimus Annus Pro Pontifice Foundation, Bologna, 16 January 2025.

Globalisation recedes, conflicts multiply

Suzanne Berger is the Raphael Dorman and Helen Starbuck Professor of Political Science at the Massachusetts Institute of Technology and director of the MIT International Science and Technology Initiative

In 1914, globalisation ended in one week – between 31 July when the London Stock Exchange closed, and 4 August when the British government declared war on Germany. International trade and capital flows subsequently collapsed – not only for the duration of the war but for more than six decades. Only in late 1970s did the level of crossborder flows of capital and trade return to the 1913 levels.

In 1914, however, after a half century of globalisation, people's views on how damaging the changes would be – even how damaging the war was likely to be – were quite optimistic, and wrong.

Even John Maynard Keynes, for example, still claimed: *"War absorbs current savings and current income; it consumes and depletes our stock of consumable goods. But only to a very slight extent indeed does it destroy or diminish the world's accumulated improvements"* (Keynes, 1914).

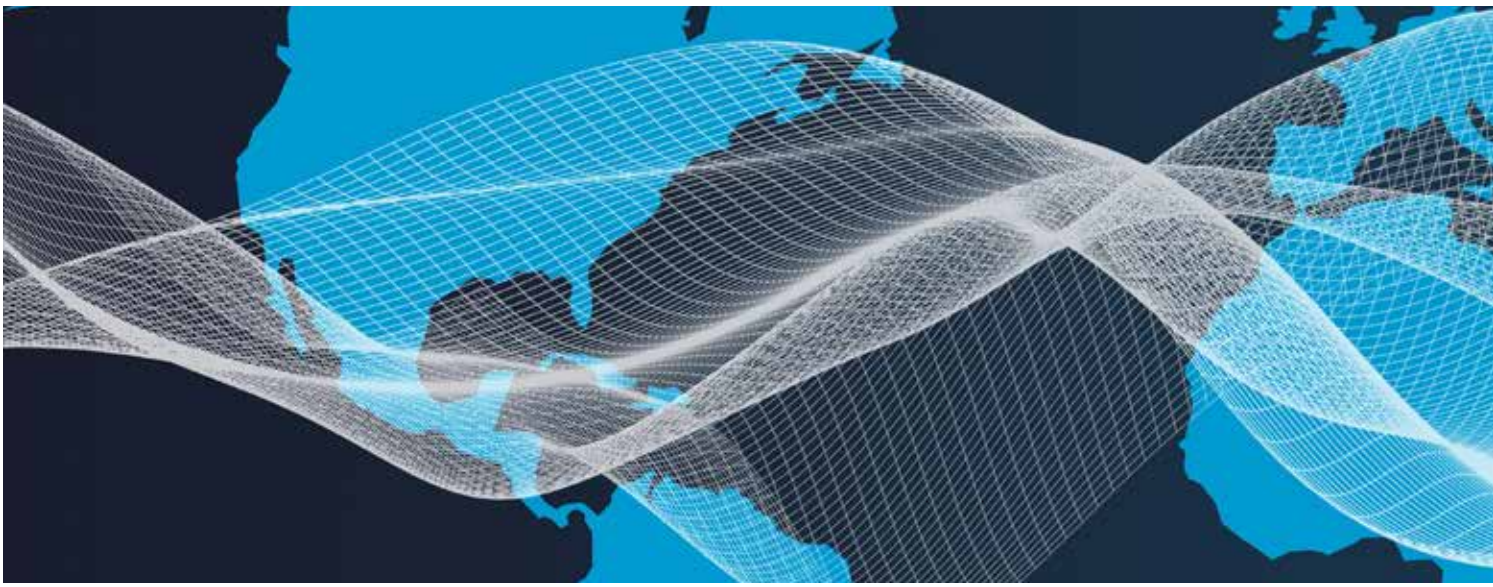
Today, the costs and dangers that the end of globalisation is likely to bring are again greatly underestimated. There isn't even agreement on whether globalisation is over. Is deglobalisation happening? Or is there something like half-globalisation, with trade in goods and foreign direct investment falling but trade in services rising?

Or is reglobalisation being organised in regions? Goods from China are still arriving in US markets, though they now arrive after long detours via Vietnam and Mexico. And these detours mean, of course, that they are more expensive.

For a political scientist, a simple definition of globalisation is the most relevant for understanding the current predicament. Globalisation is a state of the world economy in which strong competitive pressures force firms to behave as if there were a single world market. In short, it's a world in which firms above all else seek to lower costs and prices.

In the past, distance and time were the main factors that blocked the emergence of a single world market. The border-level barriers that states raised in the form of tariffs to tax crossborder flows certainly played a role, but 'natural' barriers such as distance did much of the work.

Think of the huge flows of capital from France to Russia at the end of the nineteenth century (Crisp, 1976), but the absence of



any significant flows of goods from low-cost labour working in French-owned factories in Russia back into France. Few manufactured goods made the trip across great distances.

The new technologies of the 1980s and 1990s eliminated barriers of distance and time that had hindered the emergence of a single world market. Digitisation, container shipping, new financial instruments – these helped erase those obstacles. Once it was possible to send a digital file from chip designers in California to a chip fab in Taiwan there was no longer a need to co-locate the chip designer and the engineer making the mask.

The emergence of large new semi-skilled, low-cost labour markets in Asia made offshoring feasible. For the past thirty years, firms have in fact behaved as if they were competing in a single world market. The advent of digital technologies in the mid-1990s allowed them to outsource and offshore just about everything. And financial markets reinforced the message by privileging those firms that were 'pure-play investments'. Firms that had outsourced and offshored everything except their 'core competence', and got rid of factories and workers, did best on Wall Street.

Barriers going up

Today, we are moving in a very different direction from the past forty years. States around the globe are raising the political barriers that surround their territories[1]. It's true that the overall level of trade has been fairly stable since peaking in 2008. That is why people disagree about whether what's happening is deglobalisation or reglobalisation or new globalisation.

Those who disagree about the reversal of globalisation tend to point out that Apple is still in China, as is Tesla, or that what leaves China gets sent to Vietnam or Mexico. But uncertainty is the greatest pressure on firms today as they consider markets and location.

This uncertainty is not only about what can be sold to, or exported from, an increasingly hostile China. It's uncertainty

"Today, we are moving in a very different direction from the past forty years. States around the globe are raising the political barriers that surround their territories"

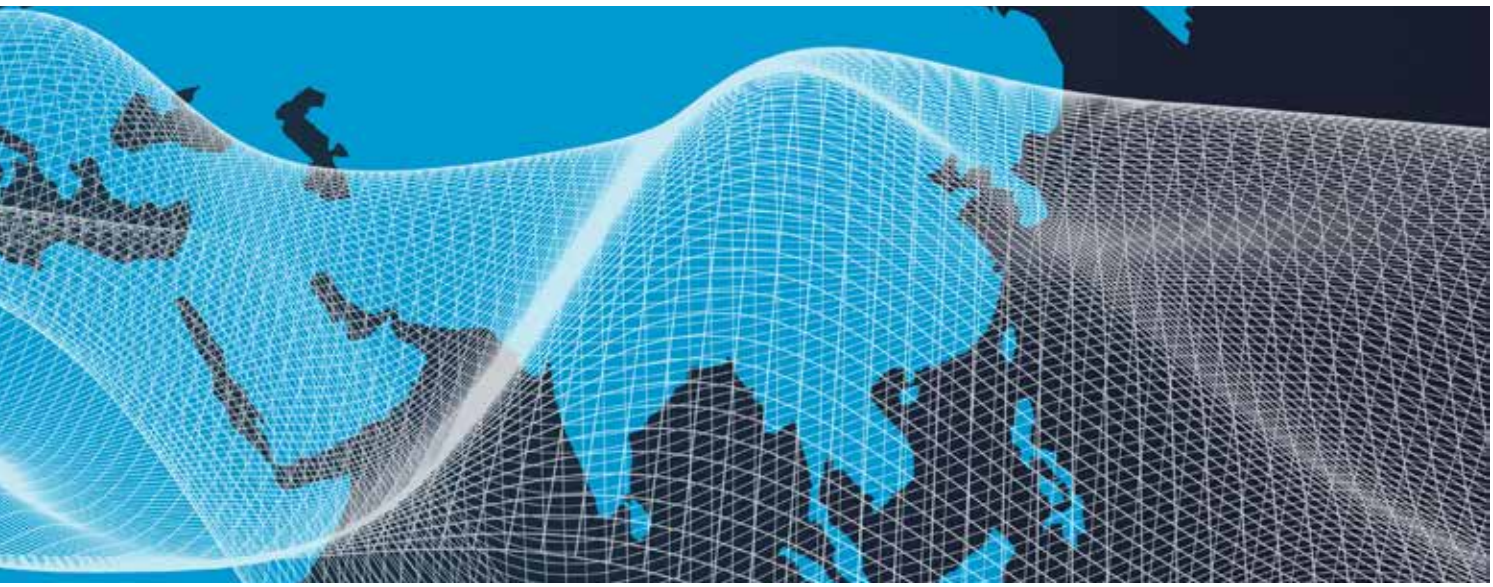
even about what comes and goes from allies. Consider the restrictions in the US Inflation Reduction Act on green production subsidies. Or the refusal to allow Nippon Steel to buy US Steel[2] – even though Nippon Steel is a company from the US's principal Pacific ally. For American firms the greatest uncertainties and the roughest rides are yet to come under the second term of President Trump – The Mighty Disrupter.

But it's worth noting that none of the border-level barriers erected during Trump's first administration were dismantled during the Biden administration. On the contrary: during the Biden presidency, in then-US National Security Advisor Jake Sullivan's 'high fence, small yard' approach, the 'small yard' kept expanding and the 'big fence' kept rising. So, waiting it out is not a rational strategy. This is not a situation that is likely to reverse four years from now.

Three destructive forces

Three big changes have been at work to destroy globalisation: first, reactions to job losses arising from imports; second, the lessons people drew from COVID-19; third, war: war in Ukraine and the threat of war with China.

On the first point, globalisation was great for much of the world, with extreme poverty levels falling from 42 percent in 1981 to 9 percent in 2018 (Aiyar, 2024). But globalisation was not great for US and other liberal democracies. American blue-collar workers lost 6 million jobs because of imports, and



parts of the country – Youngstown, Ohio; Detroit, Michigan; parts of Wisconsin – that were basically single-industry towns became wastelands. The same phenomena fed into Brexit and other developments.

COVID-19, meanwhile, taught the public that there are severe dangers in a production system based on just-in-time production, zero inventory and extended supply chains. The problem was not just the length of supply chains, but the basic firm structure that had emerged in the US because of globalization. Forty years ago, the greatest American companies were all vertically-integrated firms: IBM, Motorola, Dupont, Texas Instruments, GE. Not one of these firms remains structured today as it was then.

Under pressure from financial markets, these companies all broke apart into 'core competence' firms, and outsourced and off-shored everything they could. These companies became highly dependent on suppliers. And COVID-19 highlighted that dependence.

Companies were largely inspired by 'lean manufacturing' mantras: eliminate waste, eliminate inventory, Six Sigma (a process improvement methodology). This production paradigm – inspired by the Toyota model[3] – emphasises optimisation of current practices and tends to discourage innovation. In fact, introducing innovation and experimentation on a factory floor is costly and disruptive.

The COVID-19 experience dealt a serious blow to the lean-manufacturing paradigm. It led to a higher valuation of resilience. But it also highlighted the lack of experimentation and innovation in manufacturing. The manufacturers that survived after the waves of offshoring had lost 6 million jobs. They are wary of innovation and they are risk-averse. The manufacturing eco-system has been thinned out, drained, depleted.

Shortly before COVID-19, I visited an Ohio manufacturer with about 300 workers. I asked him what he looks for when hiring. He said: someone who'll come on time and stay. I asked how much he was paying: $13/hour. Did he ever think about hiring people coming out of community colleges who've taken classes in robotics and 3D printing. *"No: I want people who can work on the machines I have."*

I visited his factory floor and saw 1940s Davenport milling machines his grandfather bought alongside a few new CNC (computer numerical control) machines. The general picture in manufacturing is of a few new great companies such as Tesla and Rivian, while the vast majority of suppliers remain stuck in a low-tech, low-skills, low-productivity, low-wage trap.

This matters all the more because as war with China comes to seem possible – the third major factor in the receding of globalisation – American policymakers, whether Republicans or Democrats, will be raising even more border-level barriers.

The US' difficulty in supplying arms to Ukraine since 2022 is an ominous sign of how far US defence manufacturing has declined over the past thirty years. In the defence industry, there are a few great companies at the top: Raytheon, Lockheed Martin.

There are some new high-tech Silicon Valley defence manufacturers such as Palantir and Anduril, which are still in their infancy. And then there are the myriad suppliers that are small and medium-sized firms employing fewer than 500 workers. Of the sample of small and medium manufacturers we interviewed in Ohio, roughly 40 percent had had at least one defence contract in the previous ten years.

So, the hollowed-out manufacturing ecosystem that I have described is the defence production base. Given the predictions about the likelihood of war, it can be safely predicted that the barriers around the American economy will only rise in the next years.

I believe globalisation will recede as uncertainties undermine all dealings between nations. In the past, the US has been an 'indispensable' partner in sustaining international order and cooperation. Now, Europe must learn to live without this partner. Even further: I fear the consequences as Europe has to deal with such a nation as the US is becoming. ■

Endnotes
1. Pinelopi Koujianou Goldberg, 'Are Tariffs Worth It?' 20 November 2024, Project Syndicate.
2. See Nippon Steel press release of 3 January 2025, 'Nippon Steel Corporation and U.S. Steel Condemn U.S. Government's Unlawful Decision to Block Proposed Acquisition of U.S. Steel - Companies will take all appropriate action to protect their legal rights'.
3. See Toyota Production System.

References
Aiyar, S (2024) Income inequality and the liberal economic order: a not entirely Western perspective, Essay, Bruegel.
Crisp, O (1976) 'French investment in Russian joint stock companies, 1894–1914', in Studies in the Russian Economy before 1914, Palgrave Macmillan.
Keynes, JM (1914) 'War and the financial system', The Economic Journal 24(95): 460-486.

This special analysis is an edited version of a speech delivered by Suzanne Berger at the 'Global policymaking in the Trump-Xi Era' event at Bruegel on 17 January 2025.

JURISDICTION OF CHOICE

BRITISH VIRGIN ISLANDS

WHY BVI?

- Compliance with international regulatory standards
- Competitive start-up costs
- Innovative legislation
- Internationally renowned commercial court
- No currency controls
- Qualified professional pool of practitioners
- Strong partnership between public and private sectors

Pioneering, innovative and leading the way in global business solutions, the **British Virgin Islands (BVI)** is an internationally respected business and finance centre with a proven committment to connect markets, empower clients and facilitate investment, trade and capital flow.

BVI Finance
your international business partner

3rd Floor, Cutlass Tower, Road Town, Tortola, BVI VG1110
T: +1 (284) 852-1957 E: info@bvifinance.vg
W: www.bvifinance.vg | www.bviglobalimpact.com

How can we find an exit?

Patrick Minford is Professor of Applied Economics at Cardiff University

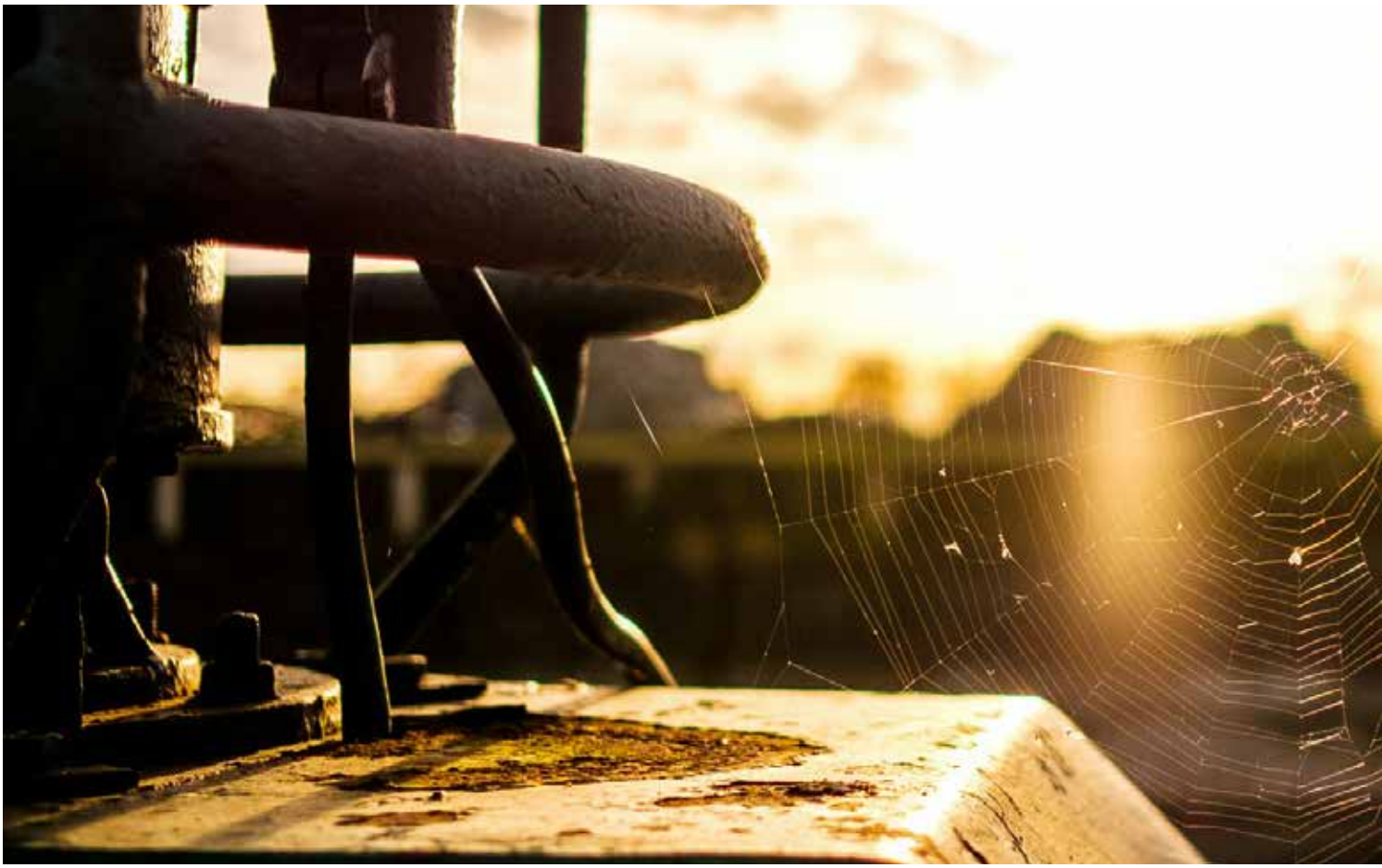
The British economy has had a torrid time at the hands of its recent governments. Before Labour took power from the widely despised Conservatives in the summer election last year Rishi Sunak's Tory government had raised taxes relentlessly in the wake of Liz Truss's resignation.

Corporation tax was raised to 25% and income tax was allowed to rise by failing to index the tax thresholds to inflation - a stealth mechanism that drove everyone's marginal tax rates ever higher in the UK's progressive income tax system.

These were policies that Ms Truss had vowed to prevent - yet her government plans were overturned by her very own officials and MPs in a frenzy of left-leaning opposition, as she has explained in her recent book, *Ten Years to Save the West*. In purely technical terms, the crisis in the government bond market that brought her down could have been averted had the Bank of England continued in its policy of buying in the market as it had been forced to do to defuse the pension fund crisis; but it in effect refused to do so, and so destroyed the Truss government.

Had Truss survived, the UK economy would have faced much lower taxes on business and top earners and entrepreneurs. The Tories might well then have won the election and presided over a successfully growing economy. It was not to be.

With the Tories' overthrow has arrived the Labour government with an agenda even more hostile to enterprise, unfolded in



the first Budget of Rachel Reeves, the new Chancellor, last October. It is hard to react to the budget aftermath with any equanimity. It is as bad as it gets.

The measures that were particularly ill-chosen were the rises in Inheritance (IHT) and capital gains taxes (CGT). These had a thoroughly damaging impact on small firms and family farms, and as the government's own watchdog, the Office of Budget Responsibility, noted, could well have little if any revenue gain, once the indirect tax losses due to 'behavioural changes'- ie. business closures and taxpayer departures.

"Can the UK break out of this doom loop where zero growth means worsening finances due to sagging tax receipts and rising spending needs?"

The family farm sector is small but important for food supplies. The IHT effect on them is fairly devastating, as the tax will require farms to be sold off in parts to pay it. Much was made by Labour of their desire to hit wealthy purchasers of land for capital and IHT avoidance.

However, a wealth tax on land has never gone through Parliament in spite of much support from economists over more than a century; IHT on family farms was never going to succeed in hitting such wealthy owners, who can dispose of their land and move abroad, adding to the entrepreneur exodus.

Then one turns to the small business sector. Here it seems the Treasury needs reminding that this sector accounts for around half the economy's employment. Furthermore, it is a key part of our entrepreneurial sector, where we hope to see productivity growth. Any such activity will be destroyed by the huge disincentive of IHT, requiring firms to be sold off in bits to pay the tax, effectively destroying the business. It was precisely to avoid this that the Small Business exemption from IHT was brought in 1976.

What, we have to ask, was the motive for including these damaging measures in the budget? Since they probably reduce overall revenue, it seems it could only be some vindictive class-warrior thinking, such as also inspired the levying of VAT on private schools. Yet for a party that aspires to a wider appeal in future elections such thinking is surely a big mistake.

Then we come to the main revenue raiser - the NI increase on employer contributions, including a big lowering of the threshold. This was done in order to meet the new fiscal rules:

that the current budget must be balanced and that public sector net financial liabilities must fall in the fifth year ahead.

In the present weak state of confidence after a long period of high interest rates, this measure has been deflationary; vacancies are already falling, apparently quite sharply, and recession is likely. With this further depressing wages and prices, the chances of interest rates falling have mercifully but belatedly increased - more below on this.

This will lower government bond yields and raise bond prices. The government could have kept NI constant without triggering the 'market rout' so clearly feared by the Treasury. Accompanied by active Bank intervention there would have been little risk of rising yields. It was, as explained above, the absence of such supporting intervention during Truss' time that destroyed her government.

What can Labour do now to retrieve the situation? The measures that cause the real damage to our entrepreneurial culture, so painfully rebuilt by the Thatcher reforms of the 1980s, are those that levy high marginal tax rates on small business (including small farmer) incentives and also high marginal tax rates on businesses generally: these are the rises in IHT and CGT.

As they raise little if any revenue, they can be repealed without affecting the fiscal rules. Reversing these changes would do much to restore growth prospects. Further moves of the same sort would be cancelling of the VAT on private school fees and the abolition of the top marginal income tax rate of 45%; the former raises little if any net revenue and the latter probably reduces revenue so these changes would overall be likely to increase revenue.

By these moves the Labour government would improve its relations with business and get closer to its intended pro-growth stance. In the short run it would boost business confidence, so badly hit by this budget.

There is more and once again it concerns the Bank of England. The Chancellor, Rachel Reeves, is going around telling regulators to support growth. After all that damage she did in her budget by raising a wide range of taxes on business and 'the rich' (ie. the entrepreneurial class), her belated change of tone is welcome. But growth prospects have disappeared and much more than this is needed to revive them; she could start by reversing the worst of those taxes, as we have just explained.

However, deregulation is certainly needed too. Anything this government can do to reduce the dead hand of endless delays to infrastructure and house building from regulators and their nimby protagonists is much to be welcomed., and its ministers now seem to be trying.

Nevertheless the behaviour of the most damaging regulator of all, the Bank of England, needs highlighting but has so far not been mentioned. It has been given powers to regulate financial markets by setting interest rates and also the rules of its own market intervention. It has wielded these powers in a way that is badly damaging growth.

That damage is hiding in plain sight, and it is striking how little attention it is receiving. It is time to put the spotlight on it and discuss how it can be stopped. There are two main aspects to this: first the Bank's balance sheet and second its interest rate decisions.

Take the balance sheet first. Much play has been made of the capital losses the Bank has sustained on its disposal of the government bonds (gilts) it bought as part of its 'Quantitative Easing' (money printing) programme, the APF (Asset Purchase Facility).

However, this is a red herring because those gilts are liabilities of the government which made an equal and offsetting capital gain on them as their market prices fell; hence for the public sector as a whole the price changes on these gilts wash out.

The balance sheet problem lies not there but in the treatment of the bank reserves into which the money the Bank used to buy these gilts is converted by the commercial banks where it was deposited. Under the intervention rules the Bank has instituted, it pays the going short-term interest rate on these reserves, arguing that this is necessary to prevent those banks from using them to buy short-term market bonds and so force down the market interest rate.

Yet this is costly to the public sector and so the taxpayer: on the £700 billion of outstanding bank reserves current nearly 5% interest rates mean a taxpayer cost of about £30 billion, 1% of GDP, and roughly double the £15 billion net to be raised by the budget's NI employer contribution rise.

Yet it is far from 'necessary' for the Bank to act in this way. It is possible to make bank reserves largely compulsory, with no interest payable, and simply to pay interest on a small tranche of 'excess reserves' above this. These excess reserves could then be used to make loans to bank customers, with banks prevented from investing them in short-term market assets like Treasury Bills.

Systems like this were generally in use by major central banks before the advent of the large QE programmes since the financial crisis. They could easily be restored today, so saving large costs to the taxpayer.

Essentially, the new bank regulative practices have voluntarily converted money liabilities of the public sector into interest-bearing debt, so giving up the 'seigniorage' revenue the government gets from issuing money instead of debt. Bank reserves are simply money converted into deposits at the Bank; there is no obligation on the Bank to pay interest on them any more than it pays interest on bank notes.

It is astonishing that this has been allowed to go ahead with virtually no pushback from the Treasury, the Conservatives when in power (apart from Liz Truss who asked for an inquiry into the Bank's actions) or now Labour. Only Reform, supported by a few lone voices, have attacked this practice, pointing out that it is transferring seigniorage to the banks as a massive windfall subsidy.

Now turn from the Bank balance sheet costs to its policies in setting interest rates. Here it has stubbornly refused to lower rates, helping to cause the current threat of recession. It is a central point in monetary theory that inflation follows the growth in the money supply with some lag, usually about eighteen months but with some variability - what the late Milton Friedman, the influential monetarist, termed 'long and variable lags'.

This is a well-established correlation brought about by the lowering of interest rates when policy eases; this creates the expansion of demand, paid for by credit and so money creation. Over time this creates inflation, with prices typically leading wages. We have seen this painfully in action as inflation soared after the Covid period of money creation.

Vice versa, as policy tightens money growth slows and later so does inflation. Typically again the lags mean that wages may lag prices. The key point lies in these lags; it makes no sense to react to individual elements in the process, like wages or service prices, with further interest rate adjustments.

However, money supply growth has not merely fallen back but actually went negative about a year ago, before recovering to low growth currently, signalling that policy greatly over-tightened. The correlation of inflation with money growth implies that inflation may now overshoot to become negative, with the economy going into a bad recession.

In ignoring this correlation the Bank is seriously undermining growth and putting the economy into a risky situation, which has only been worsened by the budget's attack on business and entrepreneurs.

The Bank's defence is that its model of the economy identifies shocks that can cause future inflation. But while this may be true, it can only do so in retrospect; this is like weather models which can chart past shocks and how they propagated, but a forecaster of weather will rely on its correlation with the fronts that are already on the radar and due to land here after the usual lag.

The IEA thinktank's shadow monetary policy Committee which bases its views on the money-prices correlation has been urging interest rate cuts for months now since money growth collapsed. The Bank keeps saying there is a wage growth shock threatening resumed inflation; but wages are simply lagging in the falling inflation process.

The Bank of England was given independence in setting its rules of regulatory intervention. But among all the regulators we have it is probably the worst offender in damaging growth. It above all needs to adjust its behaviour.

The Labour government, which has managed to become deeply unpopular in the few months since the election is now trying to 'reset' its policies into a 'pro-growth' mould. If it was serious about this, it would cut back public spending from its currently projected 45% of GDP and cut back taxes with it.

The problem for Labour is that public sector unions are its main paymasters, while its MPs are deeply reluctant to cut benefits which are running at 11% of GDP, with fast-rising claims for illness out-of-work benefits. Departmental current spending is 16% of GDP, and productivity has fallen 9% since pre-Covid according to the Office of National Statistics.

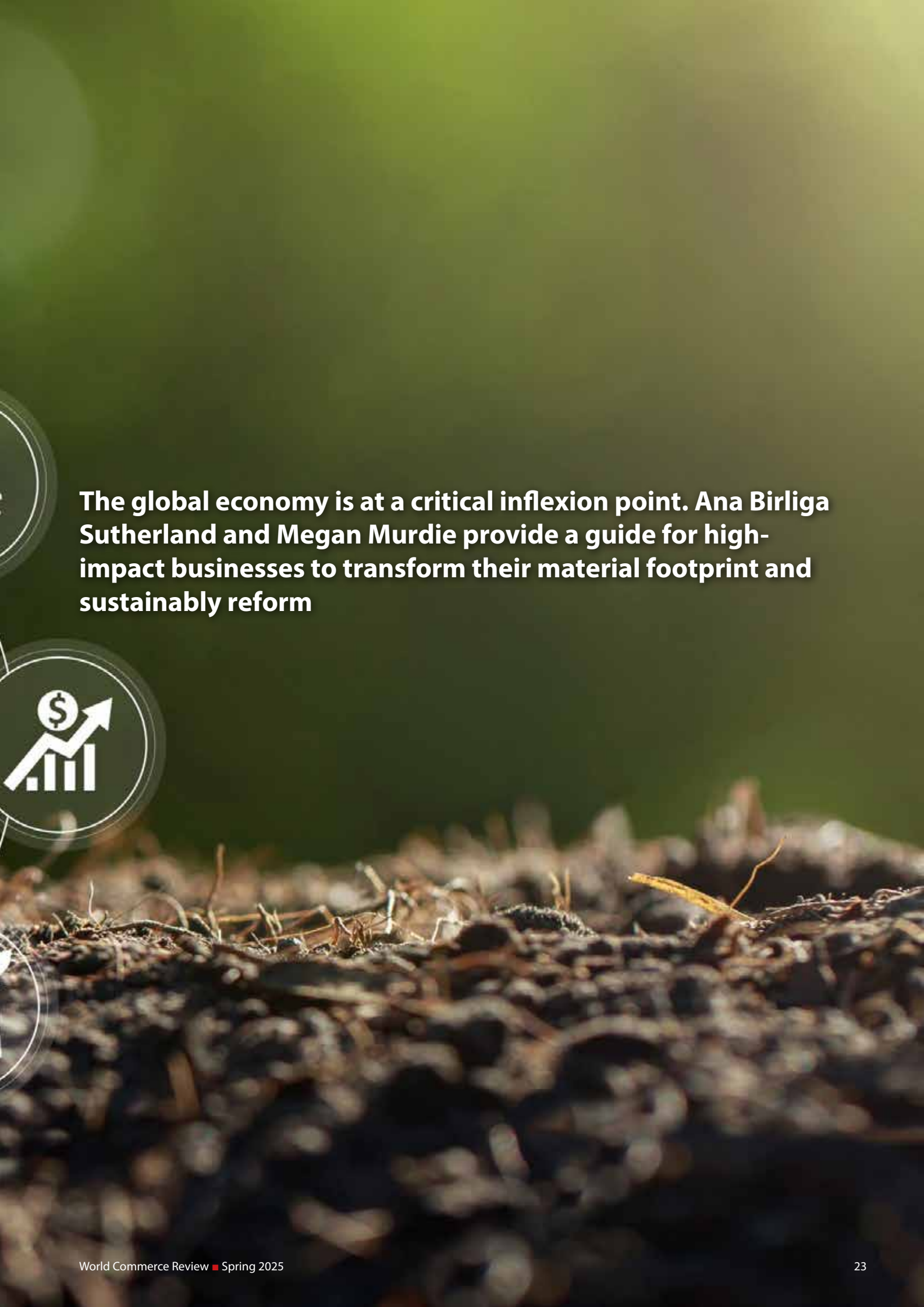
Rachel Reeves has started to talk tough on these issues but Labour is plainly less likely to tackle them than the Tories who were the ones to let them drift out of control. With public sector receipts only 42% of GDP, there is a persistent gap in the public finances pushing this government towards even higher taxes, dooming growth prospects still further.

Can the UK break out of this doom loop where zero growth means worsening finances due to sagging tax receipts and rising spending needs? The last time the UK took serious remedial action was under Mrs Thatcher.

Today the Reform Party is rising in the polls, putting forward similar reforming policies, while the Conservatives are apologising for the decade of drift they presided over. Hopes for a better UK future depend on these two forces coming together to cause a sharp change of UK policy direction. ■

From linear to circular

The global economy is at a critical inflexion point. Ana Birliga Sutherland and Megan Murdie provide a guide for high-impact businesses to transform their material footprint and sustainably reform



The global economy is at a critical inflexion point. With resource consumption projected to nearly double by 2060[1] and climate risks intensifying, the need for sustainable transformation has never been greater.

Businesses face mounting pressure to align with global sustainability goals, yet much of the conversation around circularity has focused on startups and niche innovations. While these new models are essential for progress, the greatest potential lies in reimagining the operations of large, established businesses that dominate global supply chains.

Transforming linear businesses—those based on the 'take, make, waste' model—into circular leaders is an underexplored lever for systemic change. These corporations have the scale, reach, and resources to drive meaningful shifts across entire industries.

For example, global sectors such as textiles, manufacturing, and the built environment could achieve far-reaching impacts by embedding circular principles into their value chains.

However, this transition requires businesses to move beyond traditional sustainability measures and explore deeper strategies, such as double materiality assessments, value chain redesign, and compliance with frameworks like the Corporate Sustainability Reporting Directive (CSRD).

Forward-thinking companies are already realising that circularity isn't just an environmental imperative—it can also be a way to cut costs. By reducing resource dependency, innovating in material reuse, and enhancing transparency, businesses can future-proof their operations against economic volatility and regulatory changes.

The path is clear: businesses that embrace circularity now are not only safeguarding their own futures but contributing to a global economic transformation that benefits society as a whole.

Why the transition needs to focus on the largest polluters

The scale and reach of large linear businesses are overwhelming, so much so that a fifth of global emissions can be tied to the supply chains of multinationals, including Coca-Cola, Samsung and Walmart[2]. Let's put this in perspective: emissions from the supply chain of Coca-Cola alone match that of China's entire food sector.

Globally, a handful of businesses account for the majority of industrial resource consumption—and the scale of waste and emissions they generate dwarfs that of smaller startups. Transitioning these businesses could shift the needle far more effectively than pushing for smaller, newer companies to adopt circular business models.

Larger businesses are also better positioned to implement circular solutions at scale: unlike smaller companies, which may struggle with limited capital, established corporations have the resources to invest in infrastructure, research, and large-scale innovation. Their extensive supply chains mean that even incremental changes—such as shifting to recycled inputs or redesigning products for longevity—can create ripple effects across entire industries.

What's more, these corporations wield major influence over policymakers and consumers worldwide, allowing them to accelerate systemic change in ways that smaller initiatives cannot. Including circularity in their core strategies could mean setting new industry standards, consumer behaviours and regulatory shifts across the board.

Barriers to transitioning linear businesses: businesses are backsliding due to regressive political agendas

Let's be clear: the current political climate is making change sluggish. As things are now, it pays to pollute: fossil fuel subsidies surged to a record US$7 trillion (or about 7% of global economic output) in 2022.

While explicit subsidies (direct government financial support) reached US$1.3 trillion, the vast majority are implicit subsidies that include the unpriced environmental and social costs of fossil fuel use like air pollution, climate degradation, and loss of potential tax revenue[3].

With a relatively unstable regulatory landscape and oscillating government priorities, many businesses may be hesitant to invest in transforming their operations and supply chains.

The recent revival of the Trump administration heralded a wave of deregulatory policies[4], for example, rolling back environmental protections and even promoting new oil and gas development—in the process reminding us of the volatility inherent to relying solely on policy for progress on sustainability.

The creeping onslaught of deregulatory policy in certain parts of the world is also seeing big businesses backsliding on sustainability commitments[5]. In 2024 alone, Canada's six largest oil sands companies wiped decarbonisation goals from their websites in response to the country's new anti-greenwashing legislation, Nike laid off sustainability managers, and Coca-Cola and Nestle delayed targets once again after flying past plastic-reduction goals.

For many businesses, it's easy to gain positive media attention by setting bold long-term goals—only to quietly abandon them years later. As we enter 2025, this trend shows no signs of slowing.

This may be tied to broader political changes: the US Republicans' anti-ESG movement—a wave of state-level legislation aimed at removing environmental considerations from investment decisions connected with government funds—succeeded in rolling out more than 30 rules, guidelines and laws to foil ESG goals, for example, while implicitly supporting inherently linear industries[6].

This has effectively dampened corporate sustainability initiatives—and the relative underperformance of ESG equity funds compared to traditional funds hasn't helped, with the former suffering a net outflow of US$ 40 billion in 2024—the vast majority stemming from US investors[7].

While this may be more indicative of investors' reactivity to market volatility and short-term underperformance than long-term trends, the figures do point to a key barrier amongst businesses: the fear that embracing sustainable and circular practices will dampen profits, especially as the transition itself will require up-front costs to kickstart new systems, materials and supply chains.

It's important to note, however, that many ESG initiatives do not even address resource use or consider their direct impact on climate change goals, meaning they are not directly aligned with circular economy principles.

The reality is that businesses that delay circular transitions are not avoiding costs—they are only postponing them until they become unavoidable. While regulatory frameworks remain a critical driver, businesses that proactively adopt circular economy strategies position themselves as leaders in sustainability and bolster long-term competitiveness.

EU policy is redefining the business landscape

While the regulatory environment—especially in the US—has seen changes that have discouraged investment in circularity amongst businesses, other regions are strengthening legislation: the EU's recent wave of green legislation, from the CSRD to the Corporate Sustainability Due Diligence Directive (CSDDD), is strengthening ESG requirements for businesses.

The CSRD, for example, has expanded its scope as of early this year, applying to an additional 39,000 companies across Europe[8]—as well as approximately 10,000 non-EU entities with significant operations in Europe[9].

Companies will soon be required to report on sustainability data (including circular economy performance) across the value chain, not just for direct operations[10]. This may involve more rigorous supplier audits to ensure adherence to ESG standards and will cover the practices of suppliers, contractors and partners in areas ranging from emissions and resource use to labour practices.

What's more, the upcoming EU Carbon Border Adjustment Mechanism (CBAM), set to go into force in 2026, could make sustainable investing lucrative in the future by putting a price on embodied carbon for key industry inputs flowing into Europe. Businesses relying on emissions-intensive supply chains will face higher costs, while those that transition to lower-carbon models will gain a competitive advantage. This will directly benefit the circular economy.

By rethinking (and ultimately reducing) material and energy use and boosting efficiency, circular economy strategies have deep emissions-reduction potential—and companies that proactively adopt them can avoid potential fines and tariffs in the future, where compliance will soon be non-negotiable.

EU Commission research found that 97% of emissions covered by the tariff are produced by just 20% of the companies covered by the scheme[11], once again underscoring the importance of transitioning big business. The Commission may consider scaling back the levy to apply only to this 20%, lightening the administrative burden for the 80% of smaller companies contributing minimal emissions.

"The path is clear: businesses that embrace circularity now are not only safeguarding their own futures but contributing to a global economic transformation that benefits society as a whole"

Importantly, this won't just affect European entities: non-EU producers exporting goods to the EU will also be subject to fees[12], with the mechanism's implementation expected to reverberate across global supply chains. What's more, non-EU businesses with carbon-intensive production processes can expect less competitiveness in the EU market[13], pressuring non-EU exporters to decarbonise their production processes—potentially spurring the wider adoption of low-carbon technologies and influencing environmental policies in key trading nations.

Times are changing: it's time for companies—and especially big businesses—to rethink their goals and approach sustainability in a way that delivers results for the environment and investors: after all, despite short-term fluctuations, research shows that up to 89% of investors factor ESG criteria into their decisions, while only 13% see ESG as a 'passing fad that will eventually go out of fashion'[14].

The real question is not whether businesses will need to transition to a circular model but whether they will do it proactively or be forced into it under crisis conditions.

Practical steps to start the circular transition

1. Use the CSRD as a roadmap. The directive will kick in this year for large EU companies, with first reports due in 2026: but, as noted, requirements will extend far beyond Europe. Non-EU companies with significant operations or market listings in Europe will be expected to provide their first reports in 2029. Big businesses must take first steps now.

Self-assessment tools, such as those developed by Circle Economy and CircularIQ, can help businesses take their first steps towards compliance. These intermediary years offer a perfect opportunity for businesses to examine their supply chains, uncover data gaps, and future-proof their operations.

The upcoming publication of first reports will also serve to provide real-world examples of how companies have interpreted these—often complex—standards, clarifying uncertainties and establishing helpful precedents.

2. Complete a double materiality assessment and conduct a value chain analysis. The first step in the CSRD reporting

process is to complete a double materiality assessment, which helps businesses identify which sustainability topics should be included in their reports.

This assessment requires companies to determine whether a topic is relevant from two perspectives: how the company's actions impact people and the environment and how sustainability-related developments—such as climate change or supply chain disruptions—impact the company itself, presenting either risks or opportunities.

By discerning which sustainability matters are 'material' from these perspectives, businesses can filter out less relevant topics and focus on the most critical areas.

Businesses must also carry out a value chain analysis, as most environmental impacts for most companies lie beyond their direct operations. In sectors like agriculture, mining, and fashion, for example, approximately 90% of emissions are embedded in Scope 3[15]—emissions produced upstream or downstream in the value chain.

These hidden emissions represent a significant risk to investors and are a core focus of the IFRS Sustainability Disclosure Standards and the CSRD, both of which require Scope 3 reporting to ensure transparency and limit greenwashing.

Companies must track emissions across 15 categories, including purchased goods, transportation, and distribution, collaborating with suppliers to gather accurate data or using industry proxies if supplier data is unavailable. Early action on this will help avoid future penalties, build resilience, and offer a competitive advantage.

It's important to note that value chain mapping doesn't just apply to emissions; it can also help pinpoint hotspots of resource overconsumption, inefficiencies like production losses or overpackaging, and waste. This comprehensive approach will empower businesses to improve sustainability throughout their entire value chain.

3. Understand that reporting is only a first step: don't rest on your laurels yet. Measurement is an important first step, but it goes without saying: action can't end there. Amid concerns that focusing on compliance risks distracts from actually implementing sustainability measures[16], it's important that companies act on the data they collect about material use and emissions.

This also means setting measurable targets to reduce waste, bolster material efficiency and reduce emissions across their supply chains. How could this look? Imagine an electronics company that wants to become more circular. They've completed a double materiality assessment and pinpointed areas to focus on through a value chain mapping exercise.

They've identified a strong reliance on critical raw materials and rare earth elements, discovered high emissions from energy-intensive manufacturing, and failed to find efficient e-waste recycling options. They also note that their products are often discarded incorrectly, with many high-value, recoverable materials going to waste.

Their next steps could include shifting to more secondary material streams to cut reliance on virgin inputs, implementing more energy-efficient production processes on-site and choosing lower-carbon supply chain partners, and launching a take-back and refurbishment programme that allows customers to trade in their old devices for repair, resale or recovery—keeping valuable materials in the loop.

The circular transition is no longer optional

To truly achieve circularity at scale, high-impact businesses must take bold action. While startups and smaller-scale innovations remain vital to progress and can be inspiring to larger organisations, transforming the corporations that dominate global supply chains will have the most significant impact.

The transition from a linear to a circular economy is no longer optional—it is necessary for long-term resilience and regulatory compliance. Companies that act now to leverage the CSRD, conduct double materiality assessments and map their value chains will not only future-proof their operations but also drive positive systemic change.

That being said, businesses cannot drive this shift alone: policy still plays a key role in levelling the playing field—and crucially, emissions and material use need to be taxed to create real financial incentives for companies to shift their priorities. The time for baby steps is over—major corporations must set the pace for a new economic model that benefits both people and the planet. ■

ABOUT THE AUTHORS

Ana Birliga Sutherland and Megan Murdie are with Circle Economy, a global impact organisation that empowers businesses, cities and nations with practical and scalable solutions to put the circular economy into action. Circle Economy's vision is an economic system that ensures the planet and all people can thrive. To avoid climate breakdown, its goal is to double global circularity by 2032.

Endnotes
1. (2018). Raw materials use to double by 2060 with severe environmental consequences. MRS Bulletin 43, 914. doi:10.1557/mrs.2018.308.
2. Win, T (2020, September 8). Multinational companies account for nearly a fifth of global CO2 emissions, researchers say. National Post. Retrieved from: National Post website.
3. International Monetary Fund. (2023, August 24). Fossil fuel subsidies surged to record $7 trillion. International Monetary Fund. Retrieved from: IMF website.
4. Gardner, T, Volcovici, V, & Renshaw, J (2025, January 21). Trump says he will unleash American fossil fuels, halt climate cooperation. Reuters. Retrieved from: Reuters website.
5. Pucker, K (2024, August 20). Companies are scaling back sustainability pledged. Here's what they should do instead. Harvard Business Review. Retrieved from: Harvard Business Review website.
6. Field, C & Hanawalt, C (2024, October 25). The anti-ESG movement has not fared well in court, but critical decisions are pending. Columbia Law School. Retrieved from: Columbia Law website.
7. Temple-West, P & Schmitt, W (2024, June 5). Investors pull cash from ESG funds as performance lags. Financial Times. Retrieved from: Financial Times website.
8. Charluet, C (2024, December 12). What you need to know to start reporting on CSRD from 2025 onwards. Coolset. Retrieved from: Coolset website.
9. Watershed. (2024, September 10). Corporate Sustainability Reporting Directive (CSRD): A guide for companies. Watershed. Retrieved from: Watershed website.
10. As of late February 20205, these requirements have been significantly watered down amid pushback from EU member states and businesses, and fear that President Trump may retaliate against EU directives. Companies that were due to start reporting will need to assess if they still remain in scope. Source: Khan, Y (2025, February 26). Europe waters down flagship climate accounting policy. The Wall Street Journal. Retrieved from: WSJ website.
11. Abnett, K (2025, February 7). EU considers exempting most companies from carbon border levy. Reuters. Retrieved from: Reuters website.
12. Buysing Damsté, C, Prepscius, J, & Banks, J (2024, February 27). The EU Carbon Border Adjustment Mechanism (CBAM): Implications for supply chains. PWC. Retrieved from: PWC website.
13. SupplyOn. (2024, September 27). The CBAM impact on non-EU producers: Challenges and opportunities. SupplyOn. Retrieved from: SupplyOn website.
14. Baker, B (2023, January 31). ESG investing statistics 2023. Bankrate. Retrieved from: Bankrate website.
15. Ng, C (2023, February 8). Fossil-linked energy firms have high emissions and the room for denial is shrinking. Institute for Energy Economics and Financial Analysis. Retrieved from: IEEFA website.
16. Balch, O (2025, February 27). Wave of regulation drives demand for sustainability advice. Financial Times. Retrieved from: Financial Times website.

A robust strategy for a new era

Christine Lagarde is the President of the European Central Bank

Paul Valéry wrote that *"the trouble with our times is that the future is not what it used to be."* Our expectations have indeed been swept aside in the last few years, and in the last few weeks in particular.

Established certainties about the international order have been upended. Some alliances have become strained while others have drawn closer. We have seen political decisions that would have been unthinkable only a few months ago.

The level of uncertainty we are facing is exceptionally high. An index of trade policy uncertainty currently stands at close to 350, more than six times its average value since 2021[1]. And indicators of geopolitical risk stand at levels not seen since the Cold War, outside of wars and major terrorist attacks[2].

This new environment raises fundamental questions for monetary policy. How can we deliver price stability in a new geopolitical era? Our strategy assessment is ongoing, as you know, and I will naturally not cover every issue today. I will focus on the factors I consider to be particularly relevant in this new era.

I will ask three questions: how is the environment in which we operate changing? What do these changes imply for our reaction function? And what do the changes imply for our policy communication?

My main message is that in an environment of uncertainty, a strong commitment to maintaining price stability over the medium term is more important than ever. This commitment will require agility to respond to new shocks, albeit within a well-defined framework that limits short-sighted reactions and unbridled discretion.

As a result, we will need to continue steering the public's expectations. People will be looking to us – and other policymakers – to understand how we will navigate this more volatile era and help reduce, rather than amplify, uncertainty. So, agility needs to be combined with clarity. Even when we cannot provide certainty about the rate path, we can provide clarity about our reaction function.

The environment

When we last reviewed our strategy, the main challenge we faced was a prolonged environment of too-low inflation. Although the review provided lessons that are relevant under any circumstances, its main focus was on understanding the causes of too-low inflation and how to ensure that it did not become embedded.

The environment we are facing now is a different one. Three key changes stand out. First, the direction of shocks is much harder to predict. In the decade before our last strategy review, we faced a range of structural and cyclical forces that were almost uniformly disinflationary. Now, we are seeing notable shifts in the drivers of inflation.

We still face structural factors like ageing and digitalisation that will probably be disinflationary in the coming years[3]. But we are also now facing new, two-sided shocks – mainly linked to trade and defence, as well as climate change – which can amplify or counteract the existing forces.

Trade fragmentation[4] and higher defence spending in a capacity-constrained sector could in principle push up inflation. Yet US tariffs could also lower demand for EU exports and redirect excess capacity from China into Europe, which could push inflation down.

Second, the size of the shocks to inflation could potentially change. In the period from the great financial crisis to our last strategy review, we faced some very large negative shocks to growth.

The effect of these shocks on inflation, however, took time to materialise. We saw a slow-moving downward drift in inflation that eventually seeped into inflation expectations.

But looking ahead, shocks might feed into inflation more directly and increase volatility. And this risk may be particularly acute for the euro area, as we are highly exposed to some of the new types of shock. For example, the euro area is very open to trade and part of integrated supply chains.

Hence, trade fragmentation is likely to lead to larger, more disruptive relative price changes[5]. In a similar vein, the euro area is highly dependent on energy imports[6]. Geopolitical risks are likely to drive greater volatility in exchange rates and energy and commodity prices, as we have seen in recent weeks.

Third, if the shocks do become larger, the persistence of inflation could in some circumstances be greater. One feature of the recent inflation shock was an increase in the frequency of price changes[7]. This can lead to a steepening of the Phillips curve and, more generally, to a proportionally stronger impact of large shocks on inflation.

A model developed at the ECB suggests that inflation behaves in a visibly non-linear way: it reacts disproportionately more strongly to large shocks, whereas small shocks trigger no significant reactions[8].

If such state-dependent pricing becomes standard when the economy is hit by large shocks, but the frequency of wage-setting remains below that of price adjustment, we could see inflation becoming more persistent[9]. Large shocks would lead to a faster pass-through to inflation, and then wages would have to catch up with prices in a staggered way.

As an illustration, energy inflation peaked in October 2022, while services inflation only peaked in July 2023 and is still being pushed up by past shocks today, mainly through their delayed impact on wage adjustments. In this environment of more uncertain, larger and possibly more persistent shocks, the way we have formulated our inflation target matters – that is, we aim for 2% inflation, our target is symmetric and we work to achieve it over the medium term.

This symmetric target has served us well during the recent inflation surge, helping to coordinate expectations and guide the inflation process back down towards 2%. But the formulation does not mean that headline inflation will always be at 2%, which is impossible in the kind of environment we are facing now.

It means that, regardless of the shocks we face, we must set our policy appropriately so that inflation *is always converging back towards 2% over the medium term*. So, how can we do that? This brings me to the second area: the reaction function.

The reaction function

Our reaction function has always been state-dependent. In other words, policy should react differently depending on the context and the origin, size and persistence of shocks.

Our medium-term orientation enables us to avoid reacting to small or passing shocks that will have faded by the time the effects of a policy change kick in. And it allows us to flexibly adjust the horizon within which we must return inflation to target.

Classically, monetary policy reacts more forcefully to demand shocks where output and inflation move together, and 'looks through' or reacts less to supply shocks that push output and inflation in opposite directions – if they are sufficiently small and transitory.

Empirical evidence based on the last two decades finds that the ECB has largely followed this prescription. Generally, it has reacted more strongly to demand shocks than to supply shocks. But it has responded to supply shocks more forcefully when these shocks were persistent and inflation was high[10]. The new environment requires us to emphasise two factors.

"Central bankers will need to show agility to adjust their stance and their tools to changing circumstances, and they will need intellectual curiosity to challenge established principles and conventional wisdom"

The first is the anchoring of inflation expectations. For the ECB, 'looking through' has always been conditional on inflation expectations remaining well anchored. The recent inflation surge has confirmed just how critical maintaining a strong anchoring is to successfully navigate a more volatile world.

Our analysis finds that, if inflation expectations had been as poorly anchored as they were in the 1970s, policy rates would have had to rise to 8% at the peak of the recent tightening cycle to tame inflation, with very high costs for the economy. With well-anchored expectations, recent disinflation has instead been achieved at a relatively low cost compared with similar episodes in the past[11].

This experience can, in some ways, give us confidence for the challenges ahead: the relative stability of longer-term inflation expectations during a massive inflation surge suggests that our inflation target has a high degree of credibility, which was reinforced by the decisive actions we took to keep inflation expectations anchored[12].

At the same time, our starting point for the recent inflation episode was a decade of too-low inflation and correspondingly subdued inflation expectations. This meant the public were initially inattentive to inflation and took time to update their views.

But there is some evidence that public awareness has been awakened by recent experience. Once consumers took notice of rising inflation, their inflation perceptions responded quickly but reduced more sluggishly when inflation started to fall. This sluggish response has contributed to the slow adjustment of consumer inflation expectations, especially one year ahead.

We will only know through careful observation how long these memories will last, and consequently how sensitive inflation expectations will be to new shocks. But in all scenarios, close monitoring of inflation expectations – across markets, analysts, forecasters, households and firms – will be central to our policy reaction function. Once the anchoring of inflation expectations is assured, the second factor we need to assess is how the current environment affects the optimal policy reaction to different type of shocks.

If the Phillips curve becomes steeper at higher levels of inflation, meaning inflation responds faster to changes in activity, then it should also be easier for monetary policy to bring inflation down without imposing heavy costs on the economy. This would weaken one of the main rationales for "looking through" large supply shocks[13]. At the same time, there may be risks in generalising from recent experience where disinflation was relatively painless.

Alongside well-anchored inflation expectations, the relatively low 'sacrifice ratio' during this disinflation episode may reflect a unique set of conditions that will not be applicable to future shocks.

In particular, the fact that we faced a series of negative shocks to income reduced the extent to which demand needed to be dampened by monetary tightening[14]. Any future shocks we face – such as energy price shocks and supply chain disruptions or a large increase in spending on defence or infrastructure – will therefore have to be assessed through this framework.

All told, simple policy prescriptions will not be appropriate in the environment we now face. Within a well-articulated strategy and an unwavering commitment to price stability, we will need to retain agility to respond to complex circumstances as they arise. This has implications for our policy communication, which brings me to the third area.

Policy communication

Maintaining agility affects how we can talk about the future. And this applies particularly to our ability to give detailed guidance on the future path of interest rates. Forward guidance about the rate path is particularly useful under two circumstances.

First, when the economy is faced with one-sided, persistent shocks pushing it towards the effective lower bound. In this setting, it gives the public confidence that monetary policy will be sufficiently persistent to dislodge those shocks and deliver on its target, while also helping insulate monetary conditions from spillovers from abroad. These benefits were all visible in the euro area from 2013 onwards when we first introduced rate forward guidance.

Second, forward guidance can be useful when shocks become two-sided following a long time at the lower bound. In this case, it can help to lay out the conditions for rate lift-off in a way that hedges against false positives and prevents a premature tightening, and thereby reduces uncertainty about the future path of rates.

However, one of the lessons of the recent period is that such guidance can become less helpful when uncertainty about the nature of the shocks is rising. In particular, some of the lift-off criteria we applied to our 2021 rate forward guidance were tied to the baseline inflation projections, but the projections were slow in catching on to the reality of a much more persistent inflation shock.

The combination of factors that created this shock – a worldwide pandemic producing bottlenecks in various sectors upon reopening and a major energy crisis – had not been seen since the end of the World War One. But with hindsight, it would have been beneficial in our forward guidance to explicitly account for the risks and uncertainty surrounding the baseline.

A general conclusion emerges: when the size and distribution of shocks becomes highly uncertain, we cannot provide certainty by committing to a particular rate path. Otherwise, forward guidance may constrain policy agility in the face of abrupt changes to the inflation environment.

But we can provide clarity about our reaction function. We can still help the public to understand how we will navigate the new environment. First, we can clarify how we are likely to be affected by different states of the world.

Since the pandemic, the ECB has been making greater use of scenario analysis and sensitivity analysis precisely to make our policy more robust to changing circumstances. These exercises, together with our discussion of the balance of risks, are designed to ensure that policymaking can remain forward-looking and stay ahead of the shocks to come. At present, we are considering various scenarios related to tariffs and fiscal policy changes, and what they will imply for growth and inflation[15].

Second, we can clarify what kind of data we will look at to make our decisions, which helps the public to distinguish signals from noise. This is why in March 2023 we set out three key inputs for policy decisions: the inflation outlook – comprising both the baseline and risks around it – the dynamics of underlying inflation and the strength of monetary policy transmission.

In the early phase of our rate tightening, before these criteria were introduced, we saw large monetary policy shocks – linked both to rate decisions and indications on future rates – as markets were looking for orientation. But after March 2023, market moves were less pronounced despite similar levels of interest rate uncertainty, which suggests that the markets better understood our reaction function.

We also saw increased sensitivity to new data releases in the early tightening phase. But this diminished as markets understood which data we were focusing on and, especially, that data dependence should not be confused with 'data-point dependence'[16].

The lesson I draw is that laying out a clear reaction function is critical to tempering volatility in a world of exceptional uncertainty. The public must understand the distribution of possible outcomes ahead and how the central bank will react once it is sufficiently confident about which scenario it is facing.

In this way, clarity on the reaction function can be seen as providing *framework guidance* – ie. a type of guidance that comes from the discipline implicit in a monetary policy framework – without pre-committing to any particular rate path, as the latter would excessively constrain agility.

The three inputs we are currently using are designed to deliver robust policy in the face of the particular constellation of shocks that have hit the euro in recent years, especially the staggered pass-through of a large inflation surge to wages. Whether we continue to use those same inputs in future will depend on the nature of the shocks that confront us.

Our strategy assessment should nonetheless commit to integrating risk and uncertainty about key factors into our reaction function. The data we draw on should capture not only our central projection for the economy, but also the uncertainty surrounding that projection and a rich, diverse set of risks.

Conclusion

Thomas Jefferson said that *"eternal vigilance is the price of liberty."* The same can be said of stability. Maintaining stability in a new era will be a formidable task. It will require an absolute commitment to our inflation target, the ability to parse which types of shocks will require a monetary reaction and the agility to react appropriately.

Our response to the recent inflation episode should give the public confidence that we will always do whatever is necessary to deliver price stability – and that our policy frameworks can adapt to new circumstances.

Central bankers will need to show agility to adjust their stance and their tools to changing circumstances, and they will need intellectual curiosity to challenge established principles and conventional wisdom. ■

Endnotes

1. Index based on Caldara, D, Iacoviello, M, Molligo, P, Prestipino, A and Raffo, A (2020), "The economic effects of trade policy uncertainty", Journal of Monetary Economics, Vol. 109.

2. Iacoviello, M, Wells, L, Yang, W and Nate, S, "Geopolitical Risk Index" (accessed on 10 March 2025).

3. See Aldasoro, I, Doerr, S, Gambacorta, L and Rees, D (2024), "The impact of artificial intelligence on output and inflation", BIS Working Papers, No 1179, Bank for International Settlements, April; and Lis, E, Nickel, C and Papetti, A (2020), "Demographics and inflation in the euro area: a two-sector New Keynesian perspective", Working Paper Series, No 2382, ECB, March. For an alternative view on the effects of ageing on inflation, see Goodhart, C and Pradhan, M (2020), The Great Demographic Reversal, Palgrave Macmillan.

4. Attinasi, MG et al (2024), "Navigating a fragmenting global trading system: insights for central banks", Occasional Paper Series, No 365, ECB.

5. ibid.

6. Arce, O, Koester G and Pierluigi, B (2022), "Challenges for global monetary policy in an environment of high inflation: the case of the euro area", ICE: Revista de Economía, No 929, pp. 115-130.

7. Dedola, L, Henkel, L, Höynck, C, Osbat, C and Santoro, S (2024), "What does new micro price evidence tell us about inflation dynamics and monetary policy transmission?", Economic Bulletin, Issue 3, ECB.

8. Bobeica, E, Holton, S, Huber, A and Martinez-Hernandez, C (2025), "Beware of large shocks! A non-parametric structural inflation model", forthcoming.

9. For details on data allowing an analysis of the frequency of wage-setting in the euro area, see Górnicka, L and Koester, G (eds.) (2024), "A forward-looking tracker of negotiated wages in the euro area", Occasional Paper Series, No 338, ECB.

10. See De Santis, RA and Tornese, T (2023), "Energy supply shocks' nonlinearities on output and prices", Working Paper Series, No 2834, ECB. This pattern holds more generally for central banks in advanced economies; see Hofmann, B, Manea, C and Mojon, B (2024), "Targeted Taylor rules: monetary policy responses to demand- and supply-driven inflation", BIS Quarterly Review, Bank for International Settlements, December, pp. 19-36.

11. Deutsche Bundesbank (2024), "The global disinflation process and its costs", Monthly Report, July. See also Christoffel, K and Farkas, M (2025), "Monetary policy and the risks of de-anchoring of inflation expectations", forthcoming.

12. Lagarde C (2024), "Monetary policy in an unusual cycle: the risks, the path and the costs", introductory speech at the opening reception of the ECB Forum on Central Banking in Sintra, Portugal, 1 July.

13. Karadi, P, Nakov, A, Nuño, G, Pasten, E and Thaler, D (2024), "Strike while the Iron is Hot: Optimal Monetary Policy with a Nonlinear Phillips Curve", CEPR Discussion Paper, No 19339, CEPR Press, Paris & London, 9 August.

14. Lane, PR (2024), "The effectiveness and transmission of monetary policy in the euro area", contribution to a panel at the Federal Reserve Bank of Kansas City Economic Symposium, Jackson Hole, 24 August.

15. In addition, there needs to be clarity that the central bank will respond appropriately in the event of large market disruptions. The ECB has a strong track record in providing liquidity during financial stress episodes and has two backstop instruments in its toolkit (the Outright Monetary Transactions and the Transmission Protection Instrument). In turn, investor confidence in the liquidity policies and backstop instruments of the ECB acts as a self-stabilising force by limiting incentives to "run for the exit" during stress periods.

16. Lagarde, C (2024), op. cit. and the Q&As during the September 2024 and October 2024 press conferences are prominent examples.

This article is based on a speech delivered at the 25th 'ECB and Its Watchers' conference organised by the Institute for Monetary and Financial Stability at Goethe University, Frankfurt, Frankfurt am Main, 12 March 2025.

Global challenges and expectations

Andrew Bailey is the Governor of the Bank of England

I am going to interpret my theme quite broadly. That said, let me start with a quote from Keynes at Bretton Woods – on the importance of monetary stability as a prerequisite for reconstructing the world economy (with thanks to Martin Daunton for using it in his recent book on *World Economic Government*):

> *"Without currency agreements you have no firm ground on which to discuss tariffs. In the same way plans for diminishing the fluctuation of international prices have no domestic meaning to the countries concerned until we have some firm ground in the value of money… It is very difficult while you have monetary chaos to have order of any kind in other directions."*

The focus on monetary frameworks and currency arrangements reflected the tension at the time between on the one hand national sovereignty and discretion and on the other hand multilateral frameworks. However, while monetary stability remains the bedrock today, the agenda has of necessity broadened out substantially in terms of economic policy.

These days, global co-operation focuses more on ensuring a well-regulated financial system. That reflects the perennial tension between the national scope of governments and the more global scope of markets. Solving that tension requires multilateral frameworks and institutions.

Another theme concerns the Bretton Woods institutions themselves. We can't be misty eyed about Bretton Woods. On monetary stability, it was a halfway house solution to dealing with the implications of free international convertibility to gold for domestic economic management. It couldn't be implemented in full for some time, and didn't survive for long when it was.

To borrow Dani Rodrik's phrase, Bretton Woods was shallow multilateralism with a small role for the Fund and the World Bank, and it didn't pass the test. Subsequently, global financial integration and its scale has become much more extensive and created its own instability.

In doing so, this has required a reassessment of multilateralism and the Bretton Woods legacy, and brought the Fund and Bank to centre stage. They have been evolving, in response – but perhaps, so far, not fast or far enough. Understanding the drivers of global financial stability, and acting to preserve them is the new frontier.

But we now live in a world where public institutions are under much more strenuous challenge to their legitimacy. The challenge now is to reinforce the institutions and their governance in terms of accountability and thus legitimacy.

Otherwise, a democratic deficit exists which damages effectiveness. Can the institutions support the necessary multilateralism – to go back to the tension with national sovereignty? Can they embody the multilateral authority to speak truth to national power?

There is nothing new about this challenge. But it has taken on greater force in a world of so-called populism which embodies at least three pertinent features: first a greater emphasis on domestic production and the distribution of wealth relative to stability and the benefits of openness; second, a tendency to attribute unfavourable conditions to outside forces in a context of low trust societies; and third, with this decline in trust institutions are viewed as distant, unresponsive and acting for the benefit of powerful and uncontrollable interests.

It is a mistake to dismiss these features as not a reflection of the real world as we see it. Other people do see it that way. The challenge for international organisations is to be seen as part of the solution, not the problem.

I'm going to use the rest of my time to try to put these issues into the current context and draw out some priorities to go forward.

The theme of balancing national interests with international co-operation runs through the last 80 years. How do we preserve and develop the view that international co-operation is the best way to protect national interests? The argument was won at Bretton Woods because of the terrible context of global war.

The issue is again with us today. Moreover, the whole issue of the benefits of international co-operation has become more pressing as markets – in goods and finance – become larger and more global, with a sense of diminished national control and greater exposure and susceptibility to shocks.

"By building its surveillance offer and working with members on how to build ex ante resilience, the Fund can be seen as a trusted problem solver which can be turned to in moments of crisis, rather than an institution which calls out where things went wrong and mops up after the crisis occurs"

The question then becomes, how can multilateral institutions build influence in this context, to put themselves in a position to influence the balance of national interests and international co-operation? What is their comparative advantage? I think the answer lies in putting more emphasis on the surveillance role, and the effectiveness of the messaging of that work.

In a more shock prone world, with the international monetary and financial system potentially being profoundly altered by a series of major transformative trends, the returns on effective surveillance will be much greater. Forewarned is forearmed.

Prevention is more effective than cure. The Fund's voice remains a powerful one, but unless its surveillance activities keep pace with a changing world, risks and vulnerabilities could be missed. None of us will be forgiven for missing the next crisis.

In particular, to return to where I started, financial surveillance needs to be a particularly high priority for us all, including the IMF. There remain, and will do so, financial vulnerabilities to be fixed. We are seeing major changes in the form of financial intermediation as the role of non-banks grows. But – and just as Hyman Minsky predicted – there is a growing resistance to regulation and rule-making as memories of the Global Financial Crisis recede.

We have to continue to win our arguments, and it is becoming more challenging. Bilateral and multilateral surveillance are an important tool here. We will have to lay out the risks and vulnerabilities with more prominence and thereby directly challenge the naysayers.

Now, let me be clear, the Fund's surveillance analysis is very high quality – the WEOs and GFSRs are excellent, and they are just the tip of the iceberg. But I think the work can and should evolve in a number of areas in response to a more shock-prone uncertain and complex global economic and financial system, with a focus on resilience building, spillovers, more systemic and macro-prudential assessment, and greater financial market surveillance.

Let me return to the main theme of balancing national interests and international co-operation. I want to draw out an element of the issue of national interests. It is the saddest and most dangerous. We are seeing the return of destructive nationalism, most obviously in Russia. I was an economic historian, not a central banker, when I was at Queens'.

Of course, history doesn't end, and we are being reminded of that. Bretton Woods was an important part of the response to the most destructive and tragic nationalism of modern times. At Queens' I was taught history by Richard Overy, who has written extensively on modern warfare.

Recently, Richard has written a book called *Why War?* which seeks to understand the human propensity for conflict, no small task. He quotes the father of new realist political science, Kenneth Waltz, who wrote: *"Theorists explain what historians know: war is normal."*

Richard sets out four broad motives for war: resources, belief, power and security. I mention this because as well as powerful and more detailed surveillance, for multilateralism to have impact it has to speak to the big issues. A criticism of the early history of the Fund and Bank is that they were often invisible. To be fair, Bretton Woods was not designed with the Cold War in mind, so the world moved on very quickly.

But, since resources, belief, power and security cannot be separated from economics, with the rising threat of destructive nationalism we have to go back and determine what role the multilateral institutions should play to re-establish – and explain the value of – economic co-operation.

Another dimension to the issue of balancing national interests and international co-operation is the question of how many poles are there in the system? Bretton Woods is often portrayed as the transfer of authority from one single pole (Britain) to another (the US), the creation of a new era. It also gets portrayed likewise as the wrestle between Keynes and Harry White.

At the time, the importance of enabling this transfer of poles was cast in terms of avoiding going forwards the dangerous nationalism of the 1930s. Very quickly, the issue became the different one of whether collective international co-operation could embrace capitalist and communist systems, it couldn't.

Over time, the issue moved on to the tension between advanced countries and those in the developing and emerging ones, and it is this tension that has been a persistent feature of the Fund and the Bank in their more mature and influential era since the 1970s. Even if issues around voting shares remain to be resolved, the Fund has been able to evolve its toolkit in order to lend more money to vulnerable countries.

Today, the issue of whether/how much the world is multipolar is complicated by the question of whether it is possible to frame effective international co-operation in a world where the two largest economies, the US and China, have such different philosophical underpinnings.

This strikes me as more fundamental than the traditional Bretton Woods issue of how to design a system which creates appropriate discipline for creditor and debtor nations, though I don't want to deny the importance of that issue.

The conclusion I draw here in terms of making multilateralism work is that we have to do all we can to make it work, and that this should be an acknowledged objective. Not least because many of the challenges we face cannot be fixed within national borders. We may end up with shallow multilateralism, and that may or may not be a helpful outcome. What we can't do is give up in the face of a more difficult environment.

This brings me, finally, back to the point about speaking truth to national power. Clearly the context matters a lot. Global co-operation has a greater chance of success when economic benefits are widely shared, as are the risks perceived to be – ie. we are all in this together, and know that we are so – and we exist in conditions of broad economic stability.

We can hope, but hope is not a winning strategy. A world where there is greater actual and perceived risk of unequal outcomes and instability is one where collective action is harder and less likely to succeed.

At least up to a point, because I think the lesson of Bretton Woods as it played out is that the influence of collective action is non-linear. In other words, when the situation gets really bad, take the financial crisis, the call for international collective action and the willingness to submit to it, grows almost exponentially. It takes a good crisis as they say. But this is not a basis on which to run good policy.

And this is the risk we face today – the vulnerabilities are growing, and the necessary solutions are global, but they are not sufficiently great to tip into crisis multilateralism. And we don't want that to happen.

As so we come back to the issue of how to influence by speaking truth to national power successfully, in a world of hostility to institutions. I will end with one thought on this, which I recognise may come across as too pious by half. We have to speak with humility and humanity. We don't know all the answers, and that is not a failing. The world is highly uncertain – and shock prone – and that is reality.

By building its surveillance offer and working with members on how to build ex ante resilience, the Fund can be seen as a trusted problem solver which can be turned to in moments of crisis, rather than an institution which calls out where things went wrong and mops up after the crisis occurs. We serve the people as a whole at all times. I say this because when we look back at the last 80 years, it has not always been viewed this way by society as a whole. ■

I would like to thank Stuart Berry, Mark Joy, Karen Jude, Harsh Mehta, James Talbot and Matt Trott for their help in the preparation of these remarks. This article is based on remarks given at King's College, Cambridge, January 17, 2025.

TISE Private Markets

Putting YOU in control

An innovative, integrated service providing your company with tailored electronic trading, settlement & registry solutions

Company controlled marketplace

Bespoke auction model

Seamless electronic settlement

Solution for pre-emption rights

All-inclusive, annual subscription fee

Safe & secure

tiseprivatemarkets.com

Delivering value in M&A

Jose Erasun is Financial Services Sales Manager at InterSystems UK & Ireland

Building on the momentum generated in 2024 of more than 50 acquisitions, M&A consolidation is set to continue across the UK financial advice industry at pace, revealing companies that are leaner, more innovative, and data-driven.

Private equity (PE) money is waiting to invest in the sector, with acquisitions focused on revenue and margin growth, and with the intention of accessing new markets and technologies to remain competitive. Easing interest rates and inflation, and the possibility of a more favourable US regulatory environment have combined with a private equity 'dry powder' cash pile.

Private equity investors can see that smaller financial advice businesses are struggling to invest in the technology necessary for compliance and to remain competitive. The PE aim in such consolidations is to create larger firms that leverage scale for greater efficiency and competitiveness. While data is a key enabler, the broader objective is to integrate and optimise various business functions to enhance operations, improve customer experience, and streamline regulatory compliance.

The reality, however, is that data integration problems post-merger are significantly reducing time-to-value. The complexity of integration is a serious drain on internal resources as acquiring businesses work out how to bring all this

disparate data together, losing out on further opportunities while risking disruption and non-compliance.

Compliance for firms offering financial advice is eating up more time

Compliance is a major headache for many firms. In the UK, aside from GDPR and the FCA's evolving regime of regulation, the application of the Consumer Duty Act is still unclear. ESG, geopolitical environments, technical advances and new, emerging fintechs are all increasing regulation.

The heavier reporting requirements that have accumulated over the last decade have intensified pressure on smaller firms that lack the resources to invest in advanced data technology. The smaller firms' inability to keep pace with industry demands makes their acquisition by bigger players increasingly likely.

Firms without significant resources can also see how technology enables their larger competitors to expand into their market, investing heavily in platforms that facilitate more detailed risk-modelling and more personalised levels of customer service. They can see how larger firms are more competitive in pricing and offer more services. Companies with more advanced data capabilities are also better positioned to meet increased customer demand for up-to-the-minute information that provides greater detail.

"As pressure mounts for financial organisations to transform, the ability to integrate new acquisitions seamlessly will be at the forefront of growth, by increasing revenue and margin, but also accessing new markets and keeping pace with key industry players through technological advances"

Regulatory scrutiny is continual

As the trend for acquisition of smaller firms continues in the UK, the expansion of M&A activity has caught the attention of the Financial Conduct Authority, which has expressed public concern about the soundness of mergers. It has cautioned that it wants a renewed focus on good outcomes for the 4.4 million people paying for financial advice.

In its October 2024 letter to CEOs[1], the FCA reminded those at the helm of advice firms that it wants evidence of thorough

due diligence, appropriate cover for liabilities, and proper integration-planning before it approves acquisitions. While in February this year, the FCA head of department, consumer investments market analysis and policy, Sara Woodroffe, said the organisation would take a close look at consolidations and report back in the summer.

The FCA is increasingly concerned about data

The FCA's approach is to maximise the power of data across the sector to achieve greater insight, while retiring the collection of less valuable reporting data. It is concerned that customers are continuing to pay for products they no longer want or need. The organisation is concerned about retirement advice, and therefore requests that firms 'maintain records to ensure appropriate monitoring and demonstrate they are delivering good outcomes'.

Data is a major concern. In May 2024, the FCA wrote to firms noting that closed products had gaps in customer data because of problems with legacy systems and legacy clients (back-book purchases). The regulator said advice offered must be compliant with the Consumer Duty Act that came into force in 2023. It expects firms to ensure good outcomes by filling in the data gaps to reduce any areas of vulnerability. Firms should showcase that they have 'implemented the Duty' and continue to remain compliant.

With Consumer Duty regulation less than clearcut in its requirements so far, firms need a consolidated overview for annual reporting. The risks of non-compliance are significant if firms have not streamlined processes or increased automation. The same challenges apply to the EU's new Retail Investment Strategy and the US SEC's disclosure rules. In the EU, firms must also adjust to emerging standards around the deployment of AI.

Unifying data is vital in M&A for risk management

Mergers in the financial advice sector always pose challenges in relation to unifying and analysing data from different systems. It is not only about preparing data to comply with due diligence and regulation. If a firm is to remain competitive, it must also use analytics to transform risk-management across the business, and to meet heightened expectations of customer service.

Firms need to bring all their data together, to clean and harmonise it for analysis and group-wide risk-assessment. Merged firms may, for example, share corporate customers who have been happy to use one firm for one purpose, and another with a different risk posture for a separate set of products or services. Without unified, clean and trustworthy data, it is difficult to manage such customers in a way that is efficient and compliant.

Firms need a new approach to disparate data

The difficulties in newly-merged businesses are the volume and variety of information involved, which is likely to be in separate formats and in widely different types of systems – or none at all. Often, the reality is that outdated and disparate technologies stand in the way of streamlined efficiency. Small financial advice firms may be able to get by on spreadsheets, but after acquisition this greatly hinders integration without a radically different approach.

Many consolidating firms in any case do not have the IT resources needed to achieve rapid integration of acquired businesses. An InterSystems survey[2] of financial services professionals in the UK and Ireland found 30% admitted to difficulties in connecting data from inside and outside the organisation, resulting in inconsistent and incomplete information.

A third (33%) said disparate systems and data sources were the most challenging aspects of regulatory compliance and reporting. More than four-in-ten (43%) of those surveyed said manual data-processing held back their organisation from gaining actionable insight.

When firms merge, these poor capabilities are amplified. Legacy systems and applications with legacy databases create enormous complexity. They prevent organisations from creating clean, standardised data across the reorganised business.

Approaches such as the use of data warehouses and data lakes make the harmonising of data both time-consuming and costly. The InterSystems research found two-thirds of firms employ between six and nine people to complete this task, hindering timely compliance reporting, and adding costs.

The three technologies required for integration after M&A

To streamline M&A activity, there a three key technologies required: integration (of diverse data sources including customer, market and operational data), data management, and analytics. The adoption of a smart data fabric can bring these technologies together, which saves a vast amount of time, which in turn creates a faster time-to-value, and is far less risky than conventional integrations. Implementing them separately (the conventional way) is usually very drawn-out and costly, with significant potential for disruption to business-as-usual.

The major difficulty is that finding data in the separate systems of merged firms and bringing it together for analytics is a real challenge when it is formatted differently and subject to divergent governance regimes. It can be uncertain whether what surfaces is wholly accurate and has not previously been adapted for a specific, long-forgotten purpose.

Risk-modelling needs unified data

Without reliable data and a single source of truth across the entire business, risk-modelling capabilities remain limited. In the InterSystems survey, 48% of respondents said improving risk management was among their priorities for compliance – way ahead of increased automation (31%).

Risk-assessment is increasingly critical in compliance, as regulators concern themselves with the risks to individual customers, and the ability of firms to cover liabilities as a result of M&A activity. In the UK, the larger a firm becomes, the greater the scrutiny from the FCA. At any time, the FCA may

conduct a thematic review that could result in enforcement action if a firm is found wanting. This is similar to a sweep by the SEC in the US[3].

While firms are busy finding data, verifying it and placing it in a format compliant with regulators' requirements, they are unable to focus on further acquisitions, develop product ranges, or provide new customer service propositions. How, for instance, will a firm be confident it has all the details required for reporting on meetings with individual customers who work with different businesses in the newly merged entity?

AI also needs unified data

Firms also need unified data if they are to meet aspirations for greater deployment of AI applications to streamline all aspects of their work, including on-boarding and compliance. In a 2024 PwC report[4], 73% of respondents in the related field of asset and wealth management said AI would be the most transformational technology in the next two-to-three years, helping drive growth.

Interactive AI advice solutions are much discussed, offering a path to more customers including what the PwC report calls the untapped 'mass affluent' market of people who have inherited investable assets. Yet as the report says: *"Only through robust data integration can firms realise the revenue and cost-saving benefits of technologies like GenAI, including profitability analysis."*

Irrespective of AI, any merger or acquisition demands careful attention to data as it is now central to client retention and the alignment of service-provision, customer communications, and processes across expanded organisations.

Customer retention after an acquisition can be tricky, as individuals may place very significant value on their close contact with a specific adviser. That is why it is important for the new business to understand these customers quickly and personalise services accordingly.

The advantages of a smart data fabric in financial advice M&A

Firms facing these challenges after a successful merger or acquisition need to be more innovative, adopting a smart data fabric architecture to meet all their post M&A requirements and realise the full potential of the deal.

The fabric is much easier to deploy than the alternatives and enables a much faster time-to-value, reducing the complexity of legacy technology stacks. It is in effect, the three technologies of integration, data management, and analytics in one solution.

It simplifies complex data infrastructures while harmonising legacy systems, without requiring replacements or lengthy IT projects. Whereas conventional technologies can take many months to deliver any results (and always come with risk as data silos are dismantled or moved) a smart data fabric can be operational in weeks.

It enhances traditional data warehouses, sitting on top of a firm's existing infrastructure, connecting disparate data without duplication. Enabling analytical capabilities, a smart data fabric delivers one unified, trusted version from all the different data systems in the new organisation's component businesses.

This streamlines the all-important end-to-end integration of data and applications, providing firms with the information and insight they need for compliance reporting, risk-assessment and the introduction of AI and machine learning.

Once a smart data fabric architecture is in place, the time and resources required for compliance reporting are vastly reduced. Firms find it easier to generate the necessary transparency about fees and charges, and to adapt to changing regulatory requirements and reviews.

This is an approach that delivers the centralised data governance, superior integration, and streamlined processes that expanding financial advice businesses need in an age of great opportunity and closer regulatory scrutiny.

Firms engaging in a series of acquisitions can benefit from this architecture to bring all their new businesses together under one data integration and management umbrella. This will transform compliance and enable them to fulfil their ambitions with AI, developing new services and providing an elevated level of customer experience for more tech-savvy customers.

As pressure mounts for financial organisations to transform, the ability to integrate new acquisitions seamlessly will be at the forefront of growth, by increasing revenue and margin, but also accessing new markets and keeping pace with key industry players through technological advances.

By leveraging a smart data fabric, institutions will be able to reinvent businesses' models with an accelerated and seamless integration experience of all parties' data to ensure operations on both sides continue with the least possible disruption. ■

Endnotes

1. See FCA's expectations for financial advisers and investment intermediaries (https://www.fca.org.uk/publication/correspondence/portfolio-letter-advisers-intermediaries-2024.pdf).

2. See Insight Report: From Data Risk to Regulation Ready (https://www.intersystems.com/uk/resources/insight-report-from-data-risk-to-regulation-ready/).

3. See Asset Management Transatlantic Regulatory Roundup: Differences in SEC and FCA Regulation of Fund Advisers (https://www.ropesgray.com/en/insights/podcasts/2024/06/asset-management-transatlantic-regulatory-roundup-differences-in-sec-and-fca-regulation-of-fund?utm_source=chatgpt.com).

4. Unleashing the transformative power of disruptive technology (https://www.pwc.com/gx/en/issues/transformation/asset-and-wealth-management-revolution.html).

Hydrogen trade will fuel an EU-India partnership

Jorgo Chatzimarkakis is CEO of Hydrogen Europe

With the on-going geopolitical shakeup creating uncertainty around the world, Europe needs reliable international partners more than ever. United, we are the world's largest trading bloc and still possess the economic and diplomatic tools with which to write our own future.

Indeed, it is through trade that any state - or union of states - may wield considerable 'soft power' and improve relations with the global community. This is no secret, but it may be useful to remind ourselves of this now, during this apparent global reshuffle of interests and values. India is one of Europe's largest trading partners, and Europe was India's top trade partner in goods in 2023 over the US and China. This existing relationship is ripe for further expansion for mutual benefit.

India, like Europe, is a democratic state investing heavily into clean technologies in an effort to decarbonise its vast economy. Many Indian companies are global leaders in renewable energy and energy efficiency. And, crucially, it has also turned its focus to renewable and low-carbon hydrogen.

India is working very effectively to reach its renewable hydrogen production target of five million tonnes by 2030, with an emphasis on exports. There are also clear plans to target the derivatives markets, for example by producing ammonia from hydrogen for fertiliser production.

The country is well placed to produce low-cost renewable hydrogen thanks to its excellent renewable energy resources. It's solar and wind potential—particularly in regions like Rajasthan, Gujarat, and Tamil Nadu—enable low-cost renewable electricity. This is critical for green hydrogen, methanol and ammonia production, as electricity account for a large share of overall costs.

Soon, India will become a major global trader of hydrogen and wants to trade with Europe, even attending European Hydrogen Week in November 2024 as the official partner country. In the EU-India Clean Energy & Climate Partnership workplan for 2025-2028 green hydrogen is among the five priority areas. We must take this opportunity with both hands!

The College of Commissioners attended a high-level summit with the Indian government in Delhi on 28 February in the runup to the presentation of the new EU-India Strategic Agenda. This is a concerted effort to build upon recent successes like the work on the European Free Trade Association (EFTA)-India Trade and Economic Partnership Agreement (TEPA), which will eliminate the majority of customs duties on industrial products. Market access for agricultural products has been improved, and EFTA countries have committed to spending US$100 billion in India.

Bilateral talks between European Commission President Ursula von der Leyen and Indian Prime Minister Narendra Modi were held in a hydrogen-powered bus, a potent symbol of their joint focus on clean technology. The way is already partially paved towards seamless hydrogen trade.

We know that on the energy transition and the role of hydrogen, both parties are very much aligned. As Hydrogen Europe wrote in a letter to president von der Leyen and her cabinet in mid-February, enhanced cooperation with India

therefore represents a key opportunity for Europe to diversify its hydrogen supplies, while consolidating the international positioning of European technologies. This is a win-win situation for everyone involved.

In her summit speech, Mrs von der Leyen specifically mentioned clean hydrogen as a critical value chain for the EU and India, and the importance of developing hydrogen infrastructure. She has also agreed the launch of a joint task force on green hydrogen. This shows her understanding of, and commitment to, the opportunity that is being presented to Europe.

Now we must do the important work of facilitating hydrogen and ammonia trade between us and make these plans a reality. Despite Europe's overly stringent rules on hydrogen production, India still wants to be our partner. For this we should be grateful, but not complacent. We should still work to ease the regulatory burden on hydrogen so that the market may flourish, and the pipelines of clean molecules may flow.

The sides agreed on some concrete steps following the summit, including the expedited conclusion of the free trade agreement, enhancing the dialogue on clean and green energy between governments and industry with a focus on green hydrogen, and strengthening collaboration in the Indo-Pacific including through trilateral cooperation projects. There was also a reiteration of the plan to realise the India-Middle East-Europe Economic Corridor (IMEC) announced during the G20 Leaders' Summit in New Delhi.

The summit will also have allowed further discussion on derisking instruments, including the Global Gateway plan, to help invest in India's sustainable future. It will also allow Europe to divest further from its dependence on Russia, by gradually replacing the supply of fertilisers with exports from India, with which we share the same democratic values. EU climate instruments such as the Carbon Border Adjustment Mechanism (CBAM) protects European producers from unfair competition but also rewards low-carbon imports.

"India is working very effectively to reach its renewable hydrogen production target of five million tonnes by 2030, with an emphasis on exports"

Certified green ammonia from India can enter the EU at lower carbon costs, making it more competitive. India is also in need of its own fertiliser supply, so we can work on developing this strategic hydrogen market for domestic consumption and international import/export in the name of climate protection and trade facilitation.

With the new US administration threatening tariffs on Europe and India, among others, previously solid relationships look increasingly unstable. We can no longer be sure to rely on the old-world order and the pre-existing arrangements. So it is almost existentially important for us to forge stronger bonds where possible. With India, hydrogen and clean technologies can be the glue that holds our great economies together while helping each other reach our climate goals. ■

Completing Ukraine's reconstruction architecture

Barry Eichengreen is the George C Pardee and Helen N Pardee Professor of Economics and Political Science at the University of California, Berkeley, and Vladyslav Rashkovan is Alternative Executive Director at the International Monetary Fund

There is an increasing flow of news that the brutal Russian war in Ukraine may end this year, which reopens discussion on the necessity of planning Ukraine's post-war reconstruction. Indeed, planning for reconstruction, to be effective, should get underway even before the conclusion of hostilities.

With this in mind, in 2022 we wrote a Vox column on how to organise aid for Ukraine (Eichengreen and Rashkovan 2022). So, it is time to take stock of what has been accomplished and sketch a way forward, especially considering that later this year several meetings on this topic are planned – from the Wilton Park conference in London in March to the Ukraine Recovery Conference (URC) in Rome in July.

Our 2022 column offered four specific proposals: (1) establish an agency to coordinate reconstruction efforts; (2) create a master multi-donor trust fund; (3) establish priorities for reconstruction; and (4) create a donor coordination mechanism.

Despite continued Russian aggression, multiple developments relevant to Ukraine's reconstruction have occurred since then, some in line with our recommendations.

For one, an agency for restoration was created in January 2023, shortly after our column. This was a Ukrainian agency, however, not a joint EU-Ukraine effort as we recommended. In addition, it was not a brand-new organisation but based instead on an old government agency responsible for building roads. Yet, despite this limited expertise, it started playing an important role in the effort to repair war damages and plan for reconstruction.

Following the G7 leaders' decision taken on 12 December 2022, a multi-agency donor coordination platform to support Ukraine's reconstruction (now formally the Ukraine Donor Platform, or UDP) was established in January 2023. The UDP platform has brought together 23 permanent and temporary members and observers, with seven international financial institutions and organizations participating in its work. It has a secretariat in Brussels and Kyiv.

Its Steering Committee has already met 12 times. While the platform organisation and work are far from superb, it is very positive fact that a dedicated group of experts meets regularly to discuss the organisation of support for Ukraine in a structured, institutionalized, coordinated way.

The Ukraine Co-Investment Platform, established by the development finance institutions (DFIs) of the G7 countries and the European Bank for Reconstruction and Development (EBRD) in May 2023, is another good example of coordination in support of Ukraine's reconstruction.

In June 2023 the platform was enlarged to 19 members via the addition of the European DFIs, thereby creating the EBRD-G7 DFI-EDFI Ukraine Investment Platform. It has been agreed that the EBRD, as the largest institutional investor in Ukraine, will act as the lead institution responsible for underwriting of financing under this platform.

Ukraine's IMF programme, approved in March 2023, acts as a catalyst for international budget aid and provides a framework for reconciling reconstruction spending with macroeconomic stability. The programme, supported by US$148 billion in financing assurances from the G7, the EU and other donors, has been designed to solve Ukraine's balance-of-payment problem and restore medium term external viability. This is important insofar as macrofinancial stability is a vital prerequisite for reconstruction.

The IMF programme's conditionalities are also aligned with Ukraine's own aim of EU accession. Indeed, Ukraine has already made progress on this accession agenda. The country received candidate status in June 2022. The European Council decided to open accession negotiations with the country in December 2023, and the first intergovernmental conference marking the formal launch of the accession negotiations was held on 25 June 2024. Given the pace of progress, the Ukrainian authorities are eyeing entry into the EU by 2030.

In all, over the first three years of the war Ukraine received budget support from international partners of nearly US$120 billion. US$78 billion of this has come since the start of the

IMF programme in 2023. The €50 billion EU facility for Ukraine approved in February 2024 and US$50 billion Extraordinary Revenue Acceleration (ERA) mechanism to be financed using revenues from immobilised Russian assets, agreed by the G7 leaders during the Apulia summit in June 2024, are byproducts of the three aforementioned developments: the donor coordination platform, the IMF programme, and Ukraine's path to EU accession.

Finally, in 2022, in preparation for the IMF programme, Ukraine with support from the World Bank undertook a comprehensive assessment of its public investment management framework (a PIMA assessment) (Shcherbyna *et al* 2023).

The PIMA became the basis for set of recommendations under the IMF programme, including building a robust screening process for the investment projects, creating a formal framework for prioritising capital spending items, establishing a single projects pipeline (SPP) for investment projects, and creating a Strategic Investment Council for their approval and integration into medium-term budgeting planning.

These are all steps towards a more transparent and thoughtful approach to reconstruction. Further steps should include the creation of project preparation facilities (PPFs) and project implementation units (PIUs) to improve the quality of the projects proposals and their implementation.

The latest Rapid Damage and Needs Assessment (RDNA4) report (World Bank 2024) has provided estimates of direct war damages ($176 billion) and overall reconstruction needs over the next ten years ($524 billion). Unfortunately, such numbers are moving targets; they will have to be updated as the war proceeds.

In addition, the reconstruction needs assessment should be a function of more than wartime damages, it should be based on the country's vision of post-war Ukraine. Such a vision should assume not only 'building back better' but also 'building back differently', reflecting closer future ties to the EU, more clarity on the location of controlled borders, and pragmatic estimation of the country's postwar population.

Disappointingly, recent donor conferences in Lugano (2022), London (2023), and Berlin (2024) have not encouraged such a vision or elicited much actual aid for reconstruction. So, the next major donor conference in Rome in July should be an occasion introducing these and other missing elements.

First, Ukraine needs a more transparent and coherent tracking system for reconstruction aid. The Kiel Institute has stepped into the breech, building the Ukraine Support Tracker currently used by media sources. But this system tracks aid commitments only in military, budgetary and humanitarian areas, and doesn't focus on reconstruction.

The tracker relies on open-source news; its estimates are not reconciled either by donors or the Government of Ukraine. With a proper, certified support tracker, it would be possible to avoid disputes like the recent one on US aid to Ukraine.

"We believe that the Ukraine Development Bank could initially function as a trust fund, operating for example under the umbrella of the World Bank but as a separate legal entity (effectively, a financial intermediary fund) with its own governance steered by key donors"

Establishing a robust system of reporting, performance metrics, and regular auditing could help sustain donor trust and ensure efficiency for the reconstruction process. A proper digital system could be built by the UDP based on the Kiel Institute database and methodology and merged with a project-based monitoring system in Ukraine (Fengler and Rashkovan 2024), such as the already existing Digital Restoration Ecosystem for Accountable Management (DREAM).

Done properly, a centralised data and information-sharing platform accessible to donors, stakeholders, and implementing entities would enable effective tracking of projects, financial flows, and impact assessments, while enhancing quality of further reconstruction decisions.

Second, over time, the UDP itself could evolve into an Economic Cooperation Administration-type institution – the ECA having been the administrator of the Marshall Plan (Eichengreen 2022). Instead of periodic ad-hoc meetings of donors, with a hundred plus attendees, better would be to create a permanent institution with centres in Europe and Kyiv, with a permanent staff focused on developing a vision and strategy for reconstruction.

Aid is essential, but ownership of the reconstruction process should be in hands of Ukraine. Only Ukraine itself can determine its future and define a vision of the country it wants to build after the war (Berglöf and Rashkovan 2023). But an institution (perhaps named the Ukraine Reconstruction and Modernisation Agency, or URMA), jointly owned, overseen, and co-led by donor governments and representatives of the government of Ukraine, could serve as a final coordinator of all financial aid, technical assistance, and expertise in support of reconstruction.

URMA could relax capacity constraints by providing international experts and training local counterparts for standing PPFs and PIUs, providing information from individuals on the ground at the regional level to those responsible for the SPP.

After WWII, the ECA administered the financial flows of the Marshall Plan through a coordinated funding and procurement mechanism. URMA could similarly oversee dedicated financial instruments (such as trust funds, guarantees, loans, grants, and

blended finance) managed in partnership with multilateral banks and bilateral donor agencies and platforms, such as the EBRD-G7 DFI-EDFI Ukraine Investment Platform.

Similar to the role played by ECA 80 years ago, URMA could develop strategic initiatives specifically targeting private sector development, encouraging foreign direct investment, and improving Ukraine's postwar market access.

Mirroring the experience of another institution built to facilitate the Marshall Plan implementation – the Organization for European Economic Cooperation (OEEC) – URMA could create specialised technical working groups in key sectors such as housing, transport, energy, digital infrastructure, and agriculture, each staffed jointly by international and local experts.

These groups would facilitate detailed planning, knowledge transfer, and synchronisation across reconstruction projects. OEEC's model of combining high-level policy coordination with detailed operational committees should be followed.

A clear division between strategic oversight (policy, funding approval) and operational management (implementation, technical assistance, day-to-day oversight) would streamline decision-making and improve efficiency in the course of a long reconstruction process.

Finally, a CEPR report issued in 2024 (Carletti *et al* 2024) proposed the creation of a Ukraine Development Bank (UDB). We believe that the UDB could initially function as a trust fund, operating for example under the umbrella of the World Bank but as a separate legal entity (effectively, a financial intermediary fund) with its own governance steered by key donors.

Its primary role would be to mobilise, allocate, and manage financial resources aimed at accelerating Ukraine's economic reconstruction and modernisation. A 'coalition of the willing' – predominantly EU and G7 countries – could provide the initial capital for UDB.

On top of that, UDB could be jointly co-financed by the major DFIs involved in the Ukraine's reconstruction, for example, by the members of the EBRD-G7 DFI-EDFI Ukraine Investment Platform. Proceeds from confiscated Russian sovereign assets could be another source of its capital and funding.

Beyond initial shareholder contributions, additional capitalisation could come through innovative financing mechanisms, including borrowing against anticipated revenues from Ukraine's substantial reserves of rare earth minerals and other critical raw materials.

Recent international interest in Ukraine's resource potential underscores the feasibility of such an approach. This forward-looking financial strategy would enable Ukraine to leverage future resource extraction to immediately support critical infrastructure and economic projects.

The UDB's governance structure should balance efficiency, transparency, and accountability, involving management and oversight from international donors and partners and Ukrainian authorities and. Close coordination with the URMA would be essential to ensure that funded projects align closely with national reconstruction vision and priorities, and broader development objectives.

Furthermore, the UDB could serve as a catalyst for private sector investment, providing guarantees and co-financing instruments that lower risks and encourage private capital inflows into strategic sectors. Clearly, there is much to do, and it is past-due time to do it. ■

References
Berglöf, E and V Rashkovan (2023), "Reconstructing and Reforming Ukraine", LSE Public Policy Review 3(1): 18.
Carletti, E, Y Gorodnichenko, H James, J-P Krahnen, V Rashkovan, A Rodnyansky and I Sologoub (2024), Ukraine's Reconstruction: Policy Options for Building an Effective Financial Architecture, CEPR Press.
Eichengreen, B (2022), "Shaping a Marshall Plan for Ukraine", Project Syndicate, 10 May.
Eichengreen, B and V Rashkovan (2022), "How to organise aid", VoxEU.org, 12 December.
Fedyk, A and J Hodson (2025), "New analysis from Economists for Ukraine: The cost of US aid to Ukraine is less than half the official figures", VoxEU.org, 6 March.
Fengler, W and V Rashkovan (2024), "Tracking Ukraine's Reconstruction Funds", Project Syndicate, 17 June.
Shcherbyna, I, N Manuilova, J-H Kim et al (2023), Ukraine - Public Investment Management Diagnostic Assessment Report, World Bank Group.
World Bank (2024), Ukraine - Fourth Rapid Damage and Needs Assessment (RDNA4): February 2022 - December 2024.

This article was originally published on VoxEU.org.

The compliance challenges to come

Henrietta Worthington is a Solicitor at Vedder Price

The imposition of concerted sanctions against Russia has changed the global sanctions landscape and the interconnection of the global economy. The sheer scale and breadth of the sanctions imposed is striking, and has been described as a 'modern form of economic and technological warfare', with the measures taken by the sanctioning nations coordinated, novel and unprecedented.

The complexities of unpicking Russia's integration in the global economy cannot be overstated. Companies have spent considerable resources over the past three years updating their internal processes and amending their business practices to ensure compliance. The real question now is what a peace deal may mean for companies caught between the swathes of sanctions restrictions.

The EU, UK, US and other allies have acted to impose coordinated sanctions on Russia in a way that has never been seen before, with the intention of allowing the sanctions to have a powerful 'bite', reducing the ability to 'jurisdiction shop' and creating a noteworthy impact on the Russian economy.

The approach was complex and considered. Europe's reliance on Russian energy; the opposing geopolitical considerations of the sanctioning nations; and Russia's position as a significant global economy with substantial oil, gas and critical metal reserves meant that the task of imposing the layers of sanctions was challenging. Lawmakers had to strike the balance between a sanctions package that had sufficient bite, whilst not triggering economic chaos.

Coordinated approach

The response against Russia's actions was the largest ever coordinated use of sanctions as a coercive economic weapon. Achieving consensus on these measures was no mean feat. Each sanctioning nation had its own foreign policy objectives and legal framework to contend with. They also had to

consider the stability of the global economy and whether some of the more significant measures might unsettle the markets.

Indeed, the measures have taken much of the blame for spikes in global oil and gas prices, and the imposition of a total embargo was not possible due to the integration of Russia in the global economy, and therefore some exceptions were required whilst still delivering a substantial blow.

Each jurisdiction had its own agenda. The UK had become home to a sizable amount of illicit Russian wealth. Germany had announced that it was phasing out nuclear power and was increasing its reliance on Russian gas. At the time of the Ukraine invasion, Germany relied on Russia for almost half of its gas imports. Canada had the world's second largest Ukrainian diaspora after Russia.

However, the G7 nations were largely able to agree upon waves and waves of coordinated sanctions against Russia. Naturally, whilst there was largely alignment on the measures imposed, the nature of the distinct legal frameworks led to a level of fragmentation in implementation and effect. Companies active across the various jurisdictions have to pore through the minutiae of the restrictions to ensure strict compliance.

New measures

The sanctioning nations also acted to introduce novel restrictions, which often left companies grappling to understand the measures and how to adhere to their compliance requirements. Tools such as the designation of sanctioned individuals and entities are well-established as a coercive economic measure. Whilst this has never been used to sanction so many targets in a particular jurisdiction - currently almost 2,400 individuals and entities are sanctioned under the EU's Russian sanctions regime - its effect and how to comply is understood.

"The sanctions imposed against Russia in response to its invasion of Ukraine represent a coordinated allied economic force that has not been seen before"

It undoubtedly has its own complexities in terms of compliance, with issues such as determining ownership and control in often murky ownership structures, coupled with the nuanced tests between jurisdictions, but ultimately compliance teams are aware of the steps that need to be taken.

As the war raged on, the EU in particular began considering new tactics to bolster its existing sanctions packages, with a focus on anti-circumvention. In recognition that there was still significant leakage of high priority items into Russia, the EU introduced a requirement for EU exporters of specified items such as aircraft and jet fuel to include a 'no re-export to Russia' clause in their contracts: the so called 'No Russia clause'.

This new legal requirement also applies retrospectively, meaning that EU operators were required to amend existing in-scope export contracts. This created a sizeable administrative burden on companies that had to re-open existing contracts to ensure legal compliance.

The EU's efforts also included the development of two new sanctions regimes relating to Russia. In May 2024, it introduced a standalone sanctions regime aimed at targeting those responsible for human rights violations in Russia. Whilst this measure is not specifically related to Russia's actions in Ukraine, it provides broad powers for the EU to make designations and restrict the transfer of equipment and associated technology that may be used for internal repression activities.

It is intended to complement the EU's existing human rights regime, and is significant in the fact that it is the first country-specific framework of this kind. Further bolstering its arsenal against Russia, in October 2024, the EU imposed another new sanctions regime relating to Russian hybrid threats. The new regime allows the bloc to target companies and individuals engaged in destabilising activities, including undermining democratic political processes, and malicious cyber activities.

Old measures, new muscle

Measures such as the disconnection of the largest Russian banks from the SWIFT international financial messaging system had been used before. SWIFT is used to facilitate international payments, so the banning of strategic banks makes it harder to move money in and out of Russia.

This measure had also been deployed against Iranian banks in 2012, but its impact is undoubtedly greater in the context of Russia due to its integration in the global financial system. SWIFT is a Belgian entity, and therefore it was the EU who had to impose this measure.

However, given European reliance on Russian gas, certain smaller Russian banks were allowed to continue to operate on SWIFT to facilitate payments for gas supplies. The EU also later banned the use of the 'System for Transfer of Financial Messages' (SPFS) of the Central Bank of Russia.

The coordinated immobilisation of Russia's Central Bank reserve holdings is significant. It is estimated that €210 billion worth of assets is currently frozen in the EU. Again, this measure had been used before, for example by the US against Afghanistan in 2021.

Russia's position in the global economy and the aligned approach taken by the G7 nations has given this tool considerable bite. No major central bank has ever been blocked in this way. The ramifications are hard to predict in terms of their effect on the global economy, but the impact of this coordinated measure is substantial. However, as was the case for many of the measures taken, this action is not without its drawbacks.

Critics of the action claim that it may undermine the significance of the dollar, euro, pound and yen in the global economy, creating uncertainty about the safety of these currencies and provoking nations to reconsider the risks of economic interdependence.

What could a peace deal mean for sanctions?

Current signs indicate that there is appetite in the US to roll back on at least some of its sanctions against Russia. It has been reported that the US is already reviewing its current sanctions package with a view to what relief it can provide to Russia.

It is more likely that Europe will maintain its firm position. Where companies have been impacted by the nuances between the different sanctions regimes in response to Russia's invasion of Ukraine, a US withdrawal from the sanctions block would have far more severe compliance challenges. Companies caught between regimes would have to carefully balance the value of doing business in Russia against the legal [and reputational] challenges.

The only real comparable scenario is the conception of the Joint Comprehensive Plan of Action (JCPOA) which provided for the coordinated easing of sanctions against Iran, followed by the subsequent US withdrawal from the plan during President Trump's first presidency. Whilst the US reinstated many of its previous sanctions restrictions against Iran, which 'snapped-back' in 2018, the EU and other nations tried to uphold the integrity of the agreement.

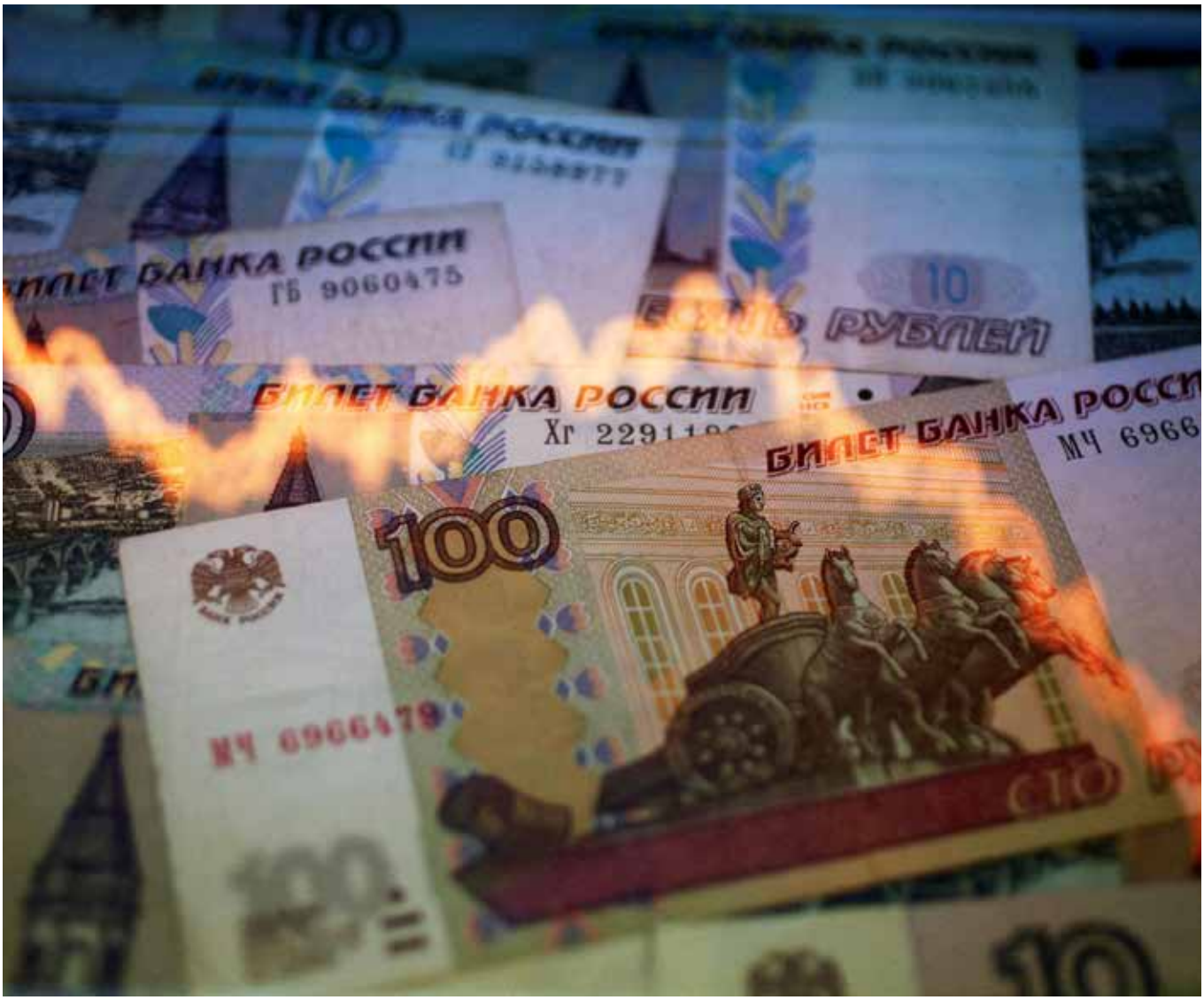
The continuing nations maintained their negotiations with Iran and attempted to assist companies navigating the diverging positions. The EU (including the UK at the time) attempted to facilitate adherence to the terms of the JCPOA through use of its Blocking Statute, and the creation of a special purpose financing channel known as INSTEX.

In general, companies caught between the diverging sanctions requirements chose to adhere to the more stringent and better enforced US sanctions, despite the facilitation tools provided by the EU. This acted to undermine the JCPOA and reflects the strength of the US position in the global economy. INSTEX was used to process one payment and was liquidated in 2023.

Still, the possible sanctions outcome based on current indications would create the inverse effect: a position where the US permits a level of engagement with Russia which is prohibited in the other sanctioning jurisdictions. The US sanctions system is arguably more established, better enforced and more feared than its European counterparts.

However, the European nations have stepped up their enforcement measures in the past years. In May 2024, the EU introduced a new directive ensuring enforcement harmonisation across member states by setting out minimum penalties for sanctions breaches and criminalising certain sanctions violations.

It remains to be seen what would happen in the case of a divergence between Russian sanctions regimes. There has been considerable coverage regarding the imposition of the oil price cap and the coordinated measures taken against



Russia's 'shadow fleet'. Any roll back on the US position would likely undermine the position of the rest of the sanctioning group.

Nevertheless, many have lauded the EU's actions against Russia as having the most significant effect on the Russian economy. Of the sanctioning nations, the EU is Russia's largest trading partner, holding the greatest amount of (now frozen) Russian central bank reserves, and is home to SWIFT.

In theory, a strong Europe could still present an effective economic threat to the Russian regime. However, it's not clear how this would work in practice and what it would mean for businesses operating on both sides of the Atlantic.

The EU's recent focus on anticircumvention measures means that a US withdrawal from the coordinated approach may have considerable compliance implications. Taking the example of the 'No Russia' clause in aviation contracts, the US is currently a 'partner country' in the regulation, meaning that aviation contracts between US and EU counterparties are exempt from the requirement to include a No Russia clause.

The list of 'partner countries' in the EU regulation is made up of jurisdictions with substantively similar sanctions restrictions in place against Russia, meaning that the EU is less concerned that there may be leakage of high priority items. Yet, in a situation where the US rolls back on its restrictions, there is a theoretical risk that the US could become a channel for Russian exports, thus undermining the EU's measures.

The sanctions imposed against Russia in response to its invasion of Ukraine represent a coordinated allied economic force that has not been seen before. As former President Joe Biden noted in an address, 'taken together, these economic sanctions are a new kind of economic statecraft with the power to inflict damage that rivals military might'.

The power of the bite of the sanctions against Russia is in their coordination: shutting Russia off from a significant chunk of the world's economy. At the time of writing, it appears that any unwinding of sanctions will not be coordinated. It is currently unclear exactly what President Trump's intentions are, but companies will need to watch closely to ensure compliance. ■

The good business school

Carl Rhodes is Dean and Professor of Organization Studies at The University of Technology Sydney, Australia, and Alison Pullen is Professor of Gender, Work and Organization at Macquarie University, Australia

The business school and its discontents

The title of this article might appear to be oxymoronic, with 'good' seldom attributed to business schools. More likely than not, they are seen as being somewhere on a limited spectrum between benign and exploitative.

Business schools, at least Western ones, have been hailed as strategic cash cows that can produce funding for more expensive university programmes in medicine, science and engineering. With the growth of international education since the 1980s, business became the degree de jour for the ambitious CEO aspirant.

People flocked to business schools in search of a passport to the C-suite and the financial and career largesse that came with it. Financially, both the schools and their students were in it for the money.

The contemporary business school grew to be an elitist institution, modelled on an exclusionary meritocracy that is less interested in the common good and shared prosperity and more focussed on individual success in the social Darwinist jungle of global capitalism.

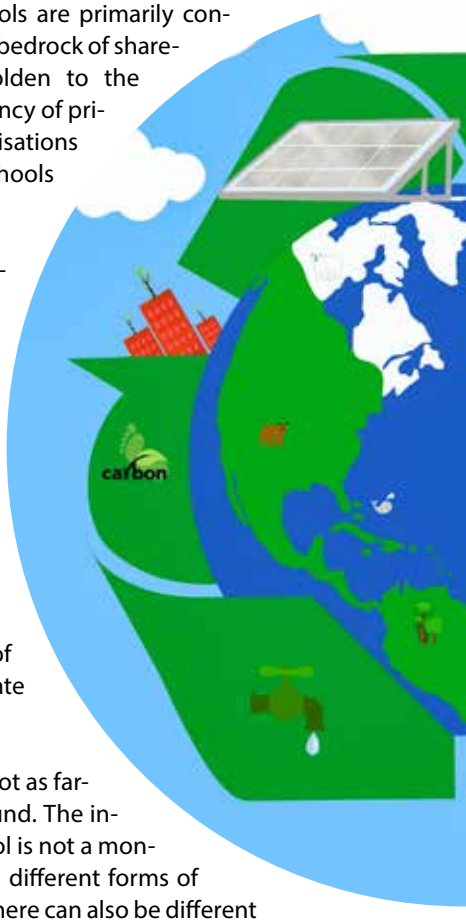
If we look at how business schools are managed the picture is grim. Business schools have been condemned as cosplay corporations obsessed with financial metrics, league table rankings and inter-institutional competition. Meanwhile, the business school curriculum is commonly accused of being static and outdated.

When big problems such as climate change or economic inequality are taken up in the business school classroom, the approach is slammed for either being too insipid to drive real change or being hoodwinked by woke leftism and anti-business. Business schools' unwillingness to upset the apple cart of corporate capitalism has even been seen to be complicit in the scourge of right-wing populism around the world.

Getting political in the business school

Confronted with such severe and compelling criticisms, what might business schools do to change? In contradiction to the economically competitive nature and individualistic ethos of business schools, the answer to this question is primarily political.

Contemporary business schools are primarily conceived as economic built on a bedrock of shareholder capitalism and beholden to the financial wellbeing and efficiency of private enterprises, public organisations and individuals, and the schools themselves.



To conceive of the 'good business school' requires a radical departure from the neoliberal past – a fundamental rethinking of the purpose and practice of business schools, reimagining them as political rather than economic institutions. The good business school supports the democratic ideals of equality, freedom and solidarity, where the purpose of business activity is not private gain but shared prosperity.

The good business school is not as far-fetched as it might at first sound. The institution of the business school is not a monolith. Just as there have been different forms of business schools in the past, there can also be different ones in the future—models not seduced by corporate managerialism and market competition and the dominant instrumental model of the business school that follows.

What are needed, and what are emerging, are hopeful accounts of how business schools can positively contribute to societies globally by harnessing a new form of democratically inspired leadership focused on building value for all citizens.

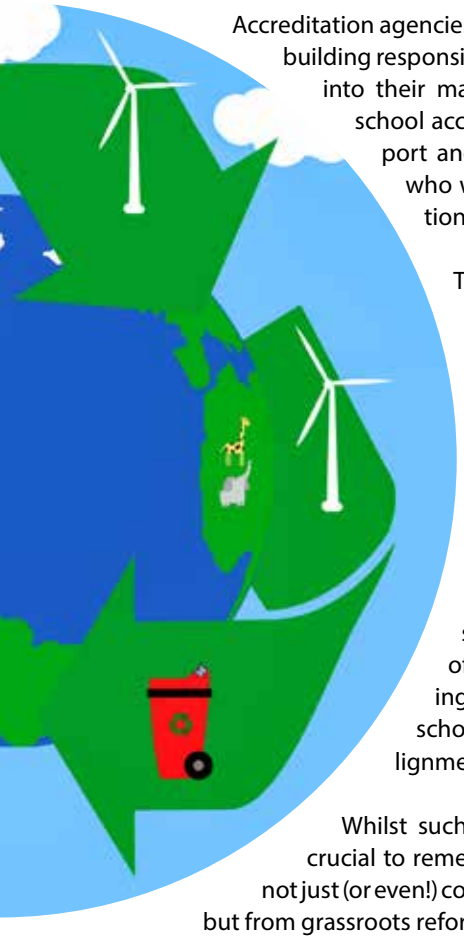
Against the juggernaut of the corporate business school, the real possibility of business education and research that

re-engages with the public and democratic tradition of the university is not a pipe dream, it is already here. The good business school develops knowledge and educates citizens not just for effective business functioning but also to harness social and political understanding of the role of business and management in creating a better and more equal society on a global level.

Such a school is one where business education develops students' abilities to understand business' broader position in society and make informed and responsible choices. It is also where business research supports and builds a fairer and more equal society.

An opportunity for the taking

For universities, business schools and all business school academics, the challenge and opportunity are there for the taking. Real change has already been made. In many business schools research and curriculum are increasingly focussed on critical issues such as climate change, sustainability, racism, sexism and (to a lesser extent) economic inequality.



Accreditation agencies such as EFMD and AACSB are building responsible business and social impact into their mandatory criteria for business school accreditation, providing the support and structures to those schools who want to make the transformation.

The long-standing take-up of the United Nations Principles of Responsible Management Education (PRME) is another great example of change, as is the working of the Global Sustainable Business Network (GSBN) and the Globally Responsible Leadership Initiative (GRLI). Some business schools might sign onto such initiatives as an exercise of business school woke washing, but progressively there are schools seeking fundamental realignment.

Whilst such initiatives are essential, it is crucial to remember that deep change does not just (or even!) come from executive imprimatur but from grassroots reform led from the classroom and research centre. Amongst the academic community, there is still a belief held by many that universities serve the purpose of the public good. The long-held purpose of universities having a core democratic mission is far from dead.

Battered but not entirely broken, universities and their business schools retain the promise of inclusiveness, progress and common value. The ideal of the good business school works to keep that promise through core academic activities of teaching practice, research, public engagement and management.

"Business schools are primarily conceived as economic built on a bedrock of shareholder capitalism and beholden to the financial wellbeing and efficiency of private enterprises, public organisations and individuals"

Outside of the woke-washing headlines produced by university PR teams, the everyday work of academics is where real differences are made, making possible a truly engaged school embedded within local and global communities and making a real difference to social, economic, political and environmental wellbeing.

It is also worth reminding ourselves that the business school is not singular in its purpose, structure or practice. Just as there have been different forms of business schools in the past, there can also be different ones in the future – models not seduced by corporate managerialism and market competition and the dominant instrumental model of the business school that follows.

Looking ahead

A belief in public and democratic business schools means educating citizens to be leaders and professionals who can not only perform the functions of business but also have a broader social and political understanding of the role of business and management in creating a better and more equal society on a global level.

It also means engaging in meaningful research that contributes to debating, understanding and addressing the world's 'grand challenges' of climate change, energy, health and the delivery of social care, inequality and marginalisation. Such is the public and democratic promise of the good business school.

The opportunity is for business schools, from the ground up, to redirect their efforts towards an explicit mission of delivering on a public purpose of social and economic development for all. The possibility of business education and research that re-engages with the public and democratic function of the university has emerged. ■

This article was developed from the published paper: Rhodes, C and Pullen, A (2023) The Good Business School, Organization, 30(6): 1723-120, and is the subject of Carl and Alison's forthcoming book of the same title to be published in 2026 by Bristol University Press. This article is based on an article in EFMD Global Focus | Vol.19 Issue 02 | 2025.

Bad actors move over

Jonathan Sharp is CEO of Britannic

Cybercrime, fraud and scams are on the increase with the sophistication of generative AI making it difficult to determine if voice calls, texts and emails are authentic. Scammers otherwise known as 'bad actors' are even using Deepfake images for fraudulent video calls and cloning people's voices making (vishing) it nearly impossible to tell what's real and what's not.

It's a scary world out there for customers particularly in the financial services industry where scammers are rife. Many customers are too fearful to open communications from companies even if they are legitimate. Resulting in wasted sales and marketing efforts where promotions, customer care initiatives and updates are being ignored. This impacts engagement and response rates and ultimately leads to a decline in the bottom line.

Incoming bad actors

The stats depicting the increase in cybercrime are alarming with experts predicting that the estimated cost of cybercrime will grow by approximately 70% between 2024-2029 costing businesses worldwide around $15.83 trillion (Statistica). The threats are to everyone from governments, public sector organisations and businesses with ransomware and to individuals.

The 'bad actors' are only after two things either your personal data or your money. The rise of fraudulent voice calls, text messages, emails and social media scams is on the increase, with over 42% of adults being scammed this year. Plus, a shocking 33% say they have been duped and lost money to a scammer (NatWest). A staggering 32 million phishing emails have been reported to the Suspicious Email Reporting Services (SERS) of Action Fraud UK. With about 1 in 5 consumers falling to scams such as phishing links.

Previously scams or fraudulent communications were relatively easy to identify because spelling or grammar were incorrect or the tone or the language was off. Now with generative AI bad actors can programme the language, tone, spelling etc and produce word perfect communications in the same style as the company they are mimicking. They can also design the same logo, corporate colours and look and feel.

There is every scam going from parcel delivery, notes from Amazon, people pretending to be from your bank, Microsoft and even fraudulent texts from your supposed child saying they need your help so please send money.

Pension scams are also huge, Action Fraud reported in 2023 a total of £17.7 million was reported lost to pension fraud equating an average loss of nearly £47,000 per person. However, bad actors and cybercrime is not prejudice to anyone and everyone irrespective of age is vulnerable.

Improving awareness and education

Cyber-crime will increase and get more sophisticated by the day and it is crucial that children and adults are made aware of it. We need to understand what to look out for in scams so we can do our best to avoid it.

Schools hold talks on County Lines drugs to warn children about the dangers of drugs and how they are targeted and the scams they use to rope them in. The same should be done about cyber-crimes particularly as they spend so much time on screens, are vulnerable and would be excited at the prospect to make a lot of easy money.

A recent scheme from Russian Coms gave rise to a new phenomenon, Fraud as a Service (FaaS) where children and adults could buy a handset and service (including 24x7 support) advertised on social media, with over 7,000 followers with the intention to scam people and make money from it. They allowed fraudsters to pretend to be callers from a bank

or telecoms firm to steal money or personal details, targeting adults and vulnerable children as the perfect targets who want to make money.

The National Crime Agency reported that between 2021 and 2024, over 1.3 million calls were made by Russian Coms users to 500,000 unique UK phone numbers, with about 170,000 people in the UK are believed to be victims, with the average reported loss more than £9,400. Thankfully the online platform was shut down by the NCA.

We all see coverage in the media about scams but there needs to be a concentrated effort and initiatives to educate, inform and increase the awareness of cyber-crimes. Who is accountable to own this? Is it the government or the National Crime Agency? There is a number you can text 7726 (which spells out SCAM) for free by forwarding the text to report a scam or suspicious text. The phone operator can investigate the origin of the text and arrange to block or ban the sender. Did you know about this number? Exactly!

Increasing the trust

Building trust is imperative and it is therefore no surprise that customers are scared to open emails, texts and social media messages and even take phone calls from customers. However, companies don't need to worry and return to the old days of direct mail.

Instead, they need to ensure that all their digital and voice communications are personalised and verified so customers trust them. This can be achieved by sending out guidelines and a message albeit by direct mail informing them that what your company will and not ask for over digital communications and phone calls.

Branded messages for mobile phones using rich communications services (RCS) elevate your messages using multi-media with images, videos and action buttons to create an engaging and interactive experience. But critically, they can be verified and seamlessly integrated with real-time communications producing delivery receipts and read confirmations with the ability for automated responses. All resulting in secure and verified text messages and phone calls. With a call branding solution customers can see the call is coming from a verified company as your logo, number and reason for the call on the screen with the incoming call. This will help to secure your communications and build trust with customers.

"It is time to take action and 'fight fire with fire' and do everything in your power to move the 'bad actors' off the centre stage and focus on the 'good actors' to increase trust with customers and secure your IT infrastructure and communications"

Enabling financial services business, utilities, logistics, public sector and more, to achieve higher engagement and response rates particularly with the fact that the blue tick will verify the message to reassure customers they are interacting with an authentic and secure business.

From bad actors to good actors

Harness the superpower of AI to turn it into a good actor and use its phenomenal capabilities to secure your IT infrastructure and communications to stop cyber criminals and bad actors in their tracks. AI security solutions can monitor vast amounts of data and identify irregularities in real time using fraud detection algorithms that improve the identification and treatment of bad actors. Enabling security professionals to respond rapidly and where appropriate they can also generate an automatic response.

A report by Microsoft in collaboration with Dr Brauer at Goldsmiths, University of London stated that 87% of organisations in the UK surveyed were vulnerable to attacks yet only 27% of them were using AI to strengthen their security.

He cites that organisations should 'fight fire with fire' and use the same AI technologies to secure their organisations and tip back the balance in their favour. The report reveals that stronger cybersecurity could potentially save the UK economy £352 billion a year.

Reduce fear and increase engagement

The government, National Cybercrime Agency, schools and businesses need to come together to educate, inform and spread awareness of what to look out for in scams. How to avoid them and how to report them.

For you, it is time to take action and 'fight fire with fire' and do everything in your power to move the 'bad actors' off the centre stage and focus on the 'good actors' to increase trust with customers and secure your IT infrastructure and communications. ■

How offshore banking can secure your financial future in 2025

Luigi Wewege is President of Caye International Bank

In an era of economic turbulence and political uncertainty, individuals and businesses are searching for financial strategies that offer stability, security, and access to global opportunities. One such strategy—offshore banking—has long been misunderstood, yet it remains one of the most effective ways to protect wealth, diversify assets, and secure financial privacy.

The idea of offshore banking often conjures images of secrecy and exclusivity, but the reality is far different. Today, offshore banking is a fully legitimate and accessible option for anyone looking to strengthen their financial position. Whether you are an entrepreneur, an expatriate, or simply someone concerned about economic instability in your home country, offshore banking presents clear and tangible benefits.

Beyond borders: the case for offshore banking

The global financial landscape is constantly shifting. Inflationary pressures, banking crises, and government interventions can all pose risks to wealth held in a single jurisdiction. By banking offshore, individuals can shield their assets from sudden regulatory changes, lawsuits, and economic downturns. Countries with well-established offshore banking sectors such as Belize, Switzerland, and Singapore offer financial systems that prioritize stability, privacy, and investor-friendly policies.

One of the most compelling advantages of offshore banking is diversification. Investors and savers alike understand the importance of spreading risk, and the same principle applies to where money is held. Offshore accounts often grant access to multiple currencies, international investment markets, and financial instruments unavailable in domestic banking systems.

Additionally, offshore banks provide enhanced privacy protections. While transparency and regulatory compliance are crucial, certain jurisdictions still uphold strong

confidentiality laws that protect account holders from unwarranted intrusion into their financial affairs. This is not about evading obligations but about maintaining control over one's financial information in a world where personal data is increasingly vulnerable.

Why more people are turning to offshore banking in 2025

As we move deeper into 2025, global financial instability continues to be a major concern. Countries facing high inflation, debt crises, and banking failures are prompting individuals to explore alternatives to domestic financial systems. Offshore banking has become a preferred solution for several reasons:

1. Protection against domestic banking risks

The collapse of major banks in recent years has demonstrated that no financial institution is truly immune to failure. Depositors are often left vulnerable, facing frozen accounts, withdrawal limits, or even government interventions. Offshore banks, particularly those in politically stable jurisdictions, provide an added layer of security against such risks.

2. Hedging against currency volatility

For individuals and businesses operating in countries with unstable currencies, offshore banking offers access to accounts denominated in stable foreign currencies such as the US dollar, euro, or Swiss franc. This serves as a hedge against inflation and devaluation, preserving the purchasing power of assets.

3. Access to international investment opportunities

Domestic financial systems often impose restrictions on foreign investments. Offshore banking opens doors to global markets, allowing individuals to diversify their investment portfolios with international stocks, bonds, mutual funds, and real estate. These options often provide better returns and lower risks than domestic-only investments.

4. Enhanced tax efficiency

While offshore banking is not a means to evade taxes, it is a legitimate tool for tax optimization. Many jurisdictions offer favourable tax policies for international investors, allowing individuals and businesses to minimize tax burdens legally and efficiently.

5. Better banking services and financial technology

Offshore banks have become pioneers in financial technology, offering cutting-edge online banking, multi-currency accounts, cryptocurrency integration, and secure digital transactions. These features make it easier for account holders to manage their finances from anywhere in the world.

Dispelling myths about offshore banking

Despite its clear advantages, offshore banking continues to be clouded by misconceptions. Let's address a few of the most common myths:

'Offshore banking is only for the ultra-wealthy'. While offshore banking was historically associated with the elite, today's offshore financial services cater to a broad spectrum of individuals, including small business owners, retirees, and expatriates. Many banks allow account openings with relatively modest deposits.

"The global financial landscape is constantly shifting. Inflationary pressures, banking crises, and government interventions can all pose risks to wealth held in a single jurisdiction. By banking offshore, individuals can shield their assets from sudden regulatory changes, lawsuits, and economic downturns"

'It's illegal or shady'. Offshore banking is entirely legal when conducted transparently and in compliance with tax and reporting laws. Governments worldwide recognize the legitimacy of offshore banking and have frameworks in place to ensure ethical financial practices.

'Offshore accounts are unsafe'. Reputable offshore banks operate under stringent regulations and often provide better financial protections than domestic institutions. Choosing a well-regulated jurisdiction is key to ensuring security and stability.

What to expect when opening an offshore account

Opening an offshore account is not a complicated process, but it does require understanding the requirements of different jurisdictions. Banks generally require standard documentation, such as identification, proof of address, and financial history, to comply with international regulations. Some banks may also require a minimum deposit, which varies by institution and account type.

Here are the key steps involved in opening an offshore account:

1. Choosing the right jurisdiction – factors to consider include banking regulations, political stability, and available financial services.

2. Gathering required documents – most banks require a valid passport, proof of address, and financial statements to verify the legitimacy of the account holder.

3. Meeting minimum deposit requirements – some offshore banks require a minimum deposit, which varies widely depending on the bank and the account type.

4. Understanding tax and compliance obligations – offshore account holders must ensure they comply with tax laws in their home country to avoid legal complications.

5. Utilizing online and digital banking services – many offshore banks offer secure digital banking platforms, allowing clients to manage accounts remotely with ease.

The future of offshore banking

As financial landscapes evolve, so too does offshore banking. Digital currencies, blockchain technology, and artificial intelligence are shaping the next generation of banking services, making offshore financial management even more secure and efficient.

Moreover, as governments continue to impose capital controls and expand regulatory oversight, offshore banking will remain a critical solution for those seeking financial freedom. In an increasingly interconnected world, having access to an international banking system is not just a luxury, it's a necessity.

A strategic move for 2025 and beyond

For individuals and businesses alike, offshore banking represents an opportunity to take control of their financial future. Whether it's for asset protection, currency diversification, or enhanced privacy, the benefits of banking offshore far outweigh outdated misconceptions.

As the global economy faces ongoing challenges, those who take proactive steps to safeguard their wealth will be best positioned for long-term stability. Offshore banking is not just a smart choice, it's a forward-thinking strategy for financial security in 2025 and beyond. ■

ABOUT THE AUTHOR

Luigi Wewege is President of Caye International Bank, awarded as one of the leading banks in the Caribbean and Central America. He is a regular speaker and contributor for several media publications. He is an accomplished multi-publication author, including The Digital Banking Revolution (now in its third edition). Wewege has co-authored economic research presented before the United States Congress and has been published in The Journal of Applied Finance & Banking. Outside of the bank, Luigi serves as an Instructor for the FinTech School in California and sits on multiple international advisory boards.

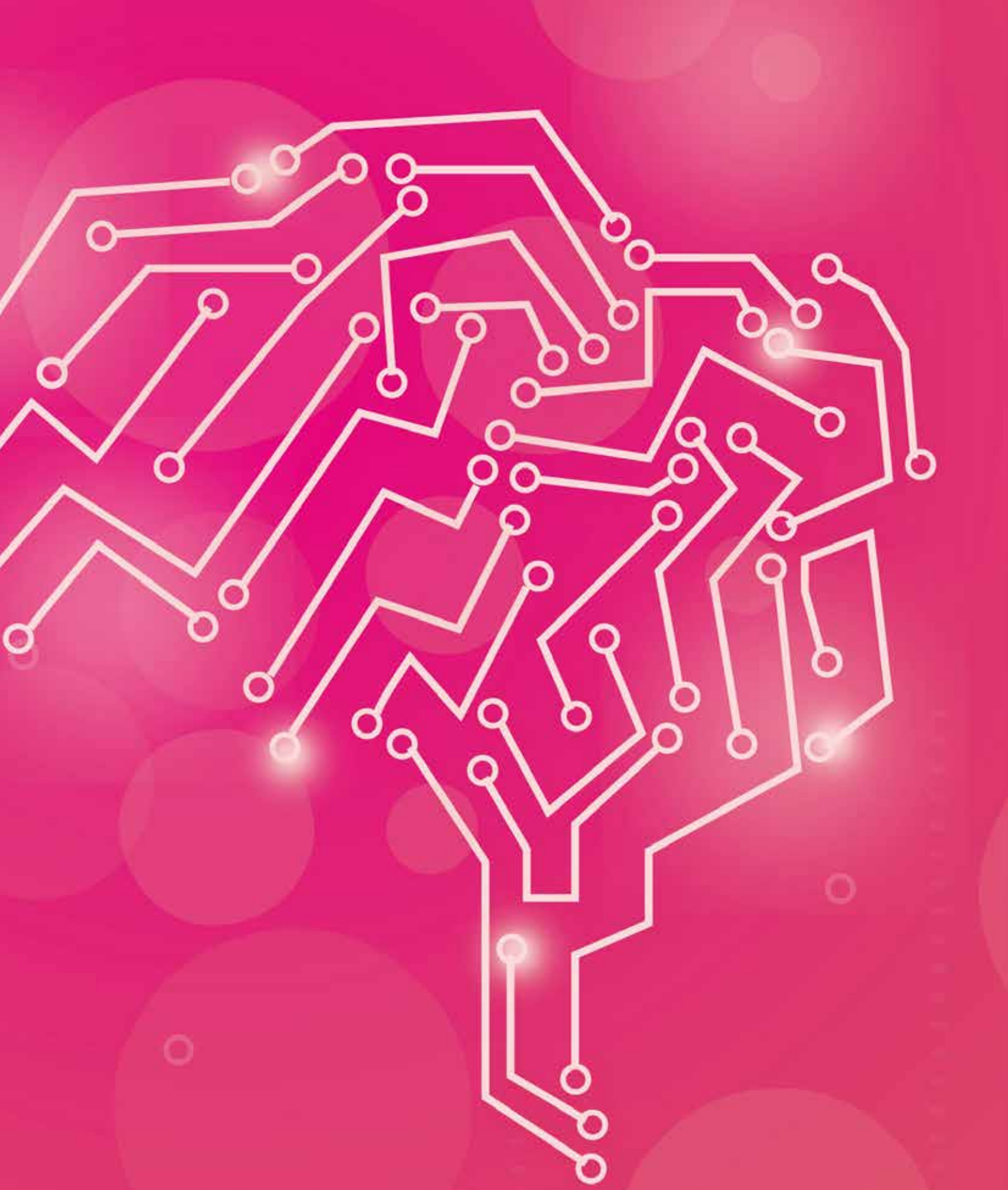
To download Finance21 Spring 2025, a fully interactive review of global finance for the last quarter, visit

worldcommercereview.com

OR

finance21.net

Regulating AI in the financial sector



Juan Carlos Crisanto, Cris Benson Leuterio, Jermy Prenio and Jeffery Yong explore the potential impact of AI on the financial sector, focusing on operational efficiency, risk management and customer experience

Executive summary

Financial institutions have been using artificial intelligence (AI) for many years. Three AI use cases are worth highlighting: customer support chatbots; fraud detection, including for purposes of anti-money laundering and combating the financing of terrorism (AML/CFT); and credit and insurance underwriting. Use of AI for chatbots and fraud detection is not new, but the technology has significantly improved in recent years. In terms of credit and insurance underwriting, financial institutions are increasingly using AI for, among others, credit scoring, valuation of collateral and assessing unstructured information from multiple sources to more accurately predict insurance risks and set premiums.

The exponential growth in and accessibility of AI technology is accelerating its use by financial institutions but they seem cautious about generative AI (gen AI). Financial institutions are investing heavily in adopting and implementing AI within their organisations. Much of the increased spending can be attributed to expected wider adoption of gen AI. Financial institutions are experimenting with gen AI to boost operational efficiency and employee productivity. In comparison, gen AI use cases in customer-facing services and high-risk activities are relatively limited. This seems to reflect a cautious approach to gen AI for various reasons, including concerns about customer acceptance and impact; overreliance on third-party model providers; and regulatory uncertainty.

The wider use of AI has the potential to bring transformative benefits to the financial sector but may also exacerbate existing risks. The risks AI poses when used by financial institutions are largely the same risks financial authorities are typically concerned about. These include microprudential risks, such as credit risk, insurance risk, model risk, operational risks, reputational risks; conduct or consumer protection risks; and macroprudential or financial stability risks. Admittedly, AI use may heighten some of the existing risks, such as model risk (eg lack of explainability makes it challenging to assess appropriateness of AI models) and data-related risks (eg privacy, security, bias).

To address AI-related risks, international and national authorities have introduced (cross-) sectoral AI-specific guidance. This guidance outlines policy expectations around common themes. These include reliability/soundness, accountability, transparency, fairness and ethics. More recent guidance has placed increased emphasis on data privacy/protection, safety and security. With the increasing attention on gen AI, sustainability and intellectual property are also being covered in the latest AI guidance. These themes are interconnected and there may be trade-offs between them when developing or upgrading AI guidance. Regardless, the guidance generally allows for a proportionate or risk-based approach to the application of the policy expectations.

The common themes contained in cross-sectoral AI-specific guidance are the same themes emphasised in financial regulations. The common themes in policy expectations are broadly contained in financial regulations covering governance, risk management and consumer protection. This may be the reason why most financial authorities have not issued separate regulations on AI use by financial institutions. Some authorities have issued only high-level principles that reiterate the common themes in the cross-sectoral guidance. Other authorities and a few global standard-setting bodies have issued clarifications as to how existing financial regulations apply to AI. So far, among those covered in this paper, only a few authorities have issued regulations specifically addressing AI use by financial institutions.

Nevertheless, AI use by financial institutions may present some unique challenges and hence regulatory or supervisory guidance may be needed in specific areas. Guidance on specific areas can be more important for AI use in financial institutions' core businesses or use cases that present higher risks or significant potential impact on customers. Financial authorities may need to examine existing regulations and, if needed, issue clarifications, revisions or even new regulations in these areas:

Governance framework. The board and senior management of financial institutions are ultimately accountable for their activities, including AI use cases. That said, the use of AI by financial institutions, particularly in their core business activities, would require clear allocation of roles and responsibilities across the entire AI life cycle. Importantly, the governance framework might need to specify the role of human intervention to minimise harmful outcomes from AI systems.
AI expertise and skills. A wider adoption of AI without the corresponding expertise and skills could result in insufficient understanding and ineffective management of the risks to financial institutions and the financial system. Financial authorities may therefore consider clarifying their expectations regarding the expertise and skills envisaged to be in place for financial institutions that plan on expanding AI use in their core business activities.
Model risk management. Heightened model risk can be caused by lack of explainability of AI models. When model risk management guidance is in place, authorities might find it helpful to communicate their explainability-related expectations and provide guidance on the key qualities to consider when selecting explainability techniques and assessing their effectiveness.
Data governance and management. Use of AI by financial institutions can lead to various data-related issues. While many of the relevant elements of data governance/management are captured in existing regulations (eg. those for model risk, consumer privacy and information security), financial authorities may want to assess whether these are enough or need strengthening, or whether there is a need to issue guidance that addresses any AI data governance and management-related issues.
New/non-traditional players and new business models/arrangements. To avoid potential regulatory gaps, regulations relevant to new/non-traditional players providing financial services would need to be assessed to determine whether they require

adjustments to take account of the cross-sectoral expectations on the use of AI. A similar regulatory assessment might be needed with respect to multi-layer arrangements in providing financial services (eg. Banking-as-a-Service) involving AI that may make it challenging for financial authorities to attribute accountability to various players in the ecosystem.

Regulatory perimeter – third parties. The concentration of cloud and AI service providers to a few large global technology firms strengthens the argument for putting in place direct oversight frameworks for these service providers depending on available legal authority. Some jurisdictions have moved in this direction, but the prevalent approach is still relying on financial institutions to manage risks from these third-party relationships.

The presence of various AI definitions across jurisdictions needs to be addressed by international collaboration. The lack of a globally accepted definition of AI prevents a better understanding of AI use cases in the global financial sector and the identification of specific areas where risks may be heightened. As such, international public-private collaborative efforts can be geared towards agreeing on a lexicon for AI and continue working towards regulatory and supervisory frameworks that can adapt to the rapid advancements in AI technology.

Section 1 – Introduction

1. The artificial intelligence (AI) summer has dawned, prompted largely by the unleashing of Generative AI (gen AI) applications in 2022. AI can be traced back to the late 1950s, but significant growth in computing power and availability of data accelerated developments only relatively recently. The field of machine learning advanced significantly in the 1990s, while deep learning took off in the 2010s[1].

While AI has caught the general public's imagination for decades, it was only when ChatGPT – a gen AI application – was launched in late 2022 that AI became more readily and publicly accessible. This reignited the interest in AI from the public, businesses – including financial institutions – and national and global authorities.

2. There is currently no globally accepted definition of 'AI' for financial regulatory purposes but there is alignment towards the OECD definition. This states that *"An AI system is a machine-based system that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments. Different AI systems vary in their levels of autonomy and adaptiveness after deployment."*[2]

IAIS (2024a) considers the OECD definition of AI systems as a useful reference. The definition under the European Union (EU) AI Act converges with the OECD definition but falls short of fully adopting it[3]. Outside of the EU, jurisdictions also have their own slightly different AI definitions but they are generally non-legal, non-prescriptive and non-mandated[4].

This lack of consensus makes it challenging – particularly for firms operating globally – to distinguish what is and what is not AI, as well as the different types of AI. Even at the national level, the intentionally broad definitions of AI may fail to provide a clear differentiation between AI and non-AI systems or may inadvertently capture 'basic' statistical models that have been used in the financial industry for many years.

3. Use of AI by financial institutions preceded the explosion of gen AI applications[5,6]. Since AI applications have been around for a while, they have been used for various purposes as well. For example, banks may take advantage of opportunities to increase their operational efficiency and facilitate improvements in their risk management by using AI[7].

Insurers have been using AI to facilitate processes such as underwriting, risk assessment and claims management[8]. The exponential growth in and accessibility of AI technology is accelerating the use of AI by financial institutions. Naturally, financial authorities are closely monitoring any potential prudential, conduct and financial stability implications of a wider use of AI in the financial sector.

4. National authorities in many jurisdictions have introduced cross-sectoral AI-specific policies, but financial authorities have been less active in developing specific regulations. There were not that many jurisdictions that had cross-sectoral AI-specific policies (ie. regulations, guidelines and/or frameworks that apply to the use of AI across multiple industries or sectors) a few years back[9].

"AI use by financial institutions may present some unique challenges and hence regulatory or supervisory guidance may be needed in specific areas"

However, a large number of jurisdictions now have different types of policies that cover AI either specifically or in the context of data protection, cyber security and consumer protection requirements, among others[10]. Many of these policies have been issued by national authorities, either in the form of binding legislation or non-binding guidance. Only in a small number of jurisdictions have financial authorities issued AI-specific regulations.

Interestingly, the majority of respondents to an OECD survey do not plan to introduce new regulations on AI use in finance in the near future[11]. This could be explained by the fact that risks arising from AI are not new[12] and are already addressed in existing financial regulations, and financial authorities are also generally taking a technology-neutral approach when issuing regulations.

5. While financial authorities generally follow a technology-neutral approach[13], they may need to enforce relevant provisions of cross-sectoral AI-specific policies. Broadly speaking, under a risk-based approach, supervisors require assurance that financial institutions understand the risks that they are taking and have proper governance, risk management and controls to identify, monitor, manage and mitigate these risks.

However, financial authorities may need to clarify how existing regulations apply when implementing relevant provisions of cross-sectoral AI-specific policies. Moreover, there may be a need to strengthen existing regulations or issue new regulations on specific areas to respond to the unique and practical enforcement challenges given the characteristics of AI and how they are deployed.

6. This paper identifies the practical challenges involved in enforcing regulatory expectations on AI and specific guidance that may be helpful in addressing some of those challenges. Many of the existing papers on regulation of AI typically describe the regulatory requirements and expectations but fall short of describing how these could be implemented in practice. Our paper aims to fill this gap by updating Prenio and Yong (2021) and looking at newer guidance, particularly that issued in Brazil, China, the EU, Qatar, Singapore, the United Kingdom and the United States.

Section 2 starts by providing an overview of AI use cases in the banking and insurance sector. It is based on desktop research and discussions with financial institutions. Section 3 outlines the common themes of cross-sectoral AI-specific guidance and the emerging policy framework for the use of AI in finance.

Section 4 discusses the practical issues in enforcing some of the themes or expectations. Here, the paper tries to anchor the discussion on concrete use cases, ie. credit and insurance underwriting. These are the financial-sector specific use cases that have been identified as 'high-risk' under the EU AI Act. Section 5 concludes.

Section 2 – Overview of AI use cases in the financial sector

7. Financial institutions are investing heavily in adopting and implementing AI within their organisations. The large spending suggests that financial institutions are expecting to benefit significantly from their AI investments[14].

Such transformative changes could profoundly alter how financial institutions conduct their business activities, and this alone should warrant closer supervisory scrutiny. Statista estimates that spending by the financial sector on AI will increase from USD 35 billion in 2023 to USD 97 billion in 2027[15].

Much of the increased spending can be attributed to expected wider adoption of gen AI. The banking sector's spending on gen AI alone is expected to increase from USD 3.86 billion in 2023 to almost USD 85 billion in 2030. Much of this AI-related spending is on headcount and IT infrastructure.

A study[16] found that major banks are increasing AI talent headcount even though they are cutting headcount elsewhere, suggesting expected AI productivity gains that can replace human resources. McKinsey (2024) estimates that gen AI could add between USD 200 billion and USD 340 billion in value annually, or 2.7% to 4.7% of total industry revenues, mainly through increased productivity[17].

AI use cases: banks and insurers

8. There are different ways to categorise financial institutions' AI use cases. For example, use cases can be categorised in terms of the business value chain[18], job functions[19], risk types/levels[20] or types of AI algorithms[21].

As AI use cases by banks and insurers are expanding very quickly, it is difficult to summarise or identify the most prevalent use cases. This paper provides a point-in-time snapshot of how financial institutions are using AI based on feedback from selected industry players and through industry surveys[22].

9. This paper classifies AI use cases based on their purpose/objective while recognising that it is difficult to generalise AI use across all financial institutions. Use cases may vary from one financial institution to another due to heterogeneity in terms of different sizes and types of firms (eg. digital banks/insurers)[23].

Some firms are taking a more cautious approach, using AI predominantly for back office, operational purposes, while others are more open to the use of AI in core business and revenue-generating activities. Nevertheless, reported in-

production use cases for core, external-facing business activities are not prevalent yet.

From a regulatory perspective, it should be acknowledged that AI has the potential to be used across all business activities and, importantly, has the potential to become the 'norm' in supporting all financial services activities. Table 1 provides examples of actual AI use cases by selected banks and insurers[24].

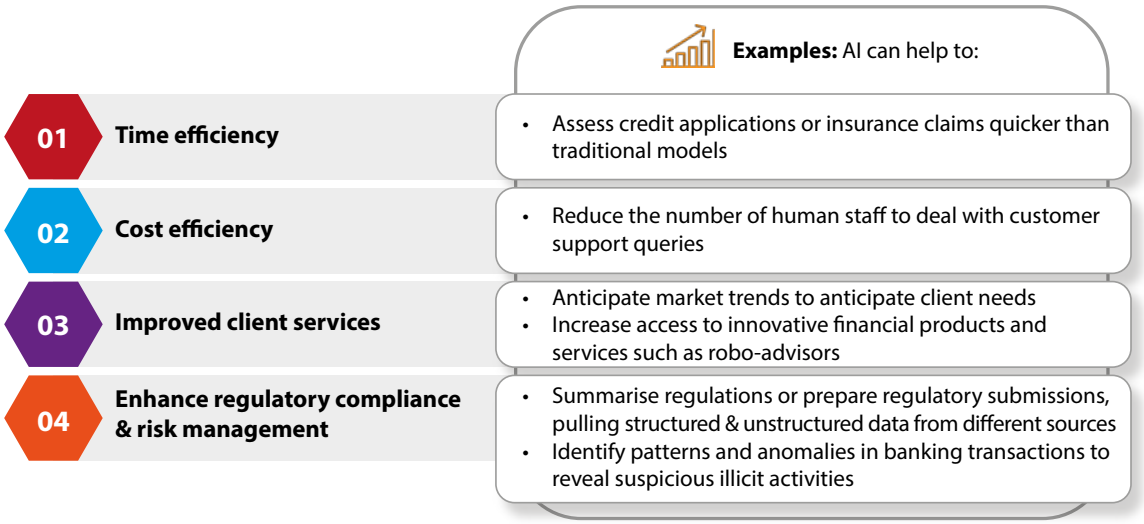
10. Financial institutions can use AI to do things quicker, cheaper and better and, importantly, to do things that humans cannot do with the accuracy and speed that AI can deliver. Supervised and unsupervised AI models can be used to make predictions by learning from patterns or trained to look for patterns themselves. Such capabilities can offer tremendous opportunities to financial institutions and may significantly transform financial services. Examples of use cases for each desired outcome are provided in Figure 1.

Table 1. Banks' and insurers' use of AI

Objective	Use case	Description	Example
Improve productivity and efficiency	Internal administrative tasks	• Summarise documents or internal meetings • Classify documents	Standard Chartered Axa Secure GPT
	Customer support[1]	• Summarise documents or internal meetings • Automate email response to clients	Bank of America Erica customer chatbot DBS CSO Assistant Ping An[2] AI service Represenatatives JP Morgan Chase email classification system
	Human resource management	• Virtual reality training on customer interaction	Bank of America
	Coding	• Facilitate coding of IT applications	Goldman Sachs
	Insurance claims	• Use of AI to estimate property damage	MS&AD use of Tractable
	Reinsurance claims	• Automate indentification of reinsurance claims	Zurich Catastrophe Insurance Agent
Support regulatory compliance and risk management	Regtech[3]	• Analyse regulatory requirements including through regtech	Citi use of gen AI to read US banking capital rules
	AML/CFT	• Detect suspicious activities	HSBC AML AI detector tool
	Fraud detection[4]	• Real-time monitoring of unauthorised credit card transactions	Société General MOSAIC fraud detection AI tool
	Cyber security[5]	• Enhance cyber resilience	Barclays
Enhance core business/revenue-generating activities	Credit underwriting	• Data analysis to determine loan eligibility	MUFG DBS
	Insurance underwriting	• Accelerate processing of insurance applications	ICICI Prudential

1. Customer support may also be considered as a revenue generating tool as retained and satisfied customers can purchase more services or stay loyal to a firm.
2. Ping An reportedly handled around 870 million interactions (80% of its customer service queries) using its AI service representatives in the first half of 2024.
3. Hong Kong Monetary Authority (2022) provides an overview of AI-based Regtech solutions, implementation challenges and sample use cases.
4. Reinsurance Group of America (2024) found that 48% of their surveyed insurers suffered AI-related fraud such as falsified medical or death records, deepfake or voice cloning.
5. Bank of England (2024) reported that 37% of surveyed UK financial services firm use AI for cyber security purposes. BIS (2024) outlined its Innovation Hub's projects in AI, ranging from AML/CFT to extracting climate-related data.
Source: FSI authors.

Figure 1. Main desired outcomes of AI use cases in financial institutions



Source: FSI authors.

11. From a regulatory compliance standpoint, AI has the potential to support prudential objectives. Regulatory technology, or regtech, refers to applications that financial institutions can use to meet regulatory requirements. These include technology solutions that help financial institutions comply with regulatory reporting, anti-money laundering and combating the financing of terrorism (AML/CFT) and calculation of regulatory capital, among others.

Rapid advancements in AI offer new capabilities for financial institutions to fulfil regulatory requirements in a more effective and efficient way. This may improve the safety and soundness of the financial sector as banks and insurers become better able to comply with regulatory requirements[25].

12. Most financial institutions' AI use cases reviewed for this paper are for internal operational efficiency purposes, and less for core business activities[26]. According to BCBS (2024), some banks have been cautious in adopting AI due to uncertainties surrounding regulatory expectations related to accountability, ethics, data privacy, fairness, transparency and explainability, particularly for consumer-related applications.

Gen AI use cases in customer-facing services and high-risk activities are limited, while some banks are experimenting with gen AI to boost operational efficiency and employee productivity. OECD (2023) attributes the slow implementation of gen AI in financial markets to strict regulations and potential adverse impact on customers.

Concerns over data sovereignty and globally dispersed data (NVIDIA (2024)), as well as legacy IT infrastructure (KPMG (2023)), also pose significant challenges to rapid deployment of gen AI. An industry study, IIF-EY (2023), reported that firms expect gradual deployment of gen AI to limit any potential negative impact on external stakeholders while the technology matures further.

13. The use of AI for customer support is common. Chatbots are not new features in financial services, but the technology has improved significantly over the years. The main motivations for the use of AI-powered chatbots are to cut cost by reducing human interaction time and improve customer experience by providing 24/7 support[27].

At a basic level, chatbots can provide information about a financial product. More sophisticated chatbots are used to offer personalised financial services such as tracking of personal spending. Some advanced chatbots can even execute financial transactions such as loan applications[28]. Chatbots might be an area of focus for financial regulators because of their wide and growing reach. CFPB (2023) estimates that 37% of the US population interacted with a bank's chatbot in 2022[29].

As human-interfacing AI technology improves further, for example by allowing people to converse verbally with a chatbot in different languages, the use of chatbots by financial services firms can be expected to increase.

14. Another AI use case in the financial sector is to detect money laundering/terrorism financing and fraud activities. Similar to chatbots, the use of AI for these purposes is not new. What is new is the more widespread use of AI tools by financial institutions, and their improving accuracy[30].

Such AI tools assist in flagging the rapid movement of money into different accounts, or transactions that significantly deviate from anticipated patterns. The tools are becoming more effective in identifying suspicious individuals, mule

accounts and organised groups that exploit the vulnerabilities in rules-based systems. The tools are reducing the number of alerts or false positive cases, freeing up time to allow institutions to carry out comprehensive investigations on legitimate cases.

Another notable and related example intersecting with AML/CFT is payments fraud emanating from digital financial services. An AI fraud management system can be used to prevent or detect suspicious payments, and promptly alert financial institutions of unusual transactions.

This enables financial institutions to review and decide whether to approve or reject the seemingly irregular payments. The solution can also adjust to unique customer behaviours and evolve along with the business.

15. Underwriting is an area where AI is increasingly being used, with some insurers appearing to be more advanced than banks. Insurance underwriting can rely on simple questionnaires to assess the insured risks (for example, for life insurance products), or it may involve complex risk assessments that require physical examination of the insured property and written assessments from underwriters (for example, commercial property insurance).

AI, and in particular gen AI, can be useful to assess unstructured information from multiple sources in insurance underwriting processes to more accurately predict risks and set premiums. In banking, machine learning has been used for many years in credit underwriting[31].

It is used for credit scoring, valuation of collateral, calculating the interest rate to charge and personalisation of loan offers, sometimes with the aid of synthetic data (ie. data artificially generated by using, for instance, algorithms)[32].

16. Use of AI for underwriting can help to address and mitigate some of the challenges financial institutions face. For credit underwriting, this includes high operational cost due to time-consuming and manual processes, risk of fraud and subjectivity. AI could greatly enhance credit scoring by making use of unstructured data (ie. non-traditional financial information)[33].

Insurance underwriting processes vary depending on the complexity of the coverage and extent of risks insured. Commercial risks (eg. marine insurance) require assessment of voluminous reports from different sources (eg. vessel information, inventory, shipping contract).

Use of AI can automate underwriting, provide the ability to analyse large volumes and varied forms of data and improve identity verification, while at the same time enhancing customer experience.

In insurance, AI, and especially gen AI, can offer capabilities previously not available in terms of ability to process large volumes of text data[34]. In general, AI can reduce underwriting cost, support financial inclusion[35], and enhance efficiency (eg. faster approval turnaround time).

Risks arising from banks' and insurers' AI use cases

17. While the adoption of AI by banks and insurers offers significant benefits, it also exposes these institutions to a range of risks that require careful management. There have been many reports on the risks arising from the use of AI. Tables 2 to 5 provide a non-exhaustive list of such risks[36,37].

18. AI can be a double-edged sword for cyber resilience[38]. AI can significantly strengthen cyber security by proactively detecting threats (including AI deepfakes) and identifying vulnerabilities. Through the analysis of large volumes of (historical) data, AI can help to identify trends as well as unusual patterns that may indicate cyber threats or forecast potential cyber attacks[39].

Gen AI has the potential to take these techniques to a new level through more advanced capabilities such as realistic simulation attacks and real-time adaptive cyber security posture. At the same time, cyber criminals can use similar AI tools to conduct more sophisticated cyber attacks through, for instance, targeting vulnerabilities in underlying models or data or generating realistic fake profiles to be used in social engineering attacks. These can be much harder to detect since they can also be adapted in real time and automated at great scale[40].

In a 2024 global cyber security survey, the majority of respondents believed that in the next two years gen AI would provide overall cyber advantage to attackers, while a third responded that the situation would be balanced between attackers and defenders[41,42]. Regulators are increasingly focusing attention on the use of AI to exploit cyber vulnerabilities of firms[43].

19. Consolidation of AI service providers within big techs is a particular concern for both the industry and regulators, as this trend may expose financial institutions to heightened concentration risks. Big techs are cementing their foothold as they dominate the AI industry and influence the research on AI (West (2023) and Ahmed *et al* (2023)).

Their access to vast quantities of data, the computational power to process them, and expertise to build the AI systems has collectively given them the first-mover advantage. These developments are attracting closer supervisory scrutiny as they can give rise to microprudential and financial stability risks.

In 2023, the FSB published a toolkit for financial institutions and financial authorities to manage and oversee third-party risks[44]. In 2024, the Federal Trade Commission launched an investigation into gen AI investments and partnerships between AI companies and major cloud service providers (Box 1 explains the use of gen AI in financial services).

BCBS (2024) noted that banks' increasing reliance on third-party technology services introduces cyber risks and potential systemic vulnerabilities. IAIS (2024a) highlighted the importance of insurers regularly assessing their reliance on AI service providers that may pose a risk to their business, noting the potential implications of a concentrated market

Table 2. Microprudential risks

Risk type	Description/example
Credit risk	• Underestimation of probability of default or risk of loss due to inaccurate data inputs
Model risk	• Inaccurate model output due to the model not capturing changes to the nature of the data input[1] • Lack of model explainability hinders the ability to assess its conceptual/technical soundness • Inaccurate model output due to overfitting or underfitting; that is, the model output cannot generalise to other conditions or circumstances, or it is too simplistic and hence fails to capture the underlying patterns in the data • Hallucination, inconsistent responses and dependency on data quality[2] • Overestimation of the capabilities of AI models, leading to misuse of such models beyond their capabilities • AI models may not produce reliable predictions if they are not trained with the most recent information available
Insurance risk	• Underpricing of insurance policies due to AI models trained on historical data not capturing latest developments (eg. new disease outbreaks)
Cyber risk	• Firms may be more vulnerable to cyber attacks due to increased contact points with multiple external service providers and increased IT interconnectivity with multiple systems • Inadequate access control may result in unauthorised access to training data and AI model • AI models may be susceptible to data poisoning attacks that alter the training data sets for malicious purposes • Threat actors could 'steal' an AI model by constructing a functionally equivalent model through querying a model iteratively
Other operational risk	• Firms with legacy IT systems may add complexity to their IT architecture, thus increasing potential operational risks arising from IT failures • Increased use of third-party services (data providers, AI model providers) could lead to dependency, disruption of critical services and lack of control of processes, which may be exacerbated by vendor lock-in risk and increased market concentration • Quick obsolescence of risk controls due to rapid updates by AI systems
Reputational risk	• Operational failures, potentially due to overdependency on third-party providers, can damage public trust and confidence • Adverse publicity due to unfair treatment of customers or regulatory penalties can erode reputation of firms
Strategic risk	• Financial institutions partnering with other firms may lose control over critical functions such as business origination and customer relationships, potentially resulting in significant liquidity issues and financial instability if those partners redirect business or alter key processes
Legal risk	• Firms may be liable for copyright infringement due to unauthorised use of copyrighted data in training AI models • Firms may be exposed to legal liability due to inaccurate or inappropriate response provided by customer-facing AI tools

1. See What Is Model Drift? | IBM. 2 See FSOC (2023).
Sources: See footnote 37.

Table 3. Conduct/consumer protection risks

Risk type	Description/example
Unfair treatment of customers	• Exploiting characteristics of vulnerability of consumers to charge unfair prices • Arriving at discriminatory decisions based on biased data or personal information in alternative data used to perpetuate bias • Financial exclusion of perceived high-risk customers
Price collusion	• Collusive pricing strategy implemented by automating price adjustments based on pricing changes by competitors

Sources: See footnote 37.

Table 4. Macroprudential/financial stability risks

Risk type	Description/example
Herding behaviour	• Amplification of procyclical behaviour due to the use of similar data sets and AI models by multiple financial institutions • AI outputs may contribute to market participants' conclusions being systemically biased, leading to distorted asset prices or increased price correlations
Interconnectedness and concentration	• Increased interconnectivity amongst firms from highly concentrated AI third-party providers could result in systemic risk if those third parties suffer from cyber attacks or operational failures, affecting multiple financial institutions and markets simultaneously
Opacity and complexity	• Limits to the explainability of certain complex AI models can result in risk management challenges, as well as lesser financial institution and supervisory insight into the build-up of systemic risks

Sources: See footnote 37.

Table 5. Other risks

Risk type	Description/example
Market competition risk	• The high cost of developing and maintaining AI technologies may limit their adoption to larger financial institutions, potentially increasing the market power and systemic importance of these firms, while making it difficult for smaller firms to compete
Data privacy risk	• AI models may be manipulated to leak personal or sensitive information used in training and using the models
Environmental risk	• Heightened use of AI will increase energy demand, which may contribute to climate change[1]nancial institutions

1. UK Government (2024) estimates that in 2026, computing power for AI will consume roughly the same amount of electricity as smaller European countries such as Austria or Finland.
Sources: See footnote 37.

of AI providers. ECB (2024) highlighted how technological penetration (use of AI applications by a large number of firms) and supplier concentration can give rise to systemic risk.

20. Anticipated widespread use of AI without adequate supervisory oversight and sound risk management practices in firms could pose threats to the safety and soundness of the financial sector. Although it is uncertain how AI applications will evolve[45], it is plausible that the use cases within the financial services industry will continue to expand as the technology becomes more accessible, and it does not take much imagination to see how AI could become ubiquitous in financial institutions' technology infrastructure.

Firms may accelerate adoption of AI to improve productivity and make business gains. Even late adopters, or even resisters, might be pushed to adopt AI due to the 'fear of missing out' compared to their competitors.

As such, financial sector regulators may need to anticipate a future where AI systems become integral across the entire value chain of financial services activity. The risks arising from such widespread deployment need to be properly understood so that regulators can ascertain if their existing toolkit will remain fit for purpose.

Section 3 – Overview of cross-sectoral AI-specific guidance

21. Multilateral groups and international organisations are giving priority to the development of AI policy. The G20 has emphasised the need for human-centric and trustworthy AI. These objectives were reflected in the AI Guidelines adopted in 2019[46], which largely built upon the OECD AI Principles[47].

The G7 has also been actively coordinating a policy response to AI developments, including gen AI, and a milestone was achieved in December 2023 with the endorsement by G7

Box 1

Gen AI in financial services

Gen AI refers to AI applications that can generate new content, including text, images or music, from a natural language prompt[1]. It relies on machine learning models, mainly deep learning, that mimic the learning and decision-making of the human brain. These models work by identifying and encoding the patterns and relationships in enormous amounts of data, and then using that information to understand users' natural language requests or questions and respond with new content.

Gen AI applications are becoming more accessible to financial institutions. Many existing cloud service providers of financial institutions have expanded their offerings to include gen AI applications. At the same time, big techs continue to dominate the gen AI market, owning the majority of foundation models[2], ie. models that are trained on broad data sets and can be used for a wide range of tasks including gen AI applications. The very high cost[3] of training foundation models can be a barrier to entry for smaller firms.

The technical performance of AI models is rapidly improving, surpassing human capabilities according to a study[4], including in gen AI use cases. Nevertheless, the foundation models that underpin many gen AI use cases in the financial sector require adjustments to make them fit for purpose, as these models are trained on large data sets, and are intended for a wide range of use cases. To make gen AI outputs more relevant for financial institutions, a technique that can be used is called "retrieval-augmented generation" (RAG)[5]. Through RAG, firms can control the context of a foundation model using its own information or data.

Despite the increasing attention on gen AI and its potential to further increase the benefits indicated in paragraph 11, there have not been widespread use cases by banks and insurers for revenue generation purposes. Insurers seem to have more gen AI use cases than banks. This is probably because insurance products involve more unstructured data than banking products. Insurance products are essentially financial contracts that are very heterogeneous, containing different terms and conditions (precise definition of insured events, exclusions, etc).

Moreover, the underwriting and claims management of insurance products may require large amounts of data from different sources. As such, insurance-related activities lend themselves better to the use of gen AI. For example, gen AI can be used to help human underwriters more quickly identify appropriate policies and terms based on the information provided by the prospective customer.

Firms seem particularly cautious in using gen AI for customer-facing use cases. This can be attributed to the following:

- heightened risk exposures, for example potential mis-selling or provision of wrong advice;
- the high bar needed to fulfil relevant regulatory requirements, for example the need to validate the model results;

leaders of *"the Hiroshima AI Process Comprehensive Policy Framework."*[48]

This provides guiding principles and a code of conduct aimed at promoting safe, secure and trustworthy advanced AI systems[49]. More universally, the United Nations Educational, Scientific and Cultural Organization (UNESCO) has issued recommendations on the ethics of AI, which were adopted by all 193 UN member states in November 2021[50].

Moreover, the UN adopted its first ever resolution on AI, emphasising its role for sustainable development, in March 2024[51] and published its final report on global AI governance in September 2024[52].

22. The OECD AI Principles are a key reference point when developing AI policy at the national level. These non-binding principles were initially adopted in 2019 and updated in 2024. The AI Principles guide the development of trustworthy AI systems based on value-based principles such as inclusiveness, sustainability and well-being; human rights and democratic values including fairness and privacy; transparency and explainability; robustness, security and safety; as well as accountability. They also provide policymakers with recommendations for effective AI policies[53].

The 2024 update aims to ensure that the AI Principles continue to be technically accurate and reflect technological developments, particularly the growing importance of gen AI.

23. Jurisdictional policy approaches to deal with AI can be broadly categorised as principles-based and rules-based approaches. Jurisdictions opting for the former largely rely on non-binding principles and/or voluntary commitments generally supported by technical standards and/or cross-sectoral regulations (eg. Singapore, United Kingdom, United States).

- firms' own internal risk management policy, for example customer information disclosure requirements before concluding a transaction;
- lack of clarity on the party ultimately accountable if the model results are wrong;
- lack of consumer trust to interact with gen AI; and
- overreliance on third-party model providers.

The risks posed by gen AI are mainly an extension or amplification of existing model risks. Compared to other AI models, gen AI gives rise to unique risks related to anthropomorphism, treating the AI models as though they have human-like qualities. Overestimating the capabilities of gen AI is becoming more perennial as publicly accessible gen AI applications offer more human-like features such as voice and visual conversation. Users may come under the false impression that such models can actually think, reason or even display emotions. Perez-Cruz and Shin (2024) explain that gen AI models are susceptible to reasoning errors and cognitive limit. BCBS (2024) highlights the potential of gen AI to hallucinate[6] by generating responses that are inaccurate or inappropriate, and by producing different responses over time, even when given similar questions or prompts. This is because gen AI outputs are characterised by randomness. Such risks are contributing to the cautious rollout of customer-facing gen AI use cases in financial services[7].

The 'democratisation' of gen AI, making the technology available to virtually everyone, has accelerated financial institutions' beefing-up of their internal AI governance and risk management policies. Some firms have decided to ban the use of gen AI while they figure out how guardrails can be put in place for its safe and responsible use. New governance structures are emerging, for example, formation of senior management committees to screen gen AI use cases under a risk-based approach. Use cases that involve complex models and autonomous decision-making by the model and that are customer-facing/impactful will attract greater scrutiny and risk controls. Firms are starting to establish a use case and risk registry to systematically monitor their gen AI activities as well as 'AI factories' with dedicated staff working with all the necessary infrastructure and data layers in one place, including gen AI models, both open source and third-party models accessed via cloud APIs.

1. See BIS (2024).
2. Stanford University (2024a) reports that 97 out of 163 foundation models released between 2019 and 2023 are owned by four big techs – Google, OpenAI, Meta and Microsoft.
3. Stanford University (2024a) estimates that the training of OpenAI's GPT-4 and Google's Gemini Ultra cost around USD 78 million and USD 191 million respectively.
4. See Stanford University (2024a).
5. See What is RAG? - Retrieval-Augmented Generation AI Explained - AWS (amazon.com).
6. A study estimates that the hallucination rate of large language models (LLMs) ranges between 1.4% and 4.2%.
7. See Calabia (2024) for a thorough discussion on the benefits and challenges of gen AI for financial services and financial regulation.

While this approach recognises the risks and challenges brought about by AI, these jurisdictions consider it too early to regulate AI in a forceful way given the ongoing evolution of this technology. Jurisdictions opting for a rules-based approach have issued or are in the process of issuing AI legislation (eg. Brazil, China, European Union and Qatar).

This approach seeks to provide regulatory clarity to facilitate the safe advancement of this technology and the legal powers for enforcement against unlawful AI deployment. Some of these jurisdictions consider it imperative to protect consumers' rights from potential harms.

24. AI guidance generally allows for proportionate or risk-based application. The concept of proportionality in the context of AI policy is informed by the need to avoid imposing unnecessary or disproportionate costs and/or burdens on businesses and regulators. The policy measures vary in stringency based on the outcomes that an AI system is likely to generate rather than having uniform rules applied to the technology itself or its applications[54].

The rationale of a risk-based approach to AI is to foster innovation without compromising the development of trustworthy AI systems. By focusing on the potential risks associated with different AI applications, this approach aims to ensure that policy efforts aiming at minimising harms and promoting responsible AI systems are efficient and effective.

The approach can address concerns surrounding inadvertent wide scope of what is considered an 'AI system' by excluding non-consequential AI use cases (eg. summarisation of internal meeting minutes) from regulations.

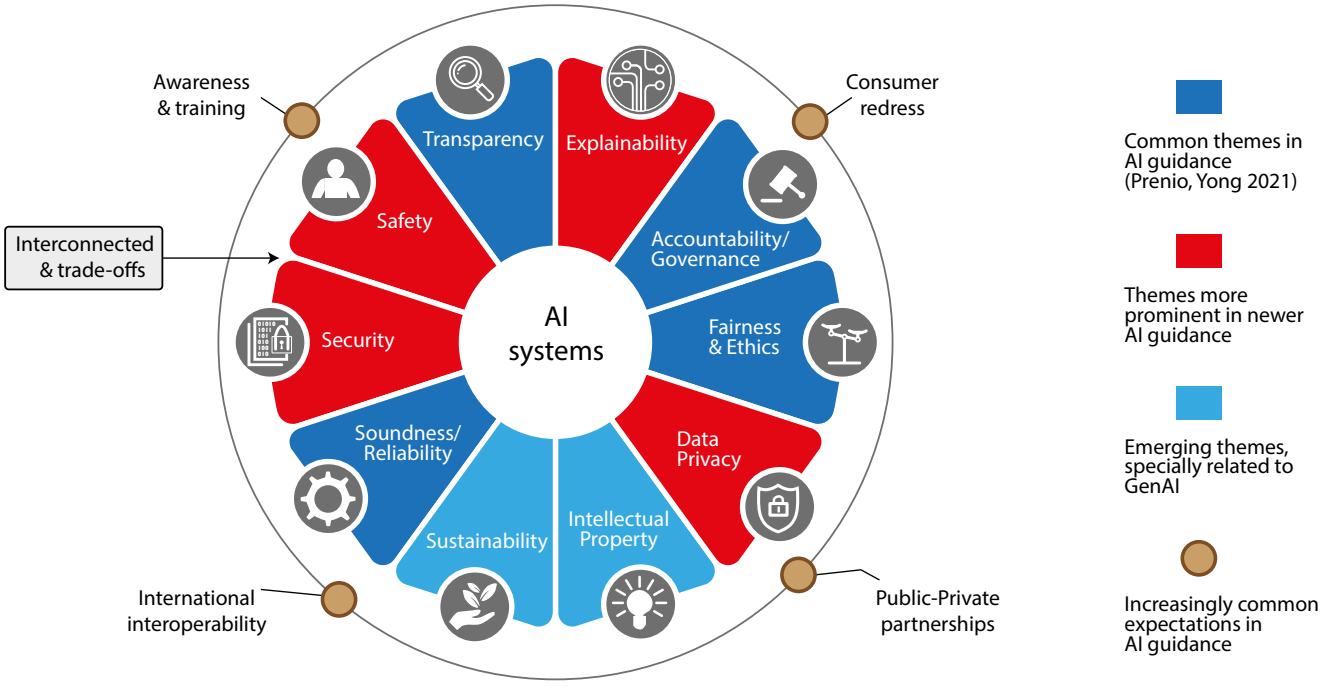
25. Regardless of the policy approach taken, cross-sectoral AI-specific guidance continues to cover common themes and highlight additional ones. Prenio and Yong (2021) identified five common themes: reliability/soundness, accountability, transparency, fairness and ethics[55].

More recent AI-related guidance continues to cover these themes except for ethics, explicit coverage of which is somehow less evident. Newer AI guidance consistently highlights additional themes such as security, safety, explainability and data privacy. It also provides some more concrete guidance as to how authorities expect these themes to be addressed. With the increasing attention on gen AI, sustainability and intellectual property are also being covered in more recent AI guidance.

Additionally, newer guidance is consistently featuring topics such as consumer redress; awareness and training; international interoperability; and public-private partnerships. The following paragraphs review the above-mentioned common themes, as well as additional topics and features that have been highlighted in recent AI guidance.

26. The common themes are interconnected and there may be trade-offs between them when developing or upgrading an AI policy framework. Transparency, for example, is considered as enabling the assessment of the other themes; that is, without transparency, it would be challenging to assess the

Figure 2. Themes in cross-sectoral AI-specific guidance



Source: FSI authors.

reliability of an AI model and to enforce accountability, fairness and ethics.

At the same time, there might be a trade-off between reliability and transparency (including the concept of explainability), as the precision of an AI system may require more data inputs or parameters, such as in the case of gen AI, thus making the model more complex. This, in turn, may affect decisions around fairness.

To operationalise policy expectations across common themes, Aldasoro *et al* (2024) provide a framework for regulating gen AI and AI agents in finance[56], building upon core activities in dealing with AI (ie. govern, map, measure and manage) and the main stages in the AI value chain (ie. design and training; deployment and usage; and longer-term diffusion). Figure 2 summarises the common themes in cross-sectoral AI-specific guidance.

Transparency and explainability

27. One aspect of transparency relates to internal transparency, which refers to explainability, interpretability and auditability of AI models. An explainable AI model makes transparent how it arrived at a certain outcome. Explainability is especially emphasised, even more than reliability, when the model's use may have a significant potential impact on customers or the public.

It is therefore concerning that, for gen AI models, Stanford (2024b)[57] found that most foundation models remain opaque. An auditable AI model requires proper documentation of its design, processes and the data used. Another aspect of transparency is interpretability. NIST (2023) distinguishes explainability and interpretability as follows: the former answers the question of 'how' and the latter answers the question of 'why' a decision was made by the AI system.

In essence, explainability, interpretability and auditability involve internal disclosure or transparency particularly to the board and senior management so they can better understand the risks and implications of AI use.

28. External transparency of AI systems towards customers is also important. This is driven by the fairness objective and includes disclosing to customers when they are interacting with AI (eg. their data are being used by AI); the use of AI-driven decisions that affect them; and consequences of AI-driven decisions on them.

More recent guidance mentions providing an explanation about the decision, including the 'logic' or 'rationale' of the decisions and the contribution of the AI models to these decisions. The guidance often states that such disclosures should be in the form of plain and easy-to-understand information. Box 2 provides an overview of emerging supervisory expectations on explainability of AI systems.

Governance and accountability

29. Transparency leads to greater accountability. Accountability relates to having clear roles and responsibilities, as well as assigning ultimate responsibility to the board and senior management of a financial institution. Transparency, for example through the documentation of how the AI model works and the control processes surrounding it, makes assessing the fulfilment of these responsibilities much easier. AI policies typically accentuate the importance of traceability by maintaining documents or information before and after model deployment, with an appropriate retention period.

Key elements to be documented include model changes and audit logs (who did what, and when)[58]; preliminary assessments[59]; usage details (such as databases accessed and if data matched verified identities)[60]; trails to support AI system outcomes; project documentation; various versions of the model code; and the original data set used to develop, retrain and recalibrate the model[61].

Development of new AI applications is becoming quicker, but the time needed to assess and validate those models typically requires longer timeframes due to firms' internal accountability processes.

30. To ensure greater accountability, AI guidance emphasises the role of human intervention. This is to minimise the risk that AI-based decisions result in harmful outcomes, especially if the AI outputs have significant potential impact on customers.

Hence, concepts like 'human-in-the-loop' (human intervention in the decision cycle of the AI), 'human-on-the-loop' (human intervention during the design cycle and subsequent reviews) and, more recently, 'human-in-control' (primacy of humans in making critical decisions) are emphasised.

Reliability/soundness

31. Expectations regarding reliability/soundness of AI models are closest to those for traditional models. These involve the usual regular independent testing or monitoring to confirm that a model is performing as intended. They include monitoring metrics on validity, accuracy, robustness and reliability.

What seems to be different is that ensuring reliability/soundness is viewed from the perspective of avoiding causing harm to customers due to decisions based on inaccurate decisions or inappropriate advice. As such, AI risk management efforts are expected to prioritise the minimisation of potential negative impact and emphasise the role of human intervention in cases where AI models cannot detect or correct errors[62].

Fairness, ethics and safety

32. Fairness is generally highlighted in the context of AI use in finance. Two dimensions of fairness are mentioned in AI guidance: distributive fairness and procedural fairness. Distributive fairness relates to the fairness of outcomes resulting from AI-driven decisions; that is, AI should be non-discriminatory. This is the most often cited dimension of fairness in regulatory guidance.

However, it is also the most challenging to measure and achieve. There are three major categories of AI bias – systemic; computational and statistical; and human-cognitive – and

Box 2

Emerging high-level expectations on explainability in AI systems

AI guidance and model risk management (MRM) frameworks are currently the primary tool to manage and mitigate AI-related risks, including opacity and lack of explainability. Building upon the experience of implementing MRM frameworks in the financial sector, high-level expectations are emerging to foster explainable AI systems. One of the most widely recognised efforts in this area is the NIST's four non-binding principles of explainable AI (NIST (2021)). According to these principles, an explainable AI system should:

(i) provide supporting evidence or reasons for its outputs and processes (supported decision-making);

(ii) offer explanations that are understandable to the intended users (understandable explanation);

(iii) accurately reflect the reasoning behind the output and faithfully represent the system's processes (explanation accuracy); and

(iv) only operate under conditions for which it was designed and when it reaches sufficient confidence in its output (capability limits).

The following paragraphs assess the extent to which these principles are explicitly or implicitly incorporated into the AI guidance and MRM frameworks under review.

The expectation to provide supported decision-making explanations is included in AI guidance but not always explicitly stated in MRM frameworks. That said, this can be inferred in specific contexts such as model validation or credit decisions. For instance, FRB-OCC (2011) specifies that reports generated from model outputs should be reviewed as part of the model validation process to ensure that they are accurate, complete and informative, and that they contain appropriate indicators of model performance and limitations.

For the use of machine learning models for regulatory capital purposes, EBA (2021) recommends that banking institutions document the outcomes of statistical analyses involving risk drivers and output variables. The expectation for supported decision-making becomes more explicit when adverse actions are taken. The US Consumer Financial Protection Bureau (CFPB) (2022), for instance, mandates creditors to provide applicants with specific reasons when an adverse action is taken against them. In some cases, the obligation to offer an explanation only arises if the customer requests it.

The principle around providing understandable explanations is broadly reflected in AI guidance and MRM frameworks, including the need to tailor them to specific audiences. European Commission (2019) underscores that when an AI system significantly impacts people's lives, stakeholders should be able to request a suitable explanation of its decisions. This explanation should be timely and tailored to the expertise of the specific stakeholders, whether they are consumers, regulators, or internal auditors. In the case of consumers, the right to be informed immediately and free of charge is contained in EU consumer credit law[1].

Moreover, the EU AI Act grants individuals the right to obtain clear and meaningful explanations from deployers regarding the role of the AI system in the decision-making process and key factors influencing the final decision. FRB-OCC (2011) stress that reports should account for the fact that decision-makers and model developers often come from different backgrounds and may interpret the same information differently. EIOPA (2021) notes that while simplified explanations are essential for non-technical stakeholders, such as consumers, technical stakeholders – like auditors – require more detailed and comprehensive information to effectively carry out their responsibilities.

Regarding expectations on explanation accuracy, AI guidance and MRM frameworks generally expect financial institutions to provide accurate and adequate explanations. There is a growing consensus around the need to disclose material information about AI-driven decisions. Information is considered material if its omission could influence stakeholders' decisions.

To reduce subjectivity in determining materiality or adequacy, the Monetary Authority of Singapore (MAS) (2018) and the Hong Kong Monetary Authority (HKMA) (2024a) have specified that financial institutions must inform data subjects about their use of AI, associated risks, and how customer data is being used. Moreover, HKMA (2024a) suggests that financial institutions should disclose the factors influencing AI-driven decisions.

With respect to the expectations around communicating or understanding the capability limits of AI systems, AI guidance generally requires firms to communicate their capabilities, limitations and risks to relevant stakeholders. For instance, EIOPA (2021) stresses the importance of highlighting system limitations. The Central Bank of Brazil underscores that the board and

senior management should have a clear understanding of the limitations and uncertainties involved in risk assessments, particularly when models are developed by third-party vendors.

In this regard, the UK Prudential Regulation Authority requires vendors to provide appropriate testing results showing that their systems operate as expected, and to clearly indicate the circumstances in which the systems' use may be problematic. To address the limitations of AI systems, FRB-OCC (2011) recommend mitigating model uncertainty by incorporating human judgment, reducing reliance on the model's output, or ensuring that the model is supplemented by other models or approaches to more effectively manage associated risks.

In the case of Qatar, the central bank's AI Guideline specifies that an entity must ensure that the human overseer is given tools and authority to intervene in the operation of the high-risk AI system or interrupt the system through a 'stop' button or a similar procedure (Qatar Central Bank (2024)).

1. See European Parliament (2023), Article 11.4.g.

each can occur even in the absence of prejudice, partiality or discriminatory intent[63]. Procedural fairness, on the other hand, relates to the fairness of the decision-making process.

The concepts of external transparency and external accountability, therefore, operationalise procedural fairness. While theoretically easier to achieve than distributive fairness, disclosures to customers about how an AI model works and how it came up with a decision could prove challenging. This issue is especially acute when it comes to gen AI.

33. Ethics is now somewhat folded into AI governance and expectations on accountability. Ethics is broader than fairness issues and covers privacy and data protection, non-discrimination and equality, diversity, inclusion and social justice. It is based on a society's norms or mores, which may be codified in laws, regulations, codes of conduct, etc.

To enforce this aspect, some regulatory guidance imposes a number of measures, including establishing an ethical code of conduct on the use of AI; putting in place policies for the procurement and lawful processing of data; seeking diversity in the input data; and carefully reviewing training and validation data during the model training process.

34. In terms of safety expectations, many AI guidance documents emphasise that AI systems need to be used in a way that avoids causing harm or infringing on human rights. This guidance requires that societal values, including fairness and ethical standards, be integral to the design, development and deployment of AI systems.

To achieve this, the guidance refers to continuous monitoring and human oversight as necessary to ensure that AI systems operate as intended. Moreover, it highlights the importance of developing effective labelling and content provenance mechanisms to determine when content has used AI.

While some jurisdictions have set up specific bodies to oversee compliance with AI safety standards (eg. the UK and US AI Safety Institutes), others deal with this issue as part of their broader oversight of AI (eg. the European AI Office, which includes a safety unit) or in the context of online safety research (eg. the Singapore Centre for Advanced Technologies in Online Safety). IAIS (2024a) highlights the importance of insurers taking steps to observe existing legal requirements, including anti-discriminatory requirements, when adopting AI systems.

Data privacy and security

35. Data privacy/protection and safety as well as security have become more prominent in newer AI guidance. The importance of large quantities of data for delivering reliable/sound AI outcomes, coupled with fairness and ethical expectations for AI systems' design and operation, have enhanced policymakers' attention to safeguarding personal data such as individuals' identities, locations and habits.

Additionally, AI systems can be used to mislead and manipulate individuals through, for instance, deepfakes and psychological profiling, resulting in complex and increasingly convincing forms of fraud and disinformation. This makes it crucial to develop and operate safe AI systems, ie. aligned with societal values.

Finally, growing reliance of businesses on AI systems and their increased exposure to cyber attacks and other malicious actors' attempts to exploit weaknesses makes it indispensable to deploy secure AI systems that are able to continue providing products and services despite disruptions.

36. The right of individuals to data privacy/protection is emphasised, particularly when their personal information is at stake. Accordingly, in line with applicable data-related laws and regulations, AI guidance requires individuals' consent for the collection, use and retention of personal data. These data should be safeguarded from privacy and confidentiality risks.

AI providers are also expected to effectively respond to individuals' requests for, among others, data correction,

supplementation and deletion. The EU guidance goes further and requires a strict process for detecting and correcting biases involving special categories of personal data, eg. racial/ethnic origin, religious beliefs, health/biometric data and sexual life/orientation.

The emergence of gen AI has increased attention to the personal data aspects of AI. For example, the draft guidance in China expects providers to comply with relevant data privacy laws and regulations as part of the entire process of training data used in AI systems.

37. AI systems are expected to rely on sound security and resiliency standards. Secured AI systems are those that can maintain their confidentiality, integrity and availability in the event of a disruption, including serious cyber security breaches. To achieve this, AI guidance generally outlines organisational and technical expectations for AI systems, including third-party risk management, typically following a risk-based approach.

For instance, a high-risk system is expected to operate under a strong control environment and cyber security framework that prevents unauthorised employees and third parties from exploiting potential vulnerabilities. That said, if a serious cyber-related incident were to happen, AI guidance (eg. Brazil[64], China[65] and the EU[66]) increasingly envisages reporting or communication to the competent authority and backup plans to promptly resume disrupted AI-related services.

Consumer redress and AI literacy/awareness

38. The external dimension of accountability, including the requirement for consumer redress, is also often highlighted. This reinforces the expectations on external transparency. Aside from the information described above that should be disclosed to customers, financial institutions using AI that may have a significant potential impact on customers should provide them with channels to inquire about, submit appeals for, and request reviews of AI-driven decisions that affect them.

For instance, the EU AI Act and MAS (2018) envisage deployers of AI systems having mechanisms in place to take into account verified and relevant supplementary data provided by customers when performing reviews of AI-driven decisions[67].

39. As gen AI becomes more integrated into everyday life, AI regimes seek to further improve AI literacy and awareness as well as to facilitate consumer redress. AI providers and deployers are increasingly expected to adopt awareness and/or training measures for their staff, including those involved in the operation and use of AI systems, as well as for individuals affected by AI systems, with special attention to vulnerable groups.

Other policy themes

40. With the emergence of gen AI, many AI guidance documents are paying increased attention to intellectual property and sustainability considerations. AI providers are expected to ensure compliance of gen AI systems with intellectual property laws. These mainly include obtaining appropriate licences or permissions for the use of training data; giving proper attribution to the original creators of copyrighted material; and explaining in a transparent manner how AI systems handle copyrighted content.

In addition, given that gen AI systems require high-performance computing capabilities and hence large amounts of energy, these systems are expected to be developed and operate using standards for increasing energy efficiency.

To help assess whether these expectations are met, AI providers are generally expected to keep records of relevant information related to AI system development, testing and operation. Their climate-related disclosure commitment may oblige them to disclose their carbon footprint arising from their AI-related services.

41. Many AI guidance documents highlight the importance of international interoperability of AI guidance and public-private partnerships. AI guidance includes references to the need to engage with the international community to support AI interoperability across different regulatory regimes, minimise crossborder frictions and facilitate local firms' compliance if they were to operate abroad.

AI guidance also encourages public-private sector partnerships. It is increasingly envisaging strong collaboration between government, industry, academia and various representatives from civil society to ensure that AI systems can be effective in driving innovation while being developed and deployed in a responsible manner.

Section 4 – Practical issues in implementing cross-sectoral AI guidance to the financial sector: the case of credit and insurance underwriting

42. The common themes of cross-sectoral AI-specific guidance outlined in Section 3 are not new to the financial sector and hence are addressed through general financial regulations. In the financial sector, these themes are addressed through general regulations covering governance, risk management (including model risk management, third-party risk management, operational risk/resilience and cyber security) and consumer protection.

For a long time now, financial authorities have focused on making sure financial institutions have appropriate risk management and controls in place in running their businesses. This focus contrasts with the compliance-based approach of the past, where financial institutions needed to observe strict compliance with detailed rules.

This recognises that the role of financial authorities is not to manage financial institutions but to ensure that they operate in a safe and sound manner at all times. This extends to the technologies, including AI, that financial institutions are using to run their businesses[68].

43. Not many financial authorities have issued regulations specifically addressing financial institutions' use of AI. Financial authorities have so far issued high-level principles (eg. EBA, EIOPA, HKMA, MAS) or clarification as to how existing

regulations apply to AI (eg. UK authorities). So far, among the authorities examined for this paper, only the Qatar Central Bank (QCB) and several US state insurance regulators[69] have issued regulations specifically addressing AI use by financial institutions.

The regulations contain specific rules that regulated entities need to follow when developing, purchasing and deploying AI systems, or when outsourcing processes or functions that rely on AI. The EBA and EIOPA may follow suit in order to clarify the relevant provisions of the EU AI Act, which classifies evaluating creditworthiness and risk assessment and pricing of health and life insurance as being among the high-risk uses of AI systems (see Box 3).

These use cases are in the areas of credit and insurance underwriting. In the insurance sector, the IAIS has examined its Insurance Core Principles (ICPs) and concluded that they are sufficiently principles-based to capture AI risks. IAIS (2024a), when finalised, will provide a clear framework, consistent with the ICPs, for addressing risks that insurers face when using AI systems.

44. Underwriting is a core process of lenders and insurers that is likely to become a focus for AI regulatory work by financial authorities. In general, it is a process by which a financial institution determines whether an applicant is qualified to be granted a financial product (ie. loan or insurance) and at what price.

In credit underwriting, the lender assesses the probability that an applicant can repay the loan. This involves reviewing an applicant's capacity and willingness to pay by looking at factors such as credit history, income, employment stability and other liabilities.

In insurance underwriting, the insurer assesses the relevant risk of the applicant to determine the appropriate level of premium to charge. For life insurance, for example, this entails gathering information on an applicant's medical history, lifestyle, age, etc.

In both cases, sound underwriting practices can minimise losses either from too many defaults or insufficient premiums to cover claims. As discussed in Section 2, AI has the potential

Box 3

Risk-based policy approaches and high-risk AI systems

AI guidance appears to increasingly follow a risk-based policy approach to deal with AI systems (eg. the EU's AI Act; Brazilian Draft Bill 2338/2023 on AI; Qatar Central Bank – QCB AI Guideline). This approach is generally designed to address the potential harmful effects of AI systems on fundamental human rights and democratic values. The greater this potential harmful effect, the more stringent restrictions are imposed by policy frameworks, including prohibiting some AI-related activities.

Based on this criterion, the Brazilian Draft Bill classifies AI-related risks into excessive, high and other risks. Along the same lines, the EU AI Act uses a similar but more granular classification: unacceptable, high, limited and minimal/no AI-related risks. In both policy frameworks, when AI activities are categorised as generating excessive or unacceptable AI-related risks, these are prohibited. The EU AI Act provides examples of prohibited AI-related activities including social scoring systems, subliminal behavioural manipulation and real-time biometric identification in public places for law enforcement[1].

Another similarity across risk-based policy approaches is that most of these frameworks are largely centred on high-risk AI systems. Focusing on finance, the Brazilian Draft Bill considers high-risk AI systems when these are used for assessing the debt capacity of individuals, establishing credit ratings or biometric identification[2]. Following a similar approach, the EU AI Act considers as high-risk AI systems those that are used to evaluate the creditworthiness of natural persons or establish their credit score. Additionally, in the EU, AI systems are considered high-risk when used to undertake risk assessment and pricing in relation to natural persons in the case of life and health insurance. The QCB AI Guideline defines high-risk AI systems as those that have the potential to cause a significant negative impact on an entity's operations or the financial system[3].

In the EU AI Act, different requirements are imposed on providers and deployers of high-risk AI systems. Requirements imposed on the former are more stringent and include those relating to risk management systems, data governance, technical documentation, record-keeping, transparency and provision of information to deployers, human oversight, accuracy, robustness and cyber security. Deployers of high-risk AI systems, on the other hand, must ensure that they use the AI system in accordance with the instructions for use, apply suitable human oversight, monitor and keep logs of its operation, and inform workers' representatives when using that technology in the workplace.

1. See Article 5 in European Parliament (2024).
2. See Article 17 in Federal Senate, Brazil (2023).
3. See Section 2, definition 10 in Qatar Central Bank (2024).

not only to address and mitigate some of the challenges facing financial institutions in credit and insurance underwriting but also to further enhance their capabilities in this area.

Since this is a core financial and economic activity, it is likely that the use of AI in underwriting will attract the attention of financial authorities. Discussions with authorities for this paper suggest the following areas may be particularly relevant:

- governance and accountability;
- transparency and explainability;
- use of third-party AI services, data security and operational resilience; and new players and new business arrangements.

Governance and accountability

45. Expectations with regard to governance and accountability outlined in cross-sectoral AI-specific guidance are very similar to those already required for financial institutions, including in the conduct of underwriting activities. More specific accountabilities for underwriting include: (i) model owner – this individual or team holds overall responsibility for the development, implementation and use of the underwriting models; (ii) model developers – these are tasked with developing, testing, evaluating and documenting the underwriting models; and (iii) model users: typically, these are credit officers or insurance underwriters who rely on the model's output to inform underwriting decisions. Each of these tasks are expected to align with the firm's AI risk management framework and risk appetite.

46. It is not surprising, therefore, that newly developed AI risk management frameworks reference the general governance principles. For example, ISO/IEC 23894[70] relies on its existing risk management standards (ISO 31000:2018). The NIST AI Risk Management Framework[71], on the other hand, is based on four all-too-familiar functions: govern, map, measure and manage.

Nevertheless, both standards also emphasise the unique considerations relating to AI. For example, privacy risk, fairness and bias are specifically highlighted in the NIST standards, as well as the role of human oversight. Its gen AI companion resource, meanwhile, draws out risks amplified by the technology, such as those related to information integrity and intellectual property.

In terms of human oversight, it should be noted that there is a trade-off between human intervention requirements versus the intended operational efficiency objectives when firms use AI. Autonomous AI systems that can make their own decisions, eg. automated acceptance of loan or insurance applications, could be seen as contradicting the human intervention requirements.

47. Applying these governance principles in the context of AI will require the necessary expertise and skills. Financial institutions' board and senior management will need to have a sufficient level of AI expertise or familiarity to be able to effectively carry out their governance responsibilities, such as providing effective challenge to AI-driven decisions and assessing their broader impact on the institution's business strategy.

Similarly, financial institutions' staff will need to have the requisite skills to effectively develop, deploy and manage the risks from using AI systems, as well as provide independent internal assurance.

More concretely, financial institutions face the challenge of ensuring that they have the necessary expertise to develop or maintain AI systems that are not only high-performing but also comprehensible to internal stakeholders (eg. board of directors and senior management) and viewed as fair and reliable by external stakeholders (eg. clients and regulators). As use of AI by financial institutions increases, financial authorities will also need similar skills to be able to effectively regulate and supervise.

Transparency and explainability

48. The implementation of these governance principles will also be affected by the issue of AI explainability. As mentioned, explainability refers to making transparent how an AI system's outputs (eg. underwriting decisions) were derived from its inputs (eg. customer data). This includes providing clarity as to how the system functions and makes decisions.

However, as AI systems become more complex, they often achieve higher performance at the expense of explainability. In other words, while these systems can leverage large, diverse sources of credit- or insurance-related information and detect intricate data patterns, this increased complexity can make their decision-making processes harder to understand.

Therefore, striking the right balance between performance and explainability is one of the main challenges for financial institutions implementing AI, especially in credit and insurance underwriting. Due to these explainability challenges, some industry players advocate that regulations should focus on the risk control surrounding the use of AI rather than on explainability or transparency metrics.

Others are proposing to focus on AI outputs, ie. placing emphasis on whether the decisions or predictions made by the AI are fair, ethical and compliant with regulations, regardless of how the AI arrives at these outcomes.

49. The lack of transparency in how AI systems make credit and insurance decisions raises significant concerns about compliance with consumer protection and model risk management (MRM) requirements. Consumer protection regulations generally require financial institutions to inform clients of the primary reasons behind credit or insurance application denials, under the so-called 'adverse action' requirements.

Moreover, MRM frameworks are crucial tools for managing and mitigating AI-related risks, including issues of opacity and lack of explainability. Financial institutions are expected to address these risks as part of their evaluation of model

complexity. This often requires enhancing oversight of AI models, with particular attention to validation processes and risk control measures[72].

50. For insurance underwriting specifically, policyholder protection is a key objective of insurance regulators, be they prudential or conduct regulators. As such, the issue of unfair treatment of customers that could arise from the use of AI in insurance underwriting attracts great regulatory scrutiny. New York Department of Financial Services (2024a) provides detailed guidelines in relation to governance and risk management, fairness and transparency for the use of AI in insurance underwriting and pricing[73].

The overarching fair treatment rules apply to the entire insurance underwriting process, from ensuring the data inputs are not biased and that data privacy laws are respected, to providing proper customer disclosure before concluding a transaction. Some life insurance products with savings or investment elements require extensive customer due diligence process.

The use of AI to underwrite such products may be challenging, as the system will need to understand the context of the applicant before recommending the insurance/financial product. IAIS (2024a) called for insurance supervisors to ascertain that insurers are able to meaningfully explain the outcomes of AI systems, covering how decisions or predictions are made especially for use cases that could have a material impact on solvency or consumers.

51. The transparency expectation, including its consumer protection aspect, and its interconnection with fairness and ethics expectations emphasise the role of data governance and data management. AI systems need to be properly documented, including their design, processes and data used. Documentation of data used is particularly important to be able to explain AI-based outcomes or decisions to customers, and in assessing which supplementary data that may be provided by customers are relevant.

Moreover, financial institutions need to assess whether data inputs are biased and put in place policies and measures to ensure that they are lawfully, ethically and securely collecting, storing, processing/using and sharing data (see below discussion on data security and privacy concerns arising from use of third-party AI). These factors point to the need for financial institutions to have robust data governance frameworks, as well as appropriate data management tools and procedures to enforce these frameworks.

52. Use of gen AI in credit and insurance underwriting will further exacerbate explainability challenges. These challenges stem largely from the complexity of how gen AI systems operate. These systems rely on billions or even hundreds of billions of parameters, making it difficult to trace how specific inputs lead to specific outputs and to understand the systems' internal decision-making process.

Unlike traditional AI systems, where the same input always gives the same result, gen AI systems can give different results from the same input because they are designed to introduce an element of variability, which makes them flexible and adaptable but less deterministic. Additionally, since gen AI systems can create novel content, it becomes harder to explain the decisions behind these outputs.

Finally, unpacking how a system might generate biased or ethically questionable content involves analysing intricate patterns in training data, which often requires highly technical approaches and may involve disclosing sensitive information.

53. Various techniques are being explored to address concerns related to AI explainability in the credit context[74]. For instance, some US financial institutions are tackling these issues by imposing upfront constraints on model complexity, applying post hoc techniques, or using a combination of both approaches[75].

Post hoc techniques aim to provide insights into how a model works or why it made a specific decision after it has already been trained. Examples of post hoc techniques include building surrogate models (SMs) and applying feature-importance techniques (FTs). SMs are simplified models that approximate how complex AI models make decisions, either across the entire data set or for individual consumers[76]. FTs explain a model's behaviour by quantifying the contribution of each input to a specific prediction (eg Shapley Additive Explanations (SHAP))[77].

54. While recent advancements in explainability techniques are promising, further work is still necessary. Empirical analysis of machine learning models used in credit underwriting, including some complex models, indicates that not all explainability techniques reliably capture key aspects of model behaviour[78].

Additionally, the outputs of these techniques must be interpreted with a clear understanding of the underlying data used in credit underwriting decisions. This reflects the absence of a 'one size fits all' explainability solution that works for all AI models.

Supporting this, a recent EBA survey revealed the range of explainability measures employed by European financial institutions: Shapley values (40% of respondents), graphical tools (20%), enhanced reporting and documentation of the model methodology (28%) and sensitivity analysis (8%)[79].

55. Financial authorities can play a role in promoting the consistent application of sound explainability techniques in AI-driven credit and insurance underwriting. As a useful first step, authorities could define basic concepts and provide guidance on the key qualities to consider when selecting explainability techniques and assessing their effectiveness.

This regulatory intervention by outlining key criteria and expectations can be helpful in accelerating improvements and fostering consistent implementation of sound explainability techniques across the financial industry. Incorporating these features into MRM frameworks would provide a practical foundation for further progress.

In addition, consumer protection regulations may need to be refreshed to clearly articulate the types of disclosures required when individuals are denied credit or insurance based on AI decisions.

Use of third-party AI services, data security and operational resilience

56. Use of third-party AI services[80] by financial institutions appears to be prevalent and increasing, which poses another challenge. While there is no authoritative source of data on the use of third-party AI services by financial institutions, there are different sources of information that, when combined, may give a good indication.

For example, a 2023 cross-sectoral survey of 1,240 respondents representing business organisations – including financial institutions – in 87 jurisdictions revealed that 78% of the respondents were using third-party AI models, with 53% using exclusively such models[81]. Among financial institutions, the majority expected that use of third-party AI models would increase by 10–25% in the next 12 months[82].

For credit modelling specifically, a survey of small to mid-sized financial institutions in the United States showed that 20% did not have in-house staff for credit modelling and outsource this function to a third party[83]. So the extent of use of third-party AI services by financial institutions appears significant and financial authorities need to examine and address its potential risks.

57. The regulatory principle that financial firms' board and senior management is ultimately accountable for any activities, functions, products or services provided by third parties also applies to AI[84]. For example, at a high level, financial institutions are expected to have appropriate processes in place for selecting third-party AI models and making sure that these are validated to the same standards as their own internally developed models.

To this end, contracts or agreements between financial institutions and third parties are expected to include clauses requiring third parties to provide evidence that the model is appropriate for the financial institution's intended use; testing results that show the model works as expected; and information on the model's limitations and assumptions.

Third parties are also typically expected to conduct ongoing performance monitoring and outcomes analysis and make appropriate modifications over time[85]. In some jurisdictions, contractual clauses providing supervisory authorities the right to audit third parties are also included.

58. While this guiding principle is sound, in practice and in the context of AI, it can be challenging. Third-party models may not allow financial institutions full visibility of certain proprietary information, eg. the computer coding and other details. Requiring disclosure of such information could expose third parties' intellectual property and confidential business information. This, in turn, could disincentivise innovation and further AI development.

Hence, it is recognised in regulations that in some cases financial institutions may need to modify their approach. For example, when validating third-party models, financial institutions may need to rely more on sensitivity analysis and benchmarking[86].

59. One proposal to address this challenge is to clearly delineate the responsibilities of users of AI services (ie. financial institutions) and their providers (ie. third parties) based on what each can control. This is the approach being advocated by technology firms providing AI services and borrows from the shared responsibility model for cloud computing services[87].

For example, third parties that provide AI models to financial institutions have control over the development of the base/foundation AI model and should thus be responsible for providing documentation in this regard. Financial institutions, on the other hand, have control over how the third-party AI model is deployed and retrained; thus regulators can look to them to ensure that related processes are sound.

60. In the context of credit and insurance underwriting, the remaining question is whether this arrangement is enough to meet the policy expectations outlined in Section 3. In terms of assessing reliability or soundness of the model, financial institutions' ongoing monitoring and analysis of third-party model performance using outcomes from financial institutions' own use could be sufficient.

Achieving procedural fairness (ie. external transparency and accountability), however, may still pose a challenge. It is not clear whether financial institutions would be able to adequately explain to customers AI-driven decisions that are largely influenced by foundation models rather than by the customisation that they have done.

Moreover, financial institutions almost certainly would face heightened reputational risk. Even if third parties would be required to make appropriate disclosures on their foundation models, data or assumptions, if something were to go wrong, it would be likely that financial institutions would be blamed by customers regardless of whether they built or bought the AI model.

In any case, requiring third parties to disclose to customers factors within their control that affect AI-driven decisions implies that third parties need to be identified and be subject to oversight by financial authorities.

61. Use of third-party AI for credit and insurance underwriting raises data security and privacy concerns. AI systems that handle sensitive and personal customer data – such as those used for credit and insurance underwriting – are attractive targets for cyber attacks, data breaches and abuse. They could also be subject to data poisoning attacks, which attempt to corrupt and contaminate training data to compromise the system's performance.

These highlight the need to manage the risks of sharing data with third parties. This could be done, for example,

through master service agreements that set out requirements relating to data maintenance, access, rights, ownership and intellectual property, and security requirements. Financial institutions could also conduct due diligence on third parties to assess their data controls and ethical reviews on how the third party will use the data[88].

62. Use of third-party AI services – and its relationship with cloud services – presents operational resilience issues. Use of third-party AI services (eg. data processing and provision of AI model output) may be facilitated through APIs. Financial institutions are also increasingly moving their core business workloads – including credit and insurance underwriting – to the cloud[89].

In addition, the large providers of AI services are also the major cloud service providers (CSPs), which deploy their AI services through their cloud infrastructure. All these factors result in more interconnectivity that also makes financial institutions more vulnerable to cyber threats and operational disruptions at AI service providers[90].

63. Given the close link between cloud and AI services, the need for a more direct approach to the oversight of third parties to safeguard operational resilience is becoming stronger. Currently, financial authorities typically follow an indirect approach in addressing operational resilience issues resulting from third-party services, including AI.

This approach relies on financial institutions to manage the risks from third-party services and to assess the potential implications of such services for their own operational resilience. For example, financial institutions are required to verify that third parties have at least an equivalent level of operational resilience to that expected by financial authorities.

However, financial institutions might not have full visibility into the risk management and control measures adopted by third parties. In addition, while the indirect approach could potentially address risks faced by individual financial institutions, it may not be sufficient to address the potential impact on the financial system of an operational disruption of a third party that provides services to multiple financial institutions[91].

Hence, a few jurisdictions now have or are planning to have direct oversight by financial authorities over third parties that are considered critical to the functioning of the financial system. As more financial institutions use cloud and AI services provided by the same third parties, some jurisdictions may find there is increasingly a clear case for having a more direct oversight approach for these third parties.

New players and new business arrangements

64. Ensuring that regulatory expectations relating to the use of AI are also met by non-bank lenders is another challenge. This is especially the case when it comes to new entrants, such as fintech and big tech lenders. These lenders use digital delivery channels and rely on alternative data for credit underwriting. Moreover, non-bank lenders with digital business models are said to be more established users of AI models[92].

In many cases, these lenders may be subject to different sets of regulations from bank lenders. This may be justified by the fact that their activities pose different risks to those of traditional players. In any case, it may be prudent to examine regulations relevant to these players to determine if they require adjustments to take account of the cross-sectoral expectations on the use of AI. This would help avoid regulatory gaps in addressing risks arising from the use of this technology.

The case of big tech lenders is especially interesting. Some of these have significant lending activities[93], while at the same time they may be providing cloud and AI-related services to banks and other lenders. The risks they pose, therefore, span various aspects of the banking value chain.

65. Novel arrangements in delivering lending and insurance products to customers, such as through bank/insurer partnerships with fintech or big tech firms, further complicate the enforcement of regulatory expectations. Banking-as-a-Service (BaaS), for example, allows banks to provide credit through non-bank intermediaries (eg. fintech/big tech firms and other non-financial firms) that serve as interfaces to clients[94].

In the case of non-bank intermediaries, this arrangement increases the use and value of their digital platforms by offering banking products while remaining outside the regulatory perimeter. In the case of banks, this arrangement enables them to access new customers and leverage the non-bank intermediaries' technological capability. In this type of arrangement, banks typically make the credit decisions, but the customer relationship is with the non-bank intermediaries[95].

In the insurance sector, big techs may serve as insurance intermediaries through embedded insurance or insurance marketplaces. They may also act as providers of technology services (eg. cloud computing) or data services[96]. It is therefore unclear who should be responsible for ensuring that regulatory expectations regarding external transparency and accountability are met.

This is further complicated if the AI models used by banks in driving credit decisions are provided by third parties. In general, as these multi-layer arrangements become more prevalent in the financial system, enforcing regulatory expectations on the use of AI could be a challenge.

66. Understanding and addressing these practical issues is important for the safe and responsible adoption of AI by financial institutions. Some financial authorities are already actively working with the industry to achieve this. Together with the industry, the MAS has co-created the Veritas Initiative, which aims to enable financial institutions to evaluate their AI solutions against the MAS FEAT Principles[97].

The Veritas Initiative developed the FEAT assessment methodology and has tested integrating the methodology into financial institutions' existing governance frameworks as well as specific use cases. The HKMA, on the other hand,

recently launched its GenA.I. Sandbox[98], which aims to promote responsible innovation in gen AI across the banking industry. The Sandbox provides a platform for banks to pilot their gen AI use cases within a risk-managed framework, supported by essential technical assistance and targeted supervisory feedback.

Section 5 – Conclusion

67. The broader adoption of AI has the potential to bring transformative benefits to society as a whole and to the financial system in particular. Within the financial system, AI capabilities offer opportunities to financial institutions to substantially enhance productivity as well as to achieve time and cost efficiencies in their activities.

AI also offers unprecedented levels of automation and accuracy in regulatory compliance, including fraud detection and AML/CFT. By analysing vast amounts of structured and particularly unstructured data, AI holds the promise of enhancing customer experiences and contributing to a more inclusive financial system.

68. The use of AI by financial institutions – while potentially exacerbating existing risks – currently does not appear to present new ones. Use of AI may have negative consequences for equality, privacy and the environment, among other factors. Given these significant societal implications, it is thus not surprising that governments around the world are coming up with legislation or regulations to ensure that AI is safely and responsibly used.

However, examining the risks AI poses when used by financial institutions, one would come up with the usual list of risks that are already familiar to financial institutions and financial authorities. Admittedly, AI use may heighten some of these risks, such as model risk (eg. lack of explainability makes it challenging to assess appropriateness of AI models) and data-related risks (eg. privacy, security, bias)

Financial institutions are therefore working to enhance their controls and tools to manage these risks, while financial authorities are building capacity to oversee them.

69. Consequently, the common themes of cross-sectoral AI-specific guidance are already broadly covered in existing financial regulations, so the need for separate and comprehensive AI financial regulations could be arguable. This is perhaps the reason why financial authorities in most jurisdictions are not planning to issue specific AI regulations in the near future.

On the other hand, industry players may be waiting for greater clarity on regulatory stance before investing billions in developing AI applications that may be constrained or prohibited by future regulations. The proliferation of AI definitions also seems to underscore the challenge of capturing in words the essence of this evolving technology.

It is hard to regulate something that is in flux. This is the reason why regulators are in general taking a technology-neutral approach.

On the other hand, uncertainties created by overly wide definitions can inadvertently capture non-high risk AI systems that have been used by firms for decades. The pragmatic way forward, it seems, is to ensure that the desired regulatory outcomes are achieved regardless of what technologies financial institutions use.

70. Nevertheless, AI presents some unique challenges in implementing existing financial regulations and hence AI-specific regulatory or supervisory guidance may be needed in certain areas. This points to the need to examine existing regulations and, if necessary, consider issuing clarifications, revisions or even new regulations especially with respect to use cases that present higher risks or significant potential impact on customers.

In particular, at least in the context of credit and insurance underwriting, the following areas stand out as important:

(i) Governance framework. The board and senior management of financial institutions are ultimately accountable for their activities, including AI use cases. That said, financial institutions' use of AI, particularly in core business activities, underscores the importance of a clear allocation of roles and responsibilities across the entire AI life cycle (ie. design, delivery and deployment of AI). Governance frameworks might need to specify the role of human intervention to minimise harmful outcomes from AI systems.

(ii) AI expertise and skills. A foundational element to effectively implementing, managing and overseeing AI systems is having the necessary expertise and skills that may not be widely available currently in financial institutions, including at the board and senior management level. The type of expertise and skills needed would partly depend on the regulatory/supervisory approach to AI and the principles of proportionality[99].

Moving forward with a wider adoption of AI without the corresponding expertise and skills could result in insufficient understanding and ineffective management of the risks to financial institutions and the financial system. Financial authorities may therefore consider clarifying their expectations regarding the expertise and skills envisaged to be in place for financial institutions that plan on expanding AI use in their core business activities.

(iii) Model risk management. In the context of AI, and particularly gen AI, financial authorities may need to pay close attention to financial institutions' model risk management given the heightened model risk caused by, for example, lack of explainability of AI models. Some financial authorities already have model risk management regulations in place. Some have model risk management regulations that are specific to models used for regulatory purposes (eg. calculating regulatory capital).

Other authorities try to capture some elements of model risk management in general risk management regulations. In the first case, it might be helpful to define basic concepts and provide guidance on the key qualities to consider when

selecting explainability techniques and assessing their effectiveness. In the last two cases, it might be worthwhile for financial authorities to consider issuing model risk management regulations that capture all types of models used by financial institutions, including AI.

(iv) Data governance and management. Considering increased data-related issues from the use of AI, financial authorities may also need to pay close attention to financial institutions' data governance and the data management tools and procedures that enforce it. Many of the relevant elements of data governance and management are captured in existing regulations, such as for model risk, consumer privacy and information security.

Financial authorities may want to assess whether these are enough or need strengthening, or whether there is a need to issue regulations that address all data governance and management-related issues. Financial authorities can also support effective data governance and management by taking stock of the range of practices across financial institutions and promoting better practices[100].

(v) New/non-traditional players and new business models/arrangements. To avoid potential regulatory gaps, regulations relevant to new/non-traditional players providing financial services would need to be assessed to determine whether they require adjustments to take account of the cross-sectoral expectations on the use of AI.

A similar regulatory assessment might be needed with respect to multi-layer arrangements in providing financial services (eg. BaaS) involving AI that may make it challenging for financial authorities to attribute accountability to various players in the ecosystem.

(vi) Regulatory perimeter – third parties. The concentration of cloud and AI service providers to a few large global technology firms strengthens the argument for putting in place direct oversight frameworks for these service providers[101]. In response, some jurisdictions have already moved in this direction, while others have reinforced the financial institutions' responsibility to manage risks stemming from these third-party relationships. This indirect approach is prevalent in the financial sector.

71. Other areas not covered in this paper may be worth exploring in further research. Examining the following areas may provide financial authorities with additional perspective on the implications of AI use by financial institutions:

(i) Risk management of financial institutions. Many papers looking at AI use in finance focus on the investments made by financial institutions in integrating AI capabilities into their businesses and operations. However, there is not much focus on the risk management spending of financial institutions to address heightened risks from AI use.

Although it is reasonable to assume that the spend on risk management would not increase linearly with the increased spending on AI, some increase in budget allocation for risk management can be expected. Aside from spending, it would be worthwhile to study the actual risk management enhancements that financial institutions have introduced to identify, assess, address and mitigate risks arising from their AI-related activities.

BCBS (2024) and IAIS (2024a) have outlined some of these risk management enhancements to address risks from gen AI. Further research can build on this and try to map heightened risks to enhancements in risk management practices.

(ii) Use of AI for regulatory compliance (regtech). Financial institutions have been using AI to support AML/CFT compliance as well as in calculating regulatory capital. In general, the use of AI for regulatory compliance – especially if the models are similar or provided by the same vendors – leads to concern about concentration and herding behaviour.

In the two examples cited above, an error in the models could have financial integrity and financial stability implications. Further research can look at how AI is used for regtech purposes and the risks this poses to regulatory objectives.

(iii) Supervisory approaches by financial authorities to oversee the use of AI. Upskilling, acquiring and retaining AI expertise within financial authorities is imperative to be able to provide effective supervisory oversight in the area of AI. This expertise can also be helpful in allowing authorities to take fuller advantage of this technology in the delivery of their supervisory responsibilities (suptech).

Moreover, financial authorities may have different approaches in categorising AI systems and in applying risk-based supervision. Further work to describe different approaches in these areas would be helpful.

72. Collaboration among financial authorities both domestically and internationally is important in continuing to understand and monitor risks from AI as the technology evolves. Collaboration, for example, could be used to have a better understanding of AI use cases in the financial sector. This would help identify the specific areas in the financial sector where there may be heightened risks.

At the moment, data on AI use cases in finance are anecdotal at best. The presence of various definitions of AI across jurisdictions is a significant impediment to acquiring these data. Hence, international alignment of the definition is an obvious first step, while recognising that any agreed definition may have to be adjusted as the technology evolves. An agreed definition will facilitate the identification of risks and provide an idea of where they can be found. ■

ABOUT THE AUTHORS

Juan Carlos Crisanto is Deputy Chair, Jermy Prenio and Jeffery Yong are Principal Advisors, all at the Financial Stability Institute, and Cris Benson Leuterio is Bank Officer V, Technology Risk and Innovation, in the Supervision Department, Bangko Sentral ng Pilipinas.

Endnotes

1. See BIS (2024).
2. See OECD (2024a). A core component of AI systems are AI models, which are used to make inferences from inputs to produce outputs (see Grobelnik et al (2024)). This paper uses the terms 'AI system' and 'AI model', where appropriate.
3. See, for example, Gulley and Hilliard (2024) for a comparison of different AI definitions.
4. See OECD (2024b).
5. This paper focuses mainly on banks and insurers.
6. Use of AI-enabled tools by financial authorities to support supervisory work – so-called suptech tools – also precedes gen AI developments. While financial authorities face the same risks in the use of AI as financial institutions, this paper focuses only on the latter. See also Prenio (2024) and Aldasoro, I, L Gambacorta, A Korinek, V Shreeti and M Stein (2024) (2024).
7. See BCBS (2022).
8. See Ladva and Grasso (2024).
9. See Prenio and Yong (2021).
10. See OECD (2024b); Stanford University (2024) analyses legislation in 128 countries during the period 2016–23 and finds that, in total, these countries have passed 148 AI-related bills and 32 have enacted at least one AI-related bill.
11. ibid. The OECD survey took place in the first quarter of 2024 and involved 49 OECD and non-OECD jurisdictions.
12. See IAIS (2023b).
13. A technology-neutral regulatory/supervisory approach does not differentiate between the different technologies, whether AI or not, that a firm may use.
14. According to the World Intellectual Property Organization (WIPO) ranking in 2024, Ping An (one of the largest insurers in China) ranked second globally with 1,564 generative AI patent applications. Ping An is reported to have a technology team of more than 20,000 technology developers and over 3,000 scientists as of 30 June 2024.
15. See Statista (2024).
16. See Evident (2024).
17. JPMorgan Chase (2024) estimates the value of its AI deployment to be around USD 1 to 1.5 billion in terms of productivity improvements and cost reduction, citing an example of know-your-client file processing. They expect to increase the number of files processed from around 155,000 in 2022 to 230,000 in 2025 but with 20% less staff needed to do so. DBS Singapore has deployed over 800 AI models across 350 use cases and estimated an economic impact exceeding SGD 1 billion in 2025.
18. See BCBS (2024), The Economist Intelligence Unit (2022).
19. See Accenture (2024).
20. See European Parliament (2024) and MIT's AI risk repository.
21. See EIOPA (2024).
22. See IIF-EY (2023), NVIDIA (2024).
23. See BIS (2024).
24. It is acknowledged that some of the use cases may be classified differently under different objectives. This table is not intended to provide distinct demarcation of the various use cases; rather, it is intended to illustrate the range of use cases that support key business objectives.
25. FATF (2021) describes how AI can be used for AML/CFT purposes. Oracle (2024) cites a McKinsey study reporting that AI can improve identification of suspicious activities by 40%.
26. HKMA (2024b) reports that most of the surveyed financial institutions in Hong Kong SAR have adopted or are planning to adopt AI for operational automation and document processing.
27. Forrester (2023) estimates that a chatbot in a stylised financial institution reduced human interaction handle time by up to 30%.
28. DBS digibot can execute loan applications with instant funds transfers to successful applicants.
29. By June 2023, Bank of America's chatbot, Erica, had recorded 1.5 billion interactions with more than 37 million clients since its launch in June 2018. It is reported that Bradesco's chatbot answers 283,000 questions each month with a 95% accuracy rate.
30. HSBC estimates that its AI AML tool identifies two to four times more suspicious activities than its previous system, while reducing the number of alerts by 60%, thus allowing more time for its human investigators to review genuine suspicious cases. The tool also allows identification of criminal networks.
31. See BIS (2024).
32. Betterdata.ai explains how synthetic data can be used to create hypothetical data sets covering different credit behaviours and profiles that can be used to train AI systems without biases that may be present in actual data sets.
33. See BIS (2024).
34. The measurable impact includes reduction of the approval process time by more than two days and a 94% accuracy rate in credit analysis calculations. See Marsch & McLennan Companies (2019).
35. See Aldasoro, Gambacorta, Korinek, Shreeti and Stein (2024).
36. See BCBS (2024), Bank of England (2022), ECB (2024), FSB (2017, 2024), IAIS (2023b, 2024a, 2024b (forthcoming)), IMF (2023), UK Government (2024), US Department of the Treasury (2024).
37. The OECD collects data on AI incidents, which can be accessed here: OECD.
38. See Aldasoro, Doerr, Gambacorta, Notra, Oliviero and Whyte (2024).
39. BOE and FCA (2024) found from their industry survey that the highest perceived benefits of AI include its use for cyber security.
40. See US Department of the Treasury (2024).
41. See World Economic Forum (2024).
42. UK Government (2024) concludes that currently, there is not yet any substantial evidence suggesting that general purpose AI can automate sophisticated cyber security tasks.
43. New York Department of Financial Services (2024b) provides guidance to financial institutions on how to manage cyber security and related risks arising from AI.
44. See FSB (2023).
45. UK Government (2024) highlights disagreement within the global AI scientific community on whether AI technology will continue to develop and advance.
46. See G20 (2019).
47. This position was also reflected in subsequent G20 Leaders' Statements in 2019 (Japan), 2020 (Saudi Arabia), 2021 (Italy), 2022 (Indonesia), 2023 (India) and 2024 (Brazil). See the Center for AI and Digital Policy (CAIDP).
48. The Hiroshima AI Process was launched in May 2023. More details can be found on its official website: soumu.go.jp.
49. See G7 (2023a,b,c).
50. See UNESCO (2022).
51. See UN (2024a).

52. This was put together by the UN Secretary General's High-level Advisory Body on AI. See UN (2024b) and www.un.org/en/ai-advisory-body/about.
53. Recommendations for policymakers include investing in AI research and development; fostering an inclusive AI-enabling ecosystem; shaping and enabling an interoperable governance and policy environment for AI; building human capacity preparing for labour market transition; and international cooperation on trustworthy AI.
54. Regulatory treatment may vary by the type of client (wholesale versus retail) of financial institutions. In the insurance sector, the use of AI by reinsurers with respect to their clients, primary insurers, may not attract the same level of regulatory scrutiny as AI use cases that impact retail policyholders.
55. Different authorities may use other terms to characterise similar concepts or may group certain concepts together (eg. reliability/soundness under fairness). Prenio and Yong (2021) use authors' judgment in naming or distinguishing the different concepts.
56. Aldasoro, I, L Gambacorta, A Korinek, V Shreeti and M Stein (2024) define AI agents as AI systems that build on advanced LLMs such as GPT-4 or Claude 3 and are endowed with planning capabilities, long-term memory and, typically, access to external tools such as the ability to execute computer code, use the internet, or perform market trades.
57. The report scored 10 major foundation developers based on 100 transparency indicators and found that the average score was only 37, with the top score being 54 out of 100.
58. See EBA (2020).
59. See Federal Senate, Brazil (2023).
60. EU AI Act requirement for high-risk AI systems.
61. Qatar Central Bank (2024).
62. NIST (2023).
63. NIST (2023) describes the three major categories of AI bias as follows: "Systemic bias can be present in AI datasets, the organizational norms, practices, and processes across the AI lifecycle, and the broader society that uses AI systems. Computational and statistical biases can be present in AI datasets and algorithmic processes, and often stem from systematic errors due to non-representative samples. Human-cognitive biases relate to how an individual or group perceives AI system information to make a decision or fill in missing information, or how humans think about purposes and functions of an AI system. Human-cognitive biases are omnipresent in decision-making processes across the AI lifecycle and system use, including the design, implementation, operation, and maintenance of AI."
64. See Section 38 of Federal Senate, Brazil (2023).
65. See Article 43 of China's Draft AI Law (see CSET (2024).
66. See Article 73 of the EU AI Act.
67. See Article 18(8) in EU Parliament (2023) and Section 7 in MAS (2018).
68. More recently, however, some financial authorities have issued technology-related regulations (ie. cloud-specific regulations) to address heightened security risks that cloud use brings. In general, however, cloud use is still covered under general IT risk management, operational risk, operational resilience and third-party risk management regulations.
69. National Association of Insurance Commissioners (2023) is a model bulletin that US state insurance regulators can use to enact laws or issue guidelines on the use of AI by insurers. Several US states have issued insurance-specific AI regulations or guidance – see here.
70. See ISO (2023).
71. See NIST (2023).
72. See, for example, BoE-PRA (2023).
73. The guidelines prohibit insurers from using AI in underwriting or pricing unless they can demonstrate that they do not unfairly or unlawfully discriminate against consumers. The guidelines provide detailed steps that insurers need to undertake to make this assessment, including quantitative metrics that should be considered.
74. The OECD provides a catalogue of tools and metrics to assess AI models.
75. See FinRegLab (2021).
76. An example of local SMs is LIME – Local Interpretable Model-agnostic Explanations.
77. In the insurance sector, professional actuarial bodies have issued model risk management guidelines which cover AI models. For example, Financial Reporting Council (2024) provides guidance on model governance, how to identify material biases and limitations of models. It includes a case study on how to communicate the performance of AI models to a non-technical audience. Actuarial Association of Europe (2024) describes approaches to AI explainability including LIME and SHAP.
78. See FinRegLab (2021).
79. See EBA (2023).
80. Broad examples of AI services that third parties may provide to financial institutions include: (i) providing the AI model itself that financial institutions then customise to their use; (ii) processing data from financial institutions using AI models, with the processed data becoming input to financial institutions' own models; and (iii) providing output of AI models to financial institutions, which in turn use it as input to their own models (see, for example, Veritas Initiative (2023)).
81. See MIT-BCG (2023).
82. See IIF-EY (2023).
83. See Cornerstone Advisors (2020).
84. See IAIS (2024a).
85. See, for example, FRB-OCC (2011).
86. Ibid.
87. See Veritas Initiative (2023).
88. See BCBS (2024).
89. See Koh and Prenio (2023).
90. See IAIS (2023a).
91. See Prenio and Restoy (2022).
92. See FinRegLab (2021).
93. See Cornelli et al (2023).
94. See BCBS (2024b).
95. See Barakova et al (2024).
96. See Garcia Ocampo et al (2023).
97. See MAS (2018).
98. See Press Release.
99. Financial institutions are not expected to employ data scientists in order to fully understand LLMs for low-risk use cases. The skills required would also depend on, for example, the regulatory requirements relating to explainability.
100. See BCBS (2024).
101. Some insurers have noted that these providers have significant market power.

References
Accenture (2024): "Banking in the age of generative AI", Research Report, February.
Actuarial Association of Europe (2024): "What should an actuary know about artificial intelligence?", AAE Discussion Paper, January.
Ahmed, N, M Wahed and N Thompson (2023): "The growing influence of industry in AI research", Science Journal, vol 379, no 6635, pp 884–86.
Aldasoro, I, S Doerr, L Gambacorta, S Notra, T Oliviero and D Whyte (2024): "Generative artificial intelligence and cyber security in central banking", BIS Papers, no 145, May.
Aldasoro, I, L Gambacorta, A Korinek, V Shreeti and M Stein (2024): "Intelligent financial system: how AI is transforming finance", BIS Working Papers, no 1194, June.
Bank for International Settlements (BIS) (2024): Annual Economic Report, June.
Bank of England (2022): "Artificial Intelligence and machine learning", Discussion Papers, no 5/22, October.
——— (2024): "Engaging with the machine: AI and financial stability", speech by Sarah Breeden at the HKMA-BIS Joint Conference on Opportunities and Challenges of Emerging Technologies in the Financial Ecosystem, 31 October.
Bank of England-Prudential Regulation Authority (BoE-PRA) (2023): "Model risk management principles for banks", Supervisory Statements, no SS1/23, May.
Bank of England (BOE) and Financial Conduct Authority (FCA) (2024): Artificial intelligence in UK financial services – 2024, November.
Barakova, I, J Ehrentraud and L Leposke (2024): "A two-sided affair: banks and tech firms in banking", FSI Insights on policy implementation, no 60, October.
Basel Committee on Banking Supervision (BCBS) (2022): Newsletter on artificial intelligence and machine learning, March.
——— (2024): "Digitalisation of finance", BCBS Working Papers, May.
Calabia, C (2024): AI: transforming the future or triggering fear? Generative artificial intelligence and its impact on financial consumers and regulators, March.
Center for Security and Emerging Technology (CSET) (2024): Translation of the artificial intelligence law of the People's Republic of China, May.
Consumer Financial Protection Bureau (CFPB) (2022): "Adverse action notification requirements in connection with credit decisions based on complex algorithms", Consumer Financial Protection Circular 2022-03, May.
Cornelli, G, J Frost, L Gambacorta, R Rau, R Wardrop and T Ziegler (2023): "Fintech and big tech credit: drivers of the growth of digital lending", Journal of Banking & Finance, vol 148:106742, March.
Cornerstone Advisors (2020): "Credit modelling and the need for speed: the case for advanced technologies", Research Report.
European Banking Authority (EBA) (2020): Report on big data and advanced analytics, January.
——— (2021): "EBA discussion paper on machine learning for IRB models", EBA/DP/2021/04, November.
——— (2023): "Machine learning for IRB models: follow-up report from the consultation on the discussion paper on machine learning for IRB models", EBA/REP/2023/28, August.
European Central Bank (ECB) (2024): Financial Stability Review, May.
European Commission (2019): Ethics guidelines for trustworthy AI, April.
European Insurance and Occupational Pensions Authority (EIOPA) (2021): Artificial intelligence governance principles: towards ethical and trustworthy artificial intelligence in the European insurance sector, June.
——— (2024): Report on the digitalisation of the European insurance sector, April.
European Parliament (2023): "EU Directive 2023/2225 on credit agreements for consumers and repealing Directive 2008/48/EC", Official Journal of the European Union, October.
——— (2024): Artificial Intelligence Act, March.
Evident (2024): Evident AI talent report, July.
Federal Reserve Board and Office of the Comptroller of the Currency (FRB-OCC) (2011): "Supervisory guidance on model risk management", SR Letter 11-7 Attachment, April.
Federal Senate, Brazil (2023): "Bill no 2338, of 2023", May.
Federal Trade Commission (2024): "FTC launches inquiry into generative AI investments and partnerships", 25 January.
Financial Action Task Force (FATF) (2021): Opportunities and challenges of new technologies for AML/CFT, July.
Financial Reporting Council (2024): Technical actuarial guidance – models, October.
Financial Stability Board (FSB) (2017): Artificial intelligence and machine learning in financial services – market developments and financial stability implications, November.
——— (2023): Enhancing third-party risk management and oversight – a toolkit for financial institutions and financial authorities, December.
——— (2024): The financial stability implications of artificial intelligence, November. Financial Stability Oversight Council (FSOC) (2023): Annual Report, December.
FinRegLab (2021): The use of machine learning for credit underwriting, September.
Forrester (2023): The total economic impact of IBM Watson Assistant, April.
G7 (2023a): Hiroshima Process international guiding principles for organizations developing advanced AI system, October.
——— (2023b): Hiroshima Process code of conduct for organizations developing advanced AI system, October.
——— (2023c): Hiroshima Process international guiding principles for all AI actors, December.
G20 (2019): G20 ministerial statement on trade and digital economy, June.
Garcia Ocampo, D, J Taneja, J Yong and J Zhu (2023): "From clicks to claims: emerging trends and risks of big techs' foray into insurance", FSI Insights on policy implementation, no 51, August.
Grobelnik, M, K Perset and S Russell (2024): "What is AI? Can you make a clear distinction between AI and non-AI systems?", OECD.AI, 6 March.
Gulley, A and A Hilliard (2024): Lost in transl(A)t(I)on: differing definitions of AI, February.
Hong Kong Monetary Authority (HKMA) (2022): "Artificial intelligence-based regtech solutions", Regtech Adoption Practice Guide, no 6, April.
——— (2024a): Consumer protection in respect of use of generative artificial intelligence, August.
——— (2024b): Generative artificial intelligence in the financial services space, September.
IIF-EY (2023): IIF-EY annual survey report on AI/ML use in financial services: public summary, December.
International Association of Insurance Supervisors (IAIS) (2023a): Issues paper on insurance sector operational resilience, May.
——— (2023b): Regulation and supervision of AI/ML in insurance: a thematic review, December.
——— (2024a): Draft application paper on the supervision of artificial intelligence, November.
——— (2024b): Holistic framework for systemic risk in the insurance sector global monitoring exercise December 2024 (forthcoming), December.
International Monetary Fund (IMF) (2023): "Generative artificial intelligence in finance: risk considerations", Fintech Notes, August.
International Organization for Standardization (ISO) (2023): Information technology – artificial intelligence – guidance on risk management, ISO/IEC 23894:2023, February.
JPMorgan Chase (2024): "2024 Investor day transcript", JPMorgan Chase & Co, May.
Koh, T Y and J Prenio (2023): "Managing cloud risk – some consideration for the oversight of critical service providers in the financial sector", FSI Insights on policy implementation, no 53, November.

KPMG LLP (2023): The generative AI advantage in financial services, August.
Ladva, P and A Grasso (2024): "The evolution of AI in the insurance industry", 2 May.
Marsch & McLennan Companies (2019): Artificial intelligence applications in financial services: asset management, banking and insurance.
McKinsey (2024): "Scaling gen AI in banking: choosing the best operating model", 20 March.
MIT Sloan Management Review and Boston Consulting Group (MIT-BCG) (2023): "Building robust RAI programs as third-party AI tools proliferate", findings from the 2023 Responsible AI Global Executive Study and Research Project, 20 June.
Monetary Authority of Singapore (MAS) (2018): Principles to promote fairness, ethics, accountability and transparency (FEAT) in the use of artificial intelligence and data analytics in Singapore's financial sector, November.
National Association of Insurance Commissioners (2023): "Use of artificial intelligence systems by insurers", NAIC Model Bulletin, December.
National Institute of Standards and Technology (NIST) (2021): "Four principles of explainable artificial intelligence", Interagency or Internal Report 8312, September.
——— (2023): Artificial Intelligence risk management framework (AI RMF 1.0), January.
New York Department of Financial Services (2024a): "Use of artificial intelligence systems and external consumer data and Information sources in insurance underwriting and pricing", Insurance Circular Letter no 7, July.
——— (2024b): "Cybersecurity risks arising from artificial intelligence and strategies to combat related risks", Industry Letter, October.
NVIDIA (2024): "State of AI in financial services", Survey Report.
OECD (2021): Artificial intelligence, machine learning and big data in finance: opportunities, challenges, and implications for policy makers, August.
——— (2023): "Generative artificial intelligence in finance", OECD Artificial Intelligence Papers, no 9, December.
——— (2024a): "Explanatory memorandum on the updated OECD definition of an AI system", OECD Artificial Intelligence Papers, no 8, March.
——— (2024b): "Regulatory approaches to artificial intelligence in finance", OECD Artificial Intelligence Papers, no 24, September.
Oracle (2024): Anti–money laundering AI explained, August.
Perez-Cruz, F and HS Shin (2024): "Testing the cognitive limits of large language models", BIS Bulletin, no 83, January.
Prenio, J (2024): "Peering through the hype – assessing suptech tools' transition from experimentation to supervision", FSI Insights on policy implementation, no 58, June.
Prenio, J and F Restoy (2022): "Safeguarding operational resilience: the macroprudential perspective", FSI Briefs, no 17, August.
Prenio, J and J Yong (2021): "Humans keeping AI in check – emerging regulatory expectations in the financial sector", FSI Insights on policy implementation, no 35, August.
Qatar Central Bank (2024): Artificial Intelligence guideline, September.
Reinsurance Group of America (RGA) (2024): Global claims fraud survey.
Stanford University (2024a): Artificial intelligence index report 2024, April.
——— (2024b): The foundation model transparency index v 1.1, May.
Statista (2023): "Global generative AI revenue 2023 \| Statista", October.
——— (2024): "Financial sector AI spending worldwide 2023, with forecasts to 2027", 19 June.
The Economist Intelligence Unit (2022): "Banking on a game-changer: AI in financial services".
UK Government (2024): "International scientific report on the safety of advanced AI", Interim Report, May. UNESCO (2022): Recommendation on the ethics of artificial intelligence, January.
United Nations (2024a): Seizing the opportunities of safe, secure and trustworthy artificial intelligence systems for sustainable development, UN Resolution A/78/L.49, March.
——— (2024b): Governing AI for humanity, September.
US Department of the Treasury (2024): Managing artificial intelligence-specific cybersecurity risks in the financial services sector, March.
Veritas Initiative (2023): "FEAT Principles assessment case studies", Veritas Document 6, June.
West, S (2023): "Competition authorities need to move fast and break up AI", Financial Times, 17 April.
World Economic Forum (2024): "Global cybersecurity outlook 2024", Insight Report in collaboration with Accenture, January.

We are extremely grateful to Iñaki Aldasoro, Gengli Cheng, Leonardo Gambacorta, Ulf Lewrick, Aristides Andrade Cavalcante Neto, Sibel Oezcan, Alain Otaegui, Joe Perry, Brendan Rowan, Vatsala Shreeti, Monika Spudic, Yuta Takanashi and Hanne van Voorden. Graham Austin and Lara Sousa Faria provided helpful research support, while Anna Henzmann provided valuable administrative support.

FSI Insights are written by members of the Financial Stability Institute (FSI) of the Bank for International Settlements (BIS), often in collaboration with staff from supervisory agencies and central banks. The papers aim to contribute to international discussions on a range of contemporary regulatory and supervisory policy issues and implementation challenges faced by financial sector authorities. The views expressed in them are solely those of the authors and do not necessarily reflect those of the BIS or the Basel-based committees.

This article is based on FSI Insights on policy implementation No 63.

Artificial intelligence and stability

Jon Danielsson is Director of the Systemic Risk Centre at the London School of Economics and Political Science

Private-sector financial institutions are rapidly adopting artificial intelligence (AI), motivated by promises of significant efficiency improvements. While these developments are broadly positive, AI also poses threats – which are poorly understood – to the stability of the financial system.

The implications of AI for financial stability are controversial. Some commentators are sanguine, maintaining that AI is just one in a long line of technological innovations that are reshaping financial services without fundamentally altering the system.

According to this view, AI does not pose new or unique threats to stability, so it is business as usual for the financial authorities. An authority taking this view will likely delegate AI impact analysis to the IT or data sections of the organisation. I disagree with this. The fundamental difference between AI and previous technological changes is that AI makes autonomous decisions rather than merely informing human decision-makers. It is a rational maximising agent that executes the tasks assigned to it, one of Norvig and Russell's (2021) classifications of AI.

Compared to the technological changes that came before, this autonomy of AI raises new and complex issues for financial stability. This implies that central banks and other authorities should make AI impact analysis a core area in their financial stability divisions, rather than merely housing it with IT or data.

AI and stability

The risks AI poses to financial stability emerge at the intersection of AI technology and traditional theories of financial system fragility. AI excels at detecting and exploiting patterns in large datasets quickly, reliably, and cheaply.

However, its performance depends heavily on it being trained with relevant data, arguably even more so than for humans. AI's ability to respond swiftly and decisively – combined with its opaque decision-making process, collusion with other engines, and the propensity for hallucination – is at the core of the stability risks arising from it.

AI gets embedded in financial institutions by building trust through performing very simple tasks extremely well. As it gets promoted to increasingly sophisticated tasks, we may end up with the AI version of the Peter principle.

AI will become essential, no matter what the senior decision-makers wish. As long as AI delivers significant cost savings and increases efficiency, it is not credible to say, 'We would never use AI for this function' or 'We will always have humans in the loop'.

It is particularly hard to ensure that AI does what it is supposed to do in high-level tasks, as it requires more precise instructions than humans do. Simply telling it to 'keep the system safe' is too broad. Humans can fill those gaps with intuition, broad education, and collective judgement. Current AI cannot.

A striking example of what can happen when AI makes important financial decisions comes from Scheurer *et al* (2024), where a language model was explicitly instructed to both comply with securities laws and to maximise profits. When given a private tip, it immediately engaged in illegal insider trading while lying about it to its human overseers.

Financial decision-makers must often explain their choices, perhaps for legal or regulatory reasons. Before hiring someone for a senior job, we demand that the person explain how they would react in hypothetical cases. We cannot do that with AI, as current engines have limited explainability – to help humans understand how AI models may arrive at their conclusions – especially at high levels of decision-making.

AI is prone to hallucination, meaning it may confidently give nonsense answers. This is particularly common when the relevant data is not in its training dataset. That is one reason why we should be reticent about using AI to generate stress-testing scenarios.

AI facilitates the work of those who wish to use technology for harmful purposes, whether to find legal and regulatory loopholes, commit a crime, engage in terrorism, or carry out nation-state attacks. These people will not follow ethical guidelines or regulations.

Regulation serves to align private incentives with societal interests (Dewatripont and Tirole 1994). However, traditional

"AI will bring substantial benefits to the financial system – greater efficiency, improved risk assessment, and lower costs for consumers. But it also introduces new stability risks that should not be ignored"

regulatory tools – the carrots and sticks – do not work with AI. It does not care about bonuses or punishment. That is why regulations will have to change so fundamentally.

Because of the way AI learns, it observes the decisions of all other AI engines in the private and public sectors. This means engines optimise to influence one another: AI engines train other AI for good and bad, resulting in undetectable feedback loops that reinforce undesirable behaviour (see Calvano *et al* 2019). These hidden AI-to-AI channels that humans can neither observe nor understand in real time may lead to runs, liquidity evaporation, and crises.

A key reason why it is so difficult to prevent crises is how the system reacts to attempts at control. Financial institutions do not placidly accept what the authorities tell them. No, they react strategically.

And even worse, we do not know how they will react to future stress. I suspect they do not even know themselves. The reaction function of both public- and private-sector participants to extreme stress is mostly unknown.

That is one reason we have so little data about extreme events. Another is that crises are all unique in detail. They are also inevitable since 'lessons learned' imply that we change the way in which we operate the system after each crisis. It is axiomatic that the forces of instability emerge where we are not looking.

AI depends on data. While the financial system generates vast volumes of data daily – exabytes' worth – the problem is that most of it comes from the middle of the distribution of system outcomes rather than from the tails. Crises are all about the tails.

This lack of data drives hallucination and leads to wrong-way risk. Because we have so little data on extreme financial-system outcomes and since each crisis is unique, AI cannot learn much from past stress.

Also, it knows little about the most important causal relationships. Indeed, such a problem is the opposite of what AI is good for. When AI is needed the most, it knows the least, causing wrong-way risk.

The threats AI poses to stability are further affected by risk monoculture, which is always a key driver of booms and busts. AI technology has significant economies of scale, driven by complementarities in human capital, data, and compute. Three vendors are set to dominate the AI financial analytics space, each with almost a monopoly in their specific area.

The threat to financial stability arises when most people in the private and public sectors have no choice but to get their understanding of the financial landscape from a single vendor. The consequence is risk monoculture.

We inflate the same bubbles and miss out on the same systemic vulnerabilities. Humans are more heterogeneous, and so can be more of a stabilising influence when faced with serious unforeseen events.

AI speed and financial crises

When faced with shocks, financial institutions have two options: run (ie. destabilise) or stay (ie. stabilise). Here, the strength of AI works to the system's detriment, not least because AI across the industry will rapidly and collectively make the same decision.

When a shock is not too serious, it is optimal to absorb and even trade against it. As AI engines rapidly converge on a 'stay' equilibrium, they become a force for stability by putting a floor under the market before a crisis gets too serious.

Conversely, if avoiding bankruptcy demands swift, decisive action, such as selling into a falling market and consequently destabilising the financial system, AI engines collectively will do exactly that. Every engine will want to minimise losses by being the first to run.

The last to act faces bankruptcy. The engines will sell as quickly as possible, call in loans, and trigger runs. This will make a crisis worse in a vicious cycle.

The very speed and efficiency of AI means AI crises will be fast and vicious (Danielsson and Uthemann 2024). What used to take days and weeks before might take minutes or hours.

Policy options

Conventional mechanisms for preventing and mitigating financial crises may not work in a world of AI-driven markets. Moreover, if the authorities appear unprepared to respond to AI-induced shocks, that in itself could make crises more likely.

The authorities need five key capabilities to effectively respond to AI:

1. Establish internal AI expertise and build or acquire their own AI systems. This is crucial for understanding AI, detecting emerging risks, and responding swiftly to market disruptions.

2. Make AI a core function of the financial stability divisions, rather than placing AI impact analysis in statistical or IT divisions.

3. Acquire AI systems that can interface directly with the AI engines of financial institutions. Much of private-sector

finance is now automated. These AI-to-AI API links allow benchmarking of micro-regulations, faster detection of stress, and more transparent insight into automated decisions.

4. Set up automatically triggered liquidity facilities. Because the next crisis will be so fast, a bank AI might already act before the bank CEO has a chance to pick up the phone to respond to the central bank governor's call. Existing conventional liquidity facilities might be too slow, making automatically triggered facilities necessary.

5. Outsource critical AI functions to third-party vendors. This will bridge the gap caused by authorities not being able to develop the necessary technical capabilities in-house. However, outsourcing creates jurisdictional and concentration risks and can hamper the necessary build-up of AI skills by authority staff.

Conclusion

AI will bring substantial benefits to the financial system – greater efficiency, improved risk assessment, and lower costs for consumers. But it also introduces new stability risks that should not be ignored. Regulatory frameworks need rethinking, risk management tools have to be adapted, and the authorities must be ready to act at the pace AI dictates.

How the authorities choose to respond will have a significant impact on the likelihood and severity of the next AI crisis. ■

References
Calvano, E, V Denicolo, G Calzolari, and S Pastorello (2019), "Artificial intelligence, algorithmic pricing, and collusion", VoxEU.org, 3 February.
Danielsson, J, and A Uthemann (2024), "AI financial crises", VoxEU.org, 26 July.
Dewatripont, M, and J Tirole (1994), The prudential regulation of banks, Vol. 6, Cambridge, MA: MIT Press.
Norvig, P, and S Russell (2021), Artificial intelligence: A modern approach, London: Pearson.
Scheurer, J, M Balesni, and M Hobbhahn (2024), "Technical report: Large language models can strategically deceive their users when put under pressure".

This article was originally published on VoxEU.org.

Isle of Man Ship Registry

A Ship Registry that adds real value

- High quality British Red Ensign Register
- Politically and financially stable jurisdiction
- World-class technical expertise
- Preferred flag by banks and insurers
- Consolidated annual fees - simple and competitive – including Green Ship Incentives
- Personal customer service and 24/7 emergency response
- Industry leading online systems – including digital certificates and online processes
- Advanced remote inspection technology
- First of its kind Crew Welfare app

Scan here to read the full brochure

iomshipregistry.com
shipping@gov.im
+44 (0) 1624 688500

To download EQ Europe Quarterly Spring 2025, a fully interactive review of European trade and finance for the last quarter, visit

worldcommercereview.com